

# BRIEFING NOTE: WATER QUALITY AND SEWAGE POLLUTION

## EXECUTIVE SUMMARY

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Untreated sewage was discharged 403,171 times in 2020. When people interact with this polluted water they are at risk of contracting serious illness. The routine use of Sewer Overflows combined with the growing popularity of water sports is deepening a public health crisis.

There is widespread public and political appetite to End Sewage Pollution. Now we need action:

- **Government must set legal targets to; End Sewage discharges into bathing waters, reduce all sewage discharges by 90% and designate 200 inland bathing waters, all by 2030**
- **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**

## 1. THE PROBLEM

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Sewage, agricultural runoff and diffuse pollution plague the UK's rivers and the ocean. Only 14% of rivers in England meet "good ecological status" and none pass chemical tests.<sup>1</sup> Sewage and agricultural pollution in rivers kills biodiversity and destroys the natural ability of ecosystems to remove and store carbon from the atmosphere thus undermining Net Zero targets.<sup>2</sup> The UK is consistently ranked amongst the worst European Countries for water quality.<sup>3</sup>

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<sup>1</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>2</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>3</sup> Laville, S. (2021) *UK ranked last in Europe for bathing water quality in 2020*, accessed 7 July 2021, <http://www.theguardian.com/environment/2021/jun/01/uk-ranked-last-in-europe-for-bathing-water-quality-in-2020>

## 1.1. HEALTH IMPACTS

Using blue spaces for recreation brings many health benefits.<sup>4</sup> However, exposure to harmful bacteria and viruses contained within polluted water is having serious public health impacts.<sup>5</sup>

During the 2021 bathing season 286 water users reported getting ill to SAS after swimming or surfing in polluted water. The most common illness experienced was gastroenteritis, which causes severe diarrhoea, nausea, projectile vomiting and fevers. The most severe case reported required three doses of antibiotics to treat a kidney infection, and another individual reported an ear infection that resulted in such severe swelling that a facial nerve became damaged causing right sided facial paralysis. The effects of which were still being endured seven months later.<sup>6</sup>

A report by the European Centre for Environment and Human Health (ECEHH) highlighted that sea bathers in the UK remain just as likely to become ill from seawater as they were in the 1990's.<sup>7</sup> Through SAS's programme of citizen science water quality testing, it was found that 75% of rivers tested would be classified as 'poor' under the current testing regime, posing a continuous serious risk to human health.<sup>8</sup>

The public have made it clear they will no longer stand for this. 44,691 people signed the [#EndSewagePollution](#) petition calling for an end to sewage pollution and over [150,000](#) have signed a petition to make reducing sewage pollution a legal requirement.

## 1.2. ECONOMIC IMPACT

SAS' 2021 'Thriving Ocean, Thriving People' report found the physical and mental health benefits of time in and around the ocean is worth £20.2bn a year to the UK economy. This includes savings for the NHS through non-occurring health care expenditure. However pollution can degrade the experiences that people have with the natural environment and reduce safe access to nature. Thus, preventing them from gaining the benefits of recreation and in turn reducing the savings that could be made to the wider public purse.<sup>9</sup>

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<sup>4</sup> Kindermann., E.B., Caitriona Carlin and Gesche (2020) *Connecting with Nature for Health and Wellbeing*, 2020, <http://www.epa.ie/pubs/reports/research/health/JS%20-%20NEAR%20Toolkit%20FINAL%20V1.6%201Oct20.pdf> Environment Agency (2020) *The social benefits of Blue Space: a systematic review*, October 2020, [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/928136/Social\\_benefits\\_of\\_blue\\_space\\_-\\_report.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/928136/Social_benefits_of_blue_space_-_report.pdf)

<sup>5</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

<sup>6</sup> Slack, A., Tagholm, H., and Taylor, D. (2021) *2021 Water Quality Report*, 2021, <https://www.sas.org.uk/wp-content/uploads/SAS-WaterQualityReport2021-DIGITAL.pdf>

<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> Slack, A. et al (2021) *2021 Water Quality Report*,

<sup>9</sup> Surfers Against Sewage (2021) *Thriving Ocean, Thriving People: The connection between ocean restoration and the blue wellbeing economy*, 2021 p.21

## 2. CAUSES OF WATER POLLUTION

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### 2.1. SEWER OVERFLOWS

The UK's outdated sewerage system is unable to deal with the pressure from an increasing population, urbanization and changing weather patterns. Water companies therefore routinely rely on Sewer Overflows to deal with this lack of capacity. These overflows are emergency relief valves permitted to discharge untreated wastewater only during 'unusually heavy rainfall'.<sup>10</sup> However recent research has shown the water companies are using them routinely.

