Lydia Ashworth
Citizen Science Coordinator
Westcountry Rivers Trust

How individuals are taking up the call to monitor their rivers in lieu of regulators.

HOW INDIVIDUALS ARE TAKING UP THE CALL: VOLUNTEER MONITORING IN LIEU OF REGULATORS

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Westcountry Citizen Science Investigations

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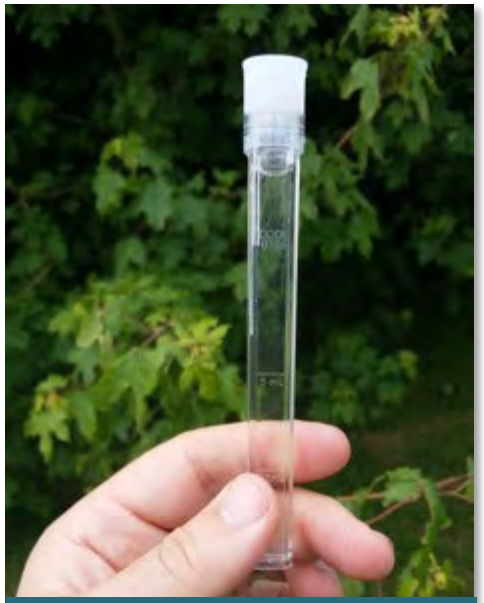
Turbidity Tube

Total Dissolved Solids (TDS) Meter



Phosphate Strip being inverted in sample

Phosphate Colour Chart

Aims:

- To educate and engage people with the water environment.
- To produce data that can be used to target work and identify degrading water bodies.
- To spot pollution events which can be dealt with as quickly as possible.
- To create a network of catchment communities that are invested in their local environment.

Sample Points

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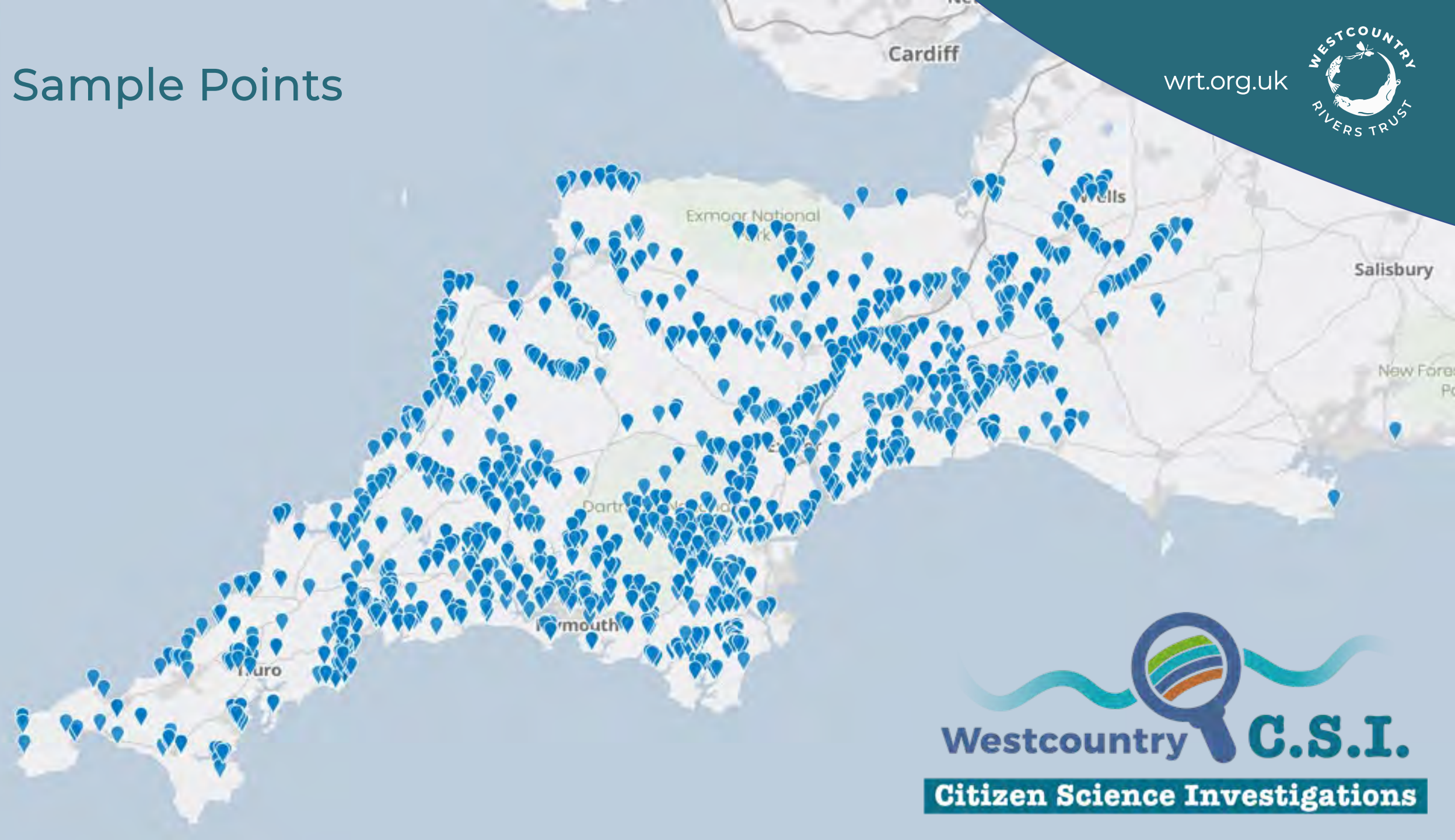

