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INSIGHT
THE CONDITION OF OUR RIVERS
A thematic engagement

INTRODUCTION

England's rivers are in trouble.

The Environment Agency's periodic review into the state of English waters has found that just 14% meet 'Good Ecological Status' under the Water Framework Directive – a figure that has not changed since 2009.

The Agency records that there has been progress in some areas, and fall back in others. We know this is an issue that is important, but it is one that is mostly off the radar for investors.

We wanted to explore what we could do, and how we could engage on a subject that appears unduly neglected by the capital markets. In January 2022 the House of Commons Environmental Audit Committee's report on Water Quality in Rivers went so far as to say *'a 'chemical cocktail' of sewage, agricultural waste, and plastic is polluting the waters of many of the country's rivers. Water companies appear to be dumping untreated or partially treated sewage in rivers on a regular basis, often breaching the terms of permits that on paper only allow them to do this in exceptional circumstances'*.

As responsible investors in the equity and fixed interest markets, we felt uniquely able to look further into this subject; as investors in eight of the integrated English and Welsh water and waste water treatment utilities we were in a position to engage with the majority of the sector specifically on river quality and pollution – to compare and contrast, and to understand for ourselves some of the drivers for the deterioration in river health.

The research and engagement for this Insight was carried out in January and February of 2022, and we express our thanks to all who contributed; acknowledgements are set out at the end of the report.

We feel strongly that investors have a role to play here in navigating public policy to inform and engage the regulator (Ofwat) parliamentarians, the Environment Agency and of course water utilities. Continuing a regulatory model that does not focus enough on environmental investment will lead over time to the continual erosion of a viable river based ecology – one that is harmful to wildlife and of little attraction to the public.

As the Environmental Audit Committee said: *'A step change in regulatory action, water company investment, and cross-catchment collaboration with farmers and drainage authorities is urgently required to restore rivers to good ecological health, protect biodiversity and adapt to a changing climate. Investment must be accelerated so that damaging discharges from water treatment assets including storm overflows cease and that any spills occur only in genuinely exceptional circumstances'*.

As the next five year regulatory period approaches (AMP8 – Asset Management Plan 2025-2030) now is the time to recalibrate the investment needed to improve the health of our rivers. Now is the time to act, and investors have a role in pushing for the highest possible level of ambition!

ENGLISH & WELSH RIVERS

There are approximately 240,600km of discrete watercourses, rivers and streams in England and Wales, of which around 200,000km are in England. These range from the major arterial trunk routes such as the Severn (354km), Thames (346km) Trent (297km) and Great Ouse (230km), to 160 globally important chalk streams which are England's unique contribution to global ecology hosting 76% of the recognised global total.

Rivers are critically important to a healthy, balanced ecology, carrying water and nutrients and draining a majority of the land surface; they are of importance too as an amenity, means of transport and commerce. Rivers provide the main habitat for a wide range of animals and organisms that mutually thrive when river health is good.

Water quality in our rivers has generally improved over the last 20 years or so despite the perception it has declined. Since 1995 some of the worst pollutants in our rivers have been cut dramatically: ammonia levels are down 70%[1] and phosphates down 60%[1]. Toxic metals have been reduced, and pollution incidents have been cut by almost two thirds: this is hugely positive.

An indication of improving quality is the increase in small animals living in rivers such as snails, worms and insects; the removal of unnecessary weirs has improved spawning allowing the likes of eels, fish and otters to recover. The presence of apex mammals in the Thames Estuary is testament to the hard work cleaning up the post-industrial tidal Thames; a colony exceeding 2,000 grey seals now make the mudflats of the Thames Estuary their breeding ground.

However, the cumulative balance sheet also shows nitrates have fallen less slowly over the last 20 years, and have actually risen in the last two. Excessive nitrate levels disturb the balance of oxygen in the water causing an over-abundance of algae affecting and 'choking' other wildlife. The last five years has also seen a steady rise in the number of water pollution incidents, from fewer than 6,500 in 2015 to almost 7,600 in 2019. Most of these have been caused by water and sewage companies and agriculture, although serious pollution incidents, fortunately, have reduced.

According to the Environment Agency, after two decades of improvement, the quality of water in our rivers is now flat-lining. **Only 14% of our rivers meet Good Ecological Status under the Water Framework Directive**, and this figure has not changed since 2009.

[1]https://environmentagency.blog.gov.uk/2020/10/02/the-state-of-our-waters-the-facts/
The state of our waters: the facts - Creating a better place (blog.gov.uk)

THE PUBLIC MOOD WANTS CHANGE

Public awareness that river health is in trouble has been growing. Rivers have always been popular in terms of their amenity value and as a positive for mental health, but perhaps COVID did more than anything to reinforce an emotional attachment to waterways and river-scapes as places of tranquillity and peace and where people can connect with nature. That all is not well has been magnified by an energetic national media campaign led by *The Times, Financial Times* and *Daily Telegraph*. For several months they have reported in depth on pollution incidents and their impact on rivers.

The Times reported in November 2021 that thousands of sewage plants were under investigation by the Environment Agency and Ofwat, citing the pollution of Britain's rivers as a major issue of public trust. Compliance at over 2,000 individual infrastructure plants owned by the 10 integrated utilities was seen by the *Financial Times* as placing them in breach of their permits which only allowed river dispersal at times of extreme rainfall. Pressure applied by the media and public campaigns led by Surfers against Sewage claimed success in October for forcing a U-turn by the Government to enforce a duty on water companies to secure 'a progressive reduction in the adverse impacts of discharges from storm over-flows'.

A *Times* leader from October 2021 noted that effluent was discharged into water-ways 400,000 times in 2020, with a fifth of all storm overflows discharging more than 60 times a year on average according to the Rivers Trust. The leader concluded *'the Government is not responsible for the parlous state of the water industry's infrastructure. Keeping water bills down has been prioritised over proper capital investment for too long'*. An interesting point was made in this regard; on average tap water costs 0.1p a litre in the UK compared to 65p for bottled water. In 2019 whilst consumers spent £3.3bn on drinking water, they spent £16bn on bottled water and soft drinks. Surely bills could afford to rise a little? A different tact promoted by *The Times* was to look at the inadequacy of regulation – with the Environment Agency put under the microscope for 'failing' to detect thousands of illegal spills. A report by Windrush against Sewage Pollution looked at official records against analysed spills showing that 95% of breaches at 13 Thames Water sewage treatment works were not recorded by the Agency. A spokesperson for Fish Legal claimed water companies were *'hiding in plain sight'*. *The Times* ran a leader in September 2020 lamenting the impunity of water company immunity to sanction, and the lamentable failure on the part of the Environment Agency to bring them to book with adequate fines and penalties. *Country Life* with its active and voluble rural constituency, reported similarly that pollution poured into rivers and seas for 3.1 million hours in 2020.

