Westcountry CSI Leaflet

Welcome! Westcountry CSI is a growing community of citizen scientists taking a closer look at our local rivers across Somerset, Dorset, Devon and Cornwall.

Our aims are:

- To have at least one citizen scientist collecting water quality and environmental information in each of the 854 waterbodies in the Westcountry.
- To use the data to create yearly scorecards for each waterbody.
- To engage people and groups with their local river or stream, so they can start recording the good things (wildlife sightings) and spotting the bad (pollution, litter and invasive plants).

Become a Citizen Scientist!

When you first sign up we'll suggest a site close to you. This is based on your location, a safe place to access the river and taking into account the most strategic point. Although the sites we suggest are preferable, the final decision of where you sample will be down to you. You will start by taking observational surveys, using the Westcountry CSI form. You'll be able to record information on plants, wildlife, river condition and any visible pollution. As long as you record a time and location you can fill in as much or as little of the form as you like.

Once you're up and running with the observational measurements, there is also the option to take some water quality measurements too – using some simple equipment that we can provide. At the moment, we are using turbidity tubes to measure how murky the water is, pocket-sized probes for dissolved solids and temperature, and a simple test kit for measuring phosphate.

When you've done your survey by the river and added your data on the 'Cartographer' website, you'll then be able to see it on an interactive map alongside everybody else's surveys. We recommend monthly sampling if you can. With 12 or more surveys spread evenly over the year, we can produce a scorecard for your catchment based on the data collected within your waterbody.

Westcountry Rivers Trust, Rain Charm House, Kyl Cober Parc, Stoke Climsland, Callington PL17 8PH.
Phone: 01579 372140 · Email csi@wrt.org.uk. Registered Charity No. 1135007 · Help us Bring Rivers to Life – Donate via our website.

Getting Started

1. Visit **wrt.org.uk/project/become-a-citizen-scientist** and send us an email **csi@wrt.org.uk** to let us know you're interested. We need to know where you are based and if you are part of a group. We will then ask you to confirm you are happy to be signed up to Cartographer which is our online platform for inputting survey information.

2. Based on the location you provide we will suggest suitable sample point(s) in the vicinity.

3. You will need to make sure the survey point(s) are safe and accessible, so we ask that you undertake a visual survey (everything bar the water quality measurements) to make sure you are happy. Fill in the survey form, take a few photos and upload your results to Cartographer.

4. Once you are happy with your site and survey method, send us an email (csi@wrt.org.uk) and we will get a CSI kit out to you. Kits cost around £25 to put together and whilst we endeavour to keep kits free to volunteers, we encourage groups to gain funding to buy their kits and individuals to donate when they can. You can now complete a full Westcountry CSI survey.

5. When sampling remember safety first, use a small bucket or plastic milk bottle to collect the water. Be careful not to contaminate your sample and collect fresh sam

CSI Water Quality Test Kit

Your Water Quality Test Kit will contain:

- Turbidity tube
- Insta-test Phosphate kit, with test tube
- Total Dissolved Solids (TDS) probe (including temperature)
- 12ml syringe
- Hand sanitiser gel (subject to availability)

Using the Turbidity Tube

The turbidity tubes are very straightforward to use. There's a black and white 'Secchi disc' sticker on the bottom and a numerical scale up the side.

1. Fill the tube with water from the river (slowly to avoid creating bubbles) and watch as the disc becomes less and less clear.

2. The higher the concentration of sediment in the water the higher the turbidity and less water is needed for the disc to disappear.

3. At the point when the disc is no longer visible, read off the number on the scale on the side of the tube where the water level is and record your result on the form.

4. If the water reaches the top of the tube and the disc is still visible then record the result as less than 12 (<12), if the sticker is obscured before you reach the first number then record the result as greater than 240 (>240). If it falls between two values then record an estimated value somewhere in between.

TIP: If it's sunny, position yourself with your back to the sun so that the tube is in your shadow, also make sure you are not wearing sunglasses.

