

**Water Quality – Issues, Challenges and Opportunities****Select Committee Briefing Report – February 2024****EXECUTIVE SUMMARY**

The Plymouth City vision is to be ‘*One of Europe’s most vibrant waterfront cities, where an outstanding quality of life is enjoyed by everyone.*’ Plymouth Sound is also the UK’s first National Marine Park, where more people will be getting in, on, under and next to the water. The cleanliness of the water is therefore very important for the City, its citizens and the wildlife within the Sound. The waterfront is one of our greatest assets supporting economic prosperity and the water quality of Plymouth Sound needs to be excellent. This paper sets out the role and responsibilities of Plymouth City Council in supporting an agenda to improve water quality in Plymouth Sound.

In November 2023 the Growth and Infrastructure Overview and Scrutiny Committee reviewed a paper on water quality issues, challenges and opportunities in Plymouth. The overview report covered the challenges of the current ‘combined’ drainage system and how the outputs from this system will rise with the predicted changes in rainfall patterns as a result of climate change. It also reviewed the opportunities for a combined investment programme with partners and working on a new nature based approach to addressing the current and future issues. The Committee agreed to:

1. Note the report;
2. Agreed to establish a Select Committee by March 2024 focused solely on Water Quality, inviting key stakeholders and user groups to provide evidence for consideration and review.

The Select Committee on Water Quality has been established to seek evidence on the issues, challenges and opportunities from statutory agencies, University of Plymouth, stakeholders and users of Plymouth Sound National Marine Park. The Scrutiny Committee were keen to ensure the Select Committee sought positive ways to improve the water quality situation. To resolve water quality issues will require a collaborative and innovative approach, which not only addresses current issues but also addresses future challenges. A draft Memorandum of Understanding (MoU) for a long-term enhanced collaboration between Plymouth City Council, South West Water and the Environment Agency has been developed building on existing joint working. This is included in Appendix I for the Select Committee to review and feedback on the proposed approach.

## **WATER QUALITY - ISSUES, CHALLENGES AND OPPORTUNITIES**

### **Plymouth City Council (PCC) Roles and Responsibilities**

#### **Bathing Waters**

Water quality is important for people, wildlife and Plymouth. The Select Committee will hear evidence from stakeholders and users on the importance of Plymouth Sound National Marine Park (PSNMP) and therefore how high standards of water quality is vital.

Currently there are 3 sites within the PSNMP that are formally designated as Bathing Waters:

- Plymouth Hoe West (Designated 1988)
- Plymouth Hoe East (Designated 1988)
- Plymouth Firestone Bay (Designated 2023)

At each of the three designated sites the Environment Agency (EA) monitors bathing water quality, weekly from 15<sup>th</sup> May to 30<sup>th</sup> September, from an identified sampling point at the site. Their role is to investigate any sources of pollution and recommend measures to improve water quality.

At the three designated sites Plymouth City Council must, during the official bathing season, put up signs that show the current water quality and any advice against bathing.

Bathing waters are given an annual classification of 'excellent', 'good', 'sufficient' or 'poor' by the EA. Plymouth Hoe East and West are both classified as 'excellent', Firestone Bay is a new bathing water and it has been classed in its first year as 'excellent'. Although the Bathing Waters were classified as excellent there are short term pollution events which do impact water quality and designated bathing waters are only monitored 15<sup>th</sup> May to 30<sup>th</sup> September.

The Environment Agency monitors water quality and the bathing waters are at times subject to short term pollution events. At these times PCC must put up signs advising against bathing. The EA makes a daily pollution risk forecast based on the effects of rain and wind on bathing water quality. These factors affect the levels of bacteria that get washed into the sea from livestock, sewage and urban drainage via rivers and streams and how they disperse.

At times these factors combine to make short term pollution likely, and the EA issues a pollution risk warning on their website and PCC must display a sign. After a short-term pollution event, levels of bacteria typically return to normal after a day or so but it's possible to have several warning days in a row.

### ***Natural Environment Designations***

Plymouth Sound contains many designations for nature as follows:

- Plymouth Sound & Estuaries Special Area of Conservation (SAC)
- Tamar Estuaries Complex Special Protection Area (SPA)
- Tamar Estuaries Site Marine Conservation Zone (MCZ)

The need for 'clean' water underpins the estuaries' ecological functions and therefore it is important that water quality is improved for the nature of the Sound.

