

## CSI Water Quality Monitoring – A Layman’s Guide

It is now an accepted evidence-based fact that 99% of the rivers in the UK are in “poor” condition due to excess nutrients (phosphates, nitrates) and the discharge of raw sewage. These pollutants are chiefly as a result of farming and agricultural practices and sewage discharges from Water Company sewage treatment works, CSOs and poorly maintained domestic septic tanks.

The Westcountry Rivers Trust instigated CSI water quality monitoring for volunteers a few years ago, to get a picture of the state of our rivers. The Environment Agency are responsible for monitoring the state of our rivers but the task is a huge undertaking and there are not the resources available to monitor all rivers and watercourses. CSI volunteers are thus able to provide a wealth of data that would otherwise be unavailable and fill the gap that the EA is unable to fill.



Monitoring the Kit Brook

CSI stands for Citizen Science Investigations. The primary tests are to establish the levels of phosphates, nitrates, total dissolved solids (mainly minerals, metals and salts), turbidity (cloudiness – due to silt) and water temperature.

A team of two people (if possible for health and safety reasons) will go out once per month (desirable, not essential) and spend up to half an hour collecting a sample of the water at a given location and analysing it using a simple set of tools – provided by the WRT (to ensure uniformity) and input the data into a national database called Cartographer. In addition, observations are made of water level and flow, wildlife, invasive plants and general levels of local pollution. Photographs are sometimes taken – over time these can show up seasonal changes. Invasive plants include such things as Himalayan Balsam and Japanese Knotweed.

In certain circumstances additional tests can be done to look for bacteria (mainly E-Coli), an ammonia test to check for raw sewage discharges e.g. from poorly maintained domestic septic tanks and problems with illegal discharges from combined sewer overflows.

There are other types of CSI surveys that can be undertaken. For example, basic Riverfly testing looks for 8 different groups of invertebrates which give an indication of the health of a river. The more advanced Riverfly testing looks for 33 different groups and also gives a score as to how well the invertebrates are coping with river pollution. Invasive species such as Signal Crayfish are also looked for during the sampling survey. MoRPh (Modular River Survey) Surveys can also be undertaken as Citizen Science Investigations to assess the quality of physical habitat and functioning of river systems