

## Written evidence submitted by Tom Wild, Research Fellow at University of Sheffield, Department of Landscape Architecture

Thank you for providing the opportunity to comment on your consultation.

### 1. Executive summary

- 1.1. Water management legislation is important and the current inquiry comes at a time when water quality policy-making should be under great scrutiny by Parliament, following the UK's departure from the EU and the protections to environmental quality provided by the Water Framework Directive.
- 1.2. Following decades of improvements to water quality, this progress has now ceased and in some areas the trends for improved water quality have gone into reverse.
- 1.3. Defra's and HM Government's position that "worsening results does not mean that there has been a decline in water quality... but highlights a technical difference in testing" do not stand up to scrutiny. This message has been reiterated by others and may thus be harmful in undermining real action.
- 1.4. Urban water pollution is becoming increasingly important, including from diffuse sources of pollution, but also from combined sewer overflows, which are point sources. These problems are becoming more evident and relatively more important, because many other point sources of pollution have been resolved, but also due to climate change impacts linked with more extreme rainfall-runoff patterns, and due to a lack of investment in assets and networks.
- 1.5. Nature-based solutions such as sustainable drainage systems (SUDS) can help reverse these negative trends in environmental quality, but require proper resourcing, expertise, supportive planning and institutional frameworks, and wide support. These interventions can be integrated with existing systems but will not be implemented without regulation and planning to ensure their uptake.
- 1.6. Further improvements in urban water quality are unlikely unless a more robust regulatory stance is taken, making it a requirement by law that SUDS are properly implemented. Voluntary change, codes of conduct, and 'big society' approaches have not delivered their promised results.
- 1.7. It should be unacceptable for water companies to award larger payoffs to shareholders whilst reducing future investment in drainage networks. Unlike energy providers, customers have no choice as to which company provides their services. Citizens have no way to reward 'greener' water corporate behaviour.
- 1.8. Nature-based solutions interventions in urban environments are multi-beneficial. They can deliver cost savings due to reduced stormwater flows and combined sewer spills, outperform hard infrastructure on cost grounds, and provide valuable co-benefits such as amenity and biodiversity.
- 1.9. Virtually no rivers in England are 'natural' or 'pristine'. Physical modifications to river banks and riverbeds should no longer be used as an excuse to put off, avoid or delay other critically-needed improvements to waterbodies or water quality. This is not an issue of rural vs urban. It is simply the case that some rivers, and the neighbouring communities, get treated worse than others.
- 1.10. The designation of inland bathing waters may represent the first steps towards a two-tier system for water quality regulation in England. Great care must be taken in the consideration of these proposals.

### 2. Preamble and background to submission

- 2.1. The EAC inquiry is to be welcomed, particularly in that it may influence forthcoming debates on the Private Member's Bill on Sewage (Inland Waters) and the Environment Bill. The EAC inquiry is also important because it comes at a time when water quality and waterbody condition should be under great scrutiny by Parliament, due to the UK leaving behind the environmental protection processes and evidence by the Water Framework Directive (WFD) following the its departure from the EU.

**2.2.** This response is submitted in my capacity as a Research Fellow based at the University of Sheffield's Department of Landscape Architecture. I am an established expert in the field, with research interests in urban water, drainage and aquatic ecology, as you can see from my recent report (Wild, 2020a) on [water quality and waterbody conditions](#), prepared for the EC as an appointed independent expert. With over 25 years' experience working in the water and environment sector, I have played a central role in establishing several water-related NGOs and social enterprises. I chaired the CIWEM Tyne & Humber Committee from 2012-2015, and led the establishment of the South Yorkshire Local Nature Partnership. My profile page is at: <https://www.sheffield.ac.uk/landscape/people/academic/tom-wild>