The Tamar Estuaries Consultative Forum (TECF) is a partnership of organisations and local authorities with statutory responsibility towards the management of the Plymouth Sound & Tamar Estuaries Marine Protected Area (MPA). The Forum meets three times a year to review progress on the objectives of the Tamar Estuaries Management Plan, discuss activities, incidents and developments that may impact the marine environment, and to provide a consistent, holistic and collaborative management approach for the MPA. Plymouth City Council is a core member of TECF and provides the secretariate role for the partnership.

### ***Shell Fisheries***

Within Plymouth City Council's (PCC) Port Health District has responsibility for monitoring classified shell fisheries. The commercial production and sale of live bivalve molluscs, e.g. clams, cockles, mussels, oysters, scallops etc. is strictly controlled, as they have the potential to cause serious illness due to the way in which they feed. PCC carries out sampling of harvesting areas within the Plymouth Port Boundary. The results are used by the Food Standards Agency to classify these areas according to the *E.coli* levels in the shellfish sampled. The classification determines the areas where shellfish can be collected, and how the shellfish have to be treated after harvesting to ensure they are safe to eat.

Within the PCC Port Health District there are two shellfish beds in the River Yealm which were recently declassified. There is a proposal for re-classification, however this is being hampered by concerns about historical chemical contamination and remediation plans. Once classified, these beds are accessible only by boat and must be sampled monthly as part of the national biotoxin programme and also for maintaining classification. The water quality around the shellfish beds has been deteriorating and this impacts Plymouth City Council as increased sampling is required when quality fails.

### ***Plymouth Sound National Marine Park***

The UK's first National Marine Park (NMP) values the environment, heritage and economy of Plymouth Sound and its estuaries. It is where people and planet will come together to realise a new, sustainable relationship with the sea.

It will create opportunities for residents and visitors to reconnect with and explore the ocean in exciting new ways. Working alongside residents and the wider community is key to changing the way a City interacts with its environment; to care for, protect it and use it in different ways to develop a healthier and more harmonious relationship with the ocean. The NMP will encourage more people to get in, on, under and next to the water so the quality of the water needs to be excellent.

PCC is also the accountable body for the PSNMP Horizons project, which has recently received substantial funding from the National Lottery Heritage Fund for a 5 year delivery programme.

### **Water Quality - Issues and Challenges**

The Bathing Water classification for the three sites in Plymouth that have been assessed as 'Excellent' but there are a number of current issues impacting the standard of water quality in Plymouth Sound, which are detailed below. There are also future challenges that need to be addressed.

#### **Issues**

##### **Combined Sewer Overflows**

CSO are built into the sewerage network and may operate automatically during heavy rainfall to protect properties from flooding. During a storm event, heavy or prolonged rainfall can rapidly increase the flow in the combined sewer and may cause it to be overwhelmed. Storm overflows are designed to act as a safety valve by releasing excess storm water automatically into the sea or a river when this happens. At times of increased rainfall there isn't always enough capacity to contain the volumes. If storm overflows didn't exist within the currently designed network storm water wouldn't have anywhere to go, which would result in homes, businesses and streets being flooded.

CSO use has received a lot of attention and SWW have committed to reduce spills from storm overflows to an average of 20 per year by 2025 across the region. There are CSO's that function within Plymouth Sound.

##### **Misconnections**

Wrongly connected domestic waste-water pipes can affect the bathing water quality. Modern sewerage systems have two separate systems, one takes foul sewage to sewage treatment plants, the

other takes rainwater runoff through surface water drains to rivers and the sea. Misconnections occur when waste water pipes are plumbed into surface water drains instead of the foul water sewerage system. This can give rise to pollution when the waste water is discharged directly to the environment through the surface water drain. This often happens when a washing machine or toilet is incorrectly plumbed so that it discharges to the surface drain rather than the foul sewage drain. The EA, South West Water and the Council continue to work together to identify and rectify any problems when they arise.

### Urban Run-Off

In Plymouth's built-up areas pollutants can accumulate on hard surfaces such as roads and car parks which can then be washed into the sewer network during rainfall. At times this 'urban run-off' enters surface water drainage systems, and the pollutants are then discharged directly into watercourses and Plymouth Sound untreated. This can cause issues for water quality.

