



## **Report to the Select Committee on Water Quality in Plymouth Sound**

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### **My background**

I thought I should lay out my experience for the benefit of the committee to provide some context to my views on why we are where we are and what can and should be done to move the debate towards finding solutions to what are complex problems.

I began my career with Severn Trent Water and hold a qualification in sewage treatment and operational management of water and sewage treatment works. I was a process scientist for 5 years and ran some of the most technically advanced sewage works in the UK. I am a published author on the subject and specialised in treatability issues at non-compliant sewage works. I went on to run an environmental consultancy before moving into the third sector. I am a Chartered Member of the Institute for Water and Environmental Management and a Fellow of the Royal Society of Biology.

### **Water Quality – context**

The challenges we collectively face around water quality have been with us for many, many years. And successive generations and governments have failed to tackle the problems effectively and their impact is cumulative. Legislation has not delivered the water quality that the planet needs, remembering always that anything discharged into a freshwater system inevitably finds its way into our ocean.

It is true that water quality has improved over the last 20 years; but we are at a crucial pivot point; improvements have stalled and the pressure on our freshwater and marine ecosystems from population growth, climate change and long term, intractable problems, overlaid with the biodiversity crisis means that we are losing the battle!

“Deeply, deeply concerning adverse environmental trends continue. With the depleted state of our natural environment and the unprecedented pace of climate change, it does seem to many that we are at a crossroads. It is not easy for us as a nation to choose the right path, the right trajectory and to travel together at the pace needed, but we simply must.

“Government must speed up its efforts. Many policies are in the early stages or are long awaited. In some areas the right policies are in place, but now must be implemented quickly.”

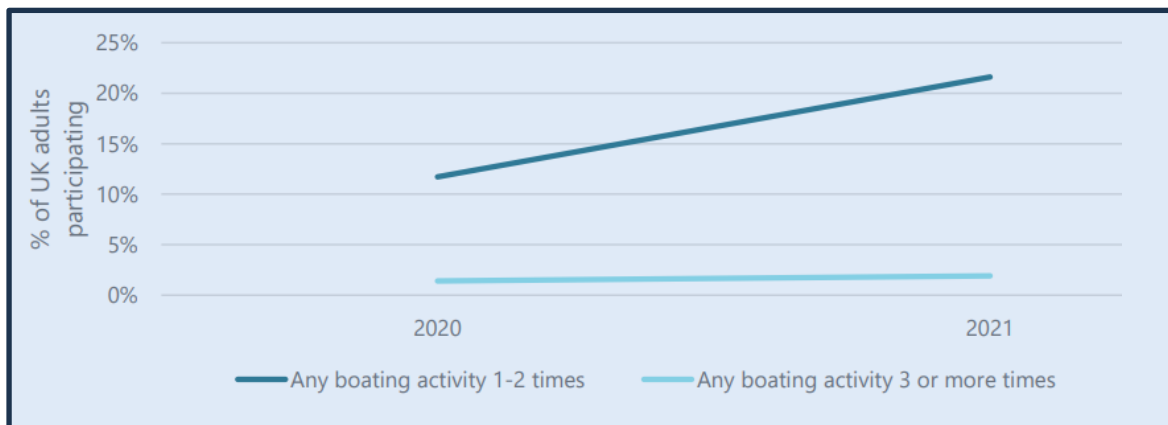


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### Recreation and use of the ocean

The magnitude, duration and frequency of use of our water bodies for recreation has seen a paradigm shift since Covid; with lock down restricting travel people discovered the delights of their own neighbourhoods, many of which included rivers and coastal areas.

This, combine with the growing interest in watersports means that interest in water quality is on the rise.



Watersports Participation Survey 2021. RYA and others.

There is also a still growing increase in (wild) swimming which is good for both our physical and mental health. According to the Outdoor Swimming Society, swimming in rivers and the sea increased in 2018 4.1 million people in the UK swam in rivers and oceans. More recent figures are not available but there is no question that this is a growing. Activity and importantly, from a microbial quality perspective, is now well-established year-round.

### The Plymouth numbers.

Ocean City Swimmers Plymouth - 4300

Devon Wild Swimming - 18500

Cornwall Wild Swimming - 9800

### Canoeing, Kayaking and Paddleboarding

According to the RYA report some 7.6 million people participated in 2021 – up a huge 127%.

### The Plymouth dimension.

Plymouth has a unique freshwater ecosystem as the rivers that discharge into the Sound are all rias. This means that they were formed as a result of global ice melt and therefore do not have a clear and defined source. The rivers that drain into Plymouth Sound all have a rich and diverse history of mining and other activities that have a legacy impact on the quality of water in the Sound.



For the benefit of this committee, I am going to focus on 3 key aspects that I feel are the highest priorities in terms of water quality and these are:

1. Water quality to drive nature recovery.
2. Water quality that supports recreational use
3. Water quality education to drive better outcomes.

