

Written submitted by Wessex Water

Executive Summary

- Many of the issues raised through the EAC questions below are the result of
 - decades of doing things incorrectly as a nation (namely - combining surface water and foul water as if they were the same thing) and
 - poor legislation that does not recognise that a sewerage undertaker is a collector of what is discharged by customers rather than a provider to them (like water, electricity, gas, telecoms).
- As such, the level of control over the customer by the sewerage undertaker is small to non-existent.
- Despite this poor control over the source, sewerage undertakers are required to take responsibility for the impact on the environment for these uncontrolled actions of others.
- If we want to protect and improve the environment, we need to
 - tackle it more sufficiently and thoroughly at source, possibly using legislative instruments, and
 - increase the powers of those responsible for the collection of what customers and businesses dispose of through drains (e.g. the sewerage undertaker) in order to more adequately tackle those who continue to be the source of the problems.

Introduction to Wessex Water

- Wessex Water is the regional water and sewerage business serving 2.8 million customers across the south west of England including Dorset, Somerset, Bristol, most of Wiltshire and parts of Gloucestershire and Hampshire.

Main Response

1. What are the best indicators for river water quality that could be used as targets being developed under the Environment Bill?

The Water Framework Directive targets are very comprehensive and provide a good indication of both the chemical and ecological quality of surface waters and lakes, with groundwater and TRAC quality indicated via chemical targets alone. However, the complete list includes more than 80 substances which can be expensive to analyse and resource intensive to collect presenting a significant burden on already constrained EA budgets.

The key to understanding river water quality is to have consistent and robust datasets over an extended period of time. The current situation involving continual reduction of the parameters analysed and limited spatial coverage of sampling is not conducive to this. Therefore, it is suggested that a subset of the WFD targets are used as indicators with an enduring commitment and budget to gather these data.

https://www.legislation.gov.uk/ukxi/2015/1623/pdfs/ukxi0d_20151623_en_auto.pdf

The complete list, including all specific and priority substances should be collected at a more limited network of sampling locations and when there is a deterioration in water quality identified by routine sampling.

Currently, the targets and parameters derived to indicate river water quality are sufficient and appropriate, it is the sampling frequency and spatial coverage of this monitoring which is not.

2. How could drainage and sewage management plans, introduced by the Environment Bill, play a role in reduced sewer discharges?

DWMPs are a planning tool that will be able to quantify investments required. However, a key issue is poor sewerage legislation that continues to allow the situation to get worse (through allowing the right to connect surface water to combined systems), and which does not encourage or enable surface water separation. Without changes to legislation, the only options available are attenuation: which does not tackle the problem at source and carries a high carbon cost resulting from having to pump and treat rainwater.

Without changes in legislation, the only likely solutions that DWMPs will identify will be sub-optimal storage solutions (i.e. attenuation tanks) or possibly intermittent treatment solutions – however biological treatment is inherently difficult with an intermittent food source.

3. How adequate are the monitoring and reporting requirements around water company discharges? How can technology improve and assist with transparency and enforcement?

Event Duration Monitors are relatively new. They only started to be installed in 2016. Transparency of continuous and intermittent discharges is improving rapidly through collaboration between sewerage undertakers and eNGOs. However, they do not report on impact.

Technology should now be focused on measuring “impact on the environment” now that asset operation data has been addressed through 100% EDM coverage of intermittent discharges by 2023.

Real time sensors are an effective tool for providing good data on overall water quality, both from final effluent discharges and river water quality. These tools are advantageous in providing instant data, rather than delayed due to laboratory analysis, and potentially accessible to the public.

It is important to note that there are various sources that contribute to environmental impact – not just water company assets. Approximately two-thirds of the reasons for rivers not meeting WFD Good Ecological Standards are not related to water industry discharges.

4. What is the impact of plastic pollution and other materials on drainage and water quality in rivers and what should be done to mitigate it?

The design and construction of today’s sewerage system and sewage treatment processes pre-dates inorganic discharges like plastic microfibres and indeed many chemicals and pharmaceuticals which are widely used in today’s society.

The impact of plastic microplastics and microfibres is an area where much research is being focused (eg [UKWIR study: sink to river, river to tap](#)). Although evidence of harm is still being quantified, plastic is bio-accumulative – so it will inevitably get worse.

Plastic pollution cannot be treated. It can only be removed. But where does it go after that?

The solution has to be primarily driven by two fundamental principles:

- Source Prevention
- Polluter Pays or Extended Producer Responsibility

Microplastics (like most chemicals) have to be tackled at source. They are not organic and so the natural environment has no way of breaking them **down**. Instead, as is the case for plastic,

exposure to the natural environment breaks them **up** – leading to smaller and smaller particles which lead to larger and larger problems as they become ingested by animals at the lower-end of the food chain.

Only legislation can deliver source prevention.

The polluter pays principle delivered through EPR should be utilised to fully reflect the whole life cost of products. The concept behind the WEEE regulations and the Producer Responsibility Obligations under Part 3 of the Environment Bill are examples of how true Whole Life Cost is reflected in the purchase price of goods. The same approach could be applied to plastic producing products where legislative source prevention is not possible e.g. synthetic clothes.

5. How can consumers be persuaded to change their behaviour to minimise pollution?

An effective way will require a combination of a 'push' and 'pull' approach.

Push: ban the promotion, branding, advertising, acceptance of the word 'flushable' on products that contain plastics and cause blockages due to their lack of dispersibility. A suitable standard already exists: The Water Industry Specification 4-02-06 'Fine to Flush'. But it is currently a voluntary not a mandatory standard. A number of manufacturers (including industry leading brands) have attained this standard so it is perfectly possible to make it mandatory.

