



A global citizen science project



A universal method

- Ecosystem observations (visual)
- Chemical tests – nitrates and phosphates
- Optical tests – turbidity



8 years



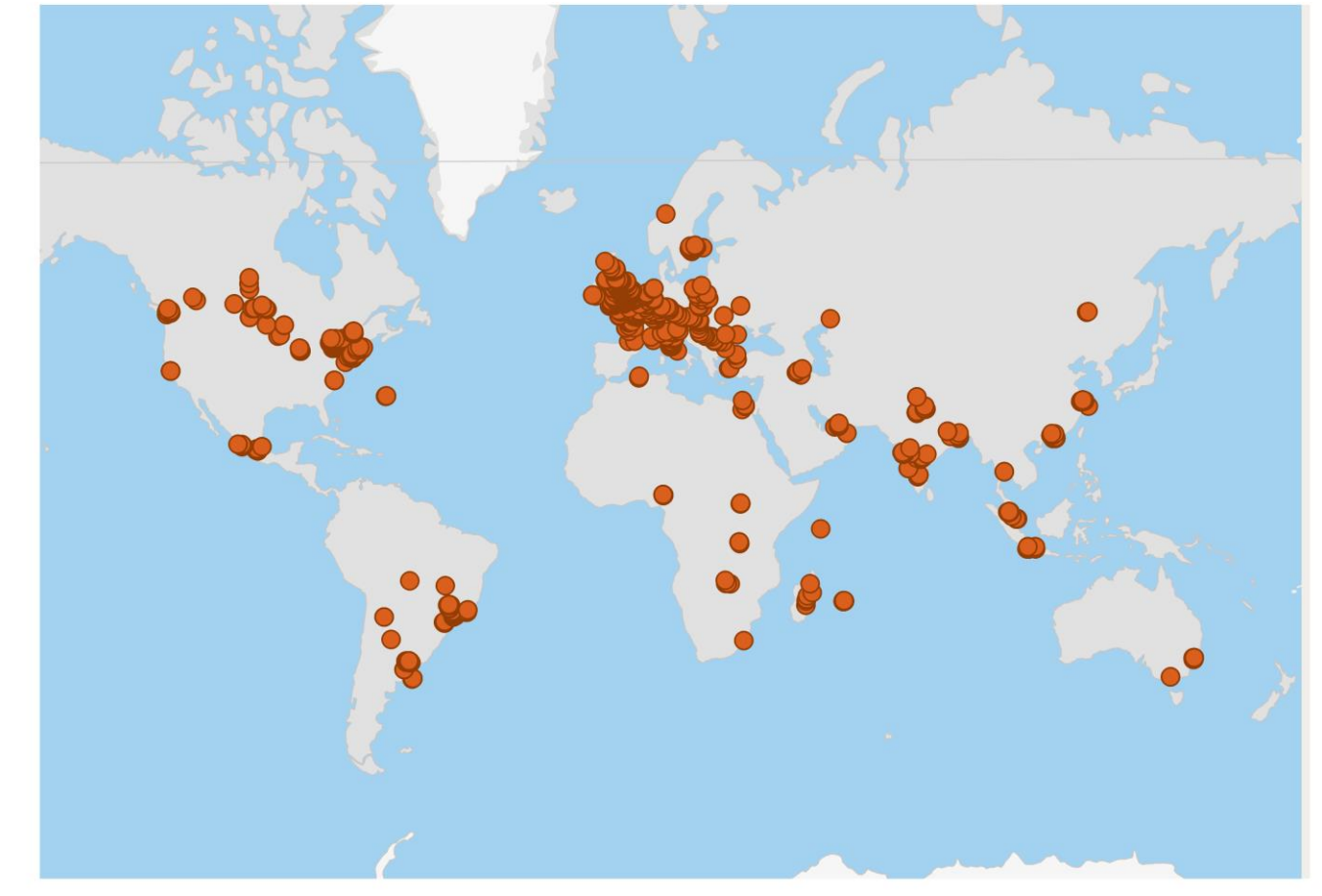
