SURFERS AGAINST SEWAGE®

2020 WATER QUALITY REPORT

NOVEMBER 2020

Written by Hugo Tagholm, Amy Slack and Alice Field

“CAMPAIGNING FOR BETTER WATER QUALITY AND CLEAN SEAS IS A TOPIC CLOSE TO MY HEART.”

Lewis Pugh, OIG
UN Patron of the Oceans

2020 WATER QUALITY REPORT

FOREWORD

> Campaigning for better water quality and clean seas is a topic close to my heart.

As an endurance swimmer and the UN Patron of the Oceans, this journey has taken me all over the world, from the icy waters of the poles to glacial lakes high in the Himalayas and to many of the world's great rivers. However, I've only swum down four rivers, and for good reason. On each occasion I became violently sick due to pollution. Two of these rivers were in the UK.

Despite the sickness, I managed to finish these swims, but it did make me think about what we are doing to the water. How have we gotten to a situation where rivers are so filthy? The situation in the UK is particularly worrying. Our coastal water quality sits at a pitiful 25th out of 30 European countries. Only 14% of rivers meet good environmental standards.

Why is this? Well, to begin with, UK water companies discharged sewage into our rivers over 200,000 times in 2019 alone. I recently learnt that these companies handed out an average of £2 billion per year to shareholders. That's almost half the sum they spent on maintaining and improving the country's pipes and treatment plants in the same period.

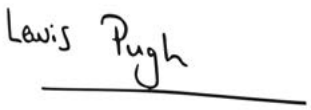
Our rivers are simply not getting the resources they need for their health. All rivers should be fishable and swimmable, and most importantly, the water should be clean and drinkable. We have to become responsible custodians of the blue arteries of our nation.

We have the right to an environment that is not harmful to our health and is protected for the benefit of present and future generations. Moreover, rivers are homes for incredible wildlife. There is something so very wrong about us polluting their habitat and pushing some species to the edge of extinction.

I've spent many years helping to create Marine Protected Areas (MPAs). These are akin to national parks on land and allow the oceans to recover from years of misuse and abuse. Why don't we build a network of Riverine Protected Areas around our country?

As you read this report, think about how you can make a difference. Please write to your MP, get in touch with your local SAS representative, or start a campaign yourself. Join us in the fight to restore the health of rivers and the ocean.

It's time to end sewage pollution. Please act today.



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Executive Summary

Keeping water users safe from illness from poor water quality in rivers and the ocean is core to Surfers Against Sewage's DNA.

Polluted waters are what kickstarted the organisation into action 30 years ago and are an issue that worryingly continues to affect surfers, open water swimmers, bathers, stand-up paddleboarders and other water users to this day. Despite the progress we have made, with much to be celebrated, there is still vital work to do to protect and restore rivers and the ocean from the impact of sewage and agricultural and urban runoff.

In 2019/20, 6% of "swimmable days" were lost due to sewage discharge into bathing waters in England & Wales

Rapid growth in water sports participation means it is more important than ever to protect blue spaces for both people and planet. Rivers, beaches and lakes have become playgrounds for huge numbers of people, becoming essential community amenities that deliver health, prosperity and wellbeing in villages, towns and cities nationwide.

70% of CSO notifications were issued outside the official bathing season. All water companies should provide year-round, real-time sewage discharge notifications but some chose not to release this vital public health information

Restoring blue spaces will also be central to the recovery of nature and biodiversity, and help insulate communities from the worst effects of the changing climate. Local environmental action often connects us to global issues, as has been demonstrated through the global pandemic.

This year, transparency in water quality information has become even more important with the onset of the COVID-19 pandemic and potential transmission risk for viruses in sewage. However, data from our Safer Seas Service (SSS) shows water companies are still discharging sewage at alarming rates, polluting the environment, and risking our health.

Between 1st October 2019 and 30th September 2020, a total of 2,941 Combined Sewer Overflow (CSO) discharge notifications were issued through the SSS, which is based on information we access from water companies.

THE OCEAN AND RIVERS ARE BEING POLLUTED BY SEWAGE POLLUTION HUNDREDS OF THOUSANDS OF TIMES, ANNUALLY

1,195 of these were issued during the official Bathing Season in England and Wales (May 15th – September 30th) and a further 1,746 were issued out of season by the water companies willing to issue year-round data, in response to the need for more transparency and accountability.

SOUTHERN WATER FAILED TO ISSUE THE MAJORITY OF THEIR SEWAGE SPILL NOTIFICATIONS DURING THE 2020 BATHING SEASON

Based on commonly agreed health advice on the risks of bathing in sewage-contaminated waters, a total of 6% of "swimmable days" were lost due to sewage discharges into Bathing Waters in England and Wales. In addition, the SSS has issued a total of 2,642 pollution risk warnings provided by regulators throughout the UK, during the official Bathing Season.

These warnings cover pollution and health risks linked to agricultural and other diffuse pollution being washed into rivers and the ocean.

Our analysis revealed that Southern Water failed to provide CSO discharge notifications for popular and important Bathing Waters impacted by their sewer assets, throughout the whole of the 2020 Bathing Season. In comparison to the 690 sewage spill notifications issued by Southern Water in 2019, they only managed to issue 78 alerts this year, stating "notifications should have been sent but frustratingly they weren't".

Their failure to provide this information has put thousands of water users at risk. Over 20% of health reports submitted to us this year were from locations within Southern Water's catchment with a total of 7 submitted for Hove Lawn alone - these are just the locations we know about. These illnesses could have been prevented if discharge notifications had been issued.

SURFERS AGAINST SEWAGE®

2020 WATER QUALITY REPORT

Despite progress over the last 30 years, the UK still ranks a woeful 25th out of 30 European countries for Bathing Water quality. Almost 35% of Bathing Waters need some form of improvement to be elevated to the "excellent" standard, a standard we believe they should all meet.

However, this report also highlights fundamental flaws in the water quality testing regime and Bathing Water classification process. Some of the worst pollution incidents are being wilfully ignored, giving us a false view of the true state of recreational water quality.

ONLY 66% OF OFFICIAL UK BATHING WATERS MEET "EXCELLENT" CLASSIFICATION STANDARDS COMPARED TO 87% OF EUROPEAN COASTAL BATHING WATERS. THIS SUGGESTS 34% OF BATHING WATERS REQUIRE SOME FORM OF IMPROVEMENT

As a result, it is suggested that 65 Bathing Waters receive higher classifications than they should. On top of this, the government fails to properly regulate and enforce against continued water pollution by water companies and farming, with inadequate investment and resources to empower regulators, undertake investigations, and enforce tough penalties.

THE LATEST RESEARCH SHOWS THAT HEALTH RISKS POSED TO SWIMMERS REMAIN THE SAME AS THEY WERE IN THE 1990S

This regime allows water companies to consistently put profit before protecting the environment.

In a year where our health has been at the forefront of public consciousness, it is now more important than ever that we act urgently to turn the tide of poor water quality, looking to nature based solutions to address water quality issues. Our ambition at Surfers Against Sewage is to end sewage discharge into UK Bathing Waters by 2030.

Join us to #EndSewagePollution.

CONTENTS

INTRODUCTION

Now, more than ever, water quality is at the forefront of public consciousness. National news reports have revealed the shocking levels of sewage and agricultural pollution that still plague our rivers and ocean, due to corporate inaction and negligence.

Public outrage is growing by the day as they see the environmental degradation of these vital blue spaces. Our #GenerationSea Blueprint Survey, completed by 3,330 participants, found that more than half wanted more water quality information and better testing. This year, potential COVID-19 transmission risks from sewage meant there was an even greater concern for safety when using the water.[1] This highlights the importance of transparent water quality information to keep us safe when enjoying the blue environment.

UK Bathing Waters suffer the impacts of an extensive network of water company Combined Sewer Overflows (CSOs), emergency infrastructure designed to discharge untreated wastewater during periods of "unusually heavy rainfall".[2]

Unfortunately, CSOs are also being used outside these rainfall periods, resulting in environmental damage, and increased risk to water users.[3]

Pollution Risk Forecasts (PRF) are provided by regulators[4] to give an indication of when there is an increased pollution risk. Forecasting is based on water quality sampling information and takes into account factors such as rainfall, tide and wind. This forecasting provides daily predictions of water quality for water users to protect themselves from potentially contaminated water.

Our Safer Seas Service (SSS), the only UK wide real-time water quality information service, alerts water users when sewer overflows discharge untreated sewage into Bathing Waters and when forecasting systems indicate a reduction in water quality due to pollution events from surface runoff, after heavy rainfall events.

This information empowers individuals to make informed decisions about how, where and when to use the sea at over 370 locations across the UK.

1. Slack, A., and Field, A. What are the Risks of COVID-19 Transmission from Sewage Discharge?, accessed 7 September 2020, https://www.sas.org.uk/news/campaigns/what-is-the-risks-of-covid-19-transmission-from-sewage-discharge/
2. European Commission (2020) Urban Waste Water Treatment, 2020, https://ec.europa.eu/environment/water/water-urbanwaste/index_en.html
3. Slack, A., Tagholm, H., and Dennis, H. (2019) Water Quality Report 2019, October 2019, https://www.sas.org.uk/wp-content/uploads/SAS_2019_Water_Quality_Report_Digital-1.pdf
4. PRFs are provided by the Environment Agency in England, Scotish Environment Protection Agency in Scotland, and Natural Resources Wales in Wales

WE TRACKED AND NOTIFIED USERS OF OVER 2,400 CSO DISCHARGES THAT IMPACTED COASTAL BATHING WATERS IN ENGLAND AND WALES

In 2019/20, through the SSS, we tracked and notified users of over 2,400 CSO discharges that impacted coastal Bathing Waters in England and Wales, across 262 locations. CSO discharge notifications are not yet provided for Scotland. We also tracked and notified users of over 2,600 PRF notifications for the 2020 Bathing Season, across 190 coastal locations throughout the UK.

This report presents the data collected through the SSS between 1st October 2019 and 30th September 2020. We first look at sewage pollution, presenting CSO discharge notifications issued by water companies affecting Bathing Waters.

Secondly, using this year's PRF notifications, we examine the state of the UK's water quality. Finally, we discuss the importance of water quality in relation to human health, supported by health report data drawn from our SSS.

Figure 1 shows the UK distribution of locations receiving CSO notifications only, locations receiving PRF notifications only, and locations receiving both CSO and PRF notifications.

FIGURE 1

UK LOCATIONS COVERED BY OUR SAFER SEAS SERVICE

SEWAGE POLLUTION

21,462[5] CSOs and pumping stations exist in the UK (excluding Scotland), discharging untreated wastewater directly into riverine and coastal waters. CSOs are currently deemed an "essential part" of a combined sewerage system where sewage water and surface water enter the same system.

CSOs are important in the safe management of these combined sewerage systems, to prevent water backing up into homes in the event of exceptionally heavy rainfall. The Urban Wastewater Treatment Directive states CSOs should only be used in "exceptional circumstances", such as extreme weather conditions.[6] However, as our 2019 Water Quality Report suggests, the scale and frequency at which water companies have been using CSOs, suggests discharging untreated effluent into the environment appears to be routine behaviour.[7]

In 2019, there were 1,783 coastal discharges in England, and 115 in Wales during the May-September "Bathing Season", releasing a toxic mixture of sewage and waste into the environment.

The SSS has provided information on eight major water company CSO discharges in England and Wales. This information has been used to inform our analysis of the 2020 Bathing Season running from 15th May - 30th September, as well as out of season performance. It is important to note that each water company has their own CSO discharge notification trigger method and not all of them provide out of season coverage (see Table 1).

Scottish Water does not currently provide CSO discharge notifications for its assets for the SSS and, therefore, we are unable to provide sewage pollution analysis for Scotland.