Pull: national education on the consequences of what we flush. Customer behaviour is the largest single cause of sewage pollution and flooding incidents. A national campaign to raise awareness, aligned with the mandatory standard would have a significant impact on consumers.

However, our extensive experience and trials show that a bottom-up approach to changing customer behaviour is only effective if supported by a strong top-down legislative approach.

6. What is the required investment level needed to minimise storm overflows vs the scope for sustainable drainage and nature-based solutions?

Unwinding centuries of combined sewerage construction will take decades. But legislation needs to be reviewed before the journey begins.

At the moment it is still legal for new development to add surface water to a combined sewer if the alternative is too difficult or expensive. An amendment to S106 of the Water Industry Act to make connection of surface water to combined systems (where impossible to avoid) conditional on downstream capacity and options for contributions to separation/attenuation could be considered.

Powers to disconnect surface water from private systems (e.g. drains on a private property) do exist but can be challenged by the property owner.

Powers to construct more sustainable local disposal options (e.g. single property soakaways), which are subsequently privately owned, do not exist.

Powers to discharge the newly disconnected surface water to surface water receptors (e.g. watercourses) do not exist.

Powers to make private drains watertight from groundwater infiltration at the owner's expense do not exist.

7. How effective are the planning policy and standards around sustainable drainage systems to reduce urban diffuse pollution in England?

The continued non-implementation of Schedule 3 of the Flood and Water Management Act 2010 means that the creation of SUDS in development remains voluntary and not mandatory. In England, the National Planning Policy Framework sets out that major developments *should* incorporate SUDs and the latest Sewerage Sector Guidance documentation contains rules which allow sewerage companies to adopt a wider range of sewer types, including SUDs, These voluntary approaches do not always give rise to a comprehensive system of sustainable urban drainage

It should also be noted that SUDs are a drainage tool to manage water quantity, not generally a treatment tool for urban diffuse pollution. The design of urban drainage systems to effectively capture or treat urban diffuse pollution is likely to be different. We would encourage such multiple benefit systems to be more widely constructed (for example, systems which benefit drainage, pollution reduction and biodiversity).

However, as there are multiple stakeholders and organisations responsible for urban diffuse pollution, but no overarching responsible body (or legislation) it is often difficult to achieve this or ensure developers implement such systems. Water companies provide surface water drainage systems to transport rainwater and return it safely to the environment, but there are currently no obligations to include treatment on these systems.

8. Should local authorities and highways agencies be given a duty to prevent pollution to watercourses without prior treatment?

Yes. Any organisation that owns assets that discharge water to the environment should have a duty to ensure the discharge does not pollute.

Road run-off discharging tyre wear is the biggest single source of microplastic contribution to the environment. Combined with entrained chemicals such as PPD6, as evidenced by recently published research, this run-off can potentially have a significant impact to watercourses.

9. How effective is Ofwat's remit and regulation of water companies? Does it facilitate sufficient investment in improvements to water quality, including sustainable drainage systems and nature-based solutions such as constructed wetlands?

The process for identifying impact, associating it with the source, and where the source is a water company responsibility, dealing with it through the WINEP, is very effective.

However, other sectors, such as agriculture, private landowners or local authorities, do not have the same robust funding and delivery mechanism. It could be argued that what is needed is a Water National Environment Plan, with a specific subset of actions allocated to the water companies, combined with investment for infrastructure or more nature based solutions in other sectors such as agriculture, potentially spearheaded by water companies.

Constraining factors are more to do with environmental regulation which requires certainty of outcome. Nature based solutions cannot always guarantee levels of performance when compared to high carbon, man-made, end-of-pipe solutions.

10. Is adequate investment being made in adapting water treatment systems to future climate change?

(Waste)water treatment systems can cope with climate change because the volume of what they treat is limited by the load permit (Dry Weather Flow) and flow permit (Flow to Full Treatment). It is the upstream sewer network capacity that requires greater investment to counter additional peak flows due to climate change.

As mentioned earlier, surface water separation is the best solution, but legislative change is required to make it happen.

Adaption to climate change will also necessitate a lower carbon future. The water companies have adopted a target to deliver a net zero water supply for customers by 2030. Similar goals have been set by the Environment Agency and other organisations. We consider that the net zero targets must be increasingly reflected in policy decisions around water management to avoid adoption of carbon intensive solutions to tackle the many challenges facing the water environment.

The tendency to view end of pipe solutions (e.g. the fitting of large storage or treatment systems at treatment works) as the answer to problems will lead to a high carbon, chemical and energy cost. We therefore favour future adoption of control at source options (for example, for plastics, pharmaceuticals etc.) or nature-based solutions (for sustainable treatment, such as our constructed wetland at Cromhall Sewage Treatment Works, the first wetland of its kind to provide tertiary treatment).

11. How could the designation of inland bathing waters by water companies affect the costs of achieving the associated water quality standards?

Water companies do not designate bathing waters. Defra do. Water companies are not the sole sources of faecal indicator organisms (FIOs) that affect bathing water standards.

If bathing water FIO standards are to be achieved at certain locations, then there first needs to be sufficient evidence to identify sources of FIOs followed by investment to achieve these standards. Such investment from water companies is a well-established process, but investment from other FIO sources (e.g. private sewage works and agriculture) need to be established.

The regulatory processes of permitting water discharge standards from sewage works also needs addressing otherwise high carbon intensive processes (e.g. UV treatment) will be operating for no benefit to anyone for long periods of time. Lower carbon intensive solutions, (e.g. maturation ponds) which are less reliable, should also be enabled by appropriate regulation.

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