### 1. Water quality to drive nature recovery.

The quality of water has a direct impact on our ability to help nature recover. The embodied temperature rise that we will see in our rivers and seas as a result of climate change cannot be undone. Therefore, if we are going to regenerate our wildlife, we need to use all other means at our disposal to create a resilience in species and habitats that allows this to continue.

	Rivers	Lakes	Estuaries	Coasts
2019	14%	14%	19%	45%

**Table 2:** The percentage of waters achieving good ecological status by water body type

Taken from the most recent Environment Agency Report on Water Framework Directive Compliance. January 2023.

### What needs to change for wildlife?

The challenges for wildlife are:

1. Water quantity (not the subject of this committee)
2. Nutrients (human and agriculture)
3. Physical changes to water bodies that restrict movement/change habitat.
4. Historic pollution from minewaters

This paper will focus on 2-4.

### Nutrients

Undoubtedly sewage discharges and agricultural run-off cause eutrophication (enrichment) of our rivers and seas. Nutrients cause algal blooms that can be toxic to wildlife and remove oxygen from the water, overgrowth of species that can take rapid advantage of the nutrients thus preventing slower growing species from establishing. Nutrients can promote the growth of one plant on another (epiphytes) Not all epiphytes are bad! But in the case of seagrass in Plymouth Sound excess nutrients and epiphytic growth kills the fragile sea grass.

Agricultural run off in the Lower Tamar, notably phosphates is one of the reasons for the river failing to meet the required standard.



### **Physical changes to water bodies**

Straightening of rivers and the addition of weirs prevents the free movement of species up and down rivers. Our rivers are home to rare and important species that are struggling because they cannot reach suitable habitat to spawn. Whilst not a water quality issue in itself supporting the renaturalisation of rivers will support nature recovery.

### **Historic pollution from minewaters**

Minewaters, metals are a key reason for failure to meet good ecological status. We currently have few proposals on managing minewaters. This is an area that would benefit from further attention.

## **2. Water quality that supports recreational use**

For most people in, on or under the sea, their major focus is, understandably, the microbial quality. The sources of microbial pollution, and the relative risk is poorly understood. Focus of frustration and ire is around South West Water discharges which are a major contributory factor – but not the only one. Bacteria can also come from agriculture, and nature – so understanding the source, the risk and when to choose not to access the water needs to be better managed and better understood.

SWW must be held to account for illegal discharges and pollution incidents but importantly the investigations to understand the source of microbial pollution is vital and needs to be prioritised.

Tackling sewer overflows can also be achieved through effective regulation. We are currently investigating the regulation of combined sewer overflows by the three lead public authorities (the Secretary of State, Ofwat and the EA). Our investigation to date leads us to believe that there may have been failures to comply with environmental laws by all three of the public authorities, resulting in the regulatory system operating in a sub-optimal way.

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The Storm Overflows Discharge Reduction Plan – when finally released by DEFRA- will be vitally important in managing microbial impact. But equally as important will be the monitoring of delivery.

### **Bathing Waters Monitoring and year-round swimming.**

The Bathing Waters regulations are over 50 years old and do not reflect our usage of marine and freshwaters. There is a need to push national government to amend the legislation but in the interim, there are opportunities to understand microbial quality outside of the current legislation to better inform people to make decisions about being in, on or under the water.

## **3. Water quality education that delivers better outcomes**

People in the city (and across the UK) have a limited understanding around how the drainage and sewage treatment system operates. This can be



evidenced by a simple statistic that 60% of sewer blockages are caused by wet wipes – which should never be put down the toilet.

Helping people understand what individuals can do; things that are free and make the environment better should be core to PCC messaging. This can be incorporated with other environmental messaging around recycling etc and can be embedded within the marine citizenship programme of the Horizons Project.

We can also leverage the power of the National Marine Park digital platform to share educational films and messages to support this.

### **What can be done?**

#### Individuals

- Improve understanding of how their behaviour impacts on water quality.
- Challenge SWW to deliver a house programme of water butts and water saving devices and ensure they are adopted and used.

#### Communities

- Use community champions to help develop better understanding of our drains and where they go.
- Use our

#### The city

- Adopt the nature first option for all works done in the city and ensure that any development reduces the nutrient load on the rivers and coasts.
- Holding companies to account for their performance and non-compliance. All companies, not just water companies.
- Leverage the reach of the National Marine Park to support better water quality.
- Engage with relevant NGOs who have expertise in delivering water quality improvements.
- Seek an annual report and holding to account so further actions can be identified if required.
- Develop a set of short films that can be shared widely to deepen understanding of how the systems work and how people can help.
- Publicise performance – good and bad on water quality that affects Plymouth rivers and coasts.

#### Beyond.

- Advocate for a change in legislation that means that Bathing Waters are monitored year-round and prioritised through the AMP investment programme.



- Engage with other coastal local authorities to ensure we deliver best in class here.