Citizen science in action

Area: West Midlands (WMD)
Catchment: River Wye
Date: ongoing

Use of Wye Alliance Data

What was the purpose?

Originally this project was set up by Cardiff University and citizen scientists with funding from the Natural Environment Research Council (NERC) for which it won a NERC Impact award, and support funding from the Water Environment Improvement Fund (WEIF). The purpose was to set up a catchment monitoring plan for citizen science in the Wye to aid in the understanding of the health of the river, particularly in areas with little or no monitoring. The initial project was focused on collaborative monitoring and testing citizen science methods to assess their validity against lab methods.

This project has carried on beyond the scope and timeframe of the initial funding with citizen scientists across the catchment collecting weekly data. The Environment Agency (EA) has continued to contribute by setting aside resource in the yearly monitoring commission to analyse the data and incorporate into the 'River Wye Yearly Integrated Report'.

Angler on the River Wye

EA staff carrying out a macrophyte survey

Who was involved and what was their role?

Post the official Cardiff Uni NERC funding the work has continued and has been led by the citizen science groups themselves. These include Friends of the River Wye, The Wye Salmon Association and CPRE Herefordshire that all sit under the Wye Alliance banner.

Environment Agency involvement included:

- Technical advice
- Use of data in Wye Integrated Reports
- Weight of evidence
- Farm visits
- Investigations
- Engagement with the groups through meetings, events and training.

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Outcomes / learnings

There are three main ways the EA have used citizen science data from the Wye Alliance:

- In the yearly Integrated Wye Report.
- Internally, using PowerBI data visualization software, to create a phosphate dashboard.
- Use of data to add weight of evidence to EA.
- Encouraging other organisations to connect with local groups and use the data in their own research and projects.
- In all cases, raw data is downloaded from the Epicollect platform, cleaned and used.

Successes

- Having a whole catchment approach to data collection, allowing for data analysis to be comparable.
- Having added 'eyes and ears' on the ground to alert of potential issues and hotspots of pollution.
- Citizen science has helped to boost the profile of the river which has lead to an increase in the resources used in the catchment.
- Using the data in dashboards has the potential to deliver better understanding and targeting of resource.

Challenges

- A perceived lack of teeth on the part of the Environment Agency.
- Maintaining continuous and effective communication with citizen science groups.
- Political nature of the catchment.
- Strong press interest focusing on 'headline grabbers' which can misrepresent the issues leading to engagement which is focused on justification and myth busting.
- Delivering effective action in a complex catchment with multiple pressures and no 'easy fix'.
- Effectively rewarding good practice in land management where it exists.
- Lack of EA staff time to give feedback to citizen scientists on things like data use and investigations.

Solutions

- Continual engagement is key, having a citizen science lead to hold specific meetings with groups and be a central point of contact has enabled stronger links and reduced conflict.
- Wye Alliance are represented on the Wye catchment partnership enabling the groups to better understand the actions being taken in the catchment and building better relationships between group leads and stakeholders.
- Expectation management of volunteers on what and how the EA can take action in the catchment.
- Linking up the citizen science data with the EA Land and Water team is showing the potential for 3rd party evidence to aid in targeting investigations and farm visits helping to build in a feedback loop.
- River Wye Engagement HQ page has been crucial in providing information to citizen scientists on EA activities and updates.

Future Work

- Establishing a feedback loop between EA and citizen scientists so there is a clear line of communication understood by both parties. This is particularly pertinent for pollution reports.
- Working further with the 'live' citizen science data so it can be easily accessible to EA teams internally for their specific uses. This could be through PowerBI dashboards.
- Develop ecology monitoring in the catchment such as Riverfly to gain greater understanding of the ecological impacts occurring in the catchment.
- Further work towards the establishment of Mud Spotter in the Wye. This data has potential to be used by the EA's agricultural team to target areas that are prone to erosion and soil loss.
- Encourage more join up between citizen scientists and project delivery partners to aid in project monitoring.

Project links:

River Wye Water Quality | Engage Environment Agency (engagementhq.com)

WyeViz (Wye Alliance Citizen Science dashboard) | Tableau Public

WMD_SAC_Phosphate_dashboard_with_citizen_science_0.2 - Power BI