Using Environmental Stewardship to meet drinking water quality standards
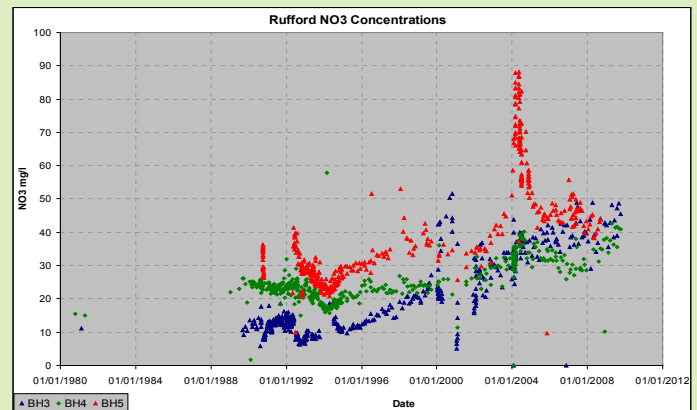
East Midlands Regional Co-ordinator: Michelle Claxton

The spike in nitrate levels in January 2004 correlated to the rearing of pigs for a short time in the fields adjacent to the source

The Catchment Sensitive Farming team in the East Midlands have been working with Severn Trent Water to implement catchment management solutions to water quality issues in the region. The drinking water standard for nitrate was being exceeded in a number of boreholes Severn Trent Water used for abstraction in the Rufford area. Further investigation showed these to be cyclical, and related to the rearing of outdoor pigs on fields adjacent to the boreholes and within Source Protection Zone 1.

Severn Trent Water uses the water from Rufford to blend with another source which already had very high nitrate concentrations. Due to the increased peak and overall rising trend in nitrate levels from Rufford, Severn Trent had to install a nitrate treatment plant. This helped to address the nitrate failures as part of the Periodic Review in 2004, enabling the Company to meet drinking water standards. Now, as part of AMP5, they are keen to look to catchment management solutions to reduce the need for treatment and thus reduce operating costs. This could also diminish the need to increase the capacity or to renew the treatment plant in the future.

The Catchment Sensitive Farming team worked with Natural England to look at options for reducing nutrient inputs onto land in Source Protection Zone 1 through the Higher Level Stewardship (HLS) scheme. A lack of green cover in outdoor pig fields increases the risk of nutrient loss as there is no crop to take it up. The sandy soil is less able to hold on to nutrients and in this particular location, there is significant local fissuring which increases the response time from application of nutrients to seeing it in the water which is abstracted at the boreholes. The aim was to choose HLS options which reduced the level of inputs of nitrate onto those fields adjacent to the boreholes.

The Natural England HLS officer visited the farmer together with Severn Trent Water and Catchment Sensitive Farming, to highlight the issues with his outdoor pigs and the elevated nitrate levels. As soon as the farmer saw the correlation between the sharp increases in nitrate levels and his land use he was keen to get involved and accepted the help and support on offer to resolve the issue. The farmer agreed to a patchwork of options under HLS which will result in the complete removal of outdoor pigs from the land parcels in Source Protection Zone 1. The options chosen range from buffer strips to arable reversion to sowing nectar mixes, demonstrating that environmental stewardship options not necessarily thought of as 'resource protection' options can indeed help improve water quality and protect drinking water sources.

Outdoor pigs in Source Protection Zone 1 at Rufford. The farmer has since entered HLS to remove pigs from this field

HLS Options chosen to reduce nitrate levels in boreholes

- 6m buffer strips, grass strip with field side 3m cut annually
- Field corners, rough grassy wildlife corner cut no more than 1 year in 5
- Nectar flower mixes, mix of at least four nectar rich plants
- Wild bird mixes, mix of at least three small seed bearing plants
- Arable reversion, to prevent run off
- In-field grass, to prevent run off

Once the HLS options are in place, Severn Trent Water expect to see reductions in peaks in nitrate levels in boreholes and a levelling out of nitrate trends, meaning drinking water standards can hopefully be met into the future by investment in catchment management rather than further capital investment.

Regional Co-ordinator

Michelle Claxton

Environment Agency,
Guy Gibson Hall, Manby Pk,
Manby, Louth LN11 8UR

07901 923942

michelle.claxton2@naturalengland.org.uk

www.naturalengland.org.uk/csf