

Digest
#05
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ResilienTogether is one of 25 Flood and Coastal Resilience Innovation Programme (FCRIP) projects funded by DEFRA. These aim to demonstrate how practical innovative actions can work to improve resilience to flooding and coastal erosion. These digests highlight learning from ResilienTogether. They document learning captured during the project which can be used by schemes and organisations across the country.

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. It is using innovative technology and practices to reduce flood risk, enhance the water environment and improve community resilience in the Pix Brook 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. To identify the most appropriate sampler, the sampling location and its accessibility, the desired level of automation or manual control and the logistics of sampling must be considered alongside project aims. 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	
Ideal for establishing trends and baselines	Often unsuitable for remote places or challenging terrains
More predictable sample collection allowing for better coordination with laboratory testing	

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	
Suitable for remote locations if battery-powered	Careful planning to ensure samples are transported and analysed promptly to maintain accuracy
Remotely triggered at specific times to capture useful data	

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.

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.



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If you want to find out more about this topic, please get in touch with us at ResilienTogether.project@Centralbedfordshire.gov.uk