**3. Main points: "How adequate are the monitoring and reporting requirements around water company discharges?"**

- 3.1.** As noted by the Environment Agency (EA), "after two decades of improvement, the quality of water in our rivers is now flatlining. Only 14% of our rivers meet Good Ecological Status under the Water Framework Directive: that figure has not changed since 2009" (Environment Agency, 2020a).
- 3.2.** The worsening conditions in water quality come despite the Government's wholehearted commitment to the so-called Catchment Based Approach and the proliferation of volunteering by people with specific interests in river water quality, such as riparian landowners with salmon fishing rights. Much focus and investment has been put into creating fish passages for migratory fish, accompanied by reduced focus on other forms of environmental protection and regulation of water quality. According to the Rivers Trust (2020), the latest WFD Classification Status data, published by the EA, "shows the state of the country's rivers throughout 2019 based on ecological and chemical factors... The percentage of rivers with good ecological status remains at 14% from 2016."
- 3.3.** It is a major cause for concern that the situation's seriousness has not been acknowledged or properly dealt with by HM Government. In relation to bathing water assessments, Defra has said about deteriorating water quality results that "This does not mean that there has been a decline in bathing water quality, but highlights a technical difference in testing" (Defra, 2020).
- 3.4.** Others have quoted the EA as having reiterated the message, that "While the new chemical methods give a more accurate picture of environmental quality, they do not reflect actual environmental deterioration since 2016" (Roberts, 2020) but this cannot be verified, since the communications are not in the public domain.
- 3.5.** According to Greenpeace (2019), Environment Agency inspections and sampling have decreased considerably since 2013. This is not surprising, and reflects a sharp reduction in EA staff numbers dedicated to environmental monitoring and protection occurring throughout the 2010s-2020s, linked with HM Government's austerity policies, cuts in public sector funding, and the shifting of responsibilities linked with a 'Big Society' approach.

**4. "Is adequate investment being made in adapting water treatment systems to future climate change?" (including local case study of the Don Catchment, South Yorkshire).**

- 4.1.** There is a risk that although being well-meant, the above statements about testing may be used as an excuse for complacency at best, or at worst, inaction.
- 4.2.** Evidence for this concern comes in the form of reiteration and reinforcement of Defra and EA statements to the effect that 'these results do not reflect a real worsening'. The recent Don Catchment Plan (Don Network, 2020) states that "*changes to the way chemical status is assessed... meant that in 2019 all of Yorkshire's surface waterbodies failed WFD standards for at least one chemical... however that does not reflect actual deterioration since the 2015 classification*".
- 4.3.** Analyses have been performed using the material kindly provided by the EA for the River Don Catchment (including tributaries). This research shows that of the total number of stretches classified for all items (numbering 3,654), the total degradation between 2015-19 accounts for circa 6%. Between 2016-19 this figure was around 5%. These figures include multiple class- deteriorations.

**4.4.** Between 2015-19, in the Don Catchment, many degradations were recorded that do not fall into the category of being due to 'ubiquitous, persistent, bioaccumulative and toxic' substances (uPBTs). Many stretches were downgraded for reasons linked with biological quality, fish or macrophytes, or more traditional water quality indicators, known in the industry as 'the sanitary suite'. Degradations associated not with uPBTs appear to account for the reasons for deterioration in 90 stretches in 2015-19, with 71 stretches being downgraded during the period 2016-19. These figures by themselves represent approximately 2% of all river stretches classified, let alone genuine water quality declines linked with increasing levels of other contaminants, which are not due solely to improved testing, and are not included in the above analyses.

**4.5. Whilst monitoring techniques have no doubt improved, the last few years have also witnessed genuine declines in water quality in England and in our region.**

**4.6.** The following factors reflect important contextual information to consider alongside recent poor water quality and waterbody condition outcomes. Further reasons for deteriorating water quality in the UK and in other European countries are provided in Wild, et al. (2020a). In short, urban diffuse pollution, water body modification, and combined sewer discharges are becoming relatively more important. This is due to (a) increased discharges from combined sewer overflows, worsening as a result of climate change impacts (more extreme rainfall-runoff patterns); (b) a lack of response from HM Government England to implement nature-based solutions through better regulation to ensure the installation of sustainable drainage systems; and (c) decreasing investment from the Water Companies in ageing assets and networks, which are fast becoming unfit for purpose.

**5. "How effective is Ofwat's remit and regulation of water companies?"**

**5.1.** It is disappointing that at the same time as river water quality is declining, with the worst classification outcomes witnessed for some years, the CMA has recently overturned Ofwat's regulatory decisions. In February, Yorkshire Water and others raised a legal challenge to Ofwat's pricing process 2019 (PR19), via the competition and markets authority, CMA (The Guardian, 2020). Recently, the CMA upheld that challenge (The Times, 2020). It should be unacceptable for water companies to award larger payoffs to shareholders, and raising bills for customers in such difficult times, especially during the Covid-19 pandemic. England needs a fairer deal for customers of the water companies. After all, unlike energy providers, customers have no choice as to which company provides their services.