~ 25,000 measurements



~4,000 citizen scientists

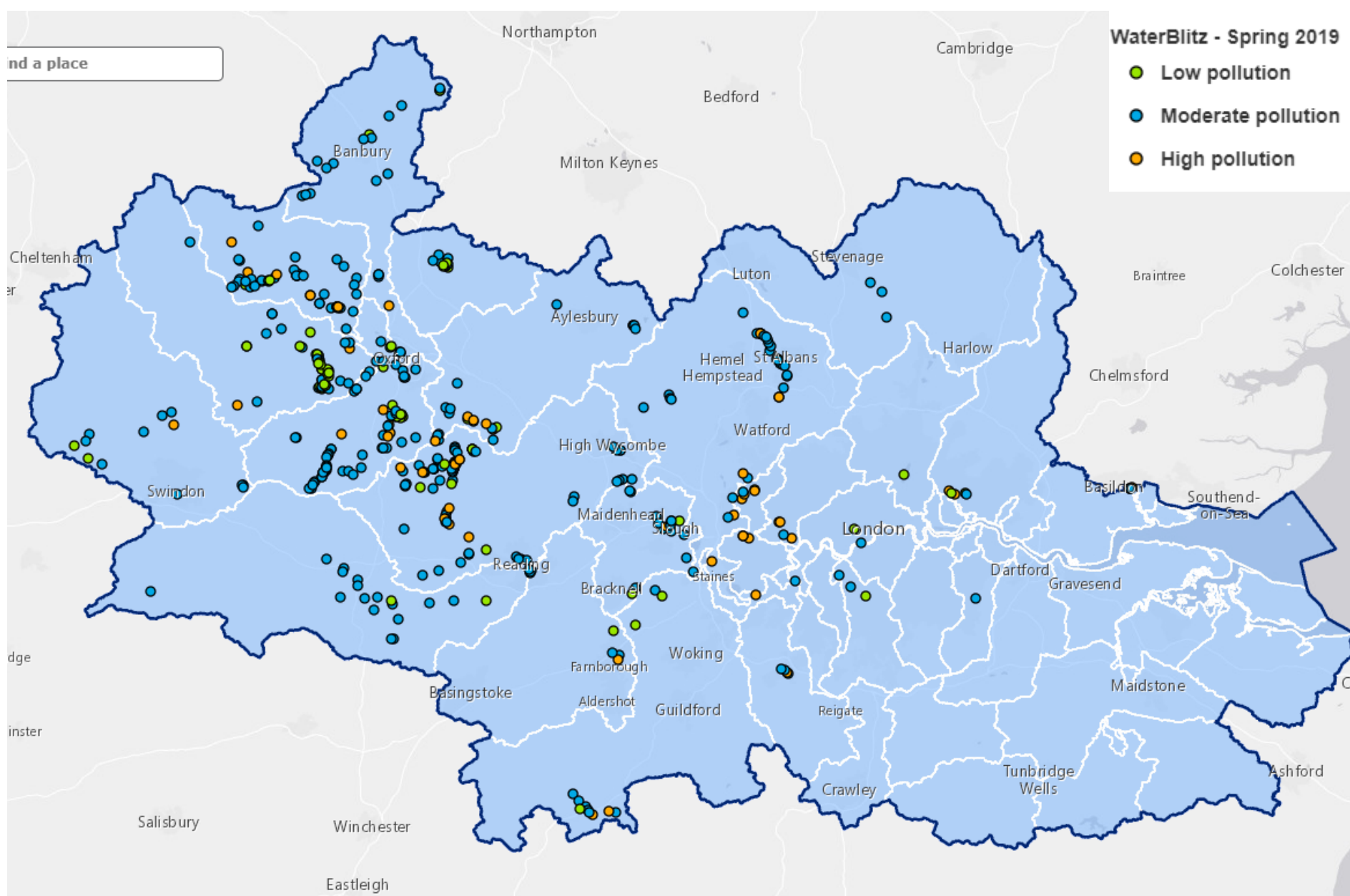