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Growth of Westcountry CSI

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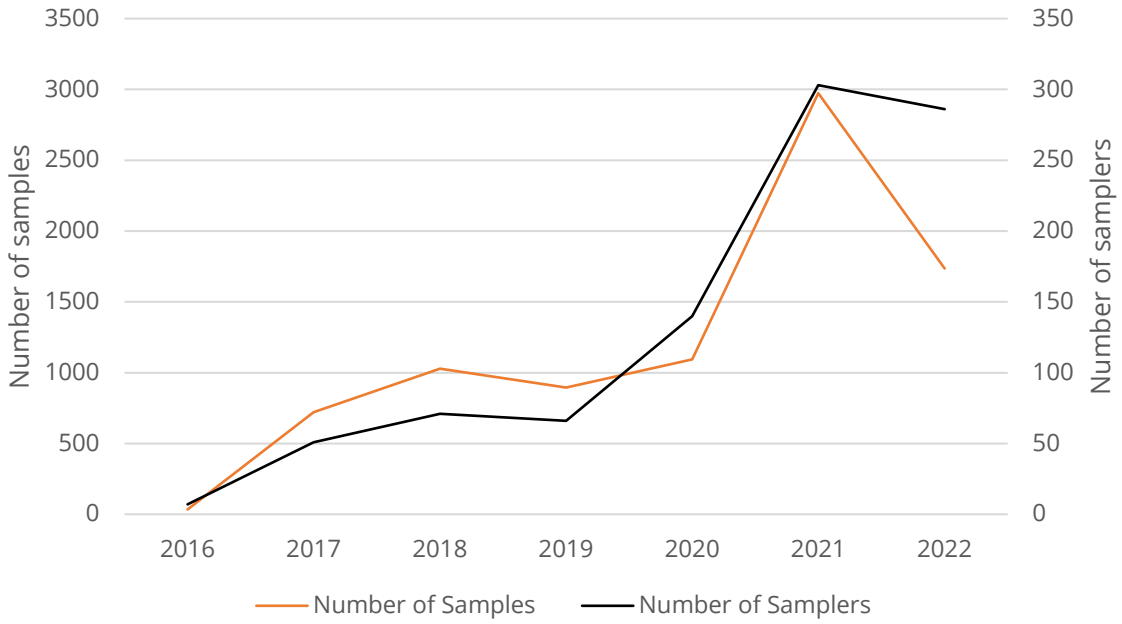
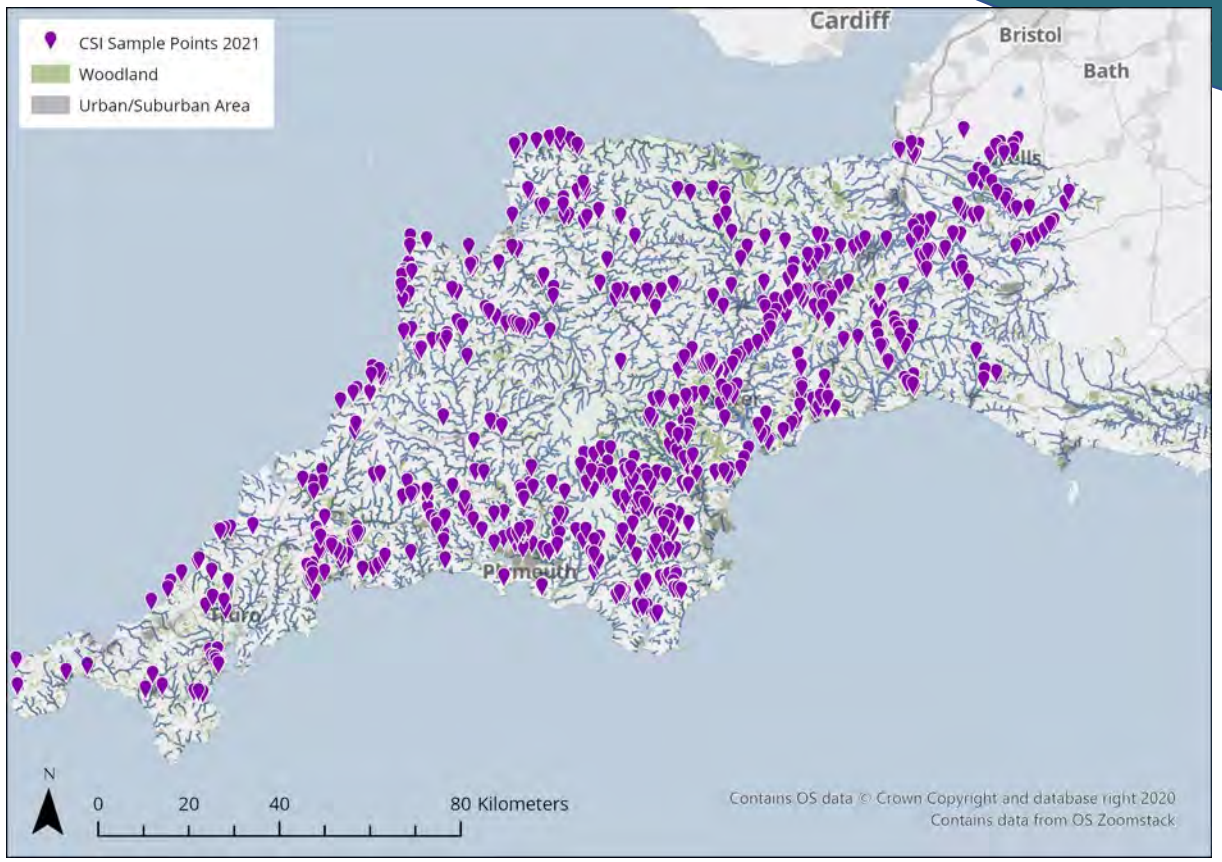


Projected for 3500 surveys in 2022!



