



**River Evenlode:
rural catchment
management.**

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One of the main influences on water quality in the River Evenlode is phosphorus, but it can be very expensive to reduce the high levels of phosphorus in lowland rivers to meet the standards needed to reach 'good' ecological status under the Water Framework Directive.

Now, phosphorus standards are set to become even more rigorous – so it's more important than ever for us to be able to test whether we can provide value for money for our customers through a catchment approach.

Background.

The Evenlode is a headwater of the River Thames, flowing from Moreton-in-Marsh in Gloucestershire to Eynsham in Oxfordshire for more than 75km. It drains an area of nearly 30,000 hectares, and is managed as a number of river 'waterbodies'.

The main sources of phosphorus in the Evenlode are agricultural fertilisers, manure, industrial effluent and the discharges from our 14 sewage treatment works in the area.

Phosphorus is essential for plant life, but too much of it can damage the environment - for instance, by encouraging excessive weed growth and causing algal blooms. For this reason, limits for phosphorus concentrations in our natural waters have been set to protect the environment and everyone who uses it.

Water companies have historically relied on wastewater treatment to reduce concentrations of phosphorus before it reaches rivers. However, this can be expensive and resource intensive, as well as generating waste.

- Reducing phosphorus in wastewater treatment can be costly and resource intensive.
- Trialing a catchment based approach to reduce phosphorus in the River Evenlode



Trees being planted to slow farmland run-off.

What we're doing.

We're working with farmers and other local stakeholders to encourage water sensitive farming and reduce phosphorus loss from farms and fields into local watercourses. Our Smarter Catchments Project around the Evenlode is already underway with a phosphorus reduction trial. There are four elements to this project:

1. Catchment fund.

The Catchment Fund provides grants for new infrastructure and changes in farm management practices to reduce phosphorus loss from fields and farmyards to watercourses.

The Fund makes annual payments at a rate high enough to support specific changes in operational practices on farms. These can be made for up to three years, subject to annual farm checks, and include a broad range of measures, from arable reversion to grassland, to installing and maintaining buffer strips to intercept nutrients.

It also provides grants for one-off, capital investment improvements to farm infrastructure, including 30 measures ranging from concrete yard and drainage renewal, to additional gates to keep stock away from watercourses.

The Fund also includes an 'innovation' measure, designed to encourage applications from farmers who have ideas in addition to the measures we've listed and costed, which could provide alternative approaches.

2. Advice service.

Our advice service helps farmers take advantage of existing agri-environment schemes, as well as assistance with completing applications for our Catchment Fund. Delivered through a subcontracted Catchment Sensitive Farming Officer, it includes free farm visits to help design farm activities that reduce phosphorus loss and deliver additional benefits.

3. No till and cover crops.

We're running a trial to explore the effectiveness of no till and cover crops in reducing the loss of soil and phosphorus to watercourses, and improving soil health. Just as importantly, we need to understand their impact on the profitability and efficiency of farms.

This approach involves keeping stubble in fields after the harvest, and planting new crops directly into it (as shown in the pictures). It can represent a big change in approach, but can also yield major benefits for farmers, and we're encouraging them to use it by providing access to or funding for alternative equipment and seed.

Farmers decide what they'd like to try, as well as how, when and where. Our role is to support the trial financially, so that risks to participants over the five years of the trial are minimised.

We've organised a series of farm visits and talks by people with experience of no till and cover crop farming, open to all farmers around the Evenlode, to explore the challenges and benefits of this farming system, and to help design trials. The trial itself starts in September 2018.

4. Partnership working.

We'll be working with the Evenlode Catchment Partnership (ECP) and other local organisations to support projects that provide additional benefits within the catchment. This includes the Natural Flood Management scheme being delivered with funding from the Environment Agency.

This scheme, running from 2017 to 2022, uses a range of interventions, from planting riverside trees, to building woody dams to naturally slow the flow of water through the catchment. Some of these have already been installed, and the next phase of the project will involve monitoring their effectiveness.

Next steps.

The Evenlode Smarter Water Catchments project is still at an early stage, with results being gathered and analysed. But initial feedback from our partner organisations is positive, with enthusiasm for the prospect of scaling up our current work.

Once we've assessed the effectiveness of the different interventions, we'll be looking to expand the project in collaboration with the ECP. This will continue the partnership work already underway, which involves monitoring and sharing data across the organisations, as well as further investment in additional equipment and modelling.

Above all, the project will help by measuring how effective this approach is in reducing levels of diffuse phosphorus pollution, as well as quantifying the cost per kilogramme of phosphorus removed from the environment, and fully understanding the relative cost effectiveness of financially supporting landowners compared to an end of pipe approach with additional treatment at sewage works. We believe this project can deliver many other benefits too, including better biodiversity and opportunities for recreation.

Right - a winter wheat crop emerging through the stubble.



Left - no till drill sowing a crop within the stubble cover.