

Nene Catchment Partnership - Your Water Catchment

River Nene

Holdenby Arm of the Spratton Brook



The Holdenby Arm of the Spratton Brook is a tributary of the River Nene. The water catchment of the Holdenby Arm of the Spratton Brook is highlighted in black on the map above.

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

The catchment

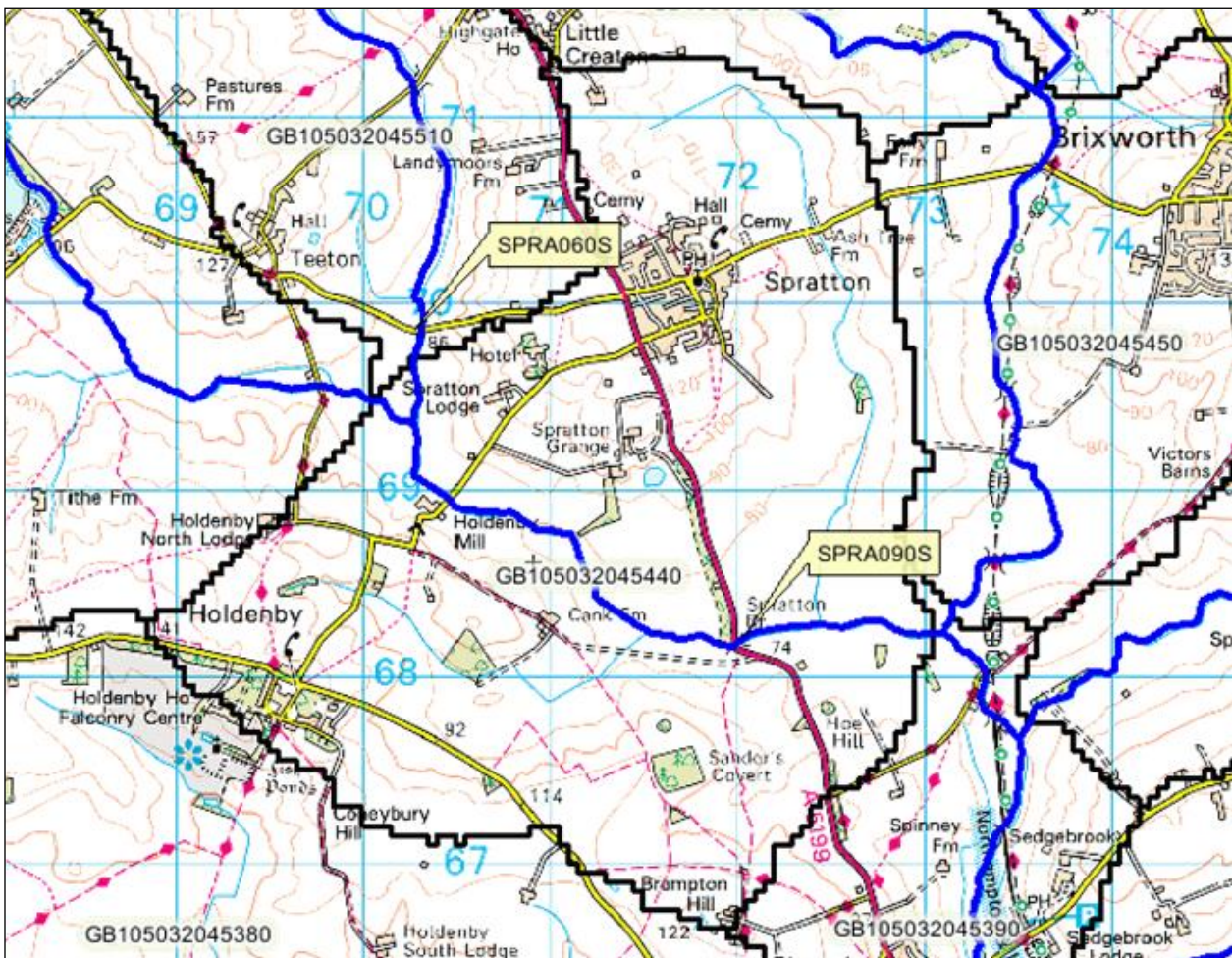
The villages of Spratton and Holdenby are located within this rural catchment. The Hollowell Arm of the Spratton Brook flows from Hollowell reservoir entering the catchment from the northwest and joining the Ravensthorpe Arm of Spratton Brook, which flows from Ravensthorpe Reservoir. These two arms meet to form the Holdenby Arm of the Spratton Brook, which then continues to the east of the catchment with a number of feeder streams entering the main channel along its length. The topography is steeply sloping with gentler slopes within the floodplain of the main channel. Agricultural practices consist of predominantly arable with semi improved and improved grasslands for grazing.