### Agricultural Run-Off

Agricultural run-off can impact water quality and the catchments that surround Plymouth have many agricultural uses. The use of fertilisers and pesticides from some farming practices can contribute to poor water quality. Rainfall run-off from farmland carries chemicals and faecal matter into streams and rivers. As soil is eroded it deposits silt, and the phosphates and nitrates contained within it, into watercourses.

### Microplastics

Microplastics are very small particles of plastic debris with a diameter of less than five millimetres. These microplastics come from a number of sources including from the breakdown of larger items of plastic litter in the environment, such as plastic packaging and water bottles and particles resulting from the breakdown of tyres. It is estimated that there are now trillions of microplastic particles in the marine environment.

Microplastics are an issue as they pose a risk to nature. They can be eaten by a wide range of animals and studies have shown the potential for this to lead to harmful effects. Scientists have estimated that unless things change there will be wide scale and potentially irreversible effects.

### Industrial Discharges

Any industrial waste water discharges will now require a permit from the Environment Agency. This could be from industrial processes, waste operations or mining activities. Although current discharges are required to comply with stringent environmental standards historic discharges can continue to cause water quality issues.

### Everyone Playing Their Part

The incorrect disposal of fats oils and greases, and plastic cleaning wipes and other sanitary products flushed into foul water drains is congealing into blockages that cost companies and customers in the region of £100 million a year. This incorrect disposal of materials is adding pressures to the sewerage system that cause sewer overflows to spill more frequently.

### Unavoidable Climate Change

The anticipated impacts of unavoidable climate change are likely to result in changing weather patterns that could exacerbate water quality issues. Changes are predicted to include:

- Milder, wetter winters with an increase in rainfall intensity and frequency
- Increase in the intensity and frequency of storms
- Rising sea levels and increased coastal erosion

There is a clear link between flood risk and water quality issues in the urban environment of Plymouth and therefore increased rainfall and the intensity of that rainfall needs to be taken into account when designing solution to improve water quality.

### Complexity of Water Quality Improvements

The ownership of surface water drainage features is fragmented across a range of both public and private parties, including local authorities, highway authorities, water companies, and private individuals and businesses. DEFRA has acknowledged that the powers and duties to manage drainage features are often less than clear cut and the regulation, duties and responsibilities are split across government agencies and local authorities. This makes developing solutions to complex issues more challenging.

## **Opportunities**

### **Partnership Work**

The Environment Agency, South West Water and the Council have been working together to seek solutions to water quality and flooding in a joined up and collaborative manner. Through the alignment of capital programmes the partnership have been delivering work to add capacity to the infrastructure systems and planning longer term solutions. An Integrated Urban Drainage Model has been produced to support and help direct the prioritisation of works across Plymouth through the current partnership. Currently, Plymouth City Council has 19 projects on the current flood risk management programme of works and many of the projects have been designed to deliver the multiple benefits of flood reduction and water quality improvements.

In addition to related flood resilience projects that will support water quality outcomes, WaterFit is a South West Water programme that will also support enhanced water quality. It is the next stage of South West Waters environment strategy and *'will be going further and faster to protect and enhance the South West's waters for future generations, with a £330m of investment over three years and focused on protecting our 860' miles of coastline and rivers.* Waterfit has 6 pledges including nurturing healthy rivers and seas. In Plymouth, the investment is set to help reduce the risk of environmental impact from the sewerage network, and to contribute towards improving bathing water quality at Plymouth Hoe. SWW have earmarked circa £20,000,000 of investment in Plymouth up to March 2025.

Further funding is also being sought to develop natural flood management projects. In September 2023 the Environment Agency and Defra announced £25 million of national funding for improving flood resilience through a new Natural Flood Management (NFM) programme. The aim of the programme is to reduce flood risk with NFM methods in a manner which also delivers wider benefits including water quality. The Council and partners developed and submitted a bid to this fund for £700k to pilot approaches to natural flood management an urban environment, which would also support improvements in water quality. The fund states that Government and Environment Agency will announce the successful projects in early 2024.

### **Community Partnership**

In addition to significant capital projects PCC has been working with communities to highlight water related issues. Specifically, the Building Resilience in Communities (BRIC) has been working to ensure communities are better able to prepare for and manage if flooding occurs. The findings from the first 2 years of BRIC indicate that communities in Plymouth are ill-prepared for flooding and lack knowledge on how to respond or who to contact during a flood event. This suggests that if their

properties or businesses were to be flooded, they would struggle to recover effectively. The project has been working to support at-risk communities in becoming more resilient and resourceful.