In 2020 the [Environment Agency revealed](#) water companies discharged raw sewage into English coastal and inland waters at least [403,171 times, for a total of 3.1 million hours](#).<sup>11</sup> Similarly SAS 2021 Water Quality Report reported 5,517 discharges effected official bathing waters in England and Wales between October 2020 and September 2021. These are locations which are most frequently used by the public.<sup>12</sup>

### 2.2. DIFFUSE POLLUTION

Diffuse pollution from agriculture, roads, landfill and poor waste management systems exacerbate the problem with rivers and the ocean becoming contaminated with agricultural slurry, microplastics from car tyres and plastics from landfill amongst other contaminants.<sup>13</sup>

### 2.3. INEFFECTIVE REGULATION

The fines and financial penalties for breaching regulations are too easily built into the operating costs of water companies and do not reflect the environmental damage caused by systematic sewage pollution. This coupled with weak enforcement from underfunded and under resourced regulators means there is no effective driver to change polluter behaviour. Only recently have regulators launched their biggest investigation into water company practices after the companies admitted they may have been illegally discharging for the last decade. This admission was only triggered by advancements in technology that allowed flow to be monitored at waste water treatment plants.<sup>14</sup> It is clear that the current system of self-reporting is not working with over 2,200 treatment plants now under criminal investigation.

Current water quality testing regimes designed to protect water users and environment are also inadequate. Evidence shows the existing regime discounts the worst pollution events thus misleading the public about the safety of waters.<sup>15</sup>

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<sup>10</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>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*

<sup>12</sup> Slack, A., Tagholm, H., and Taylor, D. (2021) *2021 Water Quality Report, 2021*, <https://www.sas.org.uk/wp-content/uploads/SAS-WaterQualityReport2021-DIGITAL.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> <https://www.ofwat.gov.uk/investigation-into-sewage-treatment-works/>

<sup>15</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>

## 2.4. WATER COMPANY PROFIT OVER ENVIRONMENT

Water companies have consistently put executive bonus and shareholder dividends ahead of environmental performance. Analysis by the University of Greenwich has shown that over the last 30 years the water industry has amassed debts of £48bn whilst paying out £57bn in shareholder dividends.<sup>16</sup> These dividend pay-outs are the same amount needed to progressively deal with the worst and most damaging sewage discharges (£3.9bn to £62.7bn).<sup>17</sup>

The same analysis also suggests that the 40% increase in real household bills since privatisation has been driven by continuously growing interest payments on debt, contrary to the regulator attributing them to growing costs and investments.<sup>18</sup>

## 3. SOLUTIONS

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### 3.1. SEWAGE REDUCTION TARGETS

The government must set legally binding targets through the Storm Overflow Reduction Plan and the Environment Act to reduce discharge of untreated sewage by 90% by 2030.

### 3.2. 200 INLAND BATHING WATERS BY 2030

Bathing Water Designation creates areas where water quality is officially monitored for harmful bacteria and viruses, with legal obligations placed on industry to stop pollution. This provides a powerful indicator water quality and drives real change. But, there is currently just one official Bathing Water located on a UK river. Governments must set legally binding targets to designate 200 Official River Bathing Waters across the UK by 2030 and work with regulators and communities to ensure the target is delivered.

### 3.3. WATER COMPANY INVESTMENT

Companies must urgently invest in improving outdated infrastructure and incorporating nature-based solutions to do this. Companies must also build in environmental outcomes into performance indicators that drive remuneration packages and shareholder dividends, with minimum impact on customer bills.

### 3.4. A REGULATOR WITH TEETH

The Environment Agency's annual budget has been consistently cut, as have the number of investigations into sewage pollution.<sup>19</sup> The government must ensure that the regulators have the resources to make the polluter pay.

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16 Hall, David (2021) Water and sewerage company finances 2021: dividends and investment. [Working Paper] (Unpublished) <https://gala.gre.ac.uk/id/eprint/34274/>

17 <https://www.theguardian.com/environment/2021/oct/27/cutting-sewage-spills-may-be-far-cheaper-than-uk-ministers-predict-say-experts>

18 Hall, David (2021) *Water and sewerage company finances 2021: dividends and investment*. [Working Paper] (Unpublished) <https://gala.gre.ac.uk/id/eprint/34274/>

19 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>

## Sewage Pollution in Numbers

- 403,171 sewage discharges in England in 2020<sup>20</sup>
- 3.1 million hours of sewage discharges in England in 2020<sup>21</sup>
- 5,517 Sewage Discharge Notifications effecting bathing waters in England and Wales during 2020/21<sup>22</sup>
- 75% of rivers pose a continuous serious risk to human health. <sup>23</sup>
- 14% rivers meet good ecological status and 0% rivers pass chemical tests <sup>24</sup>
- 21,462 Sewer Overflows and pumping stations in the UK (excluding Scotland)<sup>25</sup>

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<sup>20</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>21</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>22</sup> Slack, A., et al. (2021) *2021 Water Quality Report*,

<sup>23</sup> Slack, A., Tagholm, H., and Taylor, D. (2021) *2021 Water Quality Report*, 2021, <https://www.sas.org.uk/wp-content/uploads/SAS-WaterQualityReport2021-DIGITAL.pdf>

<sup>24</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>25</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>