TABLE 1 CSO DISCHARGE NOTIFICATION TRIGGER METHODS

WATER COMPANY	CSO ALERT TRIGGER	YEAR-ROUND DATA?
Anglian water	Based on modelling to determine whether it could affect bathing water quality	✗
Northumbrian Water	Within 30 minutes	✓
South West Water	When spill meets an 'agreed (within the EA) significance criteria'	✗
Southern Water	-	✗
United Utilities	-	✓
Welsh Water	Within 15 minutes	✓
Wessex Water	Between 2 minutes to 1 hour	✓
Yorkshire Water	-	✓

5. Environment Agency (2020) Consented Discharges to Controlled Waters with Conditions, accessed 23 September 2020, https://data.gov.uk/dataset/55b8eaa8-60df-48a8-929a-060891b7a109/consented-discharges-to-controlled-waters-with-conditions
6. European Commission (2020) Urban Waste Water Treatment, 2020, https://ec.europa.eu/environment/water/water-urbanwaste/index_en.html
7. Slack, A., Tagholm, H., and Dennis, H. (2019) Water Quality Report 2019, October 2019, https://www.sas.org.uk/wp-content/uploads/SAS_2019_Water_Quality_Report_Digital-1.pdf

CSO DISCHARGE ANALYSIS

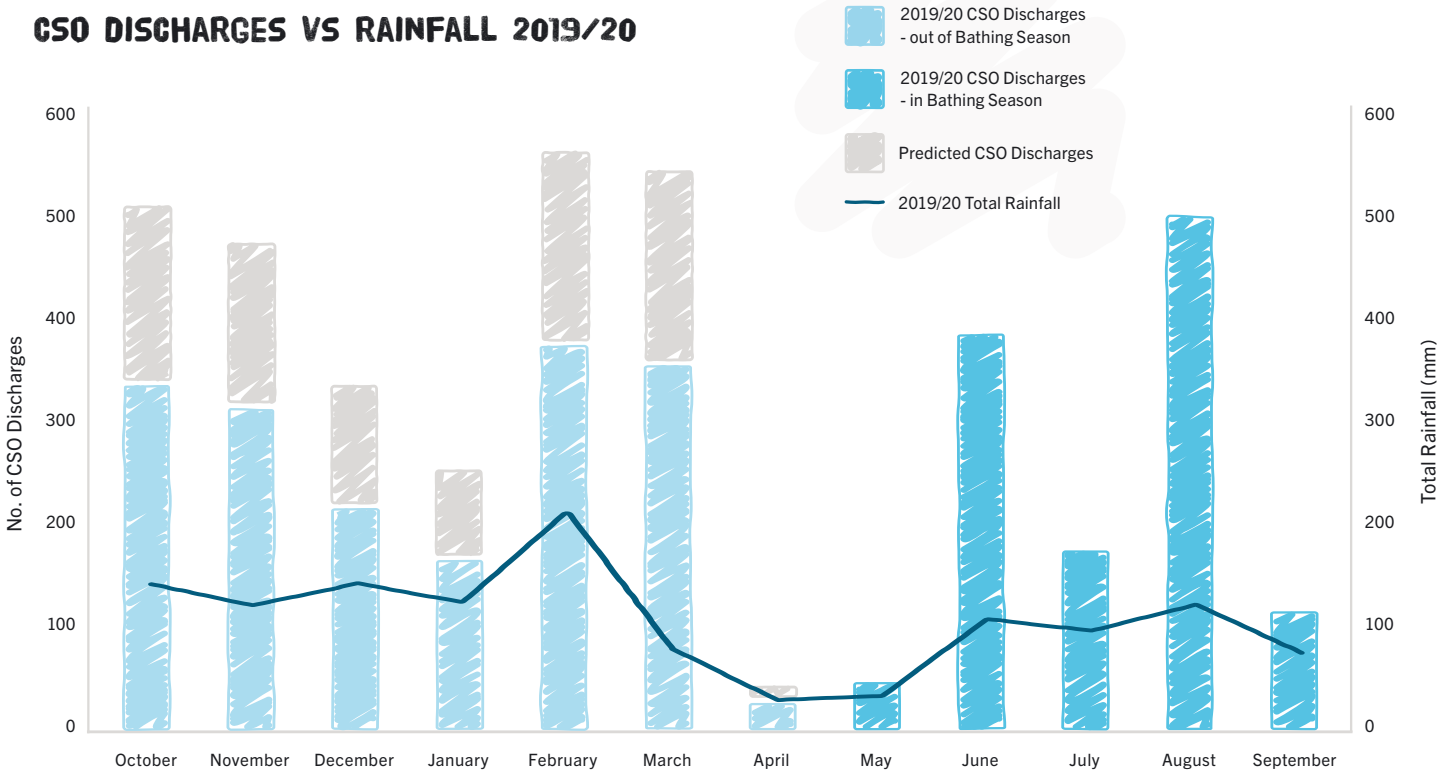
Figure 2 shows the number of notifications issued each month between 1st October 2019 and 30th September 2020.

A total of 2,941 CSO discharge notifications have been issued over a twelve month period. During the 2020 Bathing Season, a total of 1,195 CSO notifications were issued across England and Wales.

When plotted against total monthly rainfall during these months, it suggests a trend between increased rainfall and CSO discharge notifications.

A further 1,746 CSO discharge notifications were issued outside the official Bathing Season period. However, as shown in Table 1, only five of the eight water companies included in the SSS provide CSO discharge notifications outside the Bathing Season.

FIGURE 2



Combined with the fact that rainfall during the out of season months is considerably higher (see Figure 2), it can be assumed that the number of CSO discharge notifications would be considerably higher. During the official Bathing Season, the three water companies that did not provide year-round CSO discharge notifications account for 35% of the discharge notifications issued.

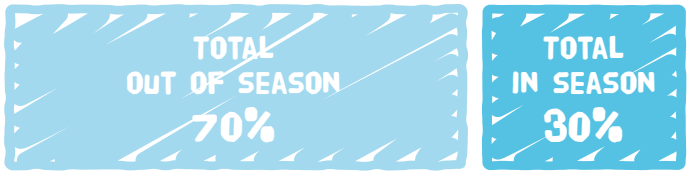
Assuming that an additional 35% of CSO discharge notifications would have been issued if these companies issued notifications year-round, we would expect an additional 940 CSO notifications, bringing the total out of season notifications to 2,686. This would bring the total number of CSO discharge notifications issued for Bathing Waters over twelve months to 3,434.

CSO discharge notifications were provided by water companies year-round for 126 of the 262 Bathing Waters affected by CSO discharges. Looking at the number of CSO discharge notifications issued in season compared to out of season, where they are provided year-round, 70% were issued outside the Bathing Season (see Figure 3).

In 2019, we undertook a social media poll showing 89% of respondents continue to use UK Bathing Waters outside the official Bathing Season.[8] It has also been found that 56% of all recreational water sport visits to the coast occurred outside the summer season.[9] This is perhaps even more apparent as a result of the COVID-19 health crisis. Evidence suggests that the use of both green and blue spaces has, and will become increasingly important to human health and wellbeing as a result of the pandemic.

FIGURE 3

IN SEASON VS OUT OF SEASON CSO DISCHARGES



Our 2020 #GenerationSea survey found that almost 80% of respondents had an increased appreciation of the environment as a result of the lockdown imposed during the pandemic, with 70% saying they would spend more time outdoors, after lockdown.[10]

This has been echoed in numerous subsequent reports, including evidence collected by the Environment Agency (EA) which found that the pandemic led to an increased appreciation of nature and more engagement with the aquatic environment.[11] This points towards an ever increasing use and importance of water recreation for health and wellbeing. **The failure to provide real-time, transparent information all year-round therefore presents a risk to human health**, with a huge number of water users not having access to information to allow them to stay safe.

8. Slack, A., Tagholm, H., and Dennis, H. (2019) Water Quality Report 2019, October 2019, https://www.sas.org.uk/wp-content/uploads/SAS_2019_Water_Quality_Report_Digital-1.pdf
9. Elliott, L.R., White, M.P., Grellier, J., Rees, S.E., Waters, R.D., and Fleming, L.E. (2018) Recreational visits to marine and coastal environments in England: Where, what, who, why, and when?, Marine Policy, Vol.97, pp.305–314
10. Surfers Against Sewage (2020) Long Time No Sea: Beach Loving Brits Count Down the Days Until They're Reunited with the Coast • Surfers Against Sewage
11. Environment Agency State of the environment: health, people and the environment, accessed 7 October 2020, https://www.gov.uk/government/publications/state-of-the-environment/state-of-the-environment-health-people-and-the-environment

CSO DISCHARGE LOCATION ANALYSIS

Figure 4 shows the number of discharges per location, with the worst performing locations highlighted.

The SSS keeps any CSO discharge notification active for 48 hours after the discharge has ceased to allow time for dispersal of any pollution caused. This has resulted in 2,296 bathing days lost during the official Bathing Season, 3,488 days lost out of season, and an overall total of 5,826 bathing days lost between October 2019 and September 2020. This means at least **6% of "swimming days" were lost due to CSO discharges between October 2019 and September 2020** (6% during the official Bathing Season and 10% outside the official Bathing Season).

FIGURE 4

LOCATION ANALYSIS

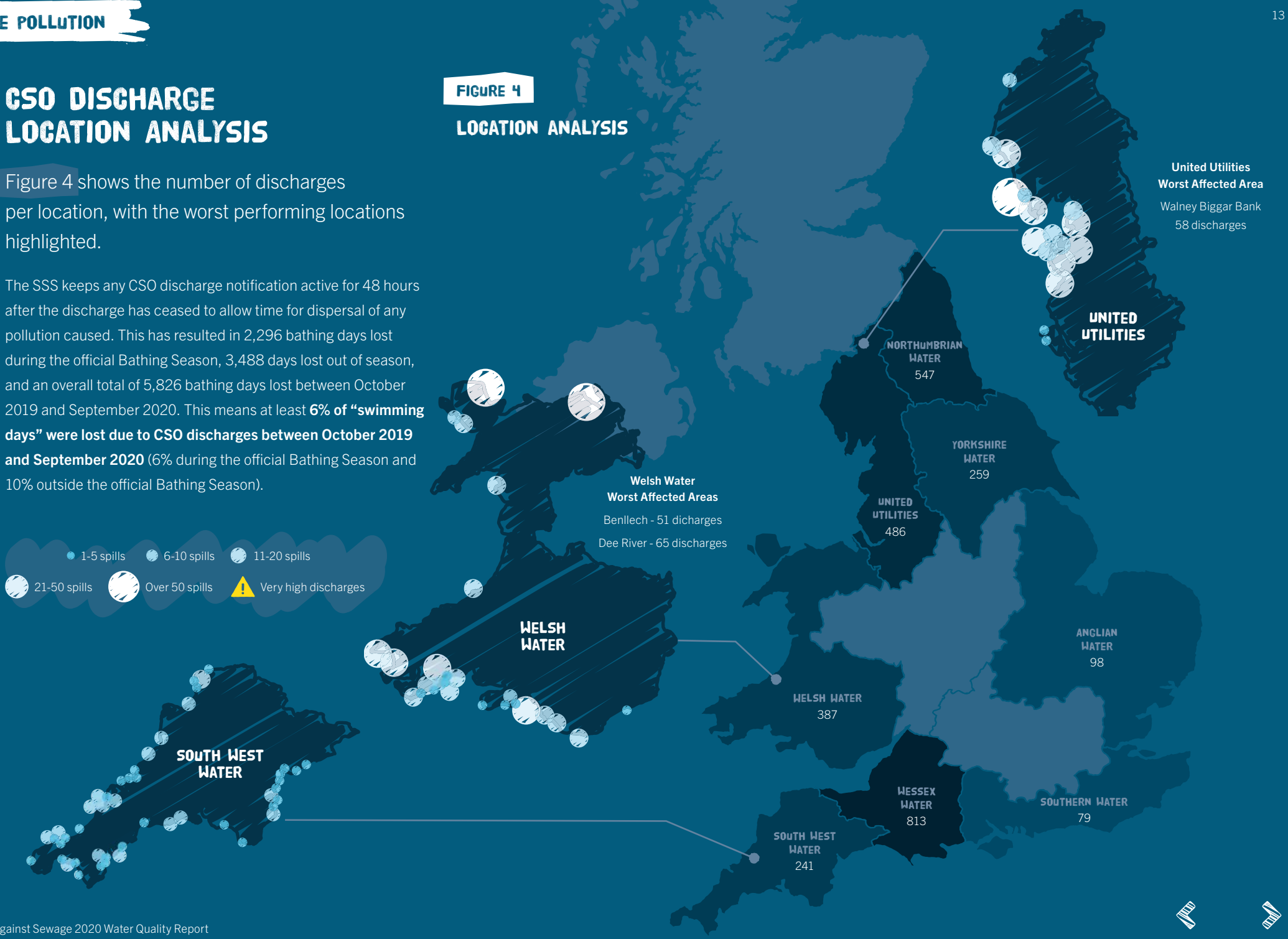
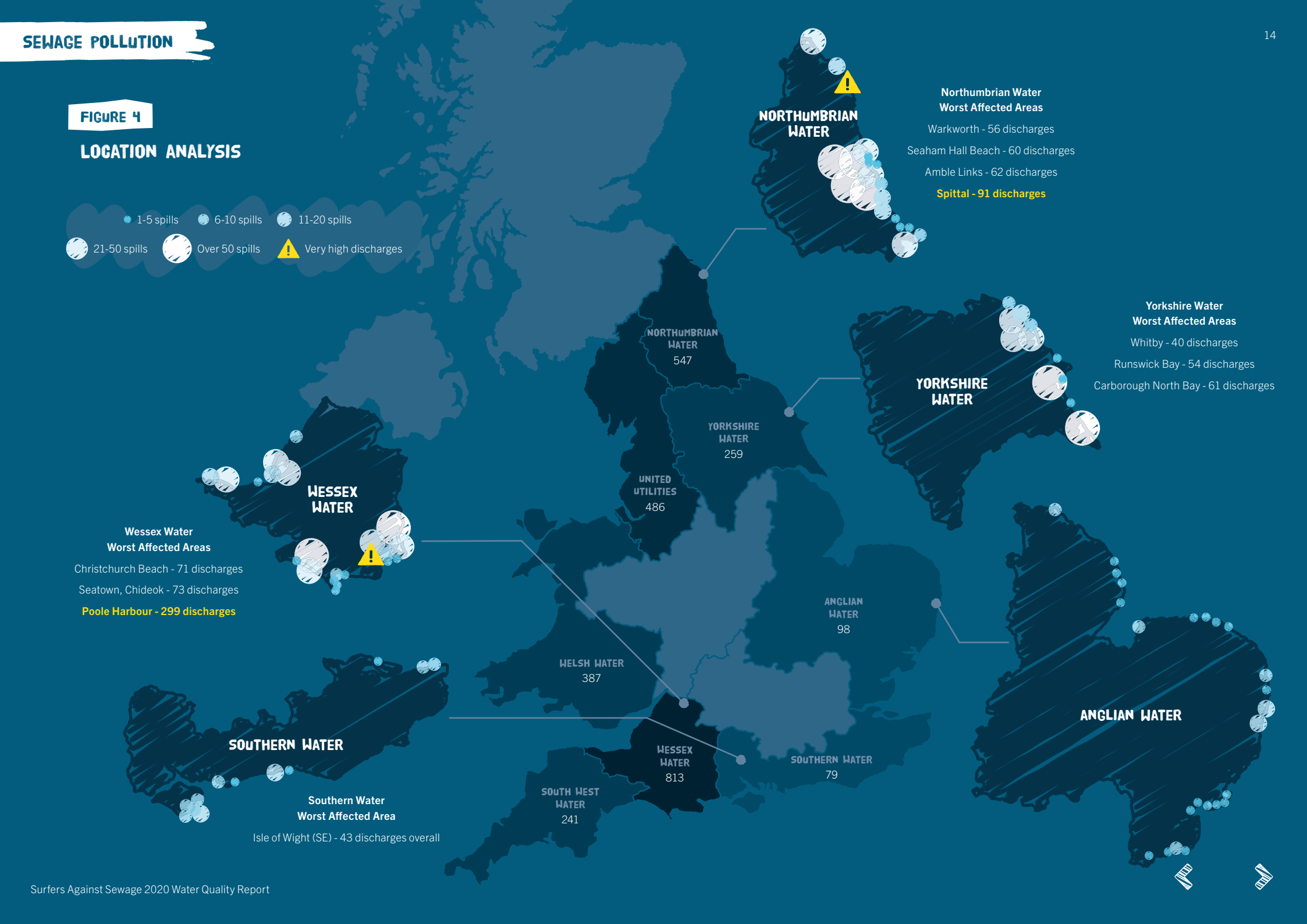


