

# Catchment Sensitive Farming

## CSF delivering ecological improvements in the River Dove Catchment



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CATCHMENT SENSITIVE FARMING

## Introduction

Catchment Sensitive Farming (CSF) is an advice-led project designed to reduce diffuse water pollution from agriculture (DWPA) in selected priority catchments. CSF provides information and advice to land managers through CSF officers and a Capital Grants Scheme (CGS). CGS funds a range of improvements to farm infrastructure that are targeted to reduce DWPA.

## Catchment Survey

The River Dove is located in the Peak District Dales priority catchment. Land-use in the upper catchment is characterised by intensive, large-scale dairy and beef livestock farms. In order to identify which farm holdings to prioritise CSF activity and CGS investment, widespread macro-invertebrate sampling was carried out at 89 locations throughout the upper Dove by Aquascience in 2009 (Everall, 2010).

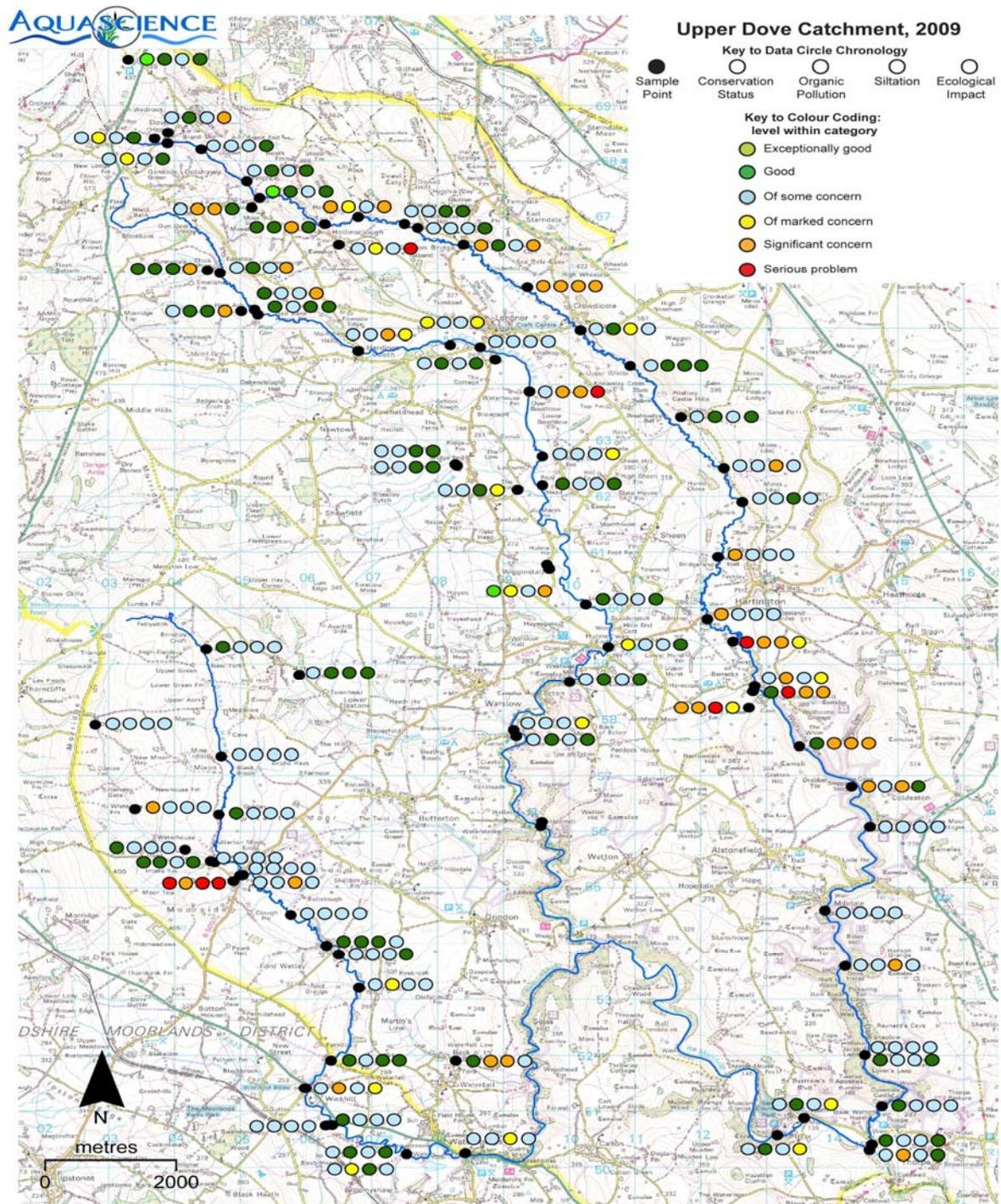
Freshwater macro-invertebrates are widely used to assess the ecological 'health' of rivers. They are particularly relevant to identifying the impacts from organic pollution but can also indicate other types of environmental stress including siltation and low flows. A range of scoring systems are commonly used to summarise the different types of environmental stress and ecological/conservation value.