Current status

The Holdenby Arm of the Spratton Brook is currently classified at **Moderate** status by the **Water Framework Directive (WFD)**. 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 Environment Agency has two permanent sampling points relevant to this catchment which monitor the water quality on a monthly basis. One sampling point is located upstream on the Hollowell Arm (SPRA060S) and another on the Holdenby Arm at the Weldon Road road bridge (SPRA090S).

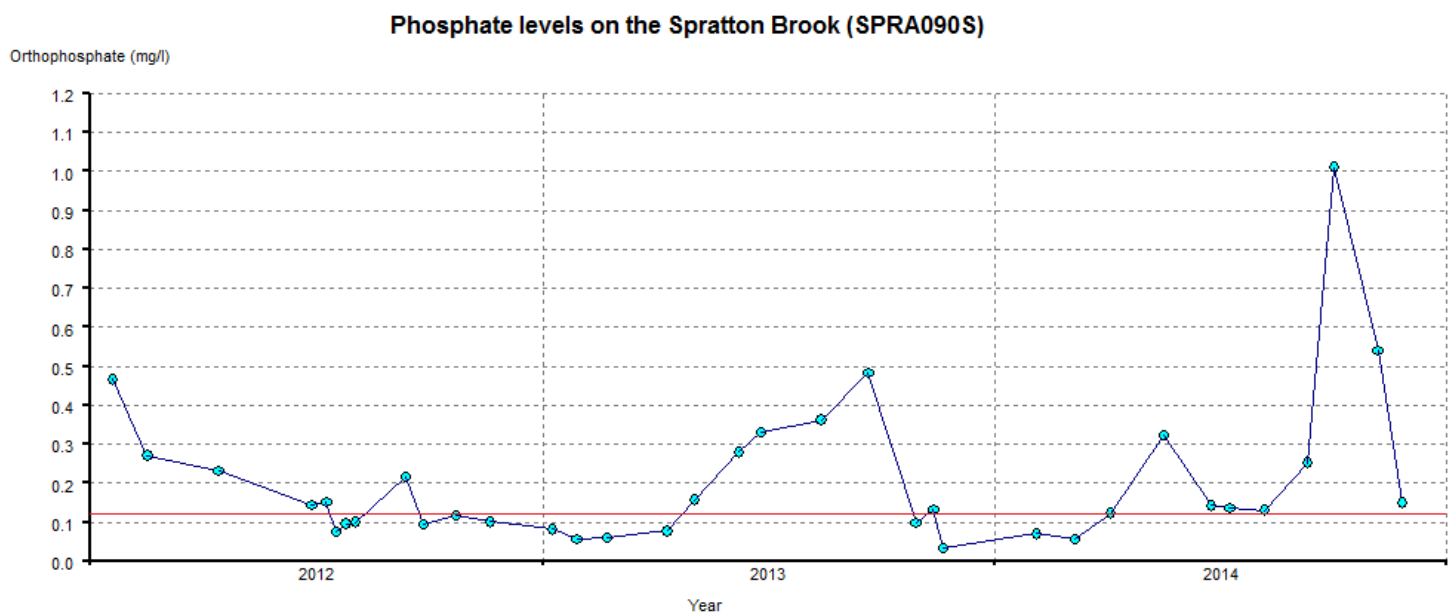
The map below shows the location of the two permanent Environment Agency monitoring points



Phosphates

Phosphate is the most common failing element nationally under WFD. The WFD target for phosphate is 0.12mg/l. Phosphate pollution may originate from point sources, such as sewage treatment works (STWs) and septic tanks, or from diffuse sources. By diffuse sources we mean from a range of activities and scattered sources that individually may have no effect on the water environment, but added together when they enter a water body can have a significant effect on the water quality.