This mounting evidence-based campaign followed hot on the heels of Southern Water being fined £90m in July 2021 for *'deliberately dumpling billions of litres of sewage into the sea'* and was a record four times the previous maximum fine handed down to Thames Water in 2017 which the judge in that case had condemned as 'borderline deliberate'. In the Southern Water case, the judge stated that the company *'had shown a shocking disregard for the environment…for human health'* and had a record of 'criminality' owing to its *'persistent pollution of the environment over many years'*. In early 2022 *The Times* reported that one of the first approved designated bathing spots along the River Wharfe in Ilkley, was encountering dangerous bacteria levels associated with upstream spills from a Yorkshire Water pumping station overwhelmed during heavy rainfall. The paper also analysed the worst areas for illegal spills with a map showing The River Tame in the West Midlands was worst affected with 308 spills, the River Thames was second with 249, and The River Mole in Surrey and Sussex, third with 223. Whilst Wales has suffered less than England, it has not been immune from criticism. The Times reported in February 2002 that a 22% decline in the otter population was raising fears that river health is declining in Wales, with the worst affected being the Conwy, Loughor and Teifi water courses.

It has not all been bad news. Severn Trent was widely applauded in February 2022 for being on track to invest £500m in river clean up, whilst a changing mood revealed that on top of £3.1bn investment in overflows between 2020-25, the water industry will be expected to invest heavily in the AMP 2025-30 period, and *'significantly reduce the frequency and volume of sewage discharges from storm overflows'*. Sites subject to the most frequent breaches are to be prioritised.

Finally the regulator made an unusual intervention in February 2022 as The Times reported 'stop sewage spills or cut bonuses, water firms told'. Ofwat, writing to the 10 Remuneration Committee chairs demanded that executive bonuses be linked to spill data – something we at EdenTree took into account at South West Water (Pennon Group) in 2021 where Chief Executive, Susan Davy, was awarded a £1.2m bonus despite a very poor pollution record. South West Water was heavily criticised by the *Financial Times* in February 2022 where its *'dismal record on pollution is one of a number of dubious distinctions for its owner Pennon Group'* which included ramping up debt, having among the highest bills in the sector, and the worst record on leakage.

Since at least the middle of 2020 the UK media has waged a relentless campaign of hostility against the water industry, the regulator, the Environment Agency and the Government for their combined failure to improve the environment. It is in that context that as investors we felt we needed to understand more and act.

'Water firms must pay to keep rivers free of sewage' *The Times, 2/2/22*

'Thousands of sewage spills ruin rivers' *The Times, 19/01/22*

'Water company ready to spend £500m cleaning up rivers' *The Times, 3/2/22*

'Decline in otters raises fears over health of rivers' *The Times, 1/2/22*

'Water providers face flood of protest' *The Financial Times, 29/12/21*

'First bathing spot too dirty for a swim' *The Times, 20/1/22*

'Sewage set to eat into water chiefs' bonuses' *The Times, 15/1/22*

'South West Water faces flood of indignation' *The Financial Times, 21/2/22*

'Chicken manure link to pollution in river' *The Times, 18/2/22*

STAKEHOLDER VOICE:
ALICE DEARING, BRITISH OLYMPIC SWIMMER

Just as we have been pioneers in the delivery of responsible and sustainable investment opportunities, Alice has been demonstrating her pioneering spirit in the world of open water swimming and became the first black woman to represent Team GB in the sport.

Water is a big part of your life and career. How important to you is the health of our waterways?

Water is a giver of life and a key part of the ecosystem, creating the opportunity for life to grow and flourish. This very much includes human life, allowing us to live to our fullest. More and more people use our rivers for the mental and physical wellbeing effects they bring. The health of our waterways is essential for our communities to have areas of beauty for generations to enjoy.

What do you think is the effect on people's wellbeing if our rivers are polluted?

Pollution in water can seriously damage and affect people's health as we have seen here in the UK. Rivers are a key part of the water cycle and the cleanliness is crucial to public and ecosystem health. To have people suffer from ill health because of water pollution is a serious concern. So is its damaging effects on biodiversity. Changing this is something which we can all play a part in.

Do you do anything to help raise awareness of the importance of keeping our rivers clean and healthy?

Working with EdenTree has given me a great opportunity to speak about issues that have always concerned me – such as water pollution and the preservation of the environment. I hope that over the course of our partnership and beyond I can do my part to raise awareness of the importance of river cleanliness and ecosystem health.

As a professional swimmer, how much of a difference does the cleanliness of a river make in terms of performance?

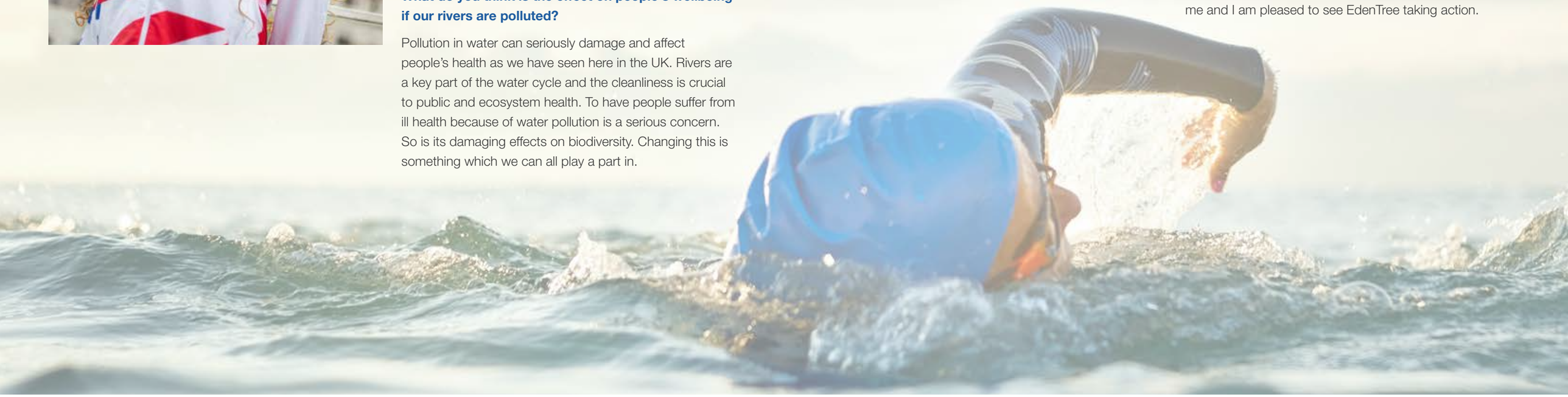
Water which is clean enough to drink whilst racing is the dream. Racing 10km is challenging and often means swimming in waters which are not drinkable. It is a nice thought that we could compete in water where we could drink safely as we go, but I am not sure how practical that actually is!