FIGURE 4

LOCATION ANALYSIS



WATER COMPANY PERFORMANCE

In October 2020, the EA released its annual report assessing the environmental performance of water and sewage companies in England for 2019. Despite stark warning of poor performance of almost ALL water companies from the same report in 2019 for 2018 performance, environmental performance continued to deteriorate for the second year in a row.

Four of the nine water companies in England were rated as "poor" or requiring improvement, the worst results since 2011.[12] This is simply unacceptable.

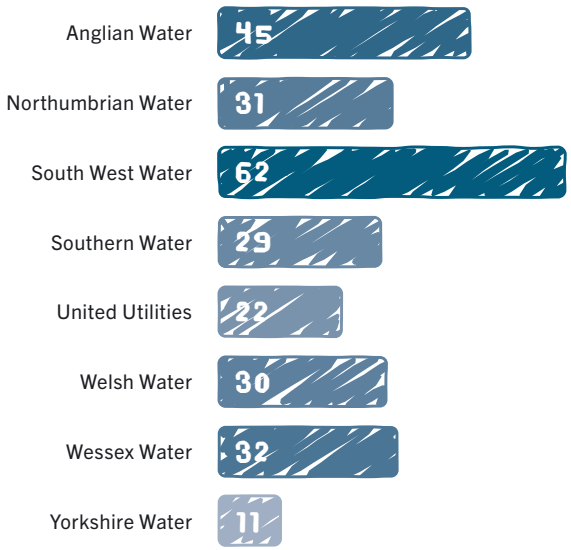
The analysis from the SSS looks more specifically at water company performance in relation to sewage discharges from CSO infrastructure to provide an additional perspective on how water companies are performing.

Eight of the major water companies around the coast of England and Wales voluntarily provide CSO discharge notifications to the SSS for designated Bathing Waters which are affected by CSOs.

Figure 5 shows the number of locations CSO discharge notifications are provided for by each water company.

FIGURE 5

NUMBER OF CSO ASSETS WATER COMPANIES PROVIDE NOTIFICATIONS FOR THROUGH THE SSS



12. (2020) Water and sewerage companies in England: environmental performance report for 2019, accessed 2 October 2020, https://www.gov.uk/government/publications/water-and-sewerage-companies-in-england-environmental-performance-report-2019/water-and-sewerage-companies-in-england-environmental-performance-report-for-2019

FIGURE 6

TOTAL NUMBER OF CSO DISCHARGE NOTIFICATIONS 2019/20

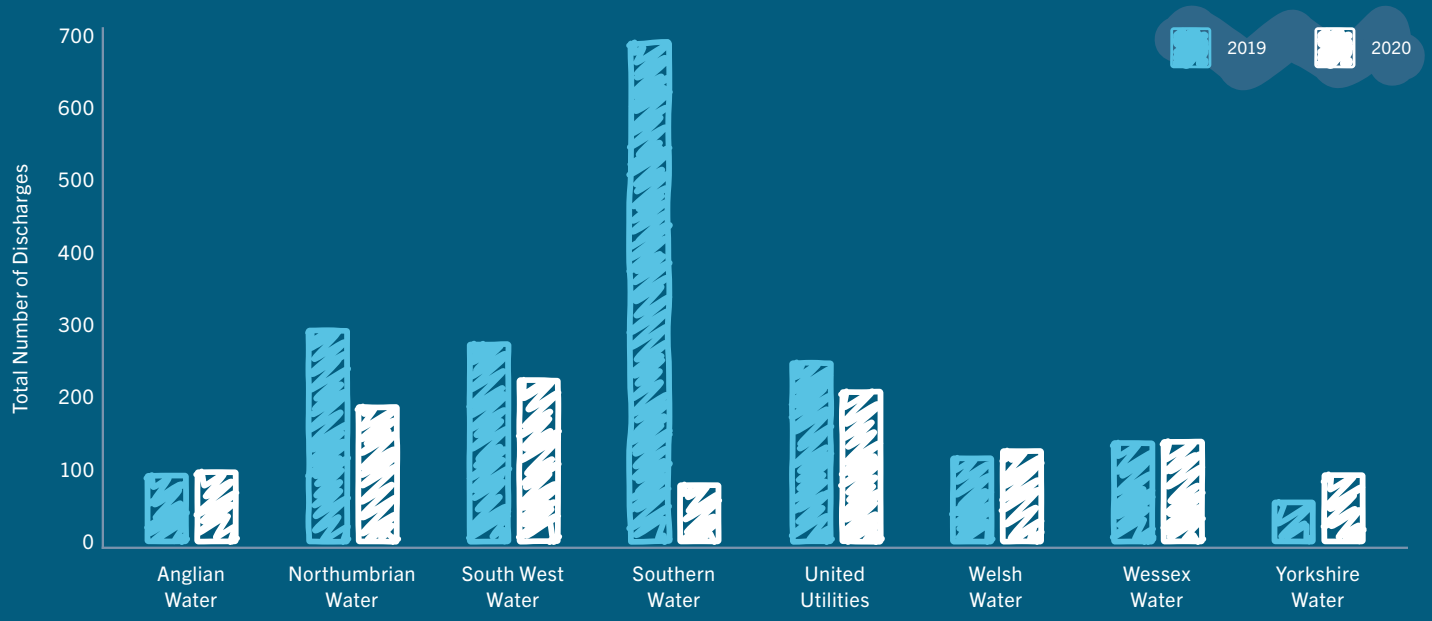


Figure 6 shows the total number of CSO discharge notifications issued by each water company during the 2020 Bathing Season compared to 2019.

Southern Water immediately stands out with significantly fewer CSO discharge notifications issued in 2020 than in 2019 (78 CSO discharge notifications in 2020 compared to 690 in 2019).

The majority of other water companies have issued fewer or a similar number of CSO discharge notifications in 2020 as were issued in 2019.

This is likely to be as a result of 2020 being somewhat a dryer year than 2019, with much less rainfall during May (32.7mm in 2020 compared to 63.7mm in 2019) and September (74.3mm in 2020 compared with 126mm in 2019).

Assessing the total number of CSO discharge notifications alone does not allow relative comparisons between water company performance to be drawn as there is a bias against water companies that provide notifications for more locations.

FIGURE 7

AVERAGE NUMBER OF CSO DISCHARGE NOTIFICATIONS PER LOCATION FOR EACH WATER COMPANY

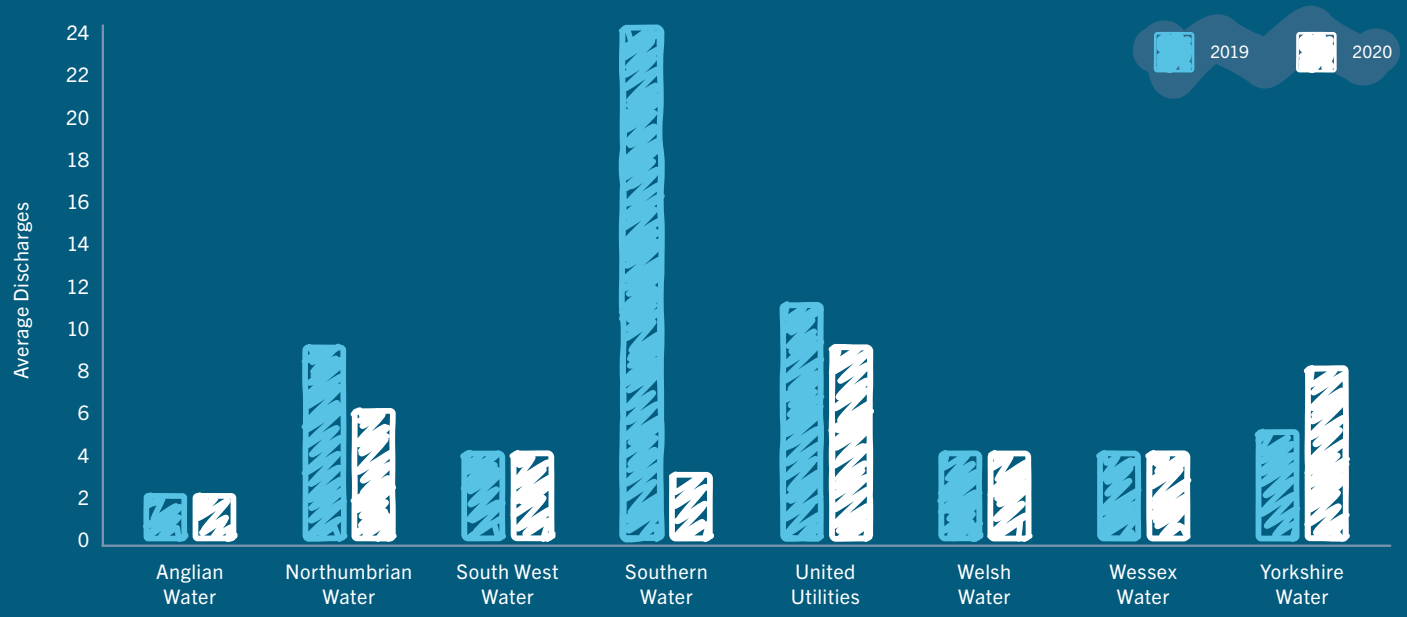


Figure 7 shows the average number of CSO discharge notifications issued per location for each water company.

For the 2020 official Bathing Season, United Utilities has issued the most CSO discharge notifications per location at an average of 9 notifications per location. This is followed by Yorkshire Water, with an average of 8 CSO discharge notifications per location and Northumbrian Water with an average of 6 CSO discharge notifications per location.

Whist most water company's performance appears to be broadly similar between 2019 and 2020, Yorkshire Water's performance has decreased significantly. Again, Southern Water appear to have had a huge reduction in the average number of CSO discharges issued per location in 2020, compared to 2019.

FOUR OF THE NINE WATER COMPANIES IN ENGLAND WERE RATED AS "POOR" OR REQUIRING IMPROVEMENT, THE WORST RESULTS SINCE 2011

2020 WATER QUALITY REPORT

Following the same methodology as the EA in assessing water company environmental performance, Figure 8 shows the number of CSO discharge notifications issued by each water company per 10,000km of sewerage network.