**6. Is there "sufficient investment in improvements to water quality, including sustainable drainage systems and nature-based solutions such as constructed wetlands? Is adequate investment being made in adapting water treatment systems to future climate change?"**

**6.1.** The current management and investment framework does not provide sufficient investment or regulatory 'teeth' to ensure the widespread uptake of sustainable urban drainage systems (SUDS) or nature-based solutions (NBS) in England. Of the cases we have studied in England in the completion of the 2020 report (Wild et al., 2020b) the vast majority have been funded using resources that have not come directly from national government or from the water companies. Most finance has come via the EU, local authorities, research and innovation grants or the action of NGOs and civil society groups.

**6.2.** The Grey to Green schemes in Sheffield are probably the most high profile sustainable drainage interventions in England. These examples have been called the UK's largest (Naturvation, 2021) and most successful (Hoyle & Sant'Anna, 2020) retrofit SUDS schemes. They serve well to illustrate the state of the art in the uptake and mainstreaming of SUDS. The approach combines various NBS in an attractive package, including sustainable drainage, urban tree planting, cycle paths and walkways and other landscape improvements. Dunnett & Tudor (2020) provide a summary of the scheme, which has won multiple awards. The first phase was completed in 2016, and cost £3.4m (Susdrain, 2018); Grey to Green II cost over £5m (Sheffield City Region, 2018). In both cases, funding came from the Sheffield City

Region, Sheffield City Council and European Regional Development Fund (ERDF). No funding came from Yorkshire Water, the Rivers Trusts or directly from HM Government.

- 6.3.** Grey to Green II benefited from synergetic funding enabled by Sheffield City Region's (2017), Sustainable Urban Development (SUD) Strategy, under the ERDF programme. It delivered significant investment in NBS as part of a wider transformational programme for green growth, and was only possible because of the EU's Structural and Investment Fund's local requirements for so called Integrated Territorial Investment. The SUD Strategy played an important role in securing resources for large-scale NBS demonstrators, to complement existing public sector schemes and interventions delivered by private investors. By combining the different funding streams, the SUD enabled extensive NBS implementation schemes "integrating climate change mitigation and adaptation measures along with resource efficiency investment priorities" (Sheffield City Region, 2017).
- 6.4.** NBS interventions in urban environments e.g. green roofs can deliver cost savings due to reduced stormwater flows and combined sewer overflow spills, outperform hard infrastructure on cost grounds, and provide valuable co-benefits such as better environmental quality (Montalto et al., 2007; Engstrom et al., 2018; Davis & Naumann, 2017; CIRIA, 2015). Pollution from urban non-point sources has been a main reason for failure to reach WFD waterbody objectives, but responses in the form of SUDS are available to reduce diffuse pollution (Mitchell, 2005). Pollutant loads in urban stormwater have long been studied (e.g. Marsalek, 1991) and urban diffuse pollution problems have been well quantified (e.g. Novotny and Olem, 1994).
- 6.5.** Effective treatment of urban stormwater runoff can be achieved using SUDS-type NBS, combined in stormwater management trains (CIRIA, 2007; 2015). Nutrient removal efficacy can be predicted (Clary et al., 2017) along with improvements in receiving water quality (Wong, 2006). Waste water treatment works (WWTWs) are not designed to remove contaminants of emerging concern (CECs), posing serious hazards to human health and ecosystems (Krzeminski et al., 2019). The performance of NBS in removing waterborne bacteria, micropollutants, viruses, plastics and CECs has been assessed along with removal pathways due to uptake by plants, microbial degradation, adsorption and sedimentation (Clary et al., 2017; Gorito et al., 2017; Krzeminski et al., 2019; Oral et al., 2020).
- 6.6.** *SUDS should be, but are not yet a prerequisite for planning applications in England, unlike in Scotland.*
- 7.** *"How could the designation of inland bathing waters by water companies affect the costs of achieving the associated water quality standards?"*
- 7.1.** This proposal appears to link closely with the Private Member's Bill on Sewage (Inland Waters). Whilst that bill does appear to promote action to control pollution from combined sewer overflows, there are currently major flaws in the proposed approach, from the perspective of social and environmental justice. The designation of inland bathing waters may represent the first steps towards a two-tier system for water quality regulation in England, as explained below.
- 7.2.** At this point it is important to reflect on both the successes and downsides of the WFD. EU water policy has delivered significant improvements to water quality over the past four decades "*it is increasingly possible to reconcile life in a densely populated continent, and a growing economy, with a progressive improvement of water quality*" (EC, 2019a). WFD implementation greatly increasing knowledge about the ecology of waterbodies, supported by masses of data (Hering et al., 2010). The WFD is one of few regulatory frameworks requiring comprehensive environmental monitoring (Schleyer et al., 2015).
- 7.3.** The recent WFD [Assessment Report](#) (EC 2019b) evaluated national-scale governance, water body monitoring, river basin district characterisation, and Programmes of Measures (PoMs) implementation. Overall in the EU, ~40% of surface water bodies were in good or better ecological status, whilst 60% did not achieve these classes. Improvements in the ecological potential of heavily modified and artificial water bodies were less common (EC, 2019a). So called '**Article 4' exemptions** were applied more often