If the cleanliness of a river is particularly bad, what are the physical risks for you as a swimmer?

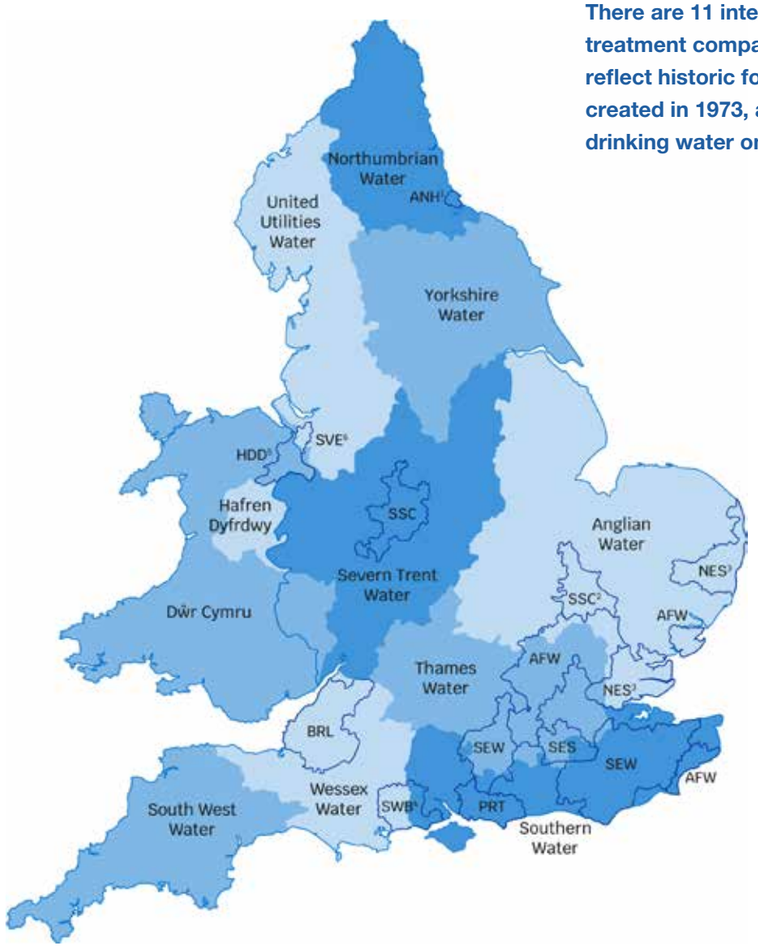
There are a range of risks and dangers which swimmers may put themselves under when swimming in polluted water. These are things such as: skin infections, external organ infections, exposure to e-coli, gastro-intestinal problems and other issues. In the events which I have participated in there has been a requirement to have the water to an acceptable standard of cleanliness - either 'drinkable' to 'acceptable'. The Outdoor Swimming Society has written about the issues to watch out for and how to keep safe when swimming – it is important to follow these!

How do you think stakeholders can contribute to maintaining the health of rivers?

We can all contribute by making conscious choices about the businesses we support and invest in. Everyone has the potential to make a positive change on issues which are important to them, for example by taking an active role in their community or by choosing to invest responsibly and sustainably. As a water-lover, this topic is very important to me and I am pleased to see EdenTree taking action.



THE WATER UTILITY AREAS: ENGLAND & WALES



There are 11 integrated water and waste water treatment companies in England and Wales. These reflect historic former Water Board monopoly areas created in 1973, and are complemented by five drinking water only companies.

Water privatisation in England & Wales was among the most controversial of the major privatisations of the 1980s as it was based on incentivising investment rather than enhancing consumer choice. Consumers still cannot choose their water provider in the same way they can for energy. As a result Scottish Water was never privatised, and Wales opted for a mutual-ownership model.

Since privatisation in 1989 a regulatory framework has been in place in England and Wales to ensure that consumers receive high standards of service at a fair price.

- **DEFRA** sets the overall water and sewerage policy framework in England, with the Welsh Government fulfilling the same role in Wales.
- **Ofwat** is the economic regulator of the water and sewerage sector, and is responsible for protecting the interests of consumers, and ensuring companies can properly carry out and finance their functions. This includes controlling the prices companies can charge customers, through a review of pricing every five years (the AMP).
- **The Environment Agency** and **Natural Resources Wales** are the environmental regulators in England and Wales respectively. Both have powers to issue penalties and prosecute for poor environmental management.

The Asset Management Plan (AMP) is a five-year time period used by the water industry to define investment, linked to the price reviews conducted by Ofwat. The current period is AMP 7 (2020-2025), and the price reviews are carried out in the year preceding the start of a new AMP. Ofwat is currently working on the price review for 2024 (PR24), which will set price controls and service targets for water and sewerage companies for 2025 to 2030. As the next regulatory period approaches, now is the time to recalibrate the investment our rivers need and indeed the Government has **recently published** its strategic priorities for Ofwat which places a much greater emphasis on protecting the environment.

Given water utilities are regulated businesses, with consistent cash flow and predictable returns they became attractive assets to own for pension funds and infrastructure investors. As a result, over time much of the English water sector was acquired leaving just three publicly listed companies: Severn Trent, United Utilities and Pennon Group (South West Water). Anglian Water and Yorkshire Water were taken private in 2008 and Northumbrian Water and Wessex Water as long ago as 1995 and 1998 respectively.

OUR ENGAGEMENT WITH THE SECTOR

We invest in eight water and waste water utilities across all portfolios and mandates, and we engaged with all eight: Anglian Water, Dwr Cymru (Welsh Water), Severn Trent, Southern Water, South West Water (Pennon Group), Thames Water, United Utilities, and Yorkshire Water. Of the integrated majors only Wessex Water and Northumbrian Water are not held in EdenTree portfolios. We also invest in Bristol Water, a water only company and now acquired by Pennon Group.