The Environment Agency collects data on the levels of phosphates in the Holdenby Arm of the Spratton Brook at the Weldon Road road bridge. The graph below shows that the phosphate levels in this watercourse currently exceeds the WFD target with an annual average of 0.17mg/l in 2012, 0.18mg/l in 2013 and 0.24mg/l in 2014. Levels in a sample taken in October 2014 were at 1.01mg/l – nearly ten times over the WFD limit.



All catchments are different, but as a general rule it is thought that, in rural catchments, agriculture inputs about 35% of phosphate into the water and STWs about 60%.

Phosphate losses from agriculture may enter the water in the following ways:

- manures or fertilisers direct from overspreading or from leaks and spills or washed off the field surface
- water and wind erosion of soil carrying phosphate attached to clay and organic matter
- there can be significant leaching of dissolved phosphate through the actual soil profile when levels reach P index 4 and above
- soil sediments and manures, containing phosphate, reaching field drains. This is increased in cracked or recently fissured soils (e.g. land drainage, deep subsoiling or mole draining)

Excessive nutrients in the watercourse damage the environment by upsetting its natural balance. It encourages more aggressive feeding plant and animal species that are more likely to take over a water body, thriving at the expense of other species. This reduces the biodiversity of the watercourse.

Sediment itself also affects the habitat of rivers by smothering riffles used by fish to spawn and changing river morphology. Managing and reducing sediment runoff can help to prevent damage to the environment and maximise the levels of phosphates retained in soil for crop growth.

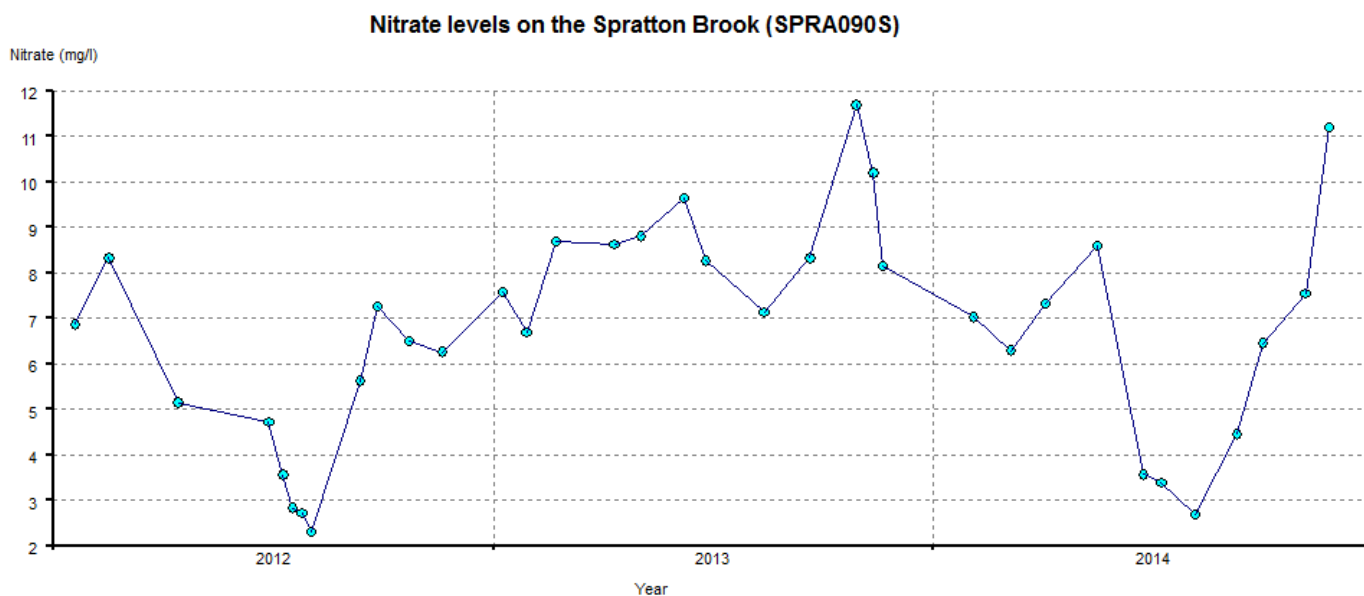
Nitrates

The catchment of the Ravensthorpe Arm of the Spratton Brook, along with most of England, is in a Nitrate Vulnerable Zone (NVZ). Assessments have shown that this catchment is at risk of nitrate pollution from agriculture.

