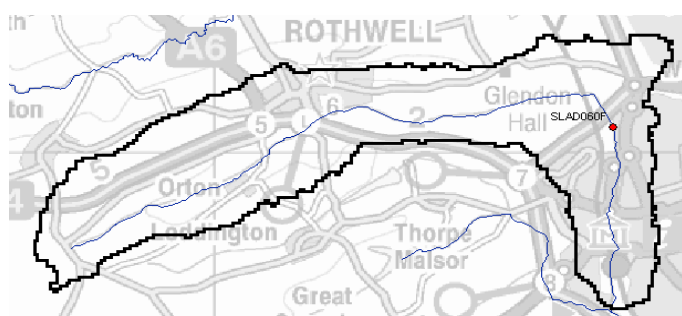




# Nene Catchment Partnership - Your Water Catchment

## River Ise – Slade Brook

The Slade Brook is a tributary of the River Ise, which in turn is a tributary of the River Nene. The water catchment of the Slade Brook is highlighted in black on the map below.



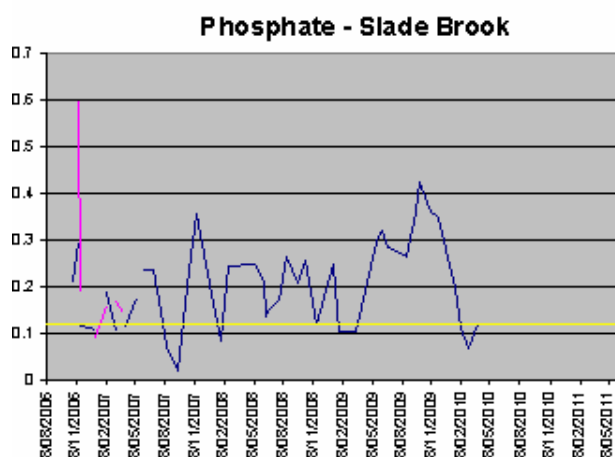
This bulletin provides a summary of the available water quality data for the catchment, and some of the key environmental features and issues.

The Slade Brook is currently classified at Moderate status by the **Water Framework Directive (WFD)**. However, the WFD requires that all waterbodies meet Good Ecological Status by 2027, and the Nene Catchment Partnership is working with the Environment Agency to achieve this.

*The Slade Brook fails to meet Good Status due to high Phosphate and Ammonia concentrations.*

**Phosphate** is the most common failing element nationally under WFD. The graph below shows that the Slade Brook exceeds this target.

The pink and blue line shows phosphate concentrations in mg/l at different locations on Slade Brook, with the 0.12 mg/l limit set by WFD shown in yellow.



In rural catchments, phosphorus can enter rivers attached to soil and sediment particles. Sediments running off farmland is the main source of pollution in rural areas. Sediment itself affects the habitat of rivers by smothering riffles used by fish to spawn. Reducing sediment input into the Slade Brook by minimising erosion, poaching by livestock and ensuring land drains run clear, is key to reducing phosphates.



Sediment not only silts up the rivers, smothering habitat and reducing fish numbers, but also takes with it plant nutrients, which bind to the particles and are then slowly released causing algal blooms and reducing the variety of aquatic plant species and habitats.



Preventing and reducing soil erosion into watercourses will therefore be key to ensuring future food security and reducing diffuse pollution levels.



Mitigation measures that can reduce sedimentation include livestock fencing, reducing compaction, buffer strips, cross

contour working, engineered livestock drinkers, cover crops etc.

### Sewage Treatment Works

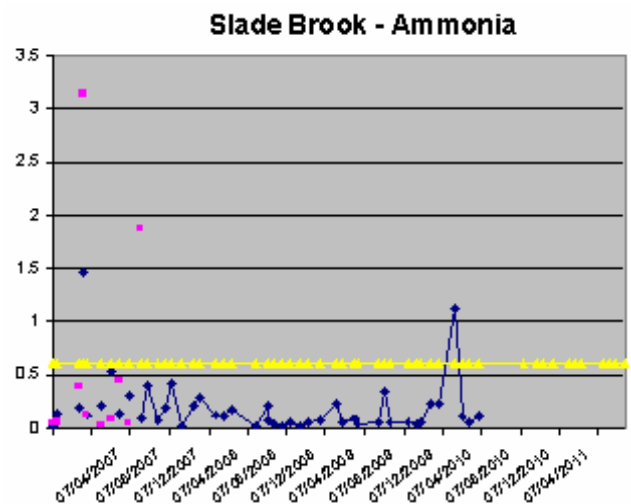
Other sources of phosphorus include sewage treatment works (STWs) and septic tanks, both of which are being assessed as part of meeting the WFD targets.