The Environment Agency (EA) produces an annual assessment of all regulated water and sewerage companies in England, with Natural Resources Wales producing an equivalent assessment for Wales. These findings, below, enable us to compare and contrast performance.

Across our holdings, four have achieved a maximum 4-star EA rating, two have a mid-tier 3-star rating, and two have a low 2-star rating – Southern Water and South West Water. Environmental performance remains patchy with areas of excellence and others that are failing.

Water and sewerage companies Environmental Performance Assessment 2020

Water and sewerage companies	Total pollution incidents per 10,000km[1] (actual)	Serious pollution incidents per 10,000km[1] (actual)	Discharge permit compliance[2] % (failing sites)	Self-reported pollution incidents %	WINEP[3] scheme delivery %	Security of supply index (SoSI)	Overall performance star rating (out of 4)
Anglian Water	28 (210)	1.3 (10)	99.3 (6)	73	100	99	★★★☆
Northumbrian Water	14 (43)	0.3 (1)	99.4 (1)	81	100	100	★★★★
Severn Trent Water[4]	21 (190)	0.1 (1)	99.6 (3)	76	97.2	100	★★★★
Southern Water	102 (400)	1.0 (4)	97.1 (10)	88	87.2	100	★★☆☆
South West Water	131 (225)	1.7 (3)	99.0 (3)	74	100	99	★★☆☆
Thames Water	27 (292)	1.2 (13)	99.7 (1)	63	98	100	★★★☆
United Utilities	19 (143)	0 (0)	99.7 (1)	82	100	100	★★★★
Wessex Water	25 (87)	1.2 (4)	99.1 (3)	85	100	100	★★★★
Yorkshire Water	24 (125)	0.6 (3)	99.0 (3)	81	100	100	★★★★
Sector Av. England	33 (1715)	0.7 (39)	99.2 (31)	77	98.2	99.8	★★★★
Dwr Cymru Welsh Water	21 (77)	0.3 (1)	99.7 (2)	80	100	100	★★★★

Red Significantly worse than target | Amber Slightly worse than target | Green Better than target | R A G Red, amber, green thresholds

Source: Environment Agency & Natural Resources Wales.
Note: These results are drawn in part, from information submitted by the companies and may change as a result of subsequent audits and checking.
[1]of sewer length [2]Numeric sites [3]Water Industry National Environment Programme
[4]Severn Trent Water 2020 data includes one site in Wales.

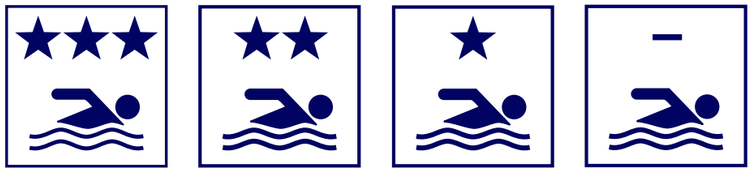
The objective of this thematic engagement was to challenge deteriorating performance and to understand the sector's challenges in improving areas of weakness, particularly:

- The nature of pollution incidents and environmental fines and penalties
- River Quality – perception, challenges, investment and improvement
- Beach quality (where relevant) and investment in sewage outflows etc.
- Biodiversity with an emphasis on impact and adding to biodiversity
- The use of 'nature based solutions' and technology to improve performance
- The regulatory regime and whether this is enabling of investment in river quality
- The role of investors including public policy (government, regulators and Environment Agency)

Beach quality did not form a specific part of our engagement at the outset, but we are cognisant that it forms part of the complex ecology affected by water infrastructure integrity. In England & Wales beach health is largely the responsibility of 'the owner' in most cases the local authority. Litter clearance is often arranged as part of waste collection contracts. The Environment Agency has no enforcement powers over beaches. Water company responsibility extends to spills and pollution events where sewer outflows extend into the marine environment. Perhaps the most renowned was historically the state of Blackpool's beaches on the Fylde coast where regular sewage overflows in the Morecombe Bay area meant this key tourism location suffered from years of blight.

Bathing water quality is ranked across four possible quality ratings from excellent to poor. Quality is only measured during the 'bathing season' (May to September) and is therefore only a partial snapshot of marine health. DEFRA reported that in 2021 of 417 bathing waters in England, 99% met the minimum standard, with 295 rated 'excellent' (71%). Four did not meet the minimum standard and were rated 'poor'. Standards have improved since 2015 when 63.6% were rated 'excellent'. Poor rated bathing waters were located in the Anglian, South West and Northumbrian Water regions. All of the target companies for engagement have substantial coastlines where this is a feature of risk; Severn Trent, as wholly landlocked, is the only company with no bathing water exposure. Individual companies have their own 'clean-up' initiatives such as Anglian Water's BeachCare launched in 2014 which engages local communities to take responsibility for coastal waters.

Symbols for informing on bathing water classification



OUR FINDINGS

Combined Sewer Overflows – only one part of the problem

In recent months, prominent coverage across media outlets on the state of our rivers has largely focused on the damage from Combined Sewer Overflows (CSOs) with reports stating that 'thousands of sewage spills' are responsible for the state of our rivers today.

Whilst stressing that any spill was unacceptable, every company we spoke to explained that in reality CSOs are a relatively small part of the problem. Indeed a number of companies claimed that CSOs only contribute around 4% to river pollution nationally, dropping to 1% in certain regions.

Nevertheless, the public mood has clearly shifted. Despite these outflows being heavily diluted and allowed under the current regulatory regime, many companies explained that they have gone from treating these incidents as 'unavoidable' to 'unacceptable'. To tackle the issue, they are investing in larger storm tanks and treatment works, as well as new technological solutions such as monitoring. For example, Thames Water's 'Super Sewer' (the Tideway Tunnel) will intercept, store and convey all the raw sewage and rainwater that currently overflows into the estuary, largely removing the problem from the reaches of the tidal Thames.

However, companies were keen to emphasise that despite media focus, their investment needed to go beyond just CSOs to tackle the larger causes of pollution – namely asset failure. Investment in infrastructure resilience and maintenance was therefore also a key area of focus.

What are Combined Sewer Overflows (CSOs)?