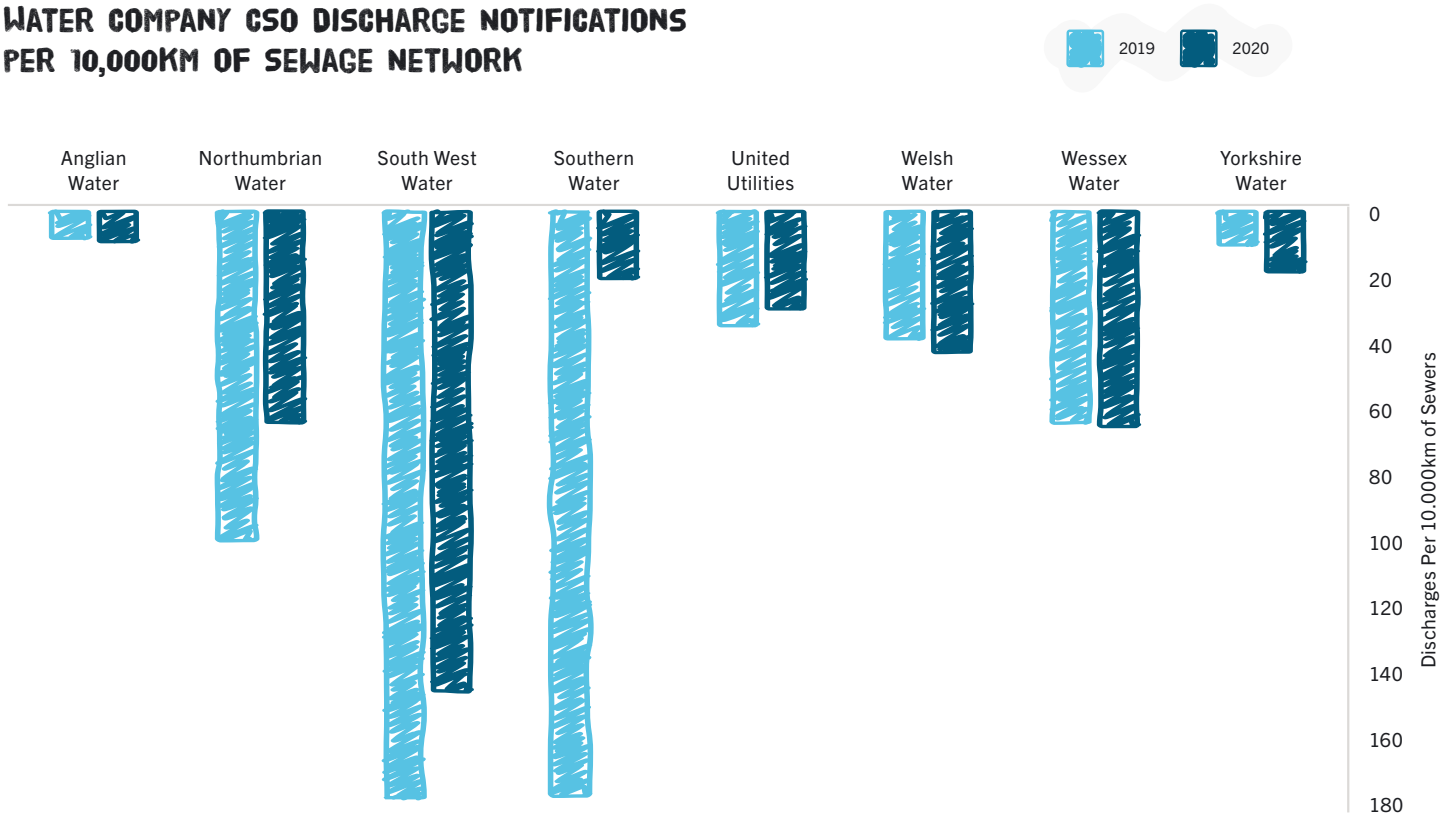
South West Water are by far the worst performing water company against this metric with 143 CSO discharge notifications issued per 10,000km of sewerage network, although slightly less than the 175 notifications per 10,000km of sewerage network in 2019.

Yet again, we are seeing what appears to be a significant improvement in performance by Southern Water, with only 20 CSO discharge notifications issued per 10,000km of sewerage network in 2020 compared to 174 in 2019.

This has meant Southern Water has moved from being one of the worst performing water companies in 2019, to one of the better performing water companies in 2020...

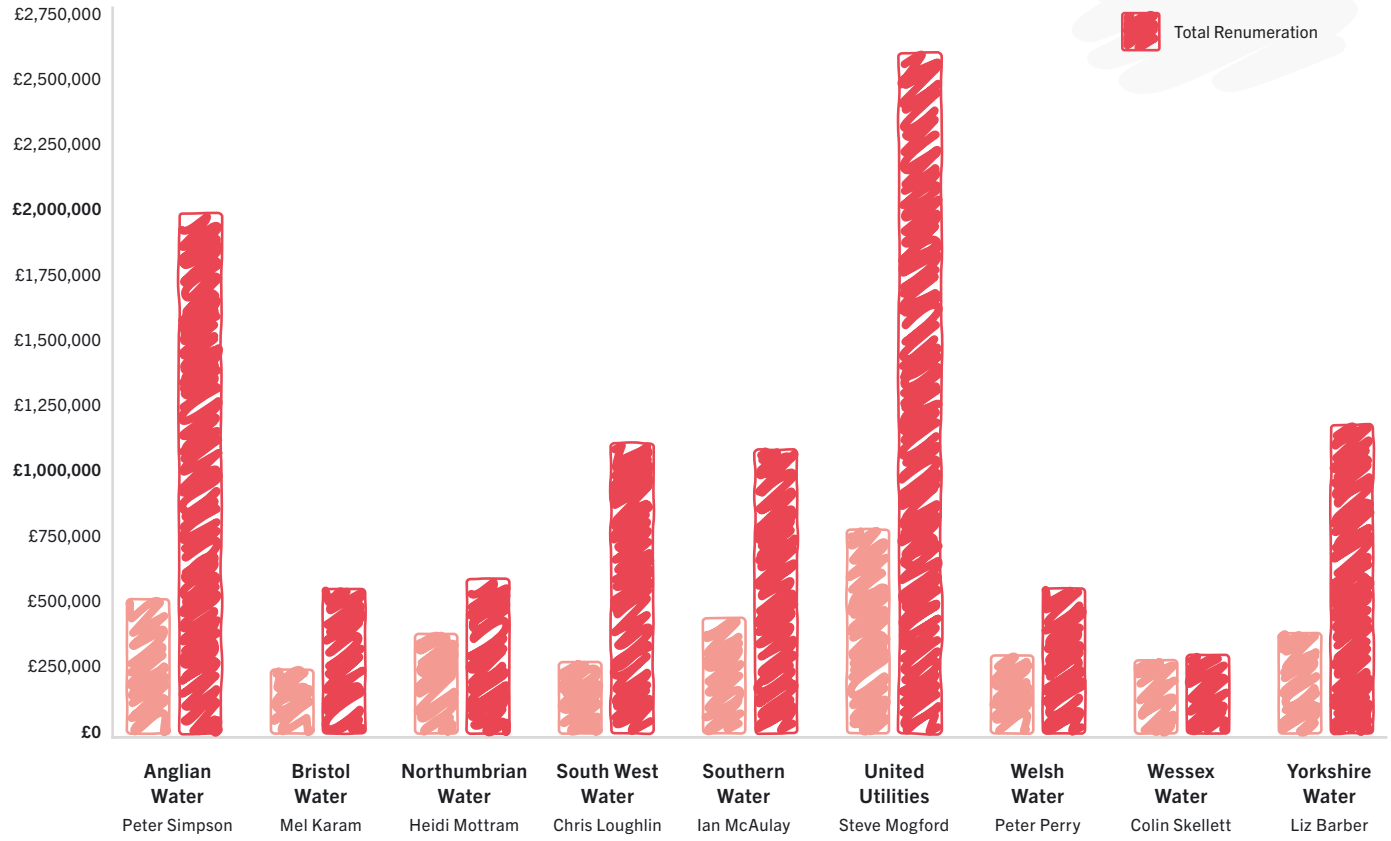
FIGURE 8

WATER COMPANY CSO DISCHARGE NOTIFICATIONS PER 10,000KM OF SEWAGE NETWORK



HANG ON, WHY DOES SOUTHERN WATER LOOK LIKE IT'S PERFORMING SO MUCH BETTER THIS YEAR THAN LAST YEAR?

FIGURE 9 CEO RENUMERATION 2019/2020



Renumeration values sources:

Anglian Water: https://www.anglianwater.co.uk/siteassets/household/about-us/air-2020.pdf
Bristol Water: https://www.bristolwater.co.uk/wp-content/uploads/2020/07/BW_APR-2020_ART.pdf
Northumbrian Water: https://www.nwg.co.uk/globalassets/corporate/about-us-pdfs/nw_financial_statement_2020_final.pdf
South West Water: https://www.southwestwater.co.uk/siteassets/document-repository/annual-reports/201920-ar-final.pdf
Southern Water: https://southernwater.annualreport2020.com/media/2084/sw-remuneration.pdf
United Utilities: https://www.unitedutilities.com/corporate/investors/Reports-and-presentations/annual-reports/
Welsh Water: https://corporate.dwrcymru.com/-/media/Project/Files/Page-Documents/Corporate/Library/Group-Annual-Report-and-Accounts/Glas-Cymru-Cyfyngedig/2019-2020/English/Glas-Cymru-Annual-Report-Accounts-2020.ashx
Wessex Water: https://www.wessexwater.co.uk/-/media/files/wessexwater/corporate/strategy-and-reports/ar20/annual-report-and-accounts-2019-20.pdf
Yorkshire Water: https://www.yorkshirewater.com/media/2584/29938_yw_annual_performance_report_2020_web.pdf

Southern Water has a notorious record for continuous poor performance, deceit and lack of transparency.

They achieved a pitiful one-star rating for environmental performance in 2019, were slammed with fines of £126 million for serious failings in its sewage treatment works and deliberately misreporting in 2019, and this year pleaded guilty in court to deliberately dumping poisonous, noxious subsistences including untreated sewage into rivers and coastal recreational hot-spots over five years.[13]

So why do they appear to be the best performing water company in our 2020 analysis?

We were confused as well, so we asked them! The response we got...

> "NOTIFICATIONS SHOULD HAVE BEEN SENT BUT FRUSTRATINGLY THEY WEREN'T"

Hang on, WHAT! This means that throughout the course of the 2020 Bathing Season, CSOs have been discharging into Bathing Waters, putting bathers at risk of getting sick, without them knowing. Locations including Brighton and Hove, where over 50 CSO discharge notifications were issued in 2019, received **NO notifications at all this year**! In a year where our health has been at the forefront of public consciousness, how is this acceptable?

We have been told that this was due to technological issues as a result of updating CSO discharge reporting systems. And all the while, directors and shareholders continue to line their pockets.

Southern Water's CEO alone received a remuneration package of over £1 million in 2019/20[14] and over £0.9 billion has been paid out to shareholders over the last 10 years.[15] Why Southern Water can't invest more in its reporting systems and infrastructure is beyond us.

The emissions scandal continues...

13. Plimmer, G. (2020) Southern Water in court after pleading guilty to dumping sewage, accessed 28 October 2020, https://www.ft.com/content/3efb3e7b-3388-4f27-85ac-44b00aa1fd37
14. Southern Water (2020) Annual Report and Financial Statement, 2020, https://www.southernwater.co.uk/media/3632/southernwater_ar2020-150720.pdf
15. Laville, S. (2020) England's privatised water firms paid £57bn in dividends since 1991, The Guardian

DESPITE GROWING ATTENTION ON WATER COMPANY ENVIRONMENTAL PERFORMANCE, WE ARE STILL SEEING A SIGNIFICANT NUMBER OF CSO DISCHARGES IN UK BATHING WATERS.

2020 WATER QUALITY REPORT

CONCLUSIONS

Despite growing attention on water company environmental performance, we are still seeing a significant number of CSO discharges in UK Bathing Waters. Our findings (accounting for the issues highlighted with Southern Water's notifications), present a worrying and ongoing trend, consistent with other reports of a continued decline in water company performance.

However, this is just the tip of the iceberg. We are only able to assess the information voluntarily provided to us by water companies. Many more CSOs discharge into important blue habitats and unofficial recreational zones not designated as official Bathing Waters, without our knowledge or sufficient levels of transparency from water companies. Water companies must do more to protect and restore blue environments and fully safeguard the growing number of people who rely on these natural amenities for health, prosperity and wellbeing.

Whilst the majority of water companies provide real-time CSO discharge notifications year-round, this only accounts for just over half of Bathing Waters impacted by CSOs. With huge increases in the recreational use of water ways throughout the year, it is vital that transparent, real-time information is provided all year-round by all water companies, in order to keep water users safe. All water companies have this data yet some seem unwilling to share this critical information that can help protect public health. Although there have been historical improvements in sewerage infrastructure from water company investments over the last thirty years, riverine and coastal habitats are still treated as a place to dispose of sewage on a daily basis.