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Westcountry CSI Scorecard 2021
Lower Culm, East Devon

River Health Scale

A	Excellent
B	Good
C	Fair
D	Poor
E	Very Poor

The overall score for the catchment is based on a year's data, collected at all sites in the **Lower Culm** waterbody. It is calculated from the observations and water quality results attained during a Westcountry Citizen Science Investigation (CSI) survey. A waterbody has to have at least 12 samples taken over the year for it to qualify for a scorecard.

LOWER CULM 2021

55%

Overall grade

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DS **Dissolved Solids** are measured using a handheld TDS meter. DS increase as a result of natural and anthropogenic inputs of things like chemicals, slurry, sewage or salts into the waterbody.

SS **Suspended Solids** or **Turbidity** is measured using a turbidity tube. SS increase as a result of increased soil erosion, mine discharge and road runoff. An increase in SS reduces water clarity, making it difficult for aquatic organisms to survive.

POL The **Pollution** score is calculated from the observations of pollution sources and evidence of recent pollution (e.g. litter or oil). These give an indication of the pollution pressures on that watercourse.

ECO The **Ecology** score is calculated from wildlife and problem plants spotted. Wildlife spotted near a river, indicates that the river is supporting a healthy food chain. Problem plants reduce this score as they can cause issues for the biodiversity of the watercourse by shading out other plant species.

PO_4 **Phosphate** (PO_4) is a vital nutrient for the healthy growth of all organisms and is found in natural and artificial fertilisers, sewage and industrial wastes. Natural levels are very low and thus any measurable phosphate observed is likely due to anthropogenic influences such as misconnections, farm runoff or industrial discharge. PO_4 is measured using strips which turn blue in the presence of phosphate.

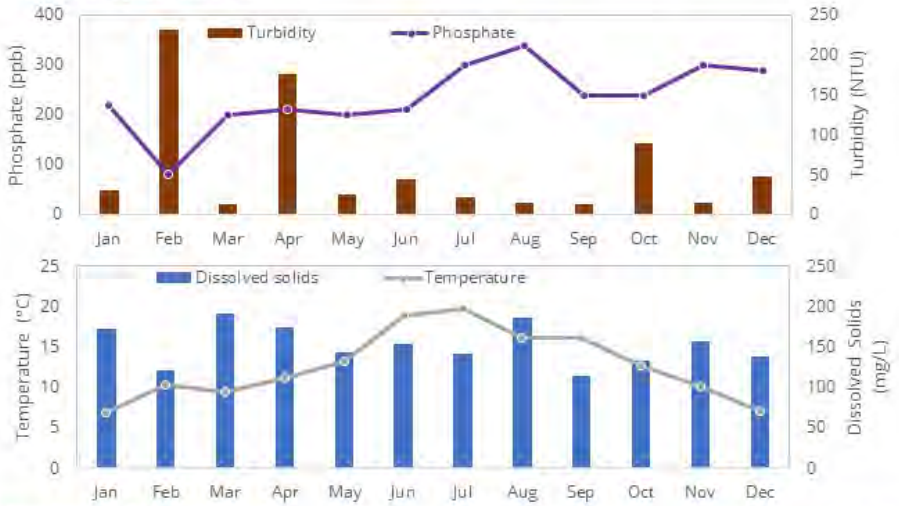
Catchment Summary

The **Lower Culm** waterbody is located in **East Devon** with its main centre of population being **Cullompton**. There are **21** sample points and **16** active samplers in this waterbody, with **81** Westcountry CSI surveys taken in total during **2021**.

The predominant land use within 50m of these sites is **grassland/pasture** with areas of **agriculture, urban or residential, parkland/gardens** and **industrial/commercial** use. The majority bankside ecosystem is **grass** and **trees/shrubs** with some areas of **impermeable surface** and **bare earth**.