There are no STWs that discharge treated effluent into Slade Brook. Rothwell has all its sewage pumped to the STWs in Desborough and Orton does not have a STWs. There are storm overflows from Rothwell and Orton, which will discharge during storm events. As there are no STWs, it is thought that most phosphate and ammonia in the Slade Brook will be coming from diffuse agricultural pollution

### Ammonia

Ammonia is a type of nitrogen. It is found in sewage, manures and fertiliser. It is highly soluble in water and toxic to fish. *The Slade Brook is currently at moderate status for ammonia.*

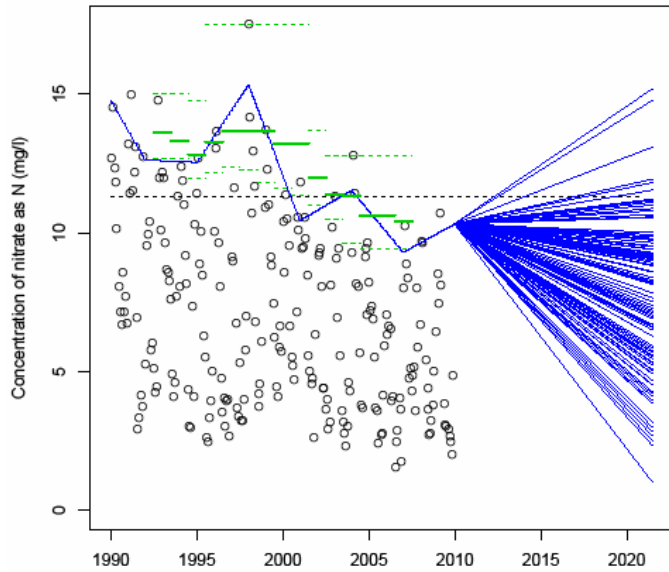
The pink and blue line on the graph below shows ammonia concentrations in mg/l at different locations on Slade Brook, with the 0.6mg/l limit set by WFD shown in yellow.



The graph indicates that ammonia may not now be an issue on Slade Brook and may therefore be re-assessed as good status for ammonia

## Nitrate

The Slade Brook, along with most of England, is in a Nitrate Vulnerable Zone (NVZ).



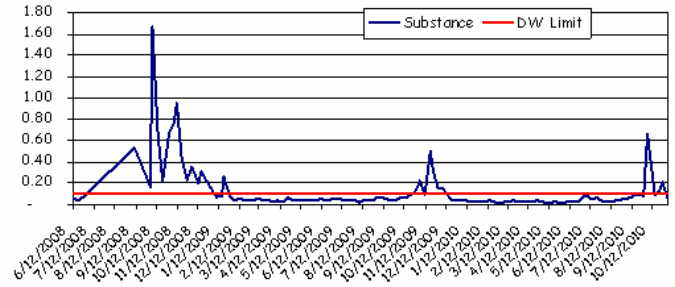
Nitrate levels in the Slade Brook are gradually decreasing, although the future forecast is uncertain. Results would need to be consistently below the dotted line for two rounds of review (8 years) before the NVZ status could be removed.

### Metaldehyde

Metaldehyde is the most widely used pesticide for slug control. The closest sampling point to Slade Brook for metaldehyde is Duston Mill, Northampton, but the land use upstream of Duston Mill is very similar to Slade Brook and therefore the concentrations of Metaldehyde in the Loddington Arm are likely to be similar.

The drinking water limit for metaldehyde is 0.1µg/l (red line on the graph below).

Concentrations of metaldehyde in the Nene have generally been decreasing since the peak in 2008, but peaks are still appearing in winter (2009 and 2010), following autumn applications to arable crops.



A single slug pellet could contaminate 1000 litres of water to above the drinking water limit (this could be up to 23 miles of a small brook), so careful use is vital if we are to stop this valuable pesticide being banned.

### Groundwater

The bedrock beneath the soil is connected and can store water (underground reservoirs known as aquifers). Limestone generally holds water the best and therefore has the major aquifer, ironstone and sandstone has minor aquifer and mudstone has no aquifer (no point digging a bore hole in these areas).

Underneath Slade Brook itself the geology is mudstone. Further from the brook (between 150m and 600m) it is mainly ironstone (sandstone). There is only a small patch of limestone at the top of the headwaters around Droughton airfield.

### Rainfall

Regulations, such as the Nitrate Pollution Prevention Regulations 2008 (NVZs), often require you to know your local rainfall averages. The nearest free weather station is Bedford and this gives the following average monthly readings in mm for the period 1971 to 2000.

Jan	Feb	Mar	Apr	May	Jun
48.4	36.6	43.5	47.2	45.3	56.9

Jul	Aug	Sep	Oct	Nov	Dec	Year
44.7	48.6	53.6	56.8	49.0	53.8	584.4

### Catchment Sensitive Farming (CSF)

The Slade Brook is in a CSF area under the Nene and Ise Catchment Partnership. CSF aims to reduce diffuse pollution from agriculture. This means farmers in this catchment have access to free advice, workshops and training events to assist with soil, nutrient and pesticide management, as well as priority access to funding through the CSF Capital Grant Scheme.