Insta-test Phosphate (low range 0 – 2500 ppb)

1. Rinse the syringe, and then rinse the test tube with the sample to be tested (fill halfway, shake and then empty).
2. Fill test tube to the 10ml line with sample water.
3. Remove one phosphate test strip from the bottle. Close bottle cap tightly after removing strip.
4. Gently bend strip into a 'J' (do not fold) with pads facing inward. Place test strip inside test tube cap.
5. Cap the test tube and invert slowly 5 times (invert the tube slowly to allow the bubble to go from the top to bottom and bottom to top).
6. Remove the cap and test strip.
7. Immediately place the bottom end of the test tube on the white boxed area of the colour chart on the outside of the pot. Look down through the OPEN test tube and compare to colour chart.
8. Dispose of the used strip responsibly (i.e. take it home and/or place in a litter bin).

IMPORTANT: Avoid wet fingers inside the bottle. Store strips inside the home, away from extreme heat or sunlight.

TDS (Total dissolved solids) and Temperature probe

1. Remove the end cap to expose the sensor elements
2. Turn on the probe by pressing the 'ON/OFF' button – the display should read 0000 ppm with temperature shown in °C (if the display shows 'EC' or temperature in °F, repeatedly press the shift button until the correct units are displayed)
3. Now immerse the sensor elements in the sample (this can be either directly in the river or stream, or from a suitable sampling container). **Do not immerse the probe beyond the line where the sensor cap fits – it is not fully waterproof!**
4. Once the temperature reading is stable (which can be up to 2 minutes) make a record of the numbers on the screen.

TIP: If you cannot read the screen with the probe in the water press the 'HOLD' button – this will hold the number on the screen while you remove the probe. Press 'HOLD' again to cancel.

Safety Guidelines

Before you leave:

- Make sure it's **safe** and **legal** for you to access the river, stream or lake.
- Is someone going with you? If not, **let someone know where you're going** and when you'll be back.
- Do you have a **mobile phone** or way to call for help?
- Are you wearing the right **footwear**? Waterproof with good grip is best!
- Check the **weather**: you'll need sun cream, a hat and some water in hot weather, several layers of clothing in cold weather – and waterproofs if it looks like it's going to rain! Also consider whether recent heavy rain might have made river or riverbank conditions more dangerous.

When you first arrive at a new site:

- Part of the reason for an initial observation survey is to ensure you would be happy taking a sample of water using a bucket or other container. So, when you first arrive at your site, plan how you will safely collect the 1.5 litres of water needed.
- The survey site should enable a small sample to be collected **without the need to enter the watercourse.** Making a **milk bottle sampler** is a good way to take a water sample safely from the river bank (see instructions to the right).
- Are you standing somewhere stable with **good footing**?
- Is there a **safe area** to complete the water quality tests, away from the water and other hazards such as livestock or traffic?

When carrying out the survey:

- If the **water level** is too high or fast to allow safe sampling, you can always just do the observational measurements. Even if you are sampling from a bridge you may feel unsafe collecting a sample in high flows.
- Ensure that you **do not disturb the riverbed** when sampling as this will affect the sample.
- River water can contain **harmful bacteria** that can cause ill health and potentially serious diseases such as Weil's disease (also known as Leptospirosis). You should be aware of Weil's disease and, if you feel unwell, should mention it to your doctor. For this reason – and for sample integrity – try to **minimise personal contact with water** to be tested. By using a suitable sample container (see right) and the syringe provided there should be no need to immerse hands or fingers in the sample.
- **Do not carry out sampling with open cuts or wounds** and make sure to **wash hands** thoroughly between sampling and handling food. We supply a bottle of hand sanitiser gel for while you're out and about.

How to make a milk bottle sampler

1. Cut the top off a clean plastic 2-pint milk bottle, creating a large opening but leaving the handle intact.
2. Use two cable ties to tightly attach the handle to one end of a garden cane.

If you see any of the following, call the Environment Agency 24-hour incident hotline **0800 80 70 60**:
Pollution to water or land, damage or danger to the natural environment, dead fish or fish gasping for air, collapse or badly damaged riverbanks

Thanks for getting involved with Westcountry CSI!

Any questions? Email csi@wrt.org.uk