20 peer-reviewed papers

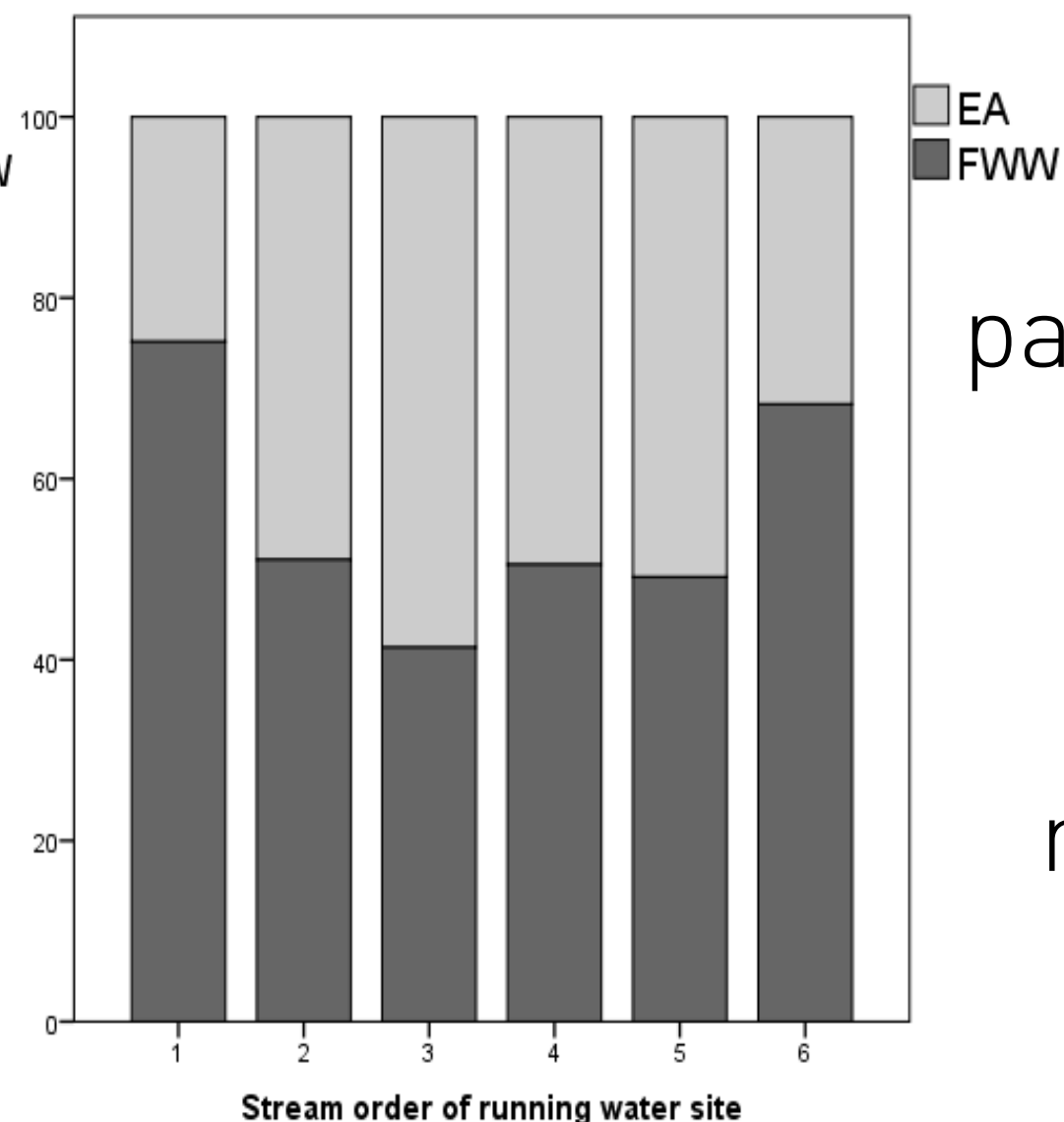
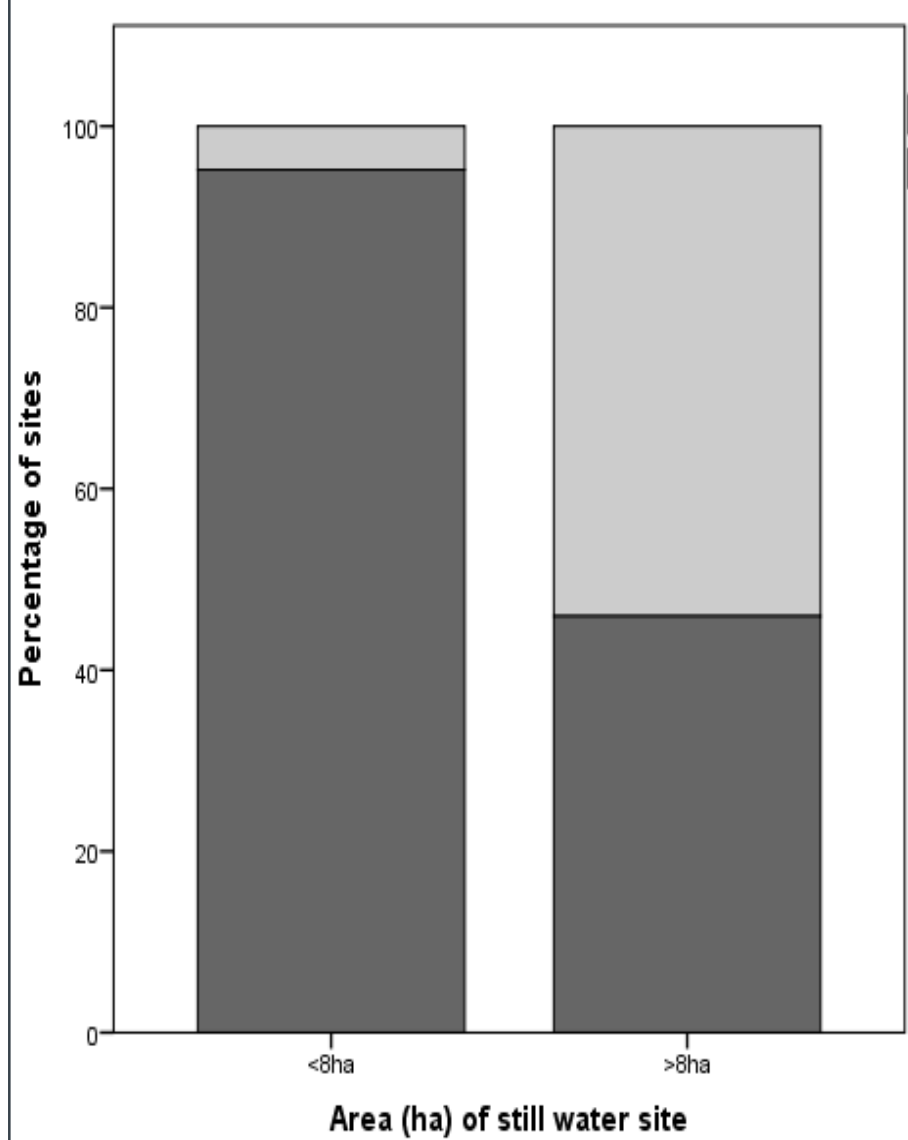