We need to see legally-binding sewage emission reduction targets and subsequent investment that bring about an end to sewage pollution. This starts with identifying the worst performing CSOs in order to focus remedial action and investment. Whilst the EA and Ofwat have provided guidance for water companies to classify CSO discharge outlets according to their condition and subsequent performance[16], there is no legal obligation to do so. No water company has therefore successfully carried out an extensive classification of their CSO assets.[17] This failure to adequately enforce the classification and categorisation of CSO assets has resulted in a lack of comprehensive information on the state of CSO infrastructure and lack of investment to improve it. This voluntary approach has allowed water companies to, so far, avoid criticism on this issue or undertake the required action to protect people and planet.

Ultimately, ambitious and progressive investment is needed to separate our surface water from sewage treatment infrastructure to truly protect the environment. It is incumbent on water companies to identify the pathway to make this happen. Perhaps instead of sickening dividend pay outs...

WATER COMPANIES SHOULD FOCUS INVESTMENT ON INTERVENTIONS THAT KEEP THEIR CUSTOMERS, PEOPLE AND PLANET SAFE.

16. Environment Agency (2018) Water companies: environmental permits for storm overflows and emergency overflows, accessed 12 October 2020, https://www.gov.uk/government/publications/water-companies-environmental-permits-for-storm-overflows-and-emergency-overflows/water-companies-environmental-permits-for-storm-overflows-and-emergency-overflows
17. Laville, S.E. (2020) MP calls for crackdown on raw sewage discharges in English rivers, The Guardian

Water Quality

The water quality of designated Bathing Waters is determined through the annual classification process. Water quality samples are taken by the relative regulator during the official Bathing Season (15th May to 30th September for England and Wales and 15th July to 15th September for Scotland) and tested for bacteria that indicates whether there is faecal matter in the water.

Specifically, samples are tested for E. coli and intestinal enterococci. These samples are used to help classify designated Bathing Waters for the next Bathing Season. Each Bathing Water is classified as either:

EXCELLENT
The highest clearest seas;

GOOD
Generally good water quality;

SUFFICIENT
The water meets minimum standards; or

POOR
The water has not met minimum standards

Whilst the beach remains open, for all Bathing Waters rated as “poor”, bathing is unadvised and work is planned to improve water quality. If a Bathing Water receives this classification 4 years running, it loses its designation.

IF AN INCREASED RISK IS FORECASTED, A PRF WARNING IS ISSUED BY THE REGULATOR TO ADVISE AGAINST BATHING

However, water quality changes over time can vary during the course of a month, week and even a day. Water quality testing is therefore combined with data on wind, tide and rainfall to predict changes in water quality over time through PRFs. If an increased risk is forecasted, a PRF warning is issued by the regulator to advise against bathing.

PRFs are provided through our SSS by the EA in England, Natural Resources Wales, in Wales, and the Scottish Environmental Protection Agency, in Scotland. Live PRF forecasts are made for a total of 190 locations across the UK.

POLLUTION RISK FORECAST ANALYSIS

Figure 10 shows the average number of CSO discharge notifications and PRF notifications issued for each Bathing Water classification.

Bathing Waters rated as "excellent", on average, received 7 PRF notifications during the 2020 Bathing Season, Bathing Waters rated "good" received an average of 13, those rated "satisfactory" received an average of 21, and Bathing Waters rated "poor" received an average of 28.

Given that the PRF system is based on in season water quality sampling, it is unsurprising to see a fairly consistent trend in PRF notifications issued and Bathing Water classifications

Looking at CSO discharge notifications, on average, Bathing Waters rated as "excellent" received 4 CSO discharge notifications during the Bathing Season. Bathing Waters classified as "good" and "sufficient" received, on average, 6 and 7 notifications respectfully, and Bathing Waters rated as "poor' received 8 notifications.

For Bathing Waters where CSO discharge notifications are provided out of season, there appears to be a significant increase in the number of CSO discharge notifications issued for those rated as "excellent" with 6 notifications and those rated as "poor", with 11 notifications.

FIGURE 10 AVERAGE NUMBER OF CSO DISCHARGE NOTIFICATIONS AND PRF NOTIFICATIONS PER BATHING WATER CLASSIFICATION

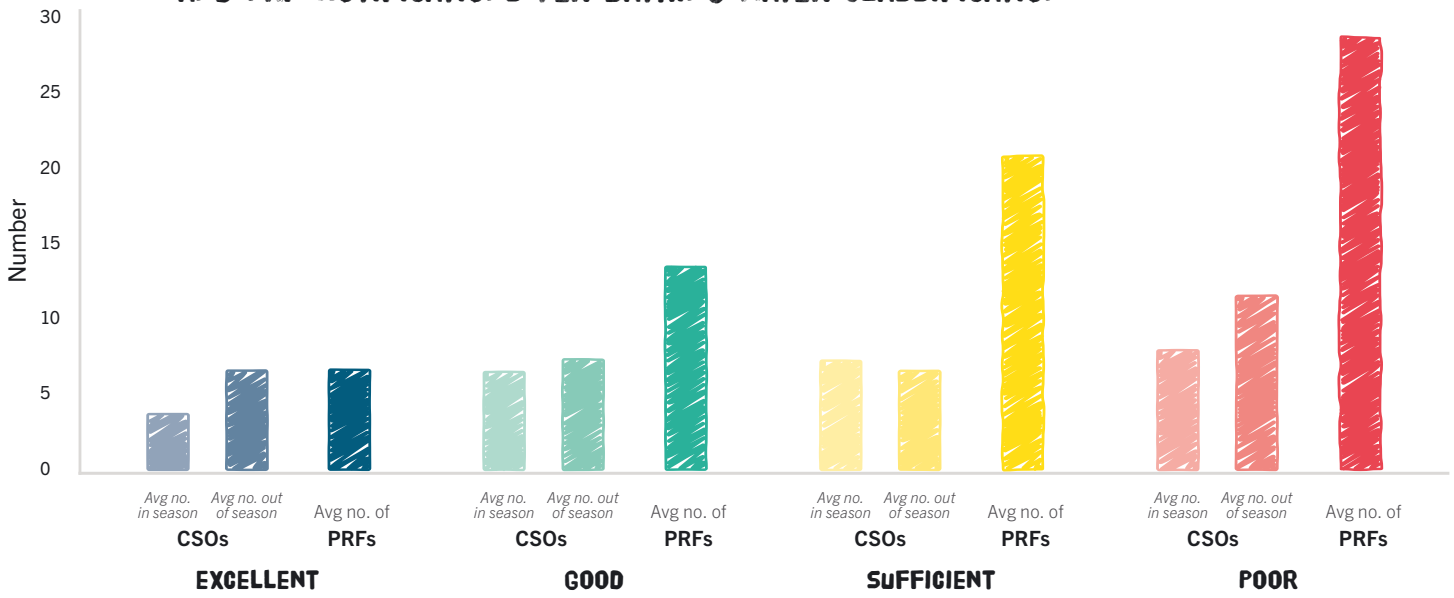


Figure 11 shows the number of PRF notifications issued per location, with the worst performing locations highlighted.

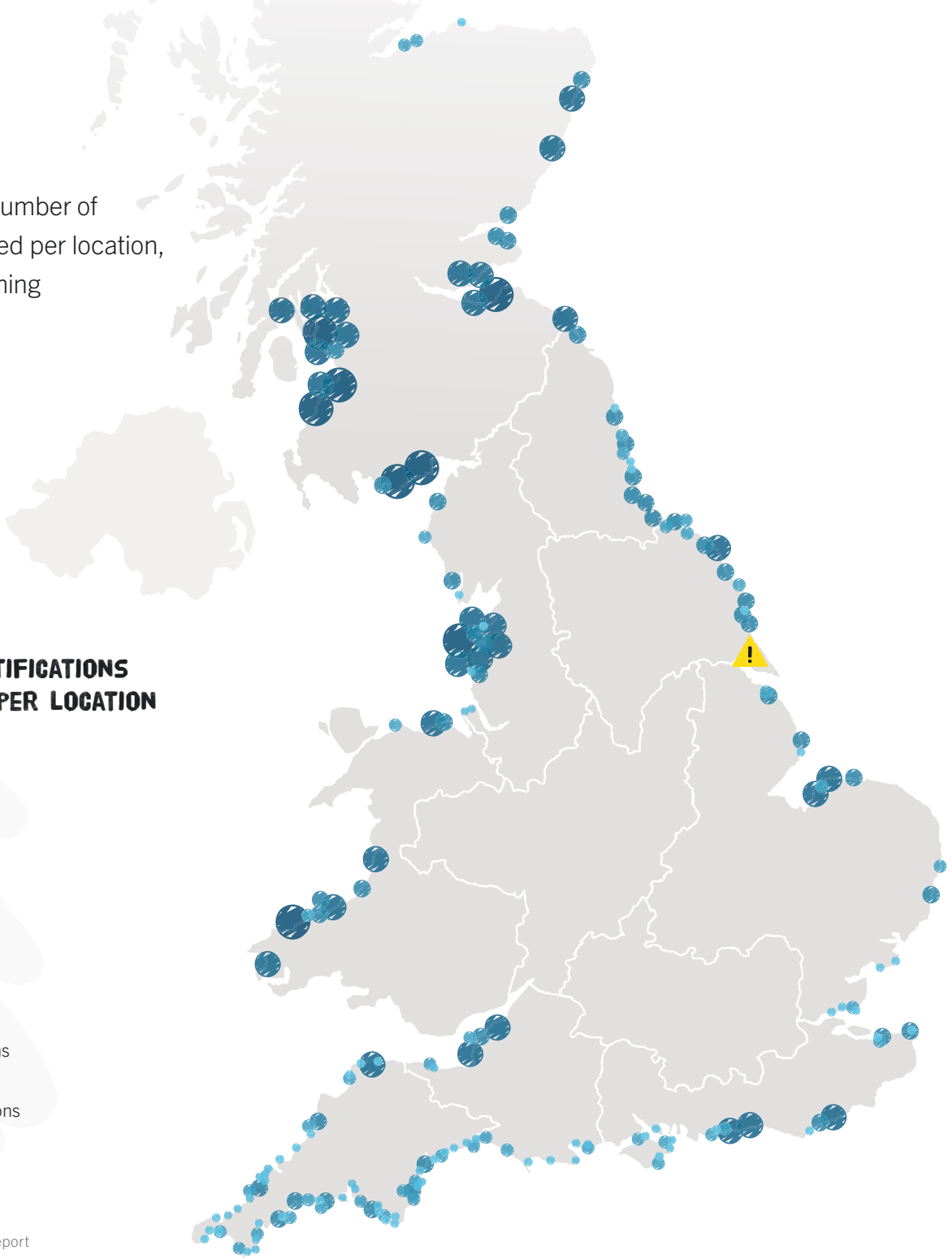


FIGURE 11 **PRF NOTIFICATIONS ISSUED PER LOCATION**

CONCLUSIONS

In 2019, 98% of UK Bathing Waters met minimum standards, yet we rank just 25th of 30 European countries for the quality of our Bathing Waters. What is not often published is that only 66% of UK Bathing Waters were rated as "excellent", far below the average of 87% of coastal Bathing Waters meeting the same standard across the rest of Europe.[18]

34% OF BATHING WATERS IN THE UK NEED SOME FORM OF IMPROVEMENT

This suggests that 34% of Bathing Waters in the UK need some form of improvement. This issue is compounded by a testing regime that further distorts the picture. It is inherently limited by the number of sampling days dedicated to testing water quality – samples are only taken on just 20 out of the 153 days in the Bathing Season (15th May-30th September), essentially only giving a single weekly snapshot of water quality at any given location.

65 BATHING WATERS IN ENGLAND ACHIEVED A HIGHER QUALITY RATING THEN THEY SHOULD HAVE

Further limitations are caused by the legal manipulation of the water quality records for certain Bathing Waters. The Bathing Water Quality Directive[19] has an optional provision for up to 15% of water samples for any Bathing Water to be discounted if they are affected by "short term pollution events" (i.e. sewage discharge contamination).[20]

Recent research suggests, this provision was being used to discount 1 in 7 samples in 2019.[21] Furthermore, it is suggested that this practice means that a total of 65 Bathing Waters in England achieved a higher quality rating then they should have. Therefore, nineteen Bathing Waters classified as "excellent" should, it is suggested, be downgraded.[22]

This brings into question the PRF system that is meant to provide us with information regarding the risk of getting sick as a result of water pollution, including sewage pollution. As PRFs are fundamentally based on assumptions underpinned by a false testing regime, is the risk being accurately predicted?

SURELY FOR A BATHING WATER CLASSIFICATION MEANING "THE HIGHEST CLEANEST SEA", WE SHOULD NOT BE PUT AT RISK FROM SEWAGE AT ALL?

Looking at our 2019/20 analysis we have found that on average, 4 CSO discharge notifications were issued during the Bathing Season and 6 notifications issued outside the Bathing Season for Bathing Waters classified as "excellent". Firstly, this highlights the need for PRFs to be extended to provide notifications all year-round.

Secondly, surely for a Bathing Water classification meaning "the highest cleanest sea", we should not be put at risk from sewage at all? Wilfully ignoring some of worst polluting incidents at Bathing Waters through discounting allows water companies to pollute more freely without fear of accountability.