The problem plant **Himalayan balsam** (35) is of concern, and **giant hogweed** (2) has also been spotted. **Fish** (8), **dragonflies/damselflies** (7), **grey wagtails** (2), **kingfishers** (2), a **water vole** (1), a **heron** (1) and a **dipper** (1) have all been seen in the waterbody. The predominant pollution sources come from **collapsed river banks** (19), **cattle/stock access to the river** (14), **soil runoff** (13) and **inactive outfalls** (10), with **active outfalls** (7), **outfalls causing discolouration** (2) **road runoff** (2) and **farm runoff (slurry/silage)** (1) also causing issues. Pollution from **litter and fly-tipping** (9) **foam** (6) and **unpleasant odour** (2) have been reported.

Water Quality Test Results



How to Use This Scorecard

The Westcountry CSI scorecards are produced to visualise the data collected by the volunteers across the Westcountry and to give an idea of the health of our rivers and streams. Due to the nature of the scheme, there are gaps in the data, and it should be noted that not all the sample points were sampled 12 times. Numbers in brackets in the catchment summary indicate the number of sightings of each species observed throughout the year.

Become a Westcountry Citizen Science Investigator!

Join Westcountry CSI and help to monitor a river or stream in your local area. To find out more and get in touch, visit our website: wrt.org.uk/project/become-a-citizen-scientist/ or email us at csi@wrt.org.uk.

About Westcountry Rivers Trust

The Westcountry Rivers Trust is an environmental charity (Charity no. 1135007, Company no. 06545646) established in 1995 to secure the preservation, protection, development and improvement of the rivers, streams, watercourses and water impoundments in the Westcountry and to advance the education of the public in the management of water.

Connecting the Culm

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Data Analysis

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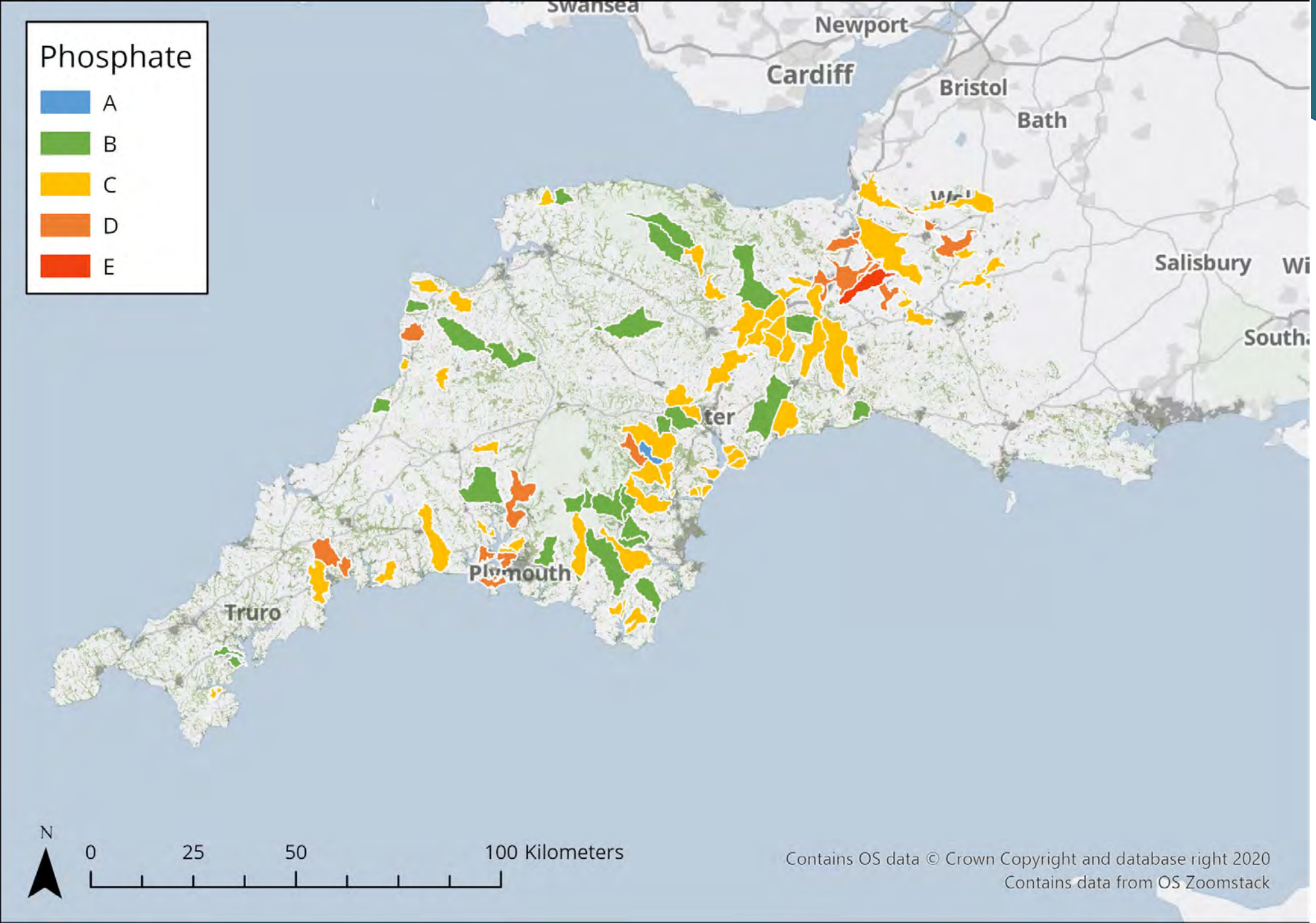