CSOs are designed to discharge untreated, diluted sewage directly into rivers and watercourses in the event of extreme rainfall to prevent the flooding of homes and businesses. If a treatment plant gets more flow than it can treat, this surplus gets diverted into storm tanks where it is stored until ready to be treated. The problem is when both the works and the storm tanks are full, the works are allowed to discharge the storm water tanks into watercourses. This is a necessary part of the existing sewerage system, preventing the back-up of sewage into households and properties.

The Environment Agency, despite stretched resources, has identified 700 overflows to be investigated and 40 to be improved in the 2020-25 AMP period. This shows something of the scale of the task. The ultimate sanction is enforcement, where companies can be prosecuted for pollution incidents as a result of their failures in non-extreme circumstances; the EA issued four prosecution notices in 2019 with combined fines of £1,297,000.

Agriculture and Urban Run-off – Key Contributors

As noted earlier, since 1995, some of the worst pollutants in our rivers have been cut dramatically: ammonia levels down 70%; phosphates down 60%. Nevertheless, agriculture remains a key part of the problem. Indeed, according to DEFRA, agricultural pollution still accounts for 40% of pollution affecting water bodies.

The message from water companies was clear: they are only one part of the problem and have limited control over what goes into watercourses. Nevertheless, they all illustrated steps they have taken to work with farmers and other actors across their catchment areas to reduce pollution. For example the Severn Trent Environmental Protection Scheme, or STEPS, offers grants to farmers and land managers in their region to invest in tailored solutions to help tackle water pollution, and Thames Water has developed 'Smarter Water Catchments' to co-create solutions with key local stakeholders such as farmers.

In addition to agriculture, urban run-off from towns, cities and transport was cited as another key contribution and accounts for 18% of pollution in our watercourses according to DEFRA. As population and urbanisation increase, we heard of an urgent need to review the current planning system to ensure that sustainable urban drainage – a natural approach to managing drainage in and around developments – is built in by design. This would not only reduce harmful toxins flowing into our rivers, but also help reduce the amount of water in our already overstretched sewer network.

The Role of House Builders

The Berkeley Group has made a number of ambitious commitments to improve the environmental performance of homes built, including the incorporation of sustainable urban drainage systems (SuDs) where possible. As of 2021, over 90% of their developments incorporated SuDs, and they are planning to partner with a water company to undertake a trial on water neutrality at a development site. This is still unusual in the mass house-building sector and is something we will engage further on.

The Role of Customers

One reoccurring theme we have heard from multiple water companies is that CSOs are not the main issue in terms of watercourse pollution and that some of the more serious incidents occur due to blockages resulting from unflushable items such as wet wipes, fats, etc. Thames Water have stated that they have very detailed pollution incident plans and maintenance programmes which are monitored and agreed with the EA. Whereas Severn Trent and Welsh Water spoke about the importance of educating people about plastic and wet wipe pollution and misuse, and nudging customers to avoid flushing these types of products. Many of the companies, including Anglian Water, Welsh Water, and Severn Trent, stressed that they believe one of the most impactful things that could be done is to ban plastic wet wipes, and Anglian Water have said that they are working with the MP for Putney, Fleur Anderson, who is leading a Parliamentary campaign to drive the change. Thames Water reported in February of removing an enormous 'fatberg' weighing 'the size of a bungalow' from a sewer in Canary Wharf, whilst in 2019 they removed a 40 tonne fatberg. Anglian Water said that despite all the effort to drive change, they still collect 100 tonnes of unflushable materials every day, even mattresses.

As 'river quality' is not a defined term – it can mean different things to different stakeholders - companies categorised three types of stakeholders that they have to juggle when it comes to river quality: customers who believe the biggest issue is litter pollution, ecologists who want to see a healthy marine ecosystem, and wild swimmers who want rivers to be free of bacteria or viruses so that they can swim 'risk free'. Most of the companies said that these competing interests can be challenging to reconcile for water companies, as many stated that rivers which are deemed healthy for ecological purposes may not necessarily be considered suitable for swimmers.

Retailers and Wet Wipe Sales

In February 2022, Tesco announced that they will be the first major UK retailer to ban branded plastic wet-wipes. This announcement came two years after the company stopped selling own brand wet wipes, so that the entire range will now be plastic-free.

Following this announcement we engaged with six retailers asking them what their policy is on wet wipes. Sainsbury's, John Lewis and B&M all replied stating that their own brand wipes are biodegradable and plastic free with the majority being 'Fine to Flush' accredited, however, no company mentioned whether this is the case for third party branded wipes. We are pursuing this as a separate piece of focused engagement given how important it is to the system's integrity with all companies mentioning it.

Some such as Severn Trent are making a key commitment that no customer should be more than one hour's drive from a river where swimming is possible. Thames Water is working with community groups to ensure Port Meadow in Oxford, a long-standing site for wild swimming, remains so.

[1]https://www.water.org.uk/news-item/new-proof-that-flushing-wipes-is-a-major-cause-of-sewer-blockages/

The Regulatory Regime

Companies were quick to highlight the impact of historical underinvestment in their network, the consequences of which are still being felt today. We heard that the last few price reviews led by Ofwat, and in particular PR19, have been heavily focused on reducing customer bills at the expense of facilitating greater investment. There was a sense that the regulatory regime has not been flexible enough in facilitating new investments (for instance in nature based solutions), and that in general the industry has been moving on key issues like climate change and biodiversity ahead of Ofwat. However, we heard cautious optimism across the board that Ofwat was catching up, and PR24 is likely to enable more investment and a greater focus on environmental improvements.

A key part of this discussion centred on the delicate balance between investment and bills, and how companies could offer support to vulnerable customers who are unable to pay their bills via a social tariff. It was generally felt that despite Ofwat's historic position water bills would have to increase to pay for some of these solutions, and that – despite current inflationary pressures – those who could afford to pay more would need to pay more.

Clearly, as demonstrated by the EA's assessments, some companies have fared much worse than others within the same regulatory regime. We asked ourselves why this was the case. Was it due to the ownership structure? As a not-for-profit, Welsh Water provided a compelling case with rivers in Wales much healthier than in England. Or was it due to specific spending decisions? Thames Water, for example, pointed to a period in the 2010s where they cut back on manpower and investment, leading to poor outcomes for nearly a decade. One element came across very strongly – the role of leadership, board ownership, and culture. For the best performing companies, customers were at the heart of every decision and a focus on reducing pollution incidents was front and centre.