Nitrate pollution problems occur when too much chemical fertiliser is applied to the land. The excess runs off and can find its way into drinking water sources, rivers and lakes. Some experts believe that high levels of nitrate in drinking water may pose a threat to health. A European directive states that drinking water should not contain more than 50 milligrams of nitrates per litre of water.

In rivers, streams, ponds and lakes, too much nitrate can create a 'pea soup' effect. The water becomes clogged with fast-growing plant life like algae and weeds. This is a major problem especially in some areas of England such as East Anglia. In problem areas, some farmers voluntarily control their use of nitrogen.

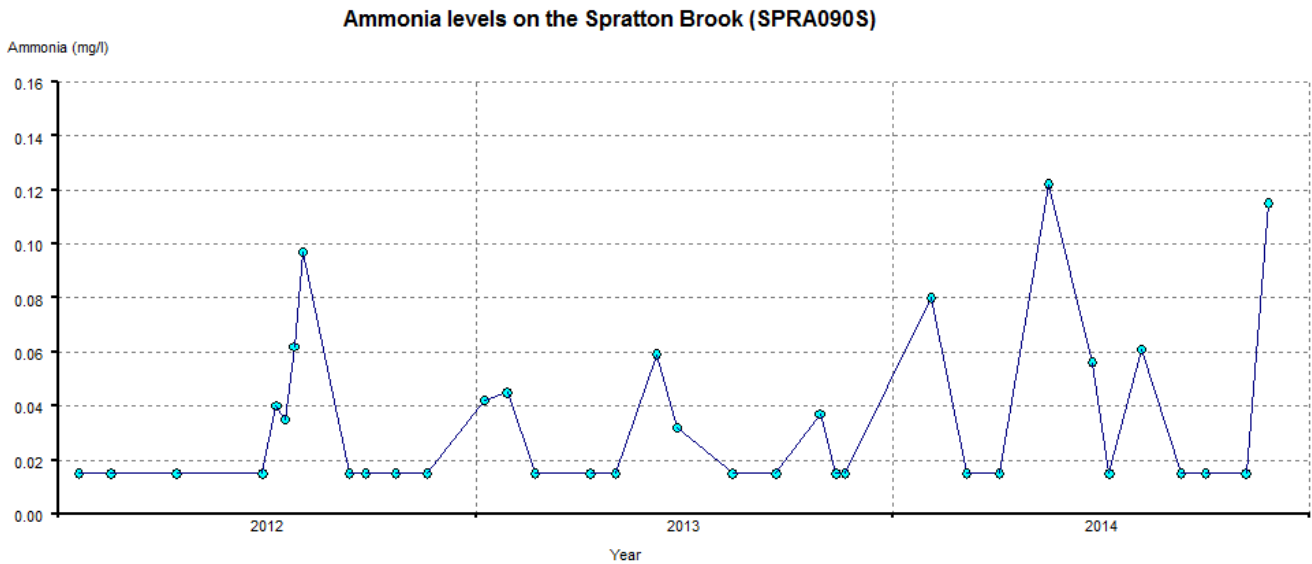
The WFD limit for nitrates in water is 50mg/l. Levels of nitrates the Holdenby Arm are well below this limit and have decreased through the implementation of the NVZ rules.



Ammonia

Ammonia is highly soluble in water and very toxic to aquatic organisms. Low concentrations of ammonia naturally occur in soil and are essential for plant nutrition. However, excessive use of fertilisers can result in leaching to watercourses. Sewage is another key source of ammonia in water.

The WFD limit for ammonia in waterbodies is 0.6mg/. The graph below shows that current levels in the Holdenby Arm of the Spratton Brook are well below this limit. The catchment is therefore currently in 'Good' status in relation to ammonia levels.



As the catchment of the Holdenby Arm of the Spratton Brook is predominantly in a rural area, good farming practices are essential in order to prevent ammonia reaching the Spratton Brook and keep levels below the WFD limit.