There is a need to increase awareness of the risk of surface water flooding throughout the City and educate people on the changes they can make to mitigate this risk. Significant progress has been made in building trust and promoting behavioural changes to establish a flood resilience network. However, it is important to maintain ongoing community engagement to create flood-aware and prepared communities, residents, and businesses in Plymouth.

Although BRIC has been focused on flood resilience the project has started to raise awareness of the connection between flooding and water quality. Importantly it establishes a pathway to working with communities, so they are enabled to support solutions. The expansion of this approach will be vital in delivering enhance water quality outcomes.

#### Nature Innovations

In addition to the alignment of work programmes, the Council has been working with South West Water to look at the delivery of nature-based solutions (NBS) as part of the wider programme of work to improve water quality and reduce flood risk. This work is underway with the commencement of a natural catchment plan being conducted for Plymouth.

### **IMPROVING WATER QUALITY – ENHANCED PARTNERSHIP PROPOSAL**

It is clear that improving water quality is essential for the City of Plymouth. Enabling people to enjoy the UK's first NMP, enabling wildlife to thrive and ensuring the waterfront remains one of our greatest assets supporting economic prosperity. To deliver this will require increased investment and a collaborative approach to delivery. Maximising the direct benefits to the water environment but also indirectly supporting the City by delivering in a manner that creates jobs and opportunities for people to develop skills.

South West Water, Environment Agency and Plymouth City Council have been working together for many years, seeking to work together to deliver outcomes. However, with the increased focus on water quality, the designation of the UK's first NMP in Plymouth Sound and the increasing risk of climate change it has been agreed an enhanced and long-term partnership approach is needed. This will build on the work so far and seek to deliver more together.



Appendix I to this paper is a draft MoU proposed between the 3 organisations for an enhanced partnership which will span 10 years. The aims and ambitions of the proposed partnership are as follows:

***Our collaborative approach seeks to build and expand on existing good practice in Plymouth, such as the Integrated Urban Drainage Modelling Project and take a holistic and place-based approach to water management to create a Plymouth Plan for Water. Our purpose is to meet the future water management challenges jointly and collaboratively. This includes a commitment to;***

- ***further develop a shared understanding of the challenges faced in Plymouth, especially with reference to increasing climate change impacts.***
- ***identify further synergies and partnership opportunities between our planned investment programmes and wider working.***
- ***work together to identify more holistic solutions with greater impact and with a focus on developing a ‘Green First’ approach to water quality improvement project development.***
- ***enabling greater levels of community engagement, understanding and community codesign of solutions to water management.***
- ***deliver investments and programmes in a more integrated way to maximise the benefits (including wider social, environmental and economic benefits) and mitigate risk.***
- ***identify and address critical gaps – for example resource gaps through shared bids or developing innovative financial models for investment gaps; and***
- ***jointly explore wider opportunities and levers that can support our shared ambition e.g. with other key city partners and national stakeholders.***

The MoU sets a proposed approach to delivering this work. The proposed partnership approach will not resolve all of the issues impacting water quality in Plymouth. Further work with wider partners will be needed to resolve issues relating to microplastics and agricultural run-off, but it will be a positive start to enhancing water quality.

## **SUMMARY**

The importance of a high-quality natural environment with excellent water quality is essential in meeting the City vision and delivering the UK’s first National Marine Park. However, the issues and challenges facing water quality are diverse and complex. To resolve all these issues will require a

collaborative and innovative approach, which not only addresses current issues but also meets future challenges.

There are however great opportunities to improve water quality alongside, reducing flood risk and enhancing places for people and nature. The proposed MoU will start to draw together key partners to deliver improvement works and develop innovation in this area of work. The importance of a partnership approach to this area of work is reflected in the recommendations below.

## **RECOMMENDATIONS**

**Recommendation** - Accept the conclusion in this report that the issues and challenges with water quality are complex, will increase with predicted climate change and needs an enhanced approach to delivery.

**Reason:** *To recognise that enhancing water quality requires a partnership approach to meet existing and new challenges.*

**Recommendation** - Support the collaboration set out in the MoU, for a long-term delivery focused relationship with the Environment Agency and South West Water.

**Reason:** *To deliver on opportunities to improve water quality in the short and long term in a manner which maximises benefits.*