in this second cycle than in earlier river basin management planning rounds, with ~1/2 of Europe's water bodies currently being the subject of an exemption. Many derogations including in the UK involved these "**heavily modified water bodies**". Notably, the quality elements showing the most significant knowledge gaps related to hydro-morphology. This is problematic, because Article 4 derogations are often based on hydro-morphological modifications, allowing for circular arguments to delay the implementation of measures to restore ecological potential, particularly in urban areas.

- 7.4. In England, virtually no rivers can be classed as 'natural' or 'pristine'. It is simply the case that some rivers (and their neighbouring communities) get treated worse than others.** Jones et al. (2019) established that only 3% of the total river network of Great Britain is fully connected. Only 1% of the rivers in England, Scotland and Wales are free of artificial barriers. These findings show that most catchments in Great Britain are heavily fragmented, providing a much-needed critical starting point to reconsider the social, economic and environmental impacts of waterbody modification and pollution. In considering the Environment Bill and Private Member's Bill, care should be taken over how planning processes and classifications may perpetuate inaction, and how some areas are privileged over others.
- 7.5. Why is this important? The risk is that England continues this trend to protect better quality waters, e.g. the rivers in nice places where people like to swim, and continues to ignore or delay action to improve more degraded waters.** Much depends on how the Bills treat degraded rivers and water quality in areas where pollution has traditionally been a greater problem. It is not yet clear how the issue of modifications and impacts to hydro-geomorphology will be treated, and how this will relate to proposed investments in river improvements.
- 7.6.** At the macro-scale, Hanley & Black (2006) concluded that implementing the WFD in Scotland was likely to generate benefits in excess of costs, with a central benefit to cost ratio of 1.69:1. Noting that the "*benefits are likely to be considerably greater than those identified in their study, because many gaps in the benefit assessment exist*", they relate this to the designation of heavily modified waterbodies, exempting waterbodies from requirements for good ecological status. Whilst this may reduce WFD implementation costs it also has significant implications for environmental justice (Fairburn et al., 2005; 2009) and 'eco-gentrification' (Haase, 2017; Kabisch et al., 2016).
- 7.7.** For economic growth, social inclusion and environmental justice reasons, England can no longer afford to ignore the serious harm caused by poor water quality in deprived communities, nor the disservice to those communities caused by continuing to neglect these degraded environments.

## 8. Final points

- 8.1.** In summary, whilst the pressures of diffuse pollution and modification of rivers are undoubtedly increasing in relative importance across Europe, the recent water quality results in England are startling and result from inaction. Water quality deterioration in England is not due solely to the more complex or intractable challenges set out in Wild (2020a) or to climate change. In many cases they represent a genuine worsening of environmental quality conditions due to lack of regulation and investment.

Thank you again for receiving my letter, and I look forward to your hearing more in due course,

Yours faithfully,  
Tom Wild

February 2021

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