

Digest
#05
February 2024

ResilienTogether is a Defra-funded project that aims to build a Smart Catchment to enhance flood resilience. Our Learning Digests capture and share what we have learnt while we build a smarter, more resilient catchment.

Water quality measurement: Fixed-site vs portable autosamplers

A comparison of water quality measurement devices



Figure 1. Fixed-site autosampler



Figure 2. Portable autosampler

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.

What have we learnt?

Selecting the most suitable sampler for SuDS-specific monitoring is pivotal to achieving a reliable and accurate water quality monitoring programme. ResilienTogether has learnt about the benefits of fixed-site vs portable autosamplers and the importance of understanding what sampler is most suitable for specific site and data collection needs. A water quality autosampler is an automated device designed to collect water samples at specific time intervals from a water body.

This digest draws from the University of Exeter's 'SuDS-specific water quality monitoring in the Pix Brook Catchment: A review of available technologies' report. Understanding the differences between fixed-site autosamplers and portable autosamplers is essential to selecting the most suitable kit and the field location where it will be deployed.

Fixed-site autosamplers

- Designed for long-term deployment at specific locations.
- Provide continuous and automated sampling of water quality parameters.

Advantages	Disadvantages
Consistent data	Installation requires infrastructure and a power source
Unattended monitoring over extended periods of time	Often unsuitable for remote places or challenging terrains
Ideal for establishing trends and baselines	
More predictable sample collection allowing for better coordination with laboratory testing	

Refrigerated vs insulated autosamplers

The decision to use a refrigerated autosampler or one with insulation is dependant on the water quality parameters of interest.

Parameters highly sensitive to temperature fluctuations, such as biological parameters like Biochemical Oxygen Demand (BOD) or chlorophyll, require refrigeration to ensure accurate results. For less sensitive parameters, an insulated sampler may be sufficient to maintain sample integrity.

Portable autosamplers

- Designed for on-the-go sampling in the field.
- Can be easily transported to different sampling sites to flexibly measure water quality.

Advantages	Disadvantages
Versatile for field applications	More frequent maintenance and monitoring
Provide mobility and flexibility to sampling	Careful planning to ensure samples are transported and analysed promptly to maintain accuracy
Suitable for remote locations if battery-powered	
Remotely triggered at specific times to capture useful data	

Choosing an autosampler for the Pix Brook

Due to limited access to power at river sampling locations, a portable autosampler may be more suitable for the Pix Brook. For the parameters ResilienTogether are measuring, a well-insulated autosampler is sufficient.



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