18. European Environment Agency (2019) European bathing water quality in 2019, accessed 10 October 2020, https://www.eea.europa.eu/themes/water/europes-seas-and-coasts/assessments/state-of-bathing-water/european-bathing-water-quality-in-2019

19. The European Parliament and the council of the European Union (2006) Directive 2006/7/EC of the European Parliament and of the Council of 15 February 2006 concerning the management of bathing water quality and repealing Directive 76/160/EEC

20, 21, 22. Gowen, P., and Eades, S. (2020) Sand, Sea and Sewage. Are English Sea Bathing Waters Safe?, January 2020, http://www.marinet.org.uk/campaign-article/sand-sea-and-sewage

THE IMPACT SEWAGE DISCHARGE HAS HAD ON RIVER ENVIRONMENTS IS DEVASTATING

2020 WATER QUALITY REPORT

WHAT ABOUT RIVERS?

There are currently no designated Bathing Waters on any of the UK's inland waterways. Yet, they provide an invaluable recreational space for a huge proportion of the population, particularly those who live inland, with limited access to the coast.

Of the 21,462 licensed CSOs in England and Wales, just under 90% discharge directly into rivers.[23] In 2019, sewage was discharged into English rivers over 200,000 times, totalling 1.5 million hours of discharges.[24] But without any official designations, we have no way of knowing what the quality of these waterways is like, placing river water users under a serious health risk.

At the time of writing, the application for the UK's first designated Bathing Water was being considered for Ilkley on the River Wharfe. With inland water recreation only likely to increase, it is essential that inland waters are officially designated to ensure the protection of public health and to drive investment for improving inland water quality.

The impact sewage discharge has had on river environments is devastating. Only 16% of inland waterways (rivers, lakes, streams) in England meet "good ecological status". In addition, none of them pass the chemical test, suggesting pollution from sewage discharge, chemicals and agriculture are having a huge impact on river water quality.[25]

We are on track to fall far short of the UK's commitment under the EU Water Framework Directive[26] for 100% of rivers to achieve "good ecological status" by 2027.

The imminent Environment Bill should allow the government to introduce world-beating standards to monitor, protect and restore all blue environments, rather than reducing or watering down legislation to achieve standards through manipulation.[27]

The government now also needs to fully resource the regulation and associated restoration of the environment. The environmental, biodiversity, and climate crisis require progressive, rapid and ambitious targets beyond any society has ever seen.

23. WWF (2017) Flushed Away: How Sewage Is Still Polluting The Rivers Of England And Wales, 2017, https://www.wwf.org.uk/sites/default/files/2017-12/Flushed%20Away__Nov2017.pdf
24. Laville, S., and McIntyre, N. (2020) Exclusive: water firms discharged raw sewage into England's rivers 200,000 times in 2019, The Guardian
25. Salvidge, R. All England's rivers fail to meet legal water quality standards, accessed 10 October 2020, http://www.endsreport.com/article/1694741?utm_source=website&utm_medium=social
26. (2000) Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, 327
27. Laville, S. (2020) Environment Agency chief supports plan to weaken river pollution rules, accessed 9 September 2020, https://www.theguardian.com/environment/2020/aug/19/environment-agency-chief-backs-plan-to-water-down-river-cleanliness-rules-james-bevan

RAISING POLITICAL AWARENESS

On 31st January 2020, the UK left the European Union. Until the end of the transition period on 31st December, the UK will still be bound by European environmental legislation.

During the course of 2020, new environmental legislation has been drafted in the form of The Environment Bill 2020.[28] This offers an opportunity to set a range of progressive and world leading targets with the potential to allow for significant environmental improvement. This is a once in a lifetime opportunity to deliver legislation that will improve the water quality of both inland and coastal water environments.

Progress is starting to be made to address the specific issue of inland water quality. At the time of writing, the Sewage (Inland Waters) Bill was making its passage through parliament.[29] This Bill, if adopted by the government, could place legal obligations on water companies to reduce sewage discharges into inland waters. This kind of ambitious legislation is vital to ensuring the end to sewage pollution, through the legislative framework.

An incredible 44,691 members of the general public, and organisations representing millions of people, came together to support the #EndSewagePollution petition to demand the government take action to address the deteriorating state of rivers and coastal waters across the UK through better regulation, water quality testing regimes, investment and nature-based solutions.

Addressed to the Secretary of State for Environment Food and Rural Affairs, George Eustice, the petition was delivered by representatives from across the #EndSewagePollution cross sector coalition of organisations representing river users, canoeists, life savers, journalists, anglers, and surfers in November 2020.

And that's not all. Users of the SSS have been highlighting the scale of the issue at a local level. Using the new "Contact the Local MP" feature in the app, over 3,000 emails have been sent to 93 MPs across the country during the 2020 Bathing Season, notifying them when there has been a CSO discharge or PRF notification issued for a location in their constituency. Table 3 shows all MPs contacted and the number of emails they have received. Will they listen to the voice of their constituency members and visitors? We hope they will pipe up and call to #EndSewagePollution in the halls of Westminster and demand better water company performance.

28.The House of Commons (2020) Environment Bill, accessed 23 September 2020, https://services.parliament.uk/Bills/2019-21/environment/documents.html

29. Laville, S.E. (2020) MP calls for crackdown on raw sewage discharges in English rivers, The Guardian

TABLE 3 NUMBER OF EMAILS SENT TO EACH MP

NAME OF MP	#	CONSTITUENCY
Cherilyn Mackrory	303	Truro and Falmouth
Steve Double	225	St Austell and Newquay
George Eustice	175	Camborne and Redruth
Dr Liam Fox	130	North Somerset
Bob Seely	128	Isle of Wight
Peter Kyle	117	Hove
Simon Jupp	109	East Devon
Mr Geoffrey Cox	98	Torridge and West Devon
Alan Mak	95	Havant
Sir Peter Bottomley	87	Worthing West
Scott Mann	80	North Cornwal
John Penrose	75	Weston-super-Mare
Derek Thomas	74	St Ives
Selaine Saxby	63	North Devon
Sir Robert Syms	48	Poole
Mr Tobias Ellwood	45	Bournemouth East
Stephen Crabb	43	Preseli Pembrokeshire
Mrs Sheryll Murray	41	South East Cornwall
Caroline Dinenage	39	Gosport
Geraint Davies	39	Swansea West
Mr Ian Liddell-Grainger	39	Bridgwater and West Somerset
James Duddridge	38	Rochford and Southend East
Simon Hart	38	Carmarthen West
Sir Christopher Chope	38	Christchurch
Craig Mackinlay	37	South Thanet
Peter Aldous	36	Waveney
Sally-Ann Hart	36	Hastings and Rye
Sir David Amess	36	Southend West
Kevin Foster	35	Torbay
Mr Robert Goodwill	35	Scarborough and Whitby
Christian Matheson	34	Chester
Sir Alan Campbell	33	Tynemouth
Anne Marie Morris	32	Newton Abbot
Mark Menzies	32	Fylde in Lancashire
Sir Gary Streeter	30	East Yorkshire
Tommy Sheppard	28	Edinburgh East
Chris Loder	24	West Dorset
Tim Loughton	24	East Worthing
Virginia Crosbie	24	Ynys Môn
Duncan Baker	23	North Norfolk
Mr Simon Clarke	22	Middlesbrough South & East Cleveland
Richard Drax	22	South Dorset
Brandon Lewis	20	Great Yarmouth
Nick Gibb	19	Bognor Regis and Littlehampton
Anne-Marie Trevelyan	18	Berwick-upon-Tweed
Martin Vickers	17	Cleethorpes
Anthony Mangnall	16	Totnes
Tonia Antoniazzi	16	Gower
Kirsty Blackman	13	Aberdeen North
Margaret Greenwood	13	Wirral West
Huw Merriman	12	Bexhill and Battle
Dr Jamie Wallis	11	Bridgend
James Heappey	11	Wells in Somerset
Luke Pollard	11	Plymouth Sutton and Devonport
David Morris	10	Morecambe and Lunesdale
Grahame Morris	10	Easington
Caroline Ansell	9	Eastbourne
Kevin Hollinrake	9	Thirsk and Malton
Paul Maynard	9	Blackpool North and Cleveleys
Ben Lake	8	Ceredigion
Ian Levy	8	Blyth Valley
Alun Cairns	7	Vale of Glamorga
Conor Burns	7	Bournemouth West
Damien Moore	7	Southport
Allan Dorans	6	Ayr, Carrick and Cumnock
Jacob Young	6	Redcar
James Wild	6	North West Norfolk
Victoria Atkins	6	Louth and Horncastle
Dr Thérèse Coffey	5	Suffolk Coastal
Giles Watling	5	Clacton
Rosie Duffield	5	Canterbury
Scott Benton	5	Blackpool South
Dr James Davies	4	Vale of Clwyd
Mike Hill	4	Hartlepool
Neil Parish	4	Tiverton and Honiton
Simon Fell	4	Barrow and Furness
Sir Roger Gale	4	North Thanet
Cat Smith	3	Lancaster and Fleetwood
Graham Stuart	3	Beverley and Holderness
Julie Elliott	3	Sunderland Centra
Ms Angela Eagle	3	Wallasey
Sir Greg Knight	3	East Yorkshire
Trudy Harrison	3	Copeland
Dr Philippa Whitford	2	Central Ayrshire
Mrs Emma Lewell-Buck	2	South Shields
Neale Hanvey	2	Kirkcaldy and Cowdenbeath
Patricia Gibson	2	Ayrshire and Arran
Robin Millar	2	Aberconwy
Wendy Chamberlain	2	North East Fife
David Duguid	1	Banff and Buchan
Douglas Ross	1	Moray
John Lamont	1	Berwickshire, Roxburgh and Selkirk
Liz Saville Roberts	1	Dwyfor Meirionnydd

#ENDSEWAGEPOLLUTION

COMMUNITIES ACROSS THE COUNTRY HAVE COME TOGETHER TO DEMAND GOVERNMENT AND WATER COMPANIES #ENDSEWAGEPOLLUTION.

In September 2020, ocean and river activists from Brighton, Cornwall, Edinburgh, London, Scarborough, Windrush, and Western-Super-Mare protested next to local sewage outlets to raise awareness of the issue of water quality at their local beaches and rivers.

Human Health

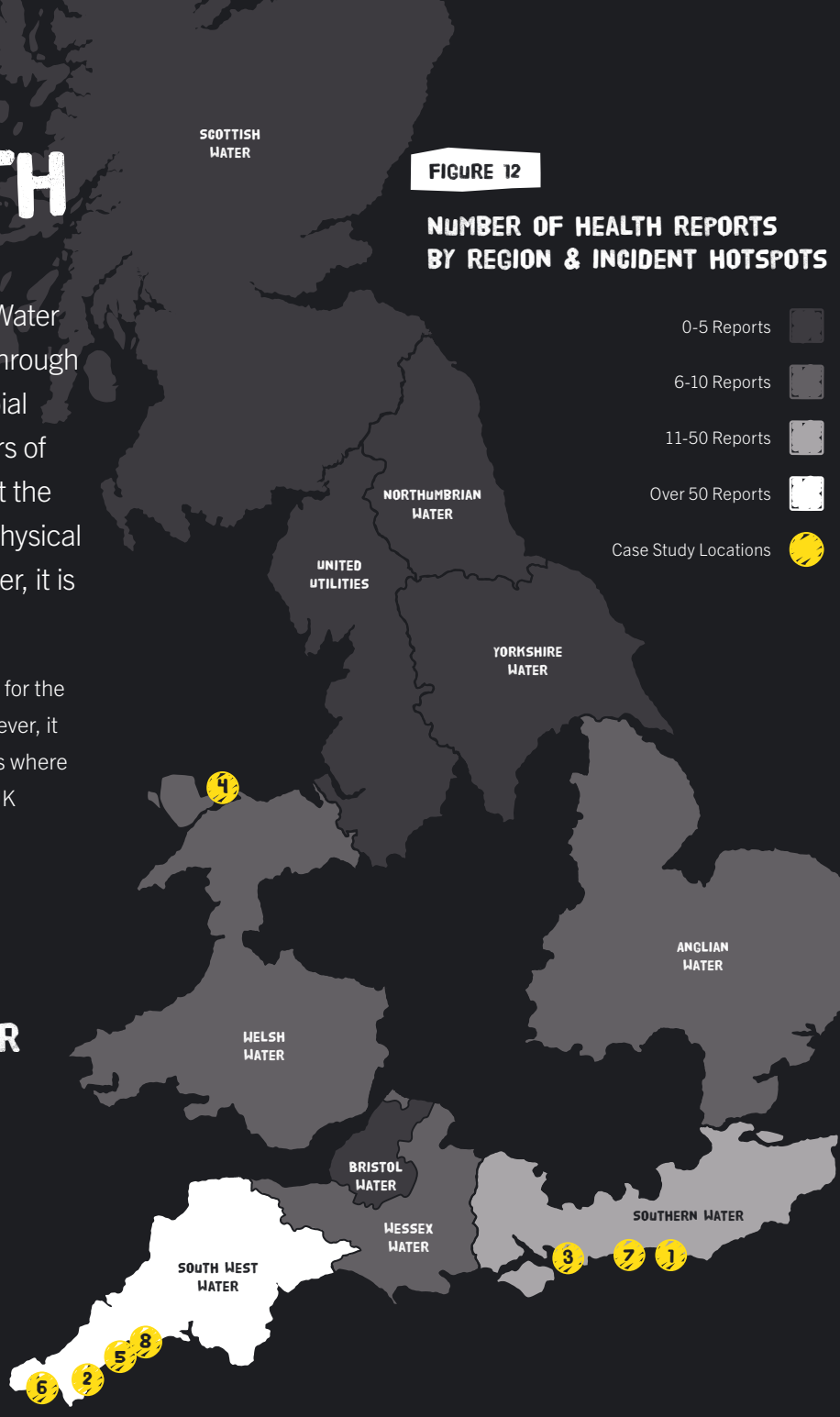
Poor water quality is a public health issue. Water pollution puts water users at risk of illness through exposure to harmful viruses and antimicrobial resistant bacteria. Given increasing numbers of people use the rivers and ocean throughout the year, as well as growing recognition of the physical and mental health benefits of using the water, it is vital they are protected.