Compliments statutory monitoring

Mass participation 'WaterBlitz' events capture a snapshot of catchment conditions over a weekend using thousands of participants



Right: Thames WaterBlitz measurements Spring 2019.

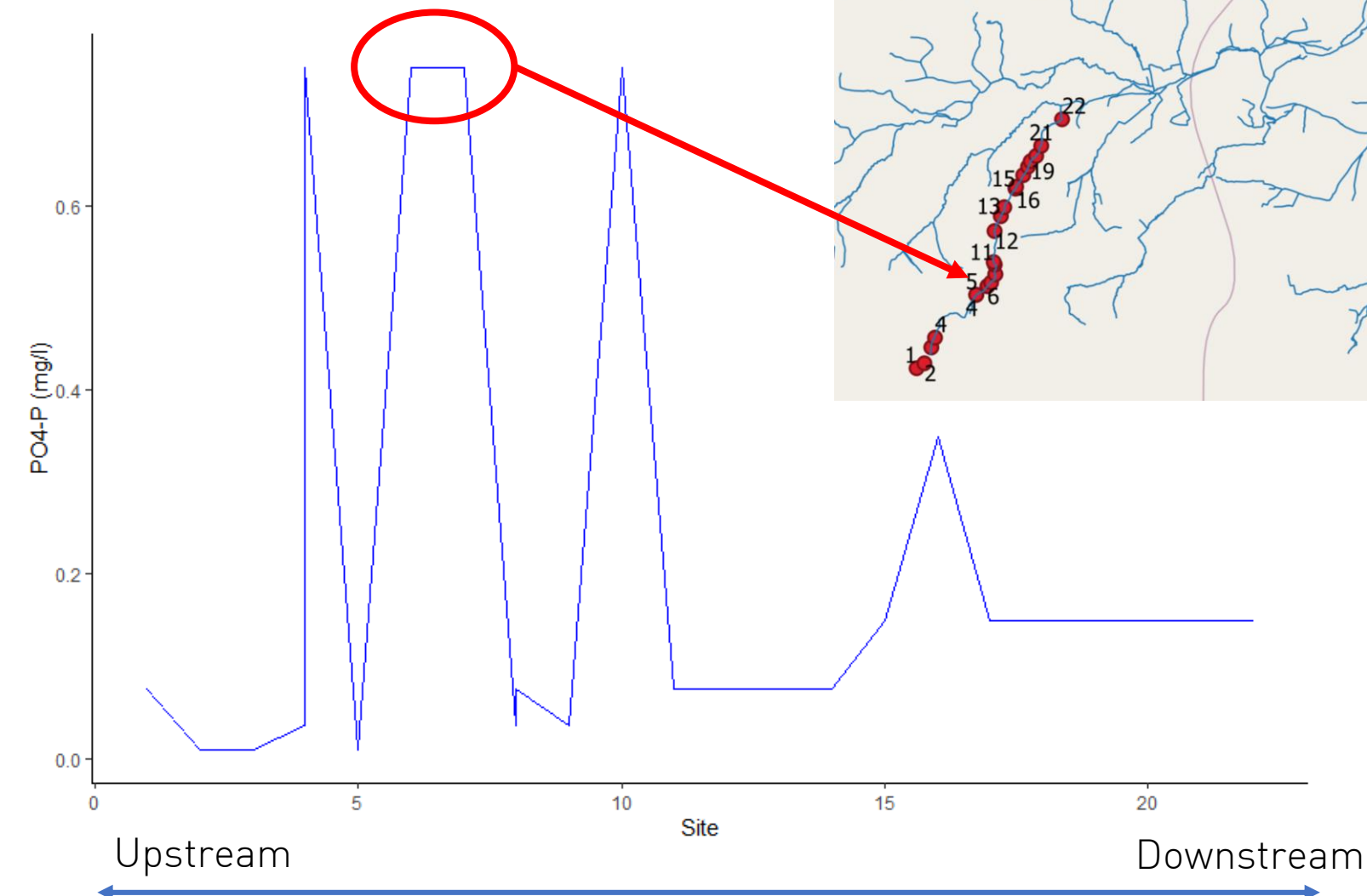


Above: Size of sites sampled by citizen scientists (FWW) vs Environment Agency (EA). Hadj-Hammou et al., 2017.

In the Thames catchment, participants naturally self-select smaller waterbodies and areas that are not routinely monitored by the Environment Agency

High spatial resolution means that WaterBlitz data can be used to identify places where step-changes in water quality occur. This can be used to inform targeted monitoring.

Letcombe Brook WaterBlitz data 2019. Map (right) shows sampling sites. Graph (below) shows step changes in phosphate concentrations.