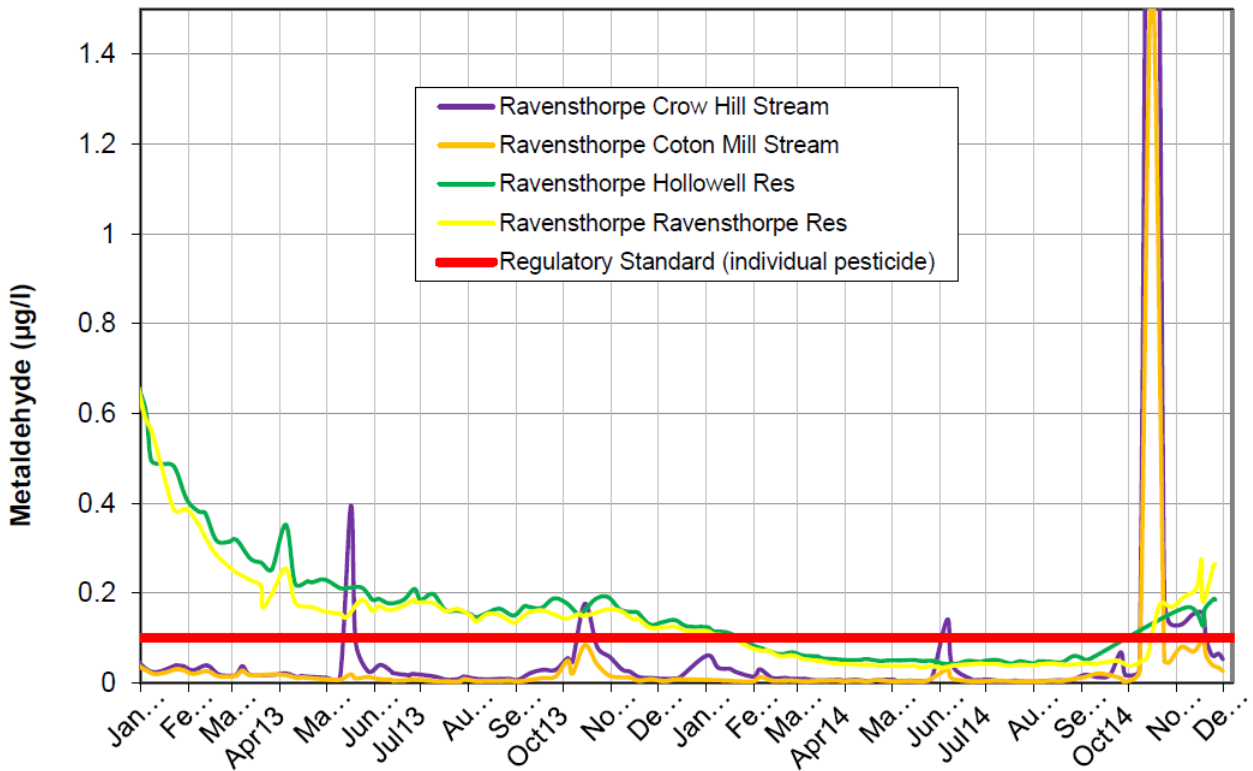
Metaldehyde

Metaldehyde is the most widely used pesticide for slug control. The EU Drinking Water Directive limit for this pesticide is 0.1µg/l. Ravensthorpe Reservoir is monitored for metaldehyde and is currently failing to meet this limit. Significantly elevated levels of metaldehyde have been detected in reservoir itself and the Coton Mill Stream since October 2014.

Pellets applied to crops on land can enter drains and watercourses during application or via run-off caused by heavy rain or prolonged rainfall events. 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.