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Data Analysis

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Value of Citizen Monitoring Data

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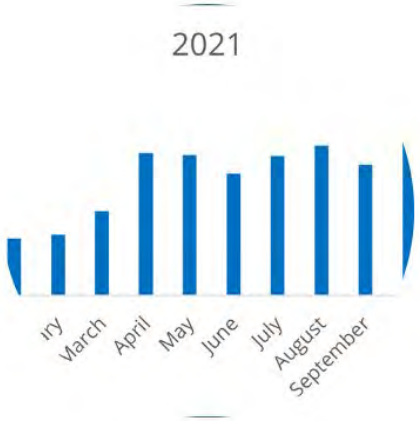
Data for research, decision making and future funding



Frequency

Spatial extent

Evidence for political advocacy

Informing and evidencing on the ground work

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Impact of Citizen Monitoring

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> “Hopefully we have solved the source of cheese waste at the factory now the land drain has been removed and the repair completed in the factory where the effluent was getting into the ground water.”
>
> North Devon Environment Officer (EA

> “Any evidence of impact of any kind related to the SWW Menagwins discharge is valuable (observations/photos of rag, discolouration or CSI reports) … and we will consider this as part of our ongoing compliance investigation into this site.”
>
> Compliance Investigation (EA)

> “… another reason this came to court … was the pollution evidence highlighted by Launceston Anglers Association (LAA) members monitoring the upper River Inny using Citizen Science and discovering (and reporting to the EA) fish kills first hand.”
>
> Martin Harmer – WRT


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Discharge from Davidstow Cathedral City cheese factory poisoned fish

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Not Just About The Data

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- ❑ Writing news articles
- ❑ Signing petitions
- ❑ Lobbying local councils
- ❑ Emailing MPs
- ❑ Raising funds
- ❑ Starting local projects
- ❑ Spreading the word
- ❑ Getting noticed
- ❑ Raising the profile of local rivers

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Finally.....why do they do CSI?

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To better connect with my local river and my local environment. To contribute to its health and longevity.

Westcountry CSI volunteer: Rory

Simply because it is very difficult to make an argument to conserve wildlife, or improve the natural environment, without any hard evidence

Westcountry CSI volunteer: Nick

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Thank You

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