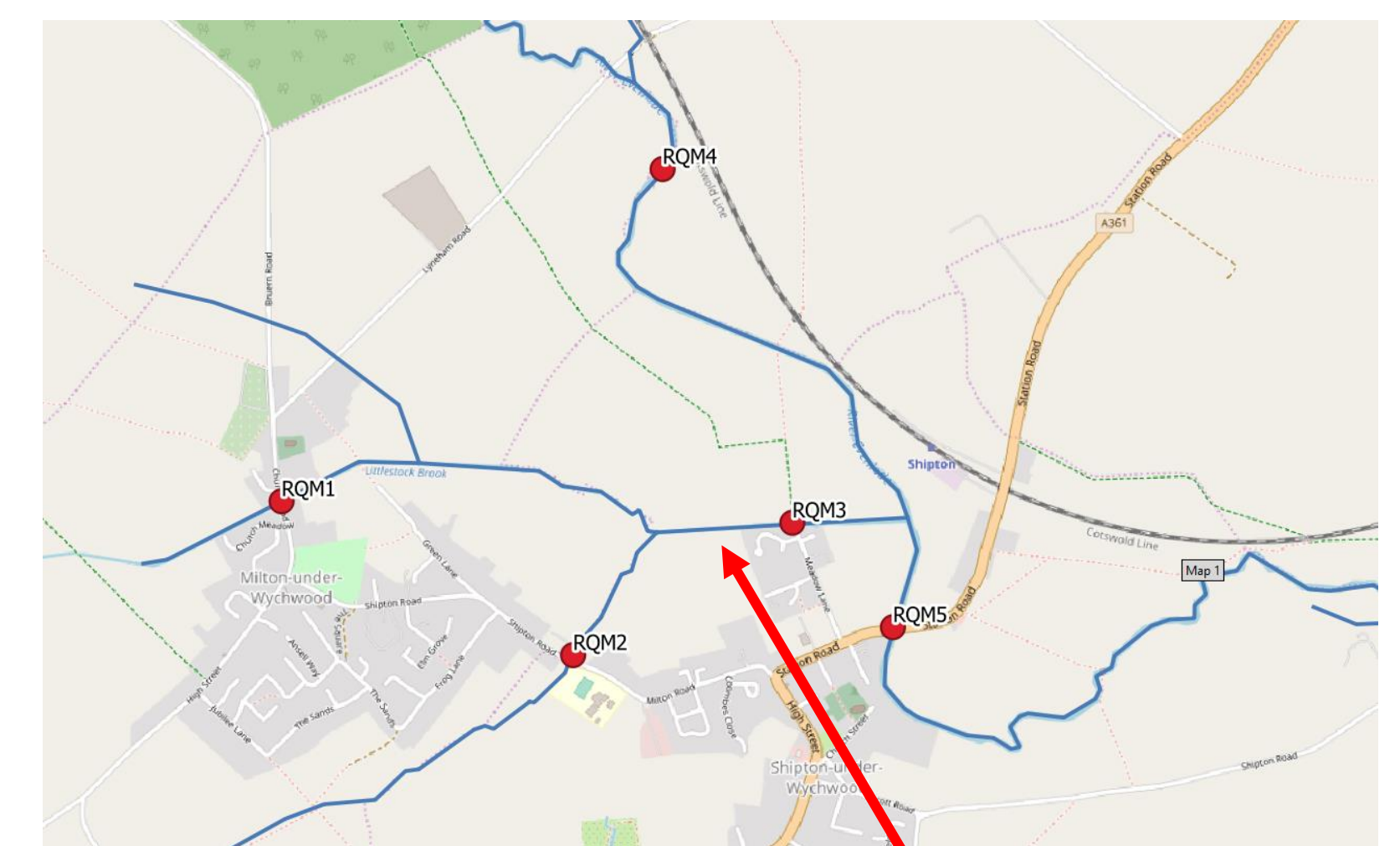
Empowers environmental stewards



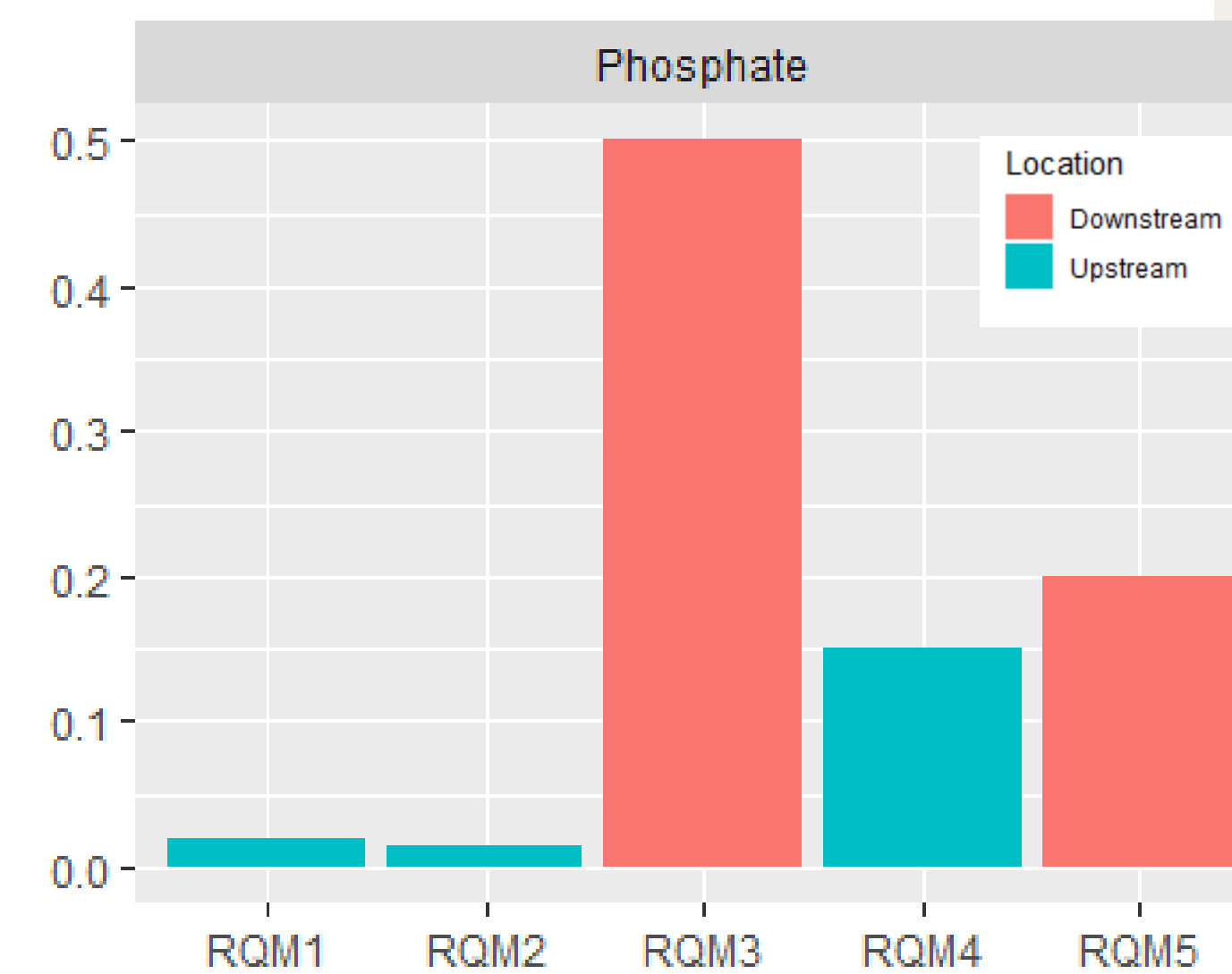
Above: Volunteers from Wild Oxfordshire plan their catchment-wide sampling strategy. Photo credit: John Hunt

In the River Evenlode, Wild Oxfordshire and Coldstone Angling Club have been monitoring phosphate concentrations across the catchment to identify clean waters, locate pollution hotspots, and target Catchment Partnership work.

They have identified a rural sewage treatment works (STW) that is negatively affecting water quality in Littlestock Brook.