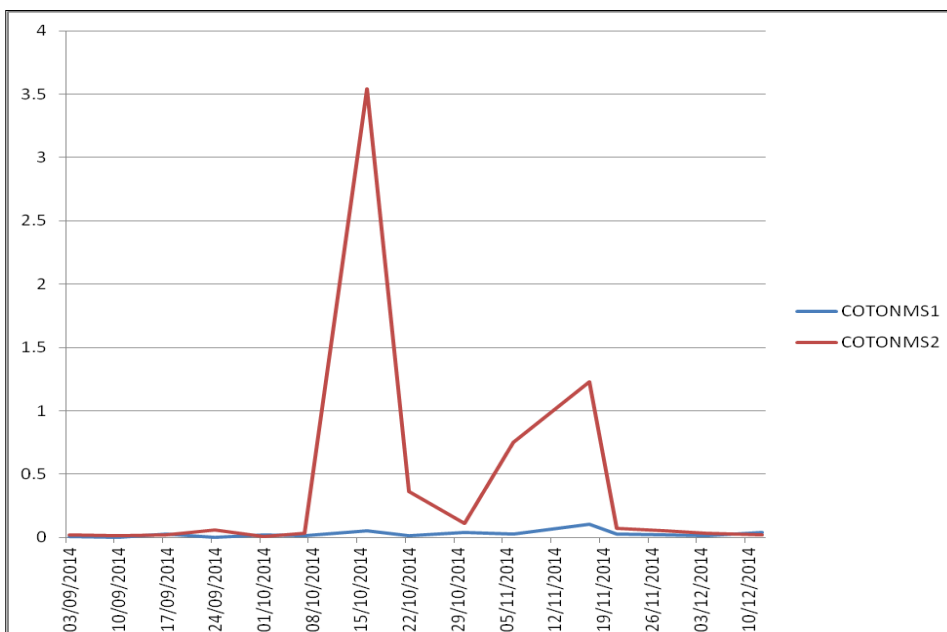
The Metaldehyde Stewardship Group (MSG) has launched a campaign called 'Get Pelletwise' to disseminate best practice advice to farmers and agronomists. Guidelines include leaving a 6-metre buffer around watercourses, maximum dosage rates and advise against application when heavy rain is forecast. The use of alternative products such as SluXX, Ferric Phosphate and Methiocarb can also help reduce levels of methaldehyde reaching watercourses. Following these best practice guidelines not only helps to prevent contamination of watercourses but ensures efficient usage of this pesticide which minimises financial losses through loss of product.

Ravensthorpe Water Treatment Works - Metaldehyde



The above graph shows the levels of metaldehyde detected in the Ravensthorpe catchment. Although the 2014 are the most significantly elevated levels, the graph shows that levels of metaldehyde in the reservoir were also above the legal limit for the entirety of 2013.

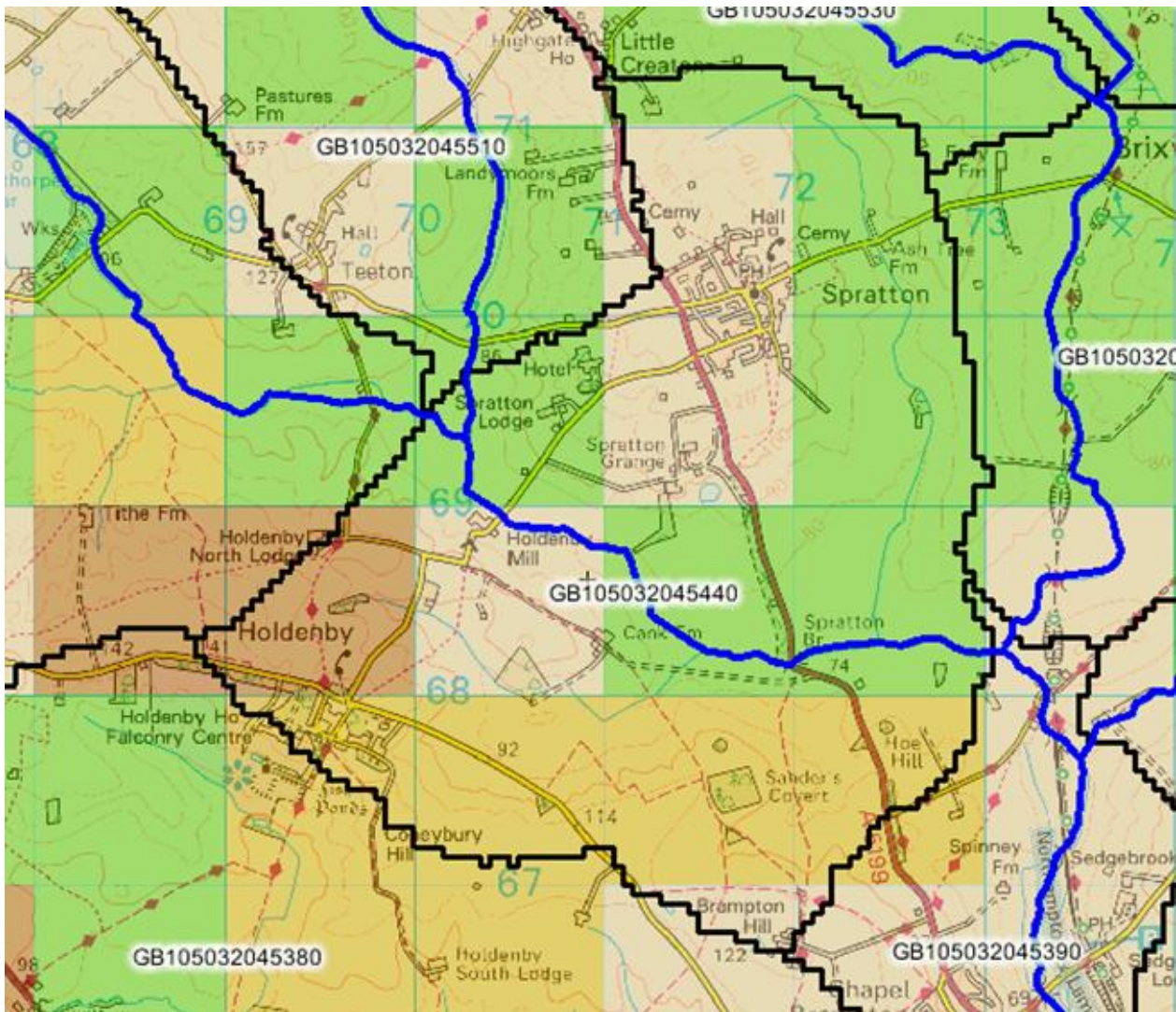
The Environment Agency has been monitoring metaldehyde levels on both arms of the Coton Mill Stream since September 2014 and this will continue until the end of January 2015. Initial findings have shown that peaks in metaldehyde have largely originated from the West Haddon Arm (COTONMS2 - see map on first page).



