

Digest
#04
January 2024

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: Autosamplers vs Probes & Sondes

A comparison of water quality measurement devices.



Figure 1. Bellflow Economy MCERTS



Figure 2. XYLEM YSI EXO-2

ResilienTogether

ResilienTogether is creating a Smart Catchment using innovative technology and practices to reduce flood risk, enhance the water environment and improve community resilience in the Pix Brook catchment in the face of climate change.

What have we learnt?

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. It compares the use of autosamplers with the use of probes & sondes as two main technologies for water quality measurement. This has informed ResilienTogether's sampling methodology where a combination of autosamplers and sondes are being explored.

Autosamplers

- Autosamplers are automated devices designed to collect water samples at specific time intervals and are equipped with a sampler unit and a sample storage system.
- They are programmed to take samples at predetermined intervals or in response to specific events.
- Autosamplers can measure lots of different water quality parameters.

Probes & Sondes

- The terms "probe" and "sonde" are often used interchangeably in the context of water quality monitoring, but there can be slight differences in their connotations and usage.

Probe: A single sensor or a set of sensors designed to measure a specific parameters within a body of water.

Sonde: An instrument that integrates multiple sensors for simultaneously measuring various water quality parameters.

Advantages	Disadvantages
Provide high quality data	Samples must be collected after the sampling period, so suited to shorter term needs
Can be set up and left unattended to collect samples	
Can be triggered remotely at any time	Larger piece of equipment, so installation requires suitable channel space and conditions
Some are refrigerated, which prevents degradation of samples due to high temperatures	

Advantages	Disadvantages
Small and compact	Can't sample for anything that needs laboratory analysis
Can be used in situations where specific data points need to be collected	Can become damaged if the watercourse runs dry
Quick measurements	Measures one parameter

Advantages	Disadvantages
Remote data collection over extended periods	Can't sample for anything that needs laboratory analysis
Real-time continuous or semi-continuous monitoring	Can become damaged if the watercourse runs dry
More sophisticated than individual probes	

Autosamplers can measure lots of different parameters whereas Sondes are more limited to parameters that don't require any lab analysis. Autosamplers and Sondes measure:

Total Suspended Solids	Turbidity	Temp	pH	NH ₃	DO	N	PO ₄	Mg	Zn	Ni	Cu
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	✓	✓	✓	✓	✓						



University of Exeter

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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