

Pix Piece
#04
July 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: Nickel

Sampling for Nickel 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, using innovative technologies and techniques to reduce flood risk, enhance the water environment and improve community resilience in the Pix Brook catchment.

ResilienTogether undertook water quality sampling for a nine month period at eight sites along the Pix Brook, shown in Figure 3 (Right). Pix Piece #01 provides information on how we undertook our water quality sampling. This provided a baseline water quality for a range of determinants across a long stretch of the watercourse, which allowed us to build up a picture of where different determinants may be an issue and why. This Pix Piece focuses on the Nickel levels in the Pix Brook, what they mean and why they are important.

What is Nickel?

Nickel is a chemical element; it has a symbol Ni. Nickel particulates from vehicles build up on the road and, when it rains, runoff into highway drainage systems that discharge into the Pix Brook.

Nickel is also found in the brook from of historic industrial sources in the Pix catchment. In higher quantities the presence of nickel in river water causes toxicity to all living organisms and is an indicator of pollution.

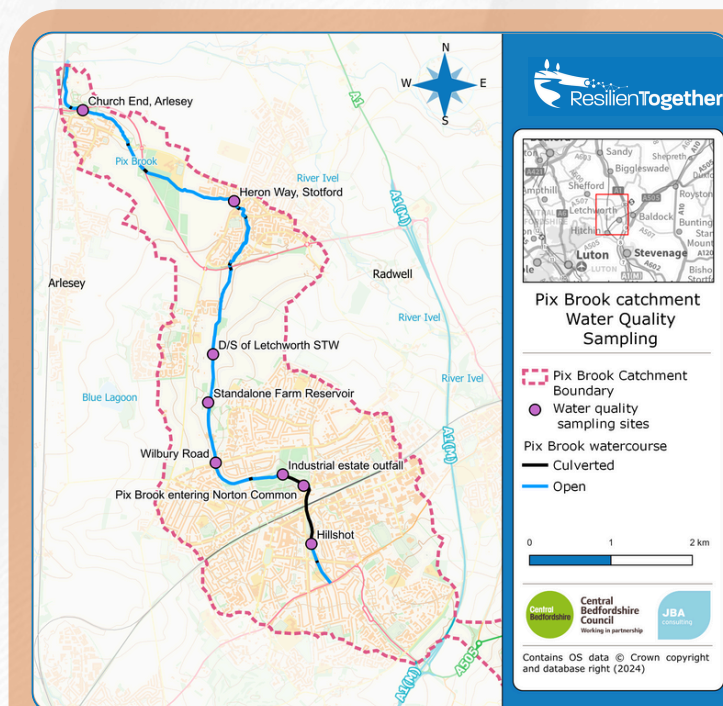


Figure 3. Map of Pix Brook water sampling locations

Nickel in the Pix Brook

Figure 4 shows that the average nickel levels in the Pix Brook fall within the acceptable water quality threshold. There is an increase in concentrations between Norton Common inlet and Wilbury Road that may be linked with an increase in highway runoff entering the Pix. Sites downstream of the waste water recycling centre (STW) have higher nickel levels than upstream sites. This indicates the waste water entering the Pix Brook is contributing nickel and/or nickel from highway runoff is accumulating. Due to its low concentrations in the Pix Brook, nickel is not a concern but it is an indicator of the presence of the influence of urban factors influencing water quality.

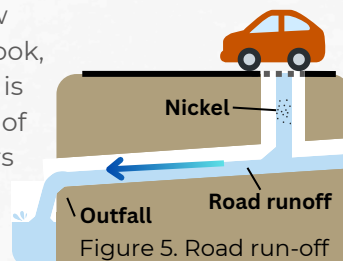


Figure 5. Road run-off

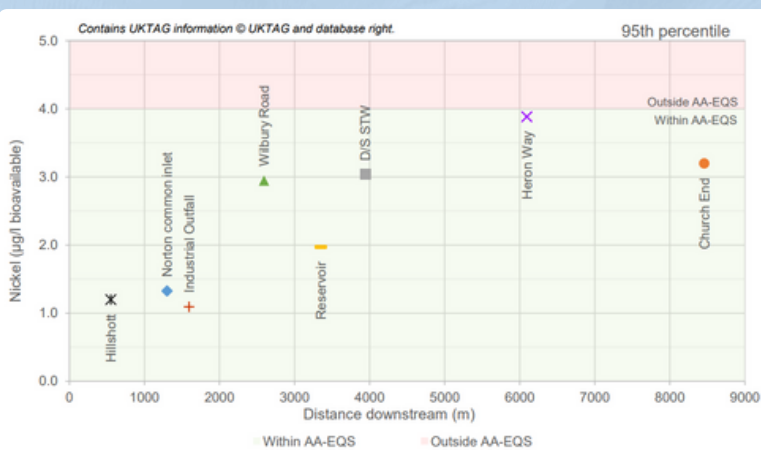


Figure 4. Nickel levels across the Pix Brook compared against Water Framework Directive acceptable levels