Date	COTONMS1	COTONMS2
10-Sep	<0.01	0.0127
17-Sep	0.0304	0.0192
24-Sep	<0.01	0.06
01-Oct	0.0213	0.00928
07-Oct	0.0181	0.0323
16-Oct	0.0565	3.54
22-Oct	0.0158	0.367
30-Oct	0.0386	0.115
06-Nov	0.0307	0.749
17-Nov	0.103	1.23
21-Nov	0.029	0.0748
28-Nov	0.0237	0.0565
04-Dec	0.0174	0.03207
12-Dec	0.0425	0.0198

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 catchment.



Colour codes for soils map

Map colour	Soil Name	Description	Leaching potential
Green	Denchworth	Clay	Low
Yellow	Hanslope	Deep clay	Intermediate
Beige	Banbury	Loam over sandstone	Intermediate
Brown	Ashley	Deep loam to clay	Intermediate

Groundwater

The bedrock beneath the soil is connected and can store water (underground reservoirs known as aquifers). Limestone generally holds water the best and is therefore classed as a major aquifer, ironstone and sandstone are minor aquifers and mudstone has no aquifer. Predominant geology in this catchment is mudstone.

Catchment Sensitive Farming (CSF)

This catchment 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

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:

- 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 Jim Egan (01572 718763).

Metaldehyde Stewardship Group (MSG)

For more information on the MSG's campaign 'Get Pelletwise' please visit their website:

<http://www.getpelletwise.co.uk/>

Or for general enquiries they can also be contacted on: Tel. 0845 177 0117

In addition to best practice guidelines for farmers, the website offers advice on issues such as dose rates and machinery settings.

What's In Your Backyard? (WIYBY)

What's in Your Backyard (WIYBY) is the map service with which the Environment Agency makes much of its spatial data available to the general public. The WIYBY for farmers tool will help you get an idea of what environmental state the water bodies around and through your land are in, and whether agriculture is believed to be contributing to any water quality issues. It will also tell you what we think you can do to help reduce the impact your farm may be having on the water environment. WIYBY for farmers can be accessed via the Environment Agency website:

<http://www.environment-agency.gov.uk/homeandleisure/37793.aspx>

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).