The Role of Technology

Clearing blockages can be an expensive business, with companies reportedly spending roughly £100 million every year treating 300,000 sewer blockages[1]. All of the companies we spoke to discussed the increasing importance of technology (sensors, cameras, optics, real-time data) in driving improvement in river quality by addressing blockages and infrastructure failure.

It is fair to say that companies are generally at different stages of their journey with regards to the use of technology; Southern Water was only now beginning to invest at scale in sensor and infrastructure technology, which may be at least one reason for its historic poor performance. Others such as United Utilities, Thames Water and Severn Trent have been using them for over a decade, with the results clearly improving performance over time. Some companies spoke about using sensors and cameras to detect early signs of blockages, whilst acknowledging the inherent difficulties in waste water networks compared with freshwater networks in engineering these solutions.

Among other initiatives, Yorkshire Water discussed using fibre optic cables with microphones to provide acoustic data on blockage build up. Welsh Water and Severn Trent also discussed using data science, or developing AI algorithms as a predictive tool and working on more public disclosure as real time data helps build customer trust. Another advantage companies noted in using real time data is the ability to anticipate problems occurring ahead of time, and sending engineering teams to solve these problems before they escalate to become potential incidents.

United Utilities plans to transform its wastewater network monitoring

In August 2021, United Utilities announced that they are introducing a new innovative approach, which will use real-time data, artificial intelligence and machine learning to process data to help identify issues such as blockages and the rise of water in the sewer networks. This is known within the company as Dynamic Network Management, or DNM. This approach will be supported by the installation of over 19,000 sensors in manholes across the North West region and will include enhancements to the company's monitoring at both powered and non-powered sites. The data captured will be sent back to a unique digital platform that has been designed specifically for United Utilities, using artificial intelligence and machine learning to process the information to identify patterns in the performance of the company's drainage systems, helping to predict the future performance. The company is planning to have all the sensors installed in 2022.

**United Utilities - United Utilities unveils plans to transform its wastewater network monitoring*

The Role of Nature Based Solutions

The approach towards utilising nature based solutions varied among the companies we spoke to. The utilisation of these in part depended on the geographical location of the river and the company's resources and land ownership – Yorkshire Water and United Utilities own and manage substantial land resources; Southern Water does not. Companies with rivers in urban regions stated that in large cities such as London, Manchester and Birmingham, it is very difficult to implement nature based solutions and therefore the key is to work in rural areas, in upstream catchment areas. Companies discussed the various benefits as well as complexities of using nature based solutions. Whilst these are better for biodiversity and act as a carbon sink, they are not engineered at scale and therefore tend to have greater uncertainty with results not guaranteed. On balance, for climate change reasons companies are keen to harness nature based solutions as part of a desire to avoid 'concrete solutions' but in practice the cost-benefit is not that clear.

Cost is another consideration when implementing these projects. Companies explained that whilst over the lifespan of the asset nature based solutions tend to be cheaper, as companies cannot capitalise the costs of setting them up, CAPEX is high and financing is a problem. Water companies with significant land holdings on balance seemed keen to harness these than others; South West Water was trialling a single project and was substantially behind others in assessing their advantage.

Regulation can also act as a barrier to harvesting the full potential of nature-based solutions – although Ofwat stated that they expect companies to adopt more of them over time and are looking into how better to incentivise them in the next regulatory regime (PR24). Rolling nature based solutions out at scale remains unclear as current pollution regulation is focused on end-of-pipe solutions rather than nature-based solutions.

There is a separate, carbon based debate to be had by looking at the difference between solutions put in now and their impact by 2030 – a pivot to net zero solutions could be one way of energizing nature based solutions as over time these are less carbon (and chemical) intensive than concrete.

What are nature based solutions?

The term nature-based solution (NBS) refers to the sustainable management and use of natural features and processes to tackle environmental challenges. The European Commission defines nature-based solutions as "using nature's own resources - clean air, water and soil - in a smart way, to tackle environmental challenges. They work with nature rather than against it to provide sustainable, cost-effective ways to achieve a greener economy that is competitive and resource-efficient". These challenges include issues such as climate change, water security, water pollution, biodiversity loss, and disaster risk management.

The Role of Investors

As previously noted, investors have by and large failed to engage with the industry on river health. All those we spoke to felt strongly that there was a role for investors in lobbying for change, and welcomed our engagement on the topic. We heard that historically investors have been more exercised by financial performance, and whilst there was a sense this was changing, the primary focus for many investors seems to be climate change. A much broader approach was welcomed and, as a critical stakeholder, it was felt that more investor engagement on river pollution would likely galvanize action – particularly for the poorest performers. We heard that this work should not be limited to the companies themselves, and investors could play a key role in influencing policy through engagement with Government and regulators such as the Environment Agency and Ofwat.

CASE STUDY:
WHAT DOES SECTOR LEADERSHIP LOOK LIKE?

As we have highlighted, whilst not perfect, we have seen examples of excellence and good practice as well as continuing poor performance. Being publicly quoted is not a specific recommendation for leadership; Pennon, the owner of South West Water, is among the poorest performers. Equally among the private equity vehicles, Anglian has largely been administered well, whilst some such as Thames have not. Water, whilst administered in regions does not follow boundaries and therefore collaboration can be effective. We particularly commend as one example of leadership the Five Pledges initiative launched by Severn Trent and Anglian Water radically to improve the health of rivers between now and 2030.

The Pledges were shaped by engagement with NGOs and stakeholders. At the core of the commitment is that water utility operations will not be the reason for unhealthy rivers by 2030 (based on the Environment Agency's measure) – this builds on the 'unacceptable' rather than 'unavoidable' mindset.

The Pledges comprise a series of core targets that apply to both companies, as well as complementary local targets for local priorities. The core targets that apply to both companies are that they will:

Pledge 1 Ensure storm overflows and sewage treatment works do not harm rivers

- Based on Environment Agency measures, water utility operations will not be the reason for unhealthy rivers by 2030.
- Across the two regions they will reduce the use of storm overflows to an average of 20 per year by 2025.
- Using better data they will find and fix problems quicker than before.

Pledge 2 Create more opportunities for everyone to enjoy the region's rivers

- They will ensure that 90% of people in their two regions live within an hour's drive of a bathing site.

Pledge 3 Support others to improve and care for rivers

- 1st May 2022 will see the launch of a new deal for farmers to incentivise regenerative farming practices and provide access to green financing (through partnership working).
- They will campaign for the removal of the automatic right to connect for new developments.
- They will champion the bill to ban wet wipes that contain plastic and ask for a ban on all wet wipes that are not 'Fine to Flush'.
- Launch regional River Forums, bringing all contributors to river health together.

