

Pix Piece
#06
August 2024

ResilienTogether is a Defra-funded project that aims to build a Smart Catchment to enhance flood resilience. Our Pix Pieces capture and share what we have learned about the Pix Brook catchment and its community.

Pix Brook Water Quality: Phosphates

Sampling for Phosphates in the Pix Brook - where does it come from and why is it important?

Figure 1 & 2. (Right) Water Quality Sampling in the Pix Brook



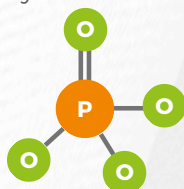
ResilienTogether

ResilienTogether is creating a Smart Catchment, through use of innovative technologies and techniques, to reduce flood risk to people and places, enhance the water environment in the Pix Brook catchment and improve community resilience in the face of climate change.

ResilienTogether undertook water quality sampling for a nine month period at eight sites along the Pix Brook, shown in Figure 3 (Right). This provided a baseline water quality for a range of determinants. This Pix Piece focuses on the Phosphate Levels in the Pix Brook, what they mean and why Phosphate levels are important.

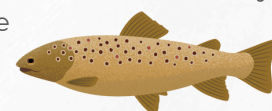
What is phosphate?

Phosphate is the natural source of phosphorous. Phosphorous is often called a 'legacy contaminant' in river sediments, as it can affect water quality for a long time after it enters a river systems. There are many sources of phosphorus in rivers. Phosphate is produced naturally in animal waste, but most phosphate contamination comes from human activities. These include agricultural and urban run-off, industrial and domestic sewage, or faulty or overloaded septic systems.



The impact of phosphates

The presence of phosphates can have a large impact on whether 'Good Ecological Status' can be achieved in rivers, as it is a key limiting nutrient for growth in fresh water. In excess, it can cause algal blooms and a loss of biodiversity. Large amounts of algae have an impact on the rest of the ecosystem, for example, by blocking out the light that other plants need for photosynthesis. When these plants, and the algae itself, start to die, they are eaten by bacteria reducing the oxygen in the water which is needed by organisms such as freshwater insects. The impact of this is that they start to die and as a consequence this can have a knock-on effect on fish populations.



Phosphate in the Pix Brook

Phosphate concentrations vary along the Pix Brook. Four sites (Hillshott, Industrial Outfall, Wilbury Road and Reservoir) have an average that is classified as "poor", the remaining four sites have an average which are classified as "bad". The samples taken from the Norton Common inlet site had higher levels on average compared to the other sites. This indicates a potential source of contamination entering the Pix Brook between Hillshott and Norton Common. The concentration of phosphorous increases considerably downstream of the water recycling centre as phosphorous is likely to be entering the watercourse here in the effluent. Runoff from farmland around Stotfold and Arlesley could also be contributing to elevated levels in the Pix as many fertilisers used in farming contain phosphates.

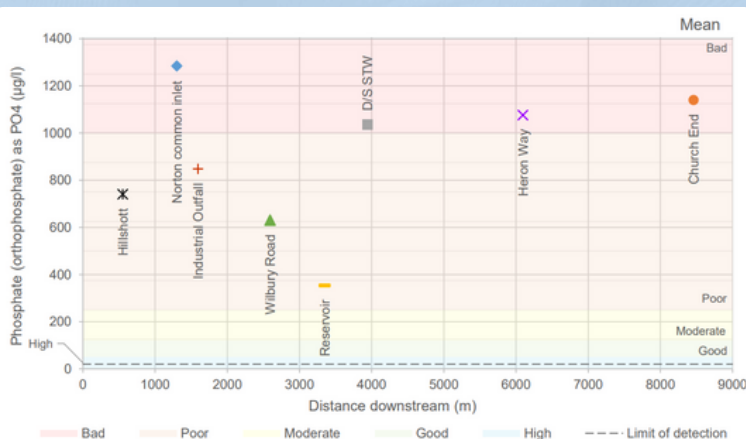


Figure 3. Phosphate levels (mean) across the Pix Brook compared against Water Framework Directive acceptable levels

If you want to hear more, please contact ResilienTogether.project@Centralbedfordshire.gov.uk or visit our website <https://resilientogether.org.uk/>