

# WATER QUALITY AND SEWAGE POLLUTION

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## EXECUTIVE SUMMARY

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- Interaction with rivers and ocean have been proven to have positive health and wellbeing effects
- When people interact with water polluted by sewage and diffuse pollution they are at risk of contracting serious illness
- The widespread and routine use of Combined Sewage Overflows (CSOs) combined with the growing popularity of water sports risks deepening a public health crisis
- There is widespread public and political appetite for rapid action to End Sewage Pollution
- Recent Government and Water company commitments are welcome but do not go far enough to tackle the root causes of sewage pollution
- Water companies must urgently invest in updating their sewerage infrastructure, prioritising the use of nature-based solutions
- Regulators must be empowered and resourced to ensure polluters address sewage and diffuse pollution
- Government must legislate to ensure action to take sewage pollution is taken now

## 1. INTRODUCTION

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Despite years of investment, sewage and agricultural pollution still plague the UK's rivers and the ocean<sup>1</sup>. Only 16% of inland waterways in England meet "good ecological status" and none of them pass the chemical tests.<sup>2</sup> The UK is ranked a pitiful 25<sup>th</sup> out of 30 EU countries for coastal water quality.<sup>3</sup>

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<sup>1</sup> Gowen, P., Eades, S. (2020). Sand, Sea and Sewage Analysis. Marinet Limited. Executive Summary. [online] Available at: <http://www.marinet.org.uk/campaign-article/sand-sea-and-sewage>

<sup>2</sup> 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](http://www.endsreport.com/article/1694741?utm_source=website&utm_medium=social)

<sup>3</sup> Idib p.6.7

Water quality has become an even more important issue over the last few years with the rapid growth in water sports participation meaning rivers, beaches and lakes have become essential community amenities that deliver health, prosperity and wellbeing. Over the last year, with the onset of the COVID-19 pandemic and potential transmission risk for viruses in sewage, there has been significant public and political awareness and attention on the water quality issue;

- 44,691 people signed the petition [delivered to SoS](#) for DEFRA, George Eustice, calling for an end to sewage pollution,
- 3,739 emails were sent to 96 MP's during the 2020 highlighting sewage discharges and pollution warnings occurring in their constituencies,
- over 130 MPs have pledged their support for the [Sewage \(Inland Waters\) Bill](#),
- and, with the designation of England's first official river bathing water at Ilkley in December 2020<sup>4</sup>, there are a growing number of community groups looking to apply for bathing water designations for river locations.

This note will set out the causes and effects of this widespread pollution. The note will highlight the recent progress made on this issue but also set out the urgent and radical action still needed to #EndSewagePollution.

## 2. WHY DOES WATER QUALITY MATTER?

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### 2.1. ENVIRONMENTAL IMPACTS

Sewage and agricultural effluent damage natural ecosystems by causing algae blooms which remove oxygen from the water killing fish and plants within the water and harming those animals in the surrounding habitats which rely on rivers. As a result, whole ecosystems such as wetlands and chalk streams can be damaged by pollution. Rivers also inevitably carry damaging pollution into the ocean where it continues to degrade sensitive ecosystems such as kelp beds. This sewage pollution by reducing biodiversity also destroys the natural ability of ecosystems to remove and store carbon from the atmosphere thus contributing to climate change.<sup>5</sup>

### 2.2. HEALTH IMPACTS

Water pollution also puts water users at risk of contracting harmful illnesses including viruses and antimicrobial resistant bacteria.<sup>6</sup> A recent report by the European Centre for Environment and Human Health (ECEHH) highlighted that sea

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<sup>4</sup> Part of River Wharfe at Ilkley becomes first river bathing site in England - Defra in the media, accessed 22 December 2020, <https://deframedia.blog.gov.uk/2020/12/22/part-of-river-wharfe-at-ilkley-becomes-first-river-bathing-site-in-england/>

<sup>5</sup> Jones, B., Cullen-Unsworth, L., R Unsworth. (2018) *Tracking Nitrogen Source Using  $\delta^{15}N$  Reveals Human and Agricultural Drivers of Seagrass Degradation across the British Isles*. *Frontiers in Plant Science* [online] Available at: <https://www.frontiersin.org/articles/10.3389/fpls.2018.00133/full>

<sup>6</sup> 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

bathers in the UK remain just as likely to become ill from seawater as they were in the 1990's.<sup>7</sup> Poor water quality also prevents individuals enjoying the mental and physical wellbeing benefits from being in and around the water.