Results from the 2009 survey allowed the identification of pollution 'hotspots' on the upper Dove, River Hamps and upper River Manifold. Farms upstream of these reaches were then targeted for advice and CGS investment (see figure 1). Further ecological monitoring was completed in 2011 and 2012 (post-improvements) by Aquascience with analysis focussed on assessing the impact of CGS investment and advice delivery along 3 'hotspot' study reaches. In total, 11 sites were monitored including a control site on each reach.

## Results

Between 2009 to 2012, CGS improvements were undertaken across the farms in the 3 study reaches. These included improving slurry and manure storage, improvements to managing run-off and dirty water and fencing to prevent livestock encroachment into the watercourse. During this period, Trent Rivers Trust in partnership with CSF also initiated a river restoration scheme on upper Dove and Manifold, this included weir removals and bank revetment improvements.

Figure 1. Traffic light system summary of Ecological issues and status on Upper Dove (Everall, 2010).



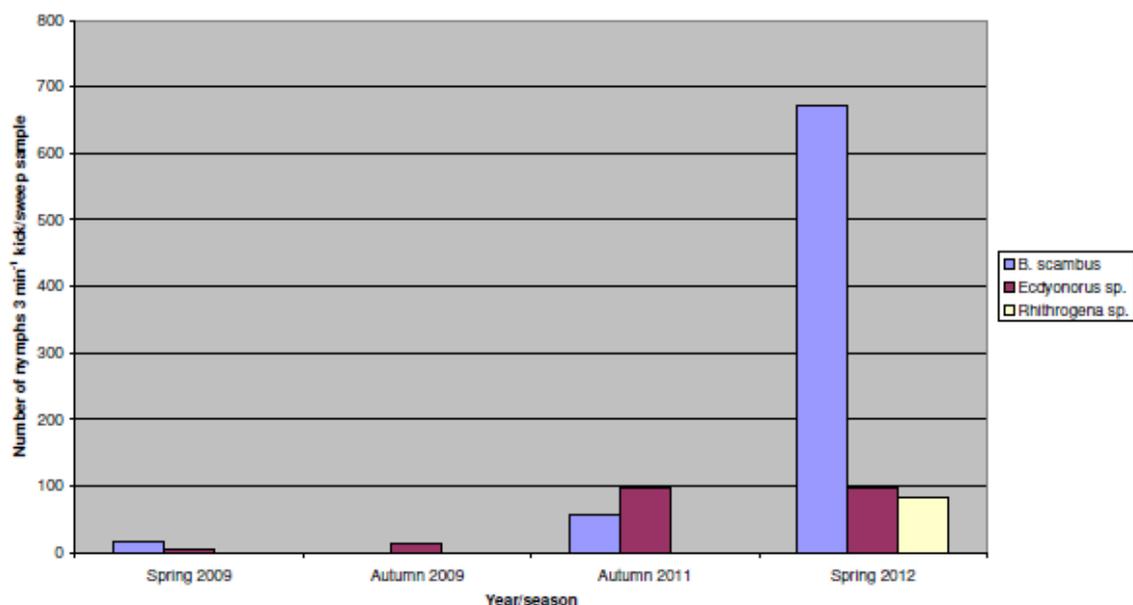
In all three study reaches there was a general upward trend in ecological quality at sites downstream of the targeted farm holdings. This was represented by significant improvements in one or more of the scoring systems used: number of species present (species richness), conservation value (CCI) and biological quality (BMWP score). The 3 control sites were either stable or showed only slight ecological improvements over the study period.

Where possible, results were also compared to long-term Environment Agency datasets. In particular, the River Hamps downstream of Onecote showed biological quality that had not been observed in 20 years.



As shown in figure 2, observations in the field and from laboratory analysis showed a marked increase in the numbers of pollution sensitive mayfly nymphs (*Baetis scambus*, *Ecdyonorus sp.* and *Rhithrogena sp.*) from 2009 to 2012.

**Figure 2. Relative abundance of mayfly nymphs in River Hamps tributary downstream of farm holdings , 2009-2012 (Everall, 2012).**



## Summary

Ecological improvements were observed post-investment in all 3 study reaches. As control sites were stable or only slightly improved during this period it is highly likely that ongoing CSF advice and CGS investment at key farm holdings was the main causal factor behind the observed upward trend in ecological quality. It is also likely that improvement works by Trent Rivers Trust also contributed to the observed ecological gains.

As CGS investment in the 3 catchments continues, repeat surveys will be carried out to assess future trends in ecological quality.

## References

Everall, N.C. (2010). The aquatic ecological status of the rivers of the Upper Dove Catchment in 2009. *Natural England Commissioned Report NECR046*. Natural England: Sheffield.

Everall, N.C. (2012). An aquatic ecological appraisal of Catchment Sensitive Farming in the Upper Dove Catchment 2009-2012. Report for Natural England CSF and the Environment Agency, Internal Report, 45pp.



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