Pledge 4 Enhance rivers and create new habitats so wildlife can thrive

- Local targets, including action to plant 1.3 million trees and to help support chalk streams.

Pledge 5 Be open and transparent about performance and plans

- They will work with NGOs to ensure they provide the river quality information people want and need to see by end of 2022.
- They will make this information easily accessible.
- As well as 100% monitor coverage at treatment works and on storm overflows, later this year, they will start monitoring wider river quality and share the results publicly.

A dedicated website has been launched that will provide more detail and wider information. The website will seek to educate the broad range of stakeholders about how water companies impact rivers in their region, the work already done to improve their health, as well as future plans. The site is at **getriverpositive.co.uk**

This is the type of positive, pro-active and inspired initiative we commend, and we hope other utilities will look at this with a view to committing equally to the five pledges or something similar in their regions.

RAISING THE BAR: POORER PERFORMING COMPANIES

The water utility sector is complex. It collects billions of litres of water every day for safe distribution to 50 million homes and businesses, and similarly treats billions of litres of waste water and sewage for safe discharge into the environment. They harness complex engineering, infrastructure management and logistics to ensure this unending cycle replenishes day after day. Much of the system struggles with Victorian infrastructure, sewers, pipes, waste water treatment works, pumps etc. to ensure they remain safe and fit for purpose in the 21st century. The 'network' is vast with over 1,000 reservoirs, 2,500 water treatment works and more than 700,000 kilometres of pipes. The British water and sewerage system is rated the second safest in the world – drinking water quality regularly reaches 99.9% in all parts of the country. One measure of success is service interruption – on average water supplies have fewer than 10 minutes interruption per customer. One measure of continuing anxiety is leakage; overall 3billion litres are lost from the system every day through leakage or 20% of the total.

We therefore understand the industry is not perfect, but we do want to acknowledge the feats of performance the industry meets, whilst equally not ignoring performance challenges. According to the range of Environment Agency criteria four of our eight investment companies **Severn Trent, United Utilities, Dwr Cymru** and **Yorkshire Water** achieve the highest Agency rating of four stars. United Utilities in 2020 had zero serious pollution incidents, whilst Severn Trent and Dyr Cymru had one each. Yorkshire was slightly worse with three such incidents. **Anglian Water** and **Thames Water** were judged to be average with three stars: Anglian incurred 10 serious pollution incidents and Thames Water 13. Thames Water as England's largest water utility could be claimed to be the greatest turnaround success story.

Two of our investment companies have had historically poor performance **Southern Water** and **South West Water (Pennon Group)**, with both achieving two stars.

Southern Water is the integrated water and waste water utility for a large swathe of southern England encompassing Kent, Sussex, parts of Hampshire and the Isle of Wight. It supplies 532m litres of water a day to 2.5m customers. They treat 717m litres of waste water a day from 4.6m customers at 91 water supply works. The company is owner operator of 13,780km of pipes, 39,594km of sewers and 365 waste water treatment works. The company has among the largest coastlines running from the Thames estuary around to the border with Dorset. The company has had a mixed performance record arising from decades of under investment and culminating in a £90m fine for criminal negligence and a fine of £126m enforcement action. In terms of bathing water quality – 60 out of 83 are rated excellent and 20 good with three rated sufficient – two of these are in Kent and one in Sussex.

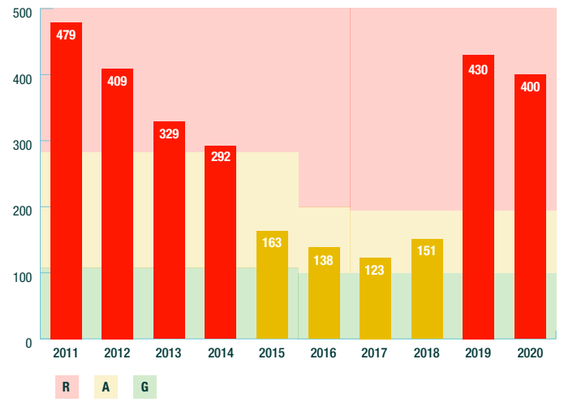
In 2020/21 Southern Water achieved a 27% reduction in operational pollutions, but offset by spills from overflows. 2021 witnessed three serious pollution incidents, but 372 overall in all categories. We are encouraged that a new investor Macquarie, will invest £1,073m, ring-fenced to provide infrastructure investment. Ofwat noted 'we have long been clear, including to the existing shareholders, that very profound changes are required, and much overdue, to improve company performance and to strengthen the financial position of Southern Water. We are pleased to note that you accept that position too'. Our engagement with Southern Water confirmed an escalated programme of infrastructure renewal and investment, where this had led to historic failures. The company has adopted an 'unacceptable' approach to spills rather than one of 'unavoidable'. The current pollution reduction strategy seeks to achieve zero pollutions by 2040 – which seems some way off, but exemplifies the scale of challenge. Much of the investment will be funded by shareholder injected funding not by customers.

Our call focused on the turnaround. Southern Water has been a serial under-performer from 2011-14 and again from 2019-2020. Since 2011 the company has had 84 serious pollution incidents, and 2,905 actual incident numbers, although these have increased sharply in the past two years. Southern Water is in a challenging region of growing population density and a fractured supply side where it is not wholly responsible for the whole region. Southern has less storage than other regions and relies to a large extent on the chalk aquifer running along the South Downs. Their region hosts 80% of England's chalk streams including the Itchen and Test. Low rainfall across the region has meant higher abstraction. Given bathing water quality is good, the call confirmed much of the plan will be focused on 'knotty issues' such as building resilience in their waste water assets, whilst acknowledging agriculture, urban run-off and climate change were all playing a part. The company is installing 30,000 additional sensors linked to a control centre. As has become industry standard they expect to harness technology to anticipate major incidents before they happen; targeting 80% reduction in pollution by the end of the AMP (2024) we expect to hold the company to account.

