

River Clun Monitoring Group - Extract from the Spring Newsletter

The River Clun Monitoring Group (RCMG) produces a Newsletter for its volunteers, reporting on the considerable amount of work it does. Thinking that others in the Clun valley might be interested to hear what the Group does and, most importantly, what we are finding, here is an extract from the Newsletter.

What the data shows

The first and important thing to say is that the RCMG's data is gaining recognition and being used to contribute to the overall picture of the Clun catchment. The Environment Agency, for example, has used a proportion of this data to validate their own, and has requested historical data from the Group and an analysis of what we think it shows, to help shape their future activity.

Below is a summary of what the data shows, collected from sites in the Clun catchment over the last 2½ years. (Words in **bold** show what is monitored.)

Physical measurements

Naturally, in winter **flow** and **turbidity** (cloudiness) increase with rainfall, while in the summer water **temperature** increases and flow decreases. Increased temperature reduces the amount of **oxygen** dissolved in the water which can be problematic for many fish and the invertebrates upon which they feed. With increased water temperature the amount of **dissolved solids** and hence **electrical conductivity** also increase.

Chemical Measurements

The RCMG currently monitors levels of the **ammonia**, **nitrate** (which both contain nitrogen) and **phosphate** (containing phosphorus), all of which can contribute to nutrient enrichment leading to excessive algal growth.

Measurements of **ammonia**, as with **pH** (acidity/alkalinity), would be expected to spike with a significant pollution event, which we haven't observed at any site so far. We have found considerable variability in **nitrate** levels at all sites, at some time, giving values exceeding the Natural England (NE) target for the Special Area of Conservation [SAC]. RCMG data shows nitrate to be considerably higher at some sites - particularly the River Kemp and its tributary the Snakescroft Brook.

The Clun SAC, situated at the downstream end of the River Clun, was put in place to protect the Freshwater Pearl Mussel which is in decline.

Phosphate levels

Over most sites tested, and for the whole monitoring period, show that most sites are of *moderate* quality – as judged by the Water Framework

Directive Environmental Quality Standards (*high* and *good* indicate near natural conditions, *moderate/poor/bad* indicate restoration work required). It is interesting to compare phosphate levels travelling downstream from the upper Clun - the pattern of generally increasing nutrient load is perhaps unsurprising.

Upstream of Newcastle, annual average levels of phosphate show the river to be of *high* quality, with values at or below the target set by NE for the Clun SAC. A little downstream, at Middle Spoad, the quality deteriorates, being generally of *moderate* status, but has been *good*.

At Waterloo in Clun the average phosphate levels identify the water quality as *moderate*. At Clunton, downstream of Clun, the water quality appears to improve somewhat and is generally *good*.

The Folly Brook and the stream that runs down to Clun from Woodside are of *poor* quality overall, while the minor tributary at Clunton, which flows through the Gunridge, is rated as *moderate*. Stanley Stream and Old Stores Gutter at Kempton, which both dry up in the summer, are of *poor* quality.

The Snakescroft Brook and the River Kemp are of *moderate* to *poor* quality in terms of phosphate load, and at Clungunford, where the River Clun has been joined by the River Kemp, the quality is *moderate*. The Redlake is overall of *good* quality.

We also sample for invertebrates

Sampling and identifying **invertebrates** (e.g. freshwater shrimp, snails, water beetles, and mayfly, damselfly and caddisfly larvae) present in the river, provides another way of assessing water quality. The invertebrates are collected by disturbing a small area of the river bottom, called a kick sample, collecting them in a net, and identifying and counting what is found. A score is allocated based on the type and number of each organism, giving a snap-shot of the health of the river. Stonefly larvae, for example, are given a high score as they are indicators of a good quality river, whereas midge larvae, that can tolerate low levels of oxygen, are given a low score and indicate poorer quality.

Classifying river quality based on invertebrate scoring has shown that all sites except Waterloo were of good quality or better. At Waterloo the scores were very near to good and improving year by year.

If you would like to be part of this important project do contact Dave Lewis (dave.lewis54hv@gmail.com).

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(RCMG, with thanks to all the volunteers whose work has contributed to this article)