Littlestock Brook STW



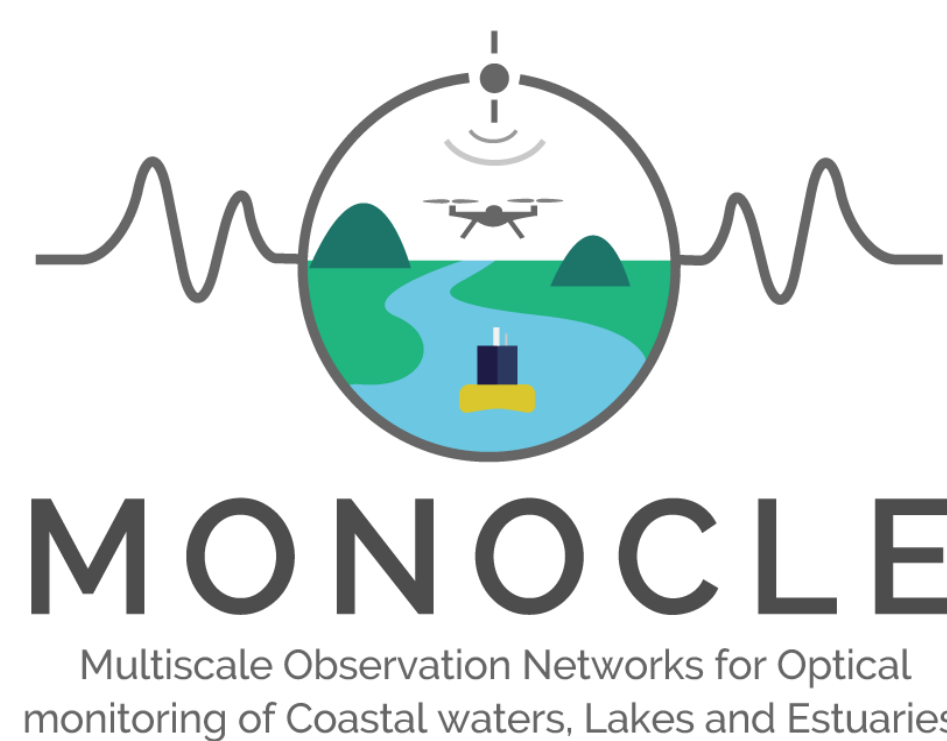
Above: Map of citizen science sampling points around Littlestock Brook. Sites 1, 2 and 3 are on Littlestock Brook. Sites 4 and 5 are on the main River Evenlode.

Left: Median phosphate concentrations at each site. Colours indicate whether site is upstream or downstream of STW influence.

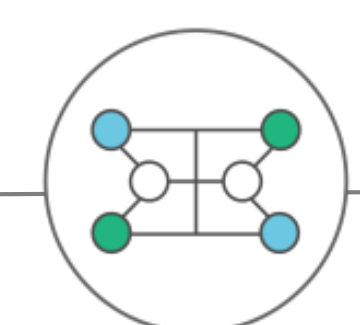
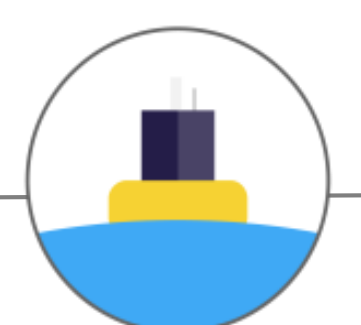
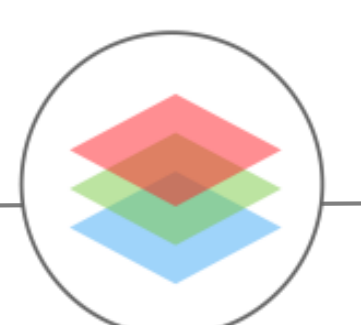
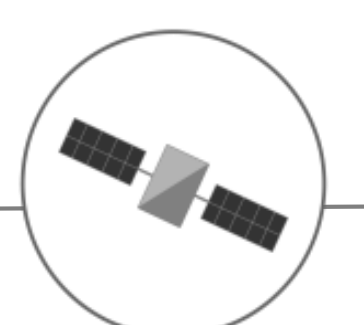
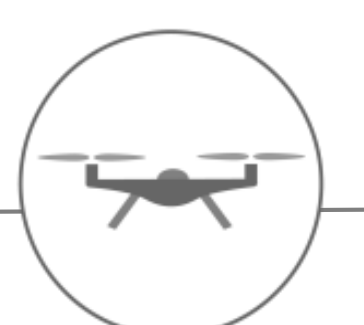
Volunteers are now liaising with Thames Water and the Environment Agency to request formal monitoring of the small stream, to review discharge permits, and to consider the installation of additional tertiary treatment to strip nutrients from discharges.

Integrates with multiple data sources

As part of the MONOCLE project, we are exploring how FreshWater Watch can become part of an integrated water quality sensor network



This network includes citizen science methods, in-situ sensors, drones, and satellite data.



This research has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 776480



Find out more

Happy to talk!

Or Contact me (Izzy Bishop)



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References

Hadj-Hammou, J, Loiselle, S, Ophof, D and Thornhill, I (2017) Getting the full picture: Assessing the complementarity of citizen science and agency monitoring data. PLoS One 12 (12): e0188507.

Acknowledgements

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