Annual performance star rating after assessment of Southern Water's performance across all EPA metrics

Year	Overall ESP star rating	Star rating description
2011	★★☆☆	Below average company
2012	★★☆☆	Below average company
2013	★☆☆☆	Poor performing company
2014	★★☆☆	Below average company
2015	★★★☆	Above average company
2016	★★★☆	Good company
2017	★★★☆	Good company
2018	★★☆☆	Company requires improvement
2019	★☆☆☆	Poor performing company
2020	★★☆☆	Company requires improvement

Annual number of pollution incidents (category 1 to 3)



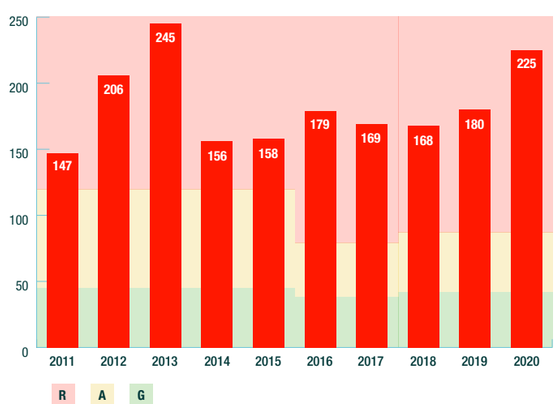
South West Water (owned by Pennon Group) is the integrated water and waste water utility in the west of England, covering Devon, Cornwall and parts of Somerset and Dorset. They provide services to 1.7m people. The company also owns Bournemouth Water and through a recent acquisition, Bristol Water. The company operates 21 reservoirs, 21 drinking water treatment works, 15,525km of pipes, 650 waste water treatment works and 17,515km of sewers. It has 151 bathing waters, of which the vast majority (125) were rated excellent; only two were rated lower than sufficient. The company has been a serial under-performer achieving no higher than two stars under the EA ratings since 2011. They have had 54 serious pollution incidents since 2011 and 1,834 pollution incidents in total. The company achieved no ratings over that period that were not of the worst performance quality. The call focused on the company's historic performance which has not been good. Over time, given the economic importance of tourism investment had gone into bathing water quality; the company had a very strong record of delivering the highest quality of bathing water along one of the longest coastlines. As a result, rivers had not had much of a priority. They were keen to stress this is changing with £100m invested into inland watercourse regeneration.

South West Water appears to be behind its peers in harnessing technology to anticipate and mitigate incident management. The company, we believe, needs considerable work to improve its performance having been ranked among the worst for 10 years in a row. We opposed the Pennon Group Remuneration Report in 2021 as we felt the generous bonus awarded to executives was unwarranted given the poor pollution and environmental performance record. We expect to engage further with Pennon-South West Water over time.

Annual performance star rating after assessment of South West Water's performance across all EPA metrics

Year	Overall ESP star rating	Star rating description
2011	★☆☆☆	Poor performing company
2012	★★☆☆	Below average company
2013	★☆☆☆	Poor performing company
2014	★★☆☆	Below average company
2015	★☆☆☆	Poor performing company
2016	★★☆☆	Company requires improvement
2017	★★☆☆	Company requires improvement
2018	★★☆☆	Company requires improvement
2019	★★☆☆	Company requires improvement
2020	★★☆☆	Company requires improvement

Annual number of pollution incidents (category 1 to 3)



Prosecutions & Fines

The Environment Agency has enforcement and prosecution powers, although fines relating to individual breaches historically have been nominal and in the order of £2,500-10,000. Larger fines handed down for infrastructure failures include United Utilities paying over £2m in fines for five breaches in the period 2015-17, and Thames Water paying fines of £19m for four breaches in 2016-17.

Since Environment Agency data began (2002), the companies within our investment portfolios have been handed down fines as set out below – this excludes other criminal prosecutions.

Company	Aggregate Fines 2002-2020
Anglian Water	£1,263,405
South West Water	£2,253,534
Severn Trent	£2,981,980
Yorkshire Water	£3,053,435
Southern Water	£3,731.325
United Utilities	£4,054,000
Thames Water	£28,136,185

CONCLUSION & RECOMMENDATIONS

The crisis in the health of our rivers has been steadily growing for several decades. A regulatory regime predicated on keeping costs low, poorly overseen incident management, impunity for continued offences and under-investment by the water industry have, over time, eroded the ability of rivers to recover to full health. The task now is immense, but one the current generation dare not resile from.

Our engagement with a significant cross section of the industry has revealed a passion for improvement and incidences of good practice that are having an impact. Partnerships with a wide range of interested stakeholders is bearing fruit. However, there remain pockets of very poor performance and inadequate plans for effective remediation.

We believe this matters and investors have studiously failed to engage and lobby the industry. In part this is due to the fractured nature of the industry and because so much of it may be off the radar for main stream responsible investors. All those we spoke to see a role for engaged investors and actively desire it to lobby for change. There are signs, taking its lead from Government, that Ofwat may be ready to rethink its low-cost model where some of the cleanest drinking water in the world costs just 0.1p a litre. Our conclusion is that change is possible and is necessary.

- Investors have by and large failed to engage with the English water industry on river health
- The issues we have seen will only become worse with the effects of climate change unless there is a rethink
- The planning system does not always insist on good drainage to the extent that two companies are now lobbying for an end to the automatic right to connect
- Agriculture is a key actor in fostering healthy rivers; more engagement with the sector, its policy makers and practitioners is essential
- Poorly maintained assets and infrastructure failure must become a thing of the past; a mind-set of pollution overflows being unavoidable must change to where they are unacceptable
- Investors must insist that Remuneration Committees link variable incentives to environmental performance, and particularly to reducing 'avoidable' pollution incidents
- Government, and in turn the water regulator must encourage a regime of protection, and investment in natural assets as 'guardians' of England's natural economy

As a result of this work we expect to:

- Engage further with the water sector around the 'five pledges' model and improving performance
- Engage particularly with poorer performing investments on a 'change culture'
- Engage with Ofwat on our findings and enhancing conservation as part of AMP8
- Engage with the Environment Agency on enhancing monitoring and oversight
- Engage with Parliamentarians and Government in the campaign to ban plastic infused wet-wipes and on improving river health generally.

THANKS & ACKNOWLEDGEMENTS

Our engagement with companies took place between 11 January and 17 February 2022 with discussions held with key personnel including chief executives and head of sustainability. We would like to thank all those who took part and who encouraged candid and constructive engagement.

Anglian Water

Dyr Cwmru (Welsh Water)

Severn Trent

Southern Water

South West Water (Pennon Group)

Thames Water

United Utilities

Yorkshire Water

Bristol Water did not return our requests for a meeting.

We would also like to thank various regional and national River Trusts who we approached for background, views and comments on the sector generally and which informed our engagement prior to meeting with the water utilities.

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