With health reporting tools online and through the SSS, for the first time, we have investigated "health hotspots". However, it should be noted that we are only able to track instances where reports have been submitted and these are limited to UK bathing waters covered by the SSS.

IN THE MOST SEVERE OF CASES, TWO WATER USERS NEEDED ANTIBIOTICS FOR THEIR GASTROENTERITIS ISSUES AND ANOTHER HEALTH REPORT RESPONDENT SHOCKINGLY REQUIRED EMERGENCY CARE.

FIGURE 12

NUMBER OF HEALTH REPORTS BY REGION & INCIDENT HOTSPOTS



HEALTH HOT SPOTS

This year, 153 water users submitted health reports after falling ill from using the water. Every report submitted represents a period in which water users were exposed to harmful microbes, causing sickness, distress and in some cases, long-term health effects.

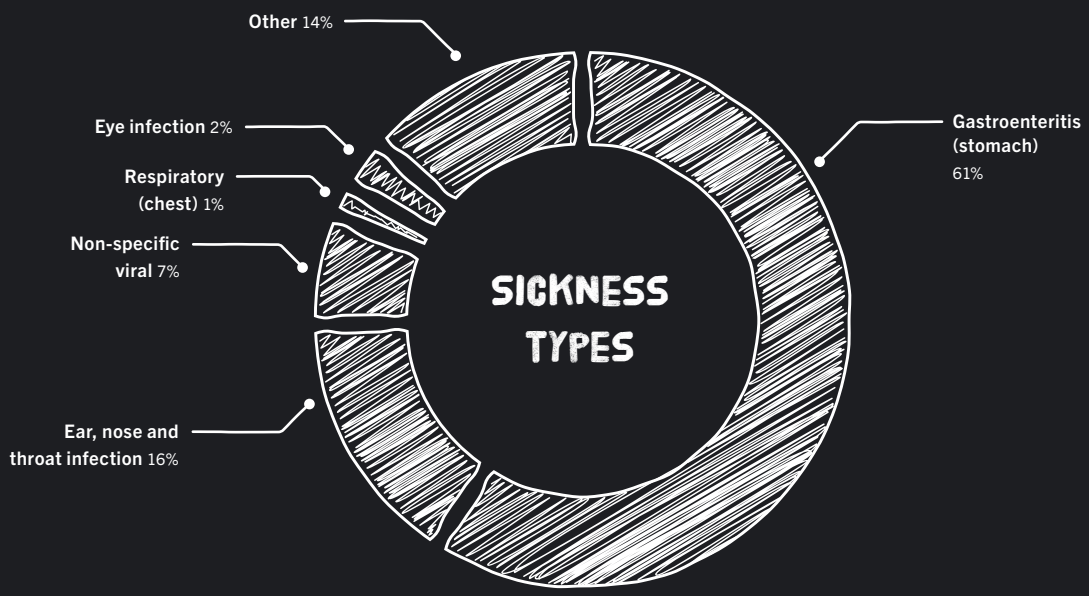
Certain UK Bathing Waters received higher numbers of health reports than others and some water companies were associated with a greater proportion of reports (see Figure 12). The leading health hotspot location as well as 21% of health reports fell under Southern Water's operational area.

Despite its "excellent" classification, Hove Lawn in Brighton received the highest number of health reports with 7 people reporting that they had contracted gastroenteritis related infections during the Bathing Season. Further hotspots are developing in the South West of England, including the locations of Westward Ho! and Croyde Bay with 6 health reports each, followed by Porth with 5 sickness incidents

This is unsurprising given 52% of health reports relate to locations within South West Water's boundary. It should be highlighted, however, that this analysis does not consider the popularity and use of these locations.

A variety of different illnesses were experienced by water users across the UK. The most common illness experienced was found to be gastroenteritis or infectious diarrhoea, accounting for 64% of submitted reports. That is, 98 incidents of people contracting often severe stomach infections from the water. Ear, nose and throat related infections also accounted for a large proportion of incidents with 25 health reports as well as 10 non-specific viral associated illnesses experienced by different water users. In the most severe of cases, two water users needed antibiotics for their gastroenteritis issues and another health report respondent shockingly required emergency care.

FIGURE 13 TYPE OF SICKNESS REPORTED



SICKNESS INCIDENT CASE STUDIES

Brighton

I have swum, kayaked and played in the water off Brighton beach since I was a child and love it. I originally thought I had an outer ear infections (swimmer's ear), but after seeing the nurse at the doctor's surgery it was diagnosed as a middle ear infection and I took antibiotics for a week. It actually took 2 weeks to clear, during which I had difficulty sleeping because of the pain in my ear and jaw. I also had an itchy rash all over my back.

SICKNESS REPORT #1

Patient name: Penelope

Age: 56

Date of exposure: First week of August 2020

Time of exposure: Various

Activities undertaken:

- [x] Swimming
- [ ] Surfing
- [ ] Kitesurfing
- [ ] Kayaking
- [ ] SUP
- [ ] Other

If you were in a group, did others get sick?

- [ ] Yes
- [ ] No
- [x] N/A (Alone)

Source of sickness attributed to water by medical professional?

- [x] Yes
- [ ] No
- [ ] N/A (Not seen)

Were pollutants visible?

- [ ] Yes
- [x] No

Location of Exposure: Brighton - between Pier & Marina

Diagnosis: Middle ear infection

Cornwall

I am a doctor. I ate exactly the same food as my sister and husband for the days before & during. I swam front crawl and swallowed some small amount of water. I have spent decades surfing and swimming and knew there was sewage. That night I started feeling nauseated, started vomiting and had diarrhoea. Hit me for six. Sister and husband were well. Definitely from the water.

SICKNESS REPORT #2

Patient name: David

Age: 40

Date of exposure: 28/8/2020

Time of exposure: 1pm

Activities undertaken:

- [x] Swimming
- [ ] Surfing
- [ ] Kitesurfing
- [ ] Kayaking
- [ ] SUP
- [ ] Other

If you were in a group, did others get sick?

- [ ] Yes
- [x] No
- [ ] N/A (Alone)

Source of sickness attributed to water by medical professional?

- [x] Yes
- [ ] No
- [ ] N/A (Not seen)

Were pollutants visible?

- [x] Yes
- [ ] No

Location of Exposure: Carne Beach, Cornwall

Diagnosis: Gastroenteritis

SICKNESS INCIDENT CASE STUDIES

Chichester

We'd motored out to anchor just off Pilsey Island, a relatively quiet spot in Chichester Harbour. We'd been looking forward to swimming off the back of our yacht for some time and this was the first time out as a family since C-19 lock down ended. It was a lovely summer's day and I enjoyed a cool dip. I awoke in the middle of the night with a flu-like sweat and then in the morning I had severe stomach cramps. No one else on board was ill. My swimming in the Harbour can be the only explanation. Certainly took the shine off the next few days of our holiday and I won't be going swimming in the harbour again.

SICKNESS REPORT #3

Patient name: Barry

Age: 57

Date of exposure: 10/8/2020

Time of exposure: 6pm

Activities undertaken:

- [x] Swimming
- [ ] Surfing
- [ ] Kitesurfing
- [ ] Kayaking
- [ ] SUP
- [ ] Other

If you were in a group, did others get sick?

- [ ] Yes
- [ ] No
- [x] N/A (Alone)

Source of sickness attributed to water by medical professional?

- [ ] Yes
- [ ] No
- [x] N/A (Not seen)

Were pollutants visible?

- [x] Yes
- [ ] No

Location of Exposure:

Chichester Harbour, Chichester

Diagnosis:

Gastroenteritis

North Wales

I went kayaking on the Menai Straits, on 13th August. Torrential rain and floods on pm and night of 10th. I was in a small river boat I was crashing through the waves, getting soaked. I got sick, D&V eve of 14th Aug and this continued, with odd half days improvement till I was taken to hospital on 7th Sept. 23 days D&V leading to severe dehydration. Blood tests showed bacterial and viral infections. Dr thinks 2-4 bugs with different incubation times involved. The resulting mineral inbalances left me with kidney problems (an impaction) due to no urine for some days, and also heart problems which are still ongoing.

SICKNESS REPORT #4

Patient name: Julia

Age: 60

Date of exposure: 13/8/2020

Time of exposure: 9am

Activities undertaken:

- [ ] Swimming
- [ ] Surfing
- [ ] Kitesurfing
- [x] Kayaking
- [ ] SUP
- [ ] Other

If you were in a group, did others get sick?

- [ ] Yes
- [x] No
- [ ] N/A (Alone)

Source of sickness attributed to water by medical professional?

- [ ] Yes
- [ ] No
- [x] N/A (Not seen)

Were pollutants visible?

- [x] Yes
- [ ] No

Location of Exposure:

Menai Straits, North Wales

Diagnosis:

Gastroenteritis - 23 days D&V

SICKNESS INCIDENT CASE STUDIES

Teignmouth

I went for a swim at Ness Beach near Shaldon I got out and felt fine and was ok that evening. I went to bed and woke up with stomach cramps, vomiting, and muscle aches .

SICKNESS REPORT #5

Patient name: Jon

Age: 46

Date of exposure: 7/8/2020

Time of exposure: 3pm

Activities undertaken:

- [x] Swimming
- [ ] Surfing
- [ ] Kitesurfing
- [ ] Kayaking
- [ ] SUP
- [ ] Other

If you were in a group, did others get sick?

- [ ] Yes
- [ ] No
- [x] N/A (Alone)

Source of sickness attributed to water by medical professional?

- [x] Yes
- [ ] No
- [ ] N/A (Not seen)

Were pollutants visible?

- [ ] Yes
- [x] No

Location of Exposure: Ness Beach, Shaldon, Teignmouth

Diagnosis: Gastroenteritis

Cornwall

My doctor in hospital said I could have picked up the infection from swimming in the sea. I have still not recovered from the infection. I would never swim there again.

SICKNESS REPORT #6

Patient name: Lorna

Age: 81

Date of exposure: 11-13th August 2020

Time of exposure: Afternoon

Activities undertaken:

- [x] Swimming
- [ ] Surfing
- [ ] Kitesurfing
- [ ] Kayaking
- [ ] SUP
- [ ] Other

If you were in a group, did others get sick?

- [ ] Yes
- [x] No
- [ ] N/A (Alone)

Source of sickness attributed to water by medical professional?

- [x] Yes
- [ ] No
- [ ] N/A (Not seen)

Were pollutants visible?

- [ ] Yes
- [x] No

Location of Exposure: Marazion Beach, Cornwall

Diagnosis: Severe UTI requiring hospitalisation

SICKNESS INCIDENT CASE STUDIES

Worthing

I usually check the SAS safer seas app before hitting the water but hadn't this time. On reflection there was an alert issued for Goring beach. A few other kiters had complained about a smell but personally I didn't see anything particular, there was a lot of seaweed and debris in a very brown sea. By the evening (a few hours after finishing the session) I was feeling nauseous and on the toilet a lot with diarrhoea. In the middle of the night I had a violent bout of vomiting. Felt weak the next day.

SICKNESS REPORT #7

Patient name: Jackson

Age: 42

Date of exposure: 3/9/2020

Time of exposure: 2-4pm

Activities undertaken:

- [ ] Swimming
- [ ] Surfing
- [x] Kitesurfing
- [ ] Kayaking
- [ ] SUP
- [ ] Other

If you were in a group, did others get sick?

- [ ] Yes
- [ ] No
- [x] N/A (Alone)

Source of sickness attributed to water by medical professional?

- [ ] Yes
- [ ] No
- [x] N/A (Not seen)

Were pollutants visible?

- [ ] Yes
- [x] No

Location of Exposure:

Goring-By-Sea, Worthing

Diagnosis:

Gastroenteritis

Sidmouth

I often swim from the town beach and Jacobs Ladder. On this occasion I forgot to check the sewage discharge reports but did check when I got home & there had been e discharge in the 48 hour period beforehand. I was up most of the night with diarrhoea & was "off colour" with an upset stomach for about a week afterwards.