Reduced water quality also inevitably effects those economies and activities which are centered around the water, and the communities that depend on them.

## 3. CAUSES OF WATER POLLUTION

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### 3.1. COMBINED SEWAGE OVERFLOWS (CSOS)

The UK's antiquated sewerage system is inadequate to deal with the pressure from an increasing population, urbanization and changing weather patterns. Water companies are routinely relying on 21,462<sup>8</sup> Combined Sewer Overflows (CSOs) and pumping stations in the UK (excluding Scotland) to deal with this lack of capacity.

CSOs are emergency infrastructure assets permitted to discharge untreated wastewater only under periods defined in the original EU Urban Waste Water Directive as 'unusually heavy rainfall'. CSOs are an essential part of our sewage infrastructure designed to prevent sewage backing up into homes when there is an extreme rainfall event.<sup>9</sup> However recent research has shown the water companies are using these CSO's alarmingly frequently.

Figures released by the [Environment Agency in March 2021](#) revealed that in 2020 Water companies discharged raw sewage into English coastal and inland waters [403,171 times, for a total of 3.1 million hours](#).<sup>10</sup> This is an increase of 37% from the 292,864 times CSO's discharged into rivers in 2019 (N.B. it should be noted that there has been a 46% increase in the number of CSO's monitored since 2019).<sup>11</sup> In addition, Surfers Against Sewage 2020 Water Quality Report found 2,523 CSO discharges into coastal bathing waters (which are used most frequently for

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<sup>7</sup> Leonard AFC, Garside R, Ukoumunne OC, Gaze WH. (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 Res.*176:115700. [online] Available at <https://pubmed.ncbi.nlm.nih.gov/32234605/>

<sup>8</sup> 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>

<sup>9</sup> Slack, A., Tagholm, H., and Field, A. (2020) *2020 Water Quality Report, 2020*, <https://www.sas.org.uk/wp-content/uploads/SAS-Water-Quality-Report-Digital-v1.pdf>

<sup>10</sup> Laville, S., and McIntyre, N. (2020) Exclusive: water firms discharged raw sewage into England's rivers 200,000 times in 2019, *The Guardian*

<sup>11</sup> Laville, S., and McIntyre, N. (2020) Exclusive: water firms discharged raw sewage into England's rivers 200,000 times in 2019, *The Guardian* <https://www.theguardian.com/environment/2020/jul/01/water-firms-raw-sewage-england-rivers>

swimming and recreation) in England and 387 coastal discharges in Wales between October 2019 and September 2020.<sup>12</sup>

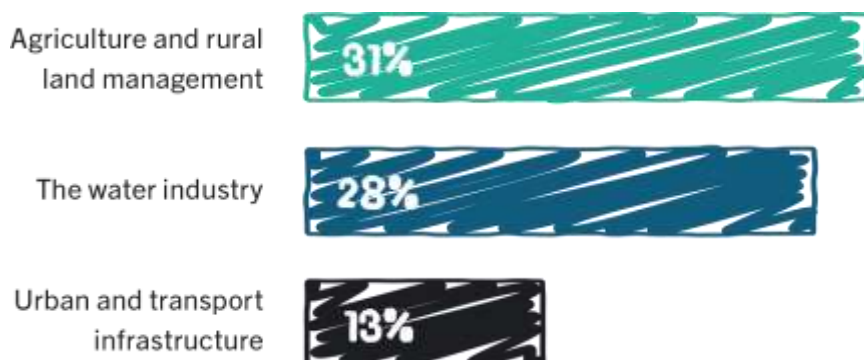
Continued population growth and more extreme weather events caused by climate change will only increase the pressure on existing infrastructure.

## 3.2. OTHER CONTRIBUTING FACTORS:

### 3.2.1. DIFFUSE POLLUTION

Diffuse pollution from agriculture, roads, landfill and poor waste management systems exacerbate the problem with the rivers and the ocean becoming contaminated with agricultural slurry, microplastics from car tyres and plastics from landfill amongst other contaminants.

Sources of Water Quality pollutants:



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### 3.2.2. INEFFECTIVE REGULATION

As highlighted the use of CSOs is legal and is regulated by the Environment Agency. However, the fines and financial penalties for breaching regulations are too easily built into their operating costs of water companies and do not reflect the true environmental damage caused by systematic discharging of untreated sewage, or discourage this common practice. The weak enforcement of existing regulation from underfunded and under resourced environment agencies means that there is no effective driver to ensure Water companies change the behaviour.