To find out more Tel: 01604 236764

Email: [RNRP@northamptonshire.gov.uk](mailto:RNRP@northamptonshire.gov.uk)

Web: <http://www.rnrp.org/CSF>

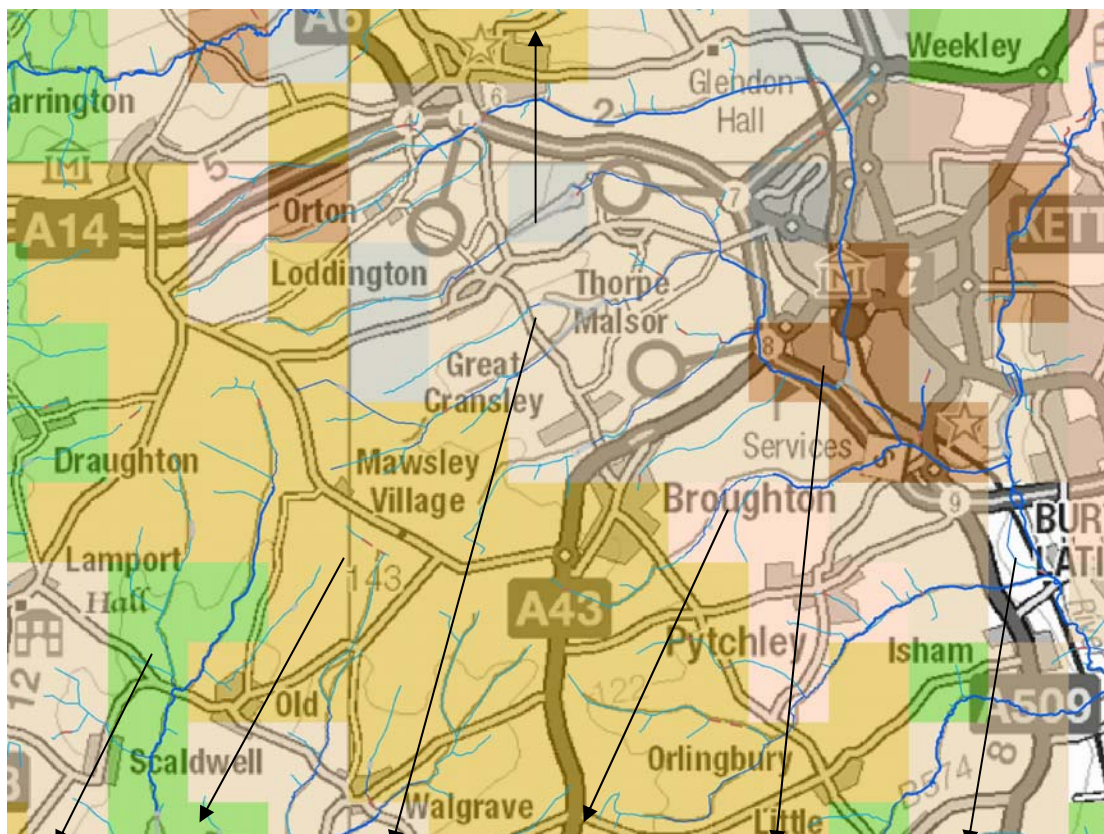
### Campaign for the Farmed Environment (CFE)

The priority in Northamptonshire is surface water protection. The ELS options that contribute towards this are:

### Soils

The soil is a farmer's most valuable resource. Soil security is vital if we are to ensure future food production. The map below shows the main soil types (1 km squares) for the Slade Brook area.

*Restored ironstone workings*



Denchworth   Hanslope   Banbury   Moreton   Oxpasture   Fladbury

Buffer strips - to slow, filter and trap pollutants (soil, nutrients and pesticides) before they enter the watercourse

Cover crops - to reduce leaching of nutrients

Field corners - to reduce overland flow and erosion of soil

To find out about free events or to get more information, contact your local CFE Advisor, Alex Butler (01572 718763).

### What can you do next?

If you would like to collect some of your own water quality data, arrange a free Catchment Sensitive Farming visit, or simply to discuss the issues further then please contact the Nene Catchment Partnership team at the RNRP offices (see CSF section for details).

<b>Map colour</b>	<b>Soil Name</b>	<b>Description</b>	<b>Leaching potential</b>
Green	Denchworth	Deep clay over clay	Low
Yellow	Hanslope	Deep clay over clay	Intermediate
Beige	Banbury	Loam over ironstone	Intermediate
Pink	Moreton	Clay over limestone	High
Brown	Oxpasture	Deep loam to clay	Intermediate
White	Fladbury	Deep clay	High
Blue	Restored Ironstone workings	Viable, mainly fine loam over clay	High