SICKNESS REPORT #8

Patient name: Sarah

Age: 53

Date of exposure: 18/8/2020

Time of exposure: 6pm

Activities undertaken:

- [x] Swimming
- [ ] Surfing
- [ ] Kitesurfing
- [ ] Kayaking
- [ ] SUP
- [ ] Other

If you were in a group, did others get sick?

- [ ] Yes
- [ ] No
- [x] N/A (Alone)

Source of sickness attributed to water by medical professional?

- [ ] Yes
- [ ] No
- [x] N/A (Not seen)

Were pollutants visible?

- [ ] Yes
- [x] No

Location of Exposure:

Sidmouth Town Beach, Sidmouth

Diagnosis:

Gastroenteritis

...GIVEN THE ADDITIONAL CONCERN OF CONTRACTING COVID-19 FROM THE WATER...

...IT IS ALL THE MORE SHOCKING THAT WATER USERS WERE DENIED ACCESS TO RELIABLE WATER QUALITY INFORMATION, WHEN THEY NEEDED IT MORE THAN EVER.

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CONCLUSIONS

The water quality testing regime and Bathing Water classification process is meant to protect human health. However, recent research by the European Centre for Environment and Human Health (ECEHH) found that bathers in the UK remain just as likely to become ill from seawater as they were in the 1990s.[30]

Moreover, regular bathers are exposing themselves to bacteria which has become resistant to even the most clinically effective antibiotics. Research by ECEHH, and recently reported by BBC Radio 4's "Costing the Earth" programme[31], found 9% of surfers were colonised by resistant bacteria, compared to just 3% of non-surfers.[32] Antibiotic resistant bacteria can cause failures in the treatment of infections meaning bathers are being put at an ever increasing risk.[33]

Dame Sally Davies, UK Special Envoy for Antimicrobial Resistance reported on the same Radio 4 programme that if no action is taken, by 2050, an estimated 10 million antimicrobial resistant bacteria related deaths will occur every year. This will be more than the number of cancer deaths occurring each year. This presents a serious public health concern and brings into question the effectiveness of the current testing regime and classification system. The need for transparent, real-time water quality information to keep people safe, is therefore, vital.

9% OF SURFERS WERE COLONISED BY RESISTANT BACTERIA, COMPARED TO JUST 3% OF NON-SURFERS

Indeed, our record of health reports developed this season highlights the potential serious consequences of a lack of such information. The highest number of health reports submitted were associated with Hove Lawn, a Bathing Water within Southern Water's operational area. Overall, 21% of health reports submitted were within Southern Water's boundary. This puts the harmful consequences of Southern Water's failure to provide accurate water quality information during the 2020 Bathing Season into the spotlight.

Given the additional concern of contracting COVID-19 from the water, it is all the more shocking that water users were denied access to reliable water quality information, when they needed it more than ever.

30. Leonard, A.F.C., Garside, R., Ukoumunne, O.C., and Gaze, W.H. (2020) A cross-sectional study on the prevalence of illness in coastal bathers compared to non-bathers in England and Wales: Findings from the Beach User Health Survey, Water Research, Vol.176, p.115700

31. Husain, E. (2020) Swimming in Superbugs?, BBC Radio 4

32. Leonard, A.F.C., Zhang, L., Balfour, A.J., et al. (2018) Exposure to and colonisation by antibiotic-resistant E. coli in UK coastal water users: Environmental surveillance, exposure assessment, and epidemiological study (Beach Bum Survey), Environment International, Vol.114, pp.326–333

33. Jones, T. (2014) NERC - Sewage treatment contributes to antibiotic resistance, accessed 12 October 2020, https://nerc.ukri.org/planetearth/stories/1726/

THE IMPACT OF CLIMATE CHANGE

Looking forward, the changing climate could compound the challenges we face with sewage pollution and water quality, potentially leading to greater instances of illness.Recent findings suggest that the co-occurrence of rising sea levels, storm surges, and increased precipitation will lead to an increase in “compound flooding”. Studies have shown that climate change has already increased the risk of floods in England and Wales by at least 20% and perhaps up to 90% in some areas.[34]

The Met Office has shown that an extended period of extreme winter rainfall in the UK, similar to that seen in winter 2013/14, is now about seven times more likely due to human-induced climate change.[35] Despite predictions of wetter winters and drier summers due to global heating, future summer rainfall is expected to occur in heavier, more intense bursts.[36]

This is likely to have huge implications for sewage pollution as the increased pressure on the sewage network at times of heavy rainfall will likely increase the need to trigger CSO discharges.[37] In fact, simulations run in Norway predicted that under climate scenarios of increased rainfall, CSO discharge frequency would increase at 1.5 – 3 times the rate of increased precipitation.[38]

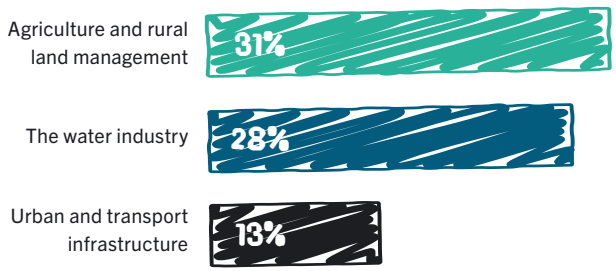
Numerous studies have linked climate change predictions to drastic increases in combined sewer overflow events.[39, 40, 41]

Furthermore, the combined pressures of urbanisation and population growth are placing a heavy burden on a system already running at or over full capacity. Projected population figures alone suggest a 44% increase in sewage load in England and Wales since 1961 to 2039, equivalent to an extra 3 billion litres per day.[42]

Of course, sewage is not the only contributor to poor water quality. Figure 14 shows the extent to which different human activities put pressure on water quality. We would expect to see the increase in frequency and intensity of rainfall events to negatively impact on pollution from agriculture, urban and transport activities as well as water industry activities. Known as “diffuse pollution”, the increase in rainfall is likely to lead to greater levels of runoff from land, washing higher levels of contaminants from agriculture, urban and transport sources resulting in an increase in diffuse pollution, further impacting water quality.

FIGURE 14

HUMAN IMPACTS ON WATER QUALITY



AN EXTENDED PERIOD OF EXTREME WINTER RAINFALL IN THE UK IS NOW ABOUT SEVEN TIMES MORE LIKELY DUE TO HUMAN-INDUCED CLIMATE CHANGE.

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35. Christidis et al. 2015. Extreme rainfall in the UK during winter 2013/14: The role of atmospheric circulation and climate change. Explaining Extreme Events of 2014 from a Climate Perspective.
36. MetOffice UKCP18
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CONCLUSION

The findings presented throughout this report clearly highlight the continued water quality issues we face. Water companies still continue to treat rivers and the ocean as open sewers, dumping tonnes of raw sewage into waterways.

At the very least, there needs to be an obligation to provide open and transparent information as to when and where sewage is being discharged.

Whilst many water companies provide information on a voluntary basis, remarkably, Southern Water have failed to provide CSO discharge notifications for the majority of their assets over the course of the 2020 Bathing Season.

In a year where public health has been placed under the spotlight, we ask the question, how is this acceptable?

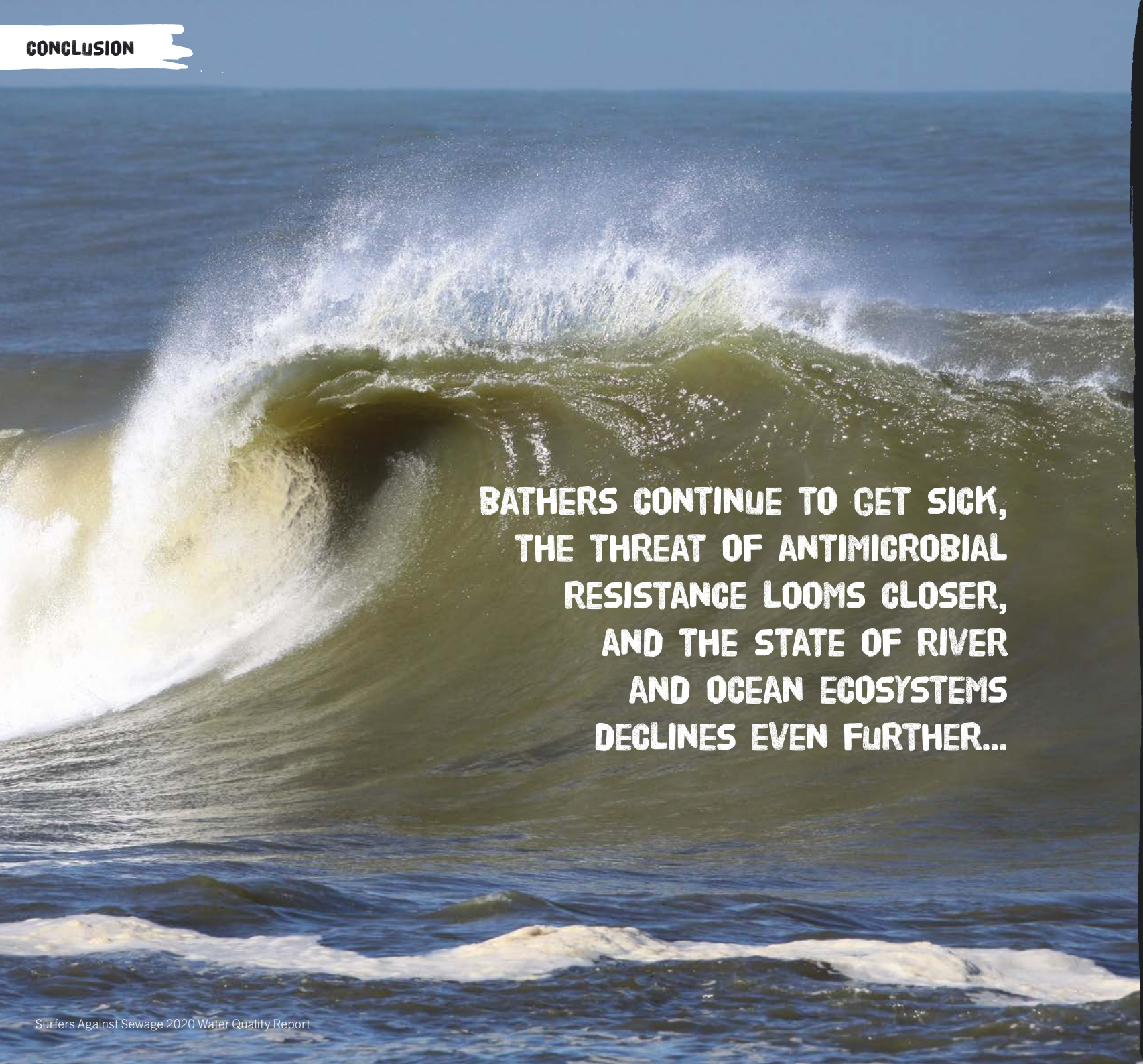
THE WATER QUALITY TESTING REGIME AND BATHING WATER CLASSIFICATION PROCESS ALSO APPEAR TO BE FUNDAMENTALLY FLAWED.

POOR WATER QUALITY IS TOLERATED BY THE GOVERNMENT WHO APPEAR TO WILFULLY IGNORE SOME OF THE WORST POLLUTION INCIDENTS

Poor water quality is tolerated by the government who appear to wilfully ignore some of the worst pollution incidents and fail to properly resource, regulate and enforce against continued water pollution.

And all the while, bathers continue to get sick, the threat of antimicrobial resistance looms closer, and the state of river and ocean ecosystems declines even further.

Unless we change course to end the pollution of aquatic environments, these vital ecosystems will continue to be depleted and degraded, especially as the impacts of climate change are increasingly felt.



BATHERS CONTINUE TO GET SICK, THE THREAT OF ANTIMICROBIAL RESISTANCE LOOMS CLOSER, AND THE STATE OF RIVER AND OCEAN ECOSYSTEMS DECLINES EVEN FURTHER...

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WE ARE CALLING FOR...

NATURE-BASED SOLUTIONS TO SEWAGE POLLUTION...

...with increased investment and associated targets for the restoration of natural habitats to reduce pressure on the water systems and help prevent sewer overflows, whilst increasing biodiversity and tackling climate change.

AN ENHANCED WATER-QUALITY TESTING REGIME...

...providing a true picture of the UK's water quality, testing for emerging viruses and antimicrobial resistant bacteria as well as accurate real-time water quality information available all-year round for all UK inland and coastal Bathing Water.

WORLD-LEADING WATER QUALITY LEGISLATION...

...with an Environment Bill that exceeds EU water quality standards as well as sewage legislation setting ambitious and legally binding targets to end untreated sewage discharge in all Bathing Waters by 2030. We also need legislation that holds the same standards for both inland and coastal waters.

INVESTMENT FROM WATER COMPANIES...

...in sewerage infrastructure to eventually end the use of emergency sewage overflows.

OUR AMBITION IS TO END SEWAGE DISCHARGE INTO UK BATHING WATERS BY 2030.

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