Current water quality testing regimes designed to protect water users and environment are also inadequate. Recent evidence shows that that our existing regime discounts and ignores the worst pollution events in the country and thus misleads the public about the safety of the waters.<sup>14</sup>

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<sup>12</sup> Slack, A., Tagholm, H., and Field, A. (2020) *2020 Water Quality Report, 2020*, <https://www.sas.org.uk/wp-content/uploads/SAS-Water-Quality-Report-Digital-v1.pdf>

<sup>13</sup> Slack, A., Tagholm, H., and Field, A. (2020) *2020 Water Quality Report, 2020*, <https://www.sas.org.uk/wp-content/uploads/SAS-Water-Quality-Report-Digital-v1.pdf>

<sup>14</sup> Gowen, P., Eades, S. (2020). Sand, Sea and Sewage Analysis. Marinet Limited, pp. 21-22. [online] Available at: <http://www.marinet.org.uk/campaign-article/sand-sea-and-sewage>

## 4. WHAT PROGRESS HAS BEEN MADE?

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### 4.1. STORM OVERFLOW TASKFORCE AND REAL TIME INFORMATION

The government established the Storm Overflow Taskforce in 2020 to bring together water companies, environmental NGO's, regulators and civil servants to develop solutions to tackle sewage pollution. As a result of the work of the taskforce Water companies have committed to accelerate investment to improve CSO infrastructure and equip CSO's with technology to monitor their activities.

Water companies have also committed to make real-time data on sewage discharges available at bathing sites all year round. This change means that all water users, will now be able to access information about when and where raw sewage has been discharged into bathing waters all year round.

### 4.2. ENHANCED LEGISLATION

The Government have also made a commitment to embed action to tackle sewage into law with the creation of three clear legal duties:

- a) A duty on government to publish a plan by September 2022 to reduce sewage discharges from storm overflows;
- b) A duty on government to report to Parliament on progress on implementing the plan; and
- c) A duty on water companies to publish data on storm overflow operation on an annual basis.

These duties are welcome as they mean government and water companies will have to act or risk breaking the law. However, many questions still remain over the content of these plans and how they might be enforced.<sup>15</sup>

## 5. FURTHER ACTION REQUIRED

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### 5.1. REAL TIME INFORMATION

To ensure all water users are safe at all times and to develop a clear and accurate picture of the state of UK coastal and inland waters we want to see real time information provided by water companies for all CSO locations. This information should include, duration and volume of discharge as well as measure the impact that these sewage spills are having in terms of bacterial load and ecological harm.

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<sup>15</sup> <https://www.sas.org.uk/news/campaign-win-one-step-closer-to-cleaner-seas/>

Without this accurate picture we will be unable to tackle those worst offending CSO's.

## **5.2. WATER COMPANY INVESTMENT**

The root cause of much of the Sewage pollution in the UK is our antiquated combined sewage solution. Water companies must start urgently investing in improving this infrastructure and incorporating nature-based solutions to do this.

## **5.3. WORLD LEADING WATER QUALITY LEGISLATION**

To both facilitate and encourage Water companies to take the action required we need the government to place a clear a legal duty on Water companies to end the discharge of sewage into UK rivers and the ocean, as well as the creation of legally binding targets to ensure rapid action. The Sewage (Inland Waters) Bill as originally tabled by Phillip Dunne MP and subsequently the Duke of Wellington provides a clear legislative and policy framework to tackle sewage pollution. We therefore urge parliamentarians to support amendments to the Environment Bill that will incorporate the key elements of the Sewage Bill into legislation.

## **5.4. A REGULATOR WITH TEETH**

The Environment Agency's annual budget has been consistently cut, meaning that we have also seen the number of investigations into sewage pollution events fall year on year.<sup>16</sup> If the government are serious about tackling sewage pollution they need to ensure that the regulators have the resources they need to make the polluter pay. As we have seen from water company's performance over the last decade, without proper enforcement a law is worth little.

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<sup>16</sup> Crisp, W. (2020) Environment Agency slashes number of water pollution incident visits, *The Guardian* <https://www.theguardian.com/environment/2020/dec/03/environment-agency-slashes-number-of-water-pollution>