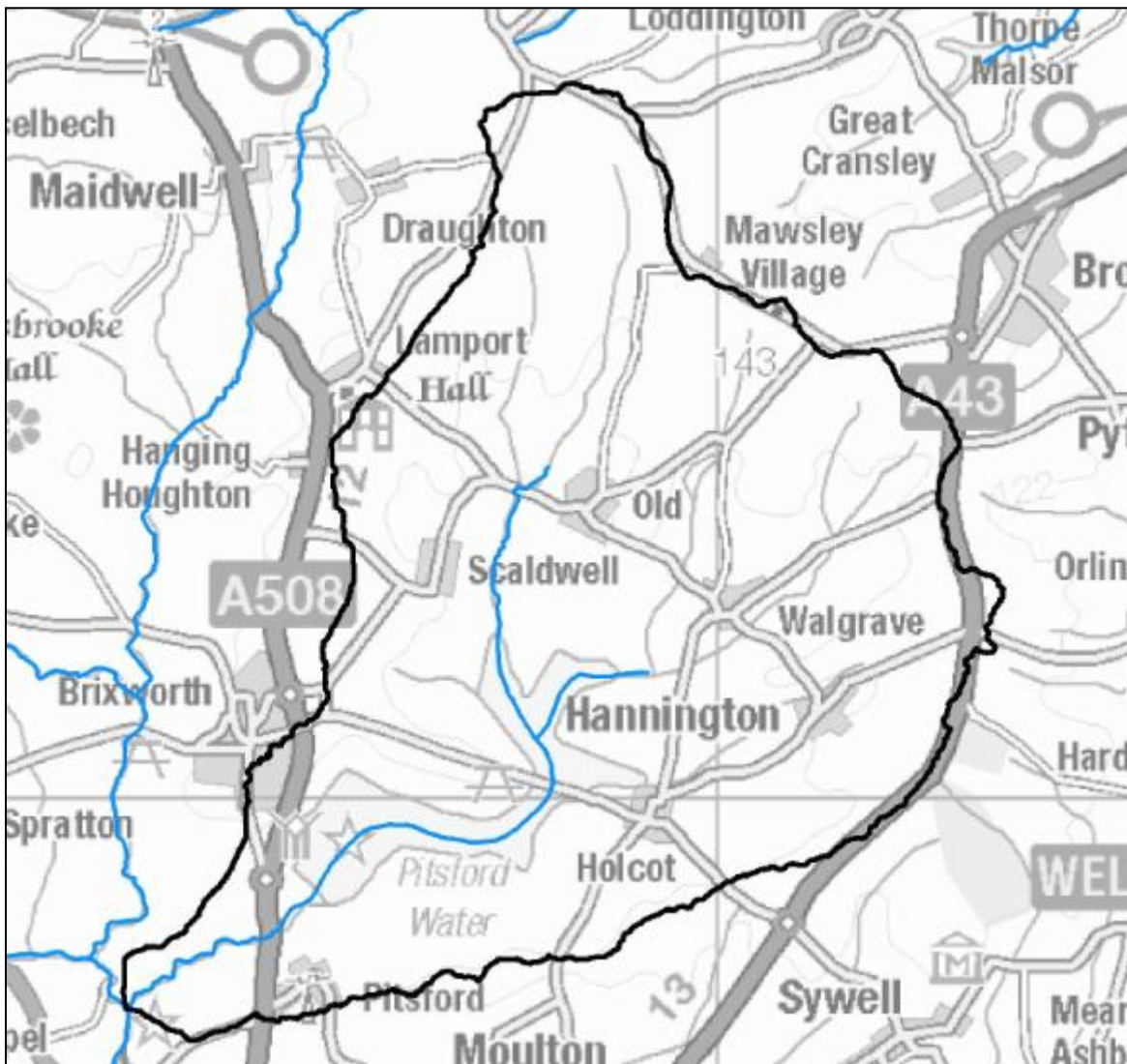


# Nene Catchment Partnership - Your Water Catchment

## River Nene

### Pitsford Arm of the Brampton Branch



The Pitsford Arm of the Brampton Branch is a tributary of the Brampton Branch of the River Nene. The water catchment area for this watercourse 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 Pitsford Arm of the Brampton Branch is located in northwest Northamptonshire. Scaldwell Stream and Walgrave Stream flow into Pitsford Reservoir from the north of the catchment and into Pitsford reservoir. The Pitsford Arm of the Brampton Branch flows in a south-westerly direction from the outlet of the reservoir, north of Pitsford village, and then joins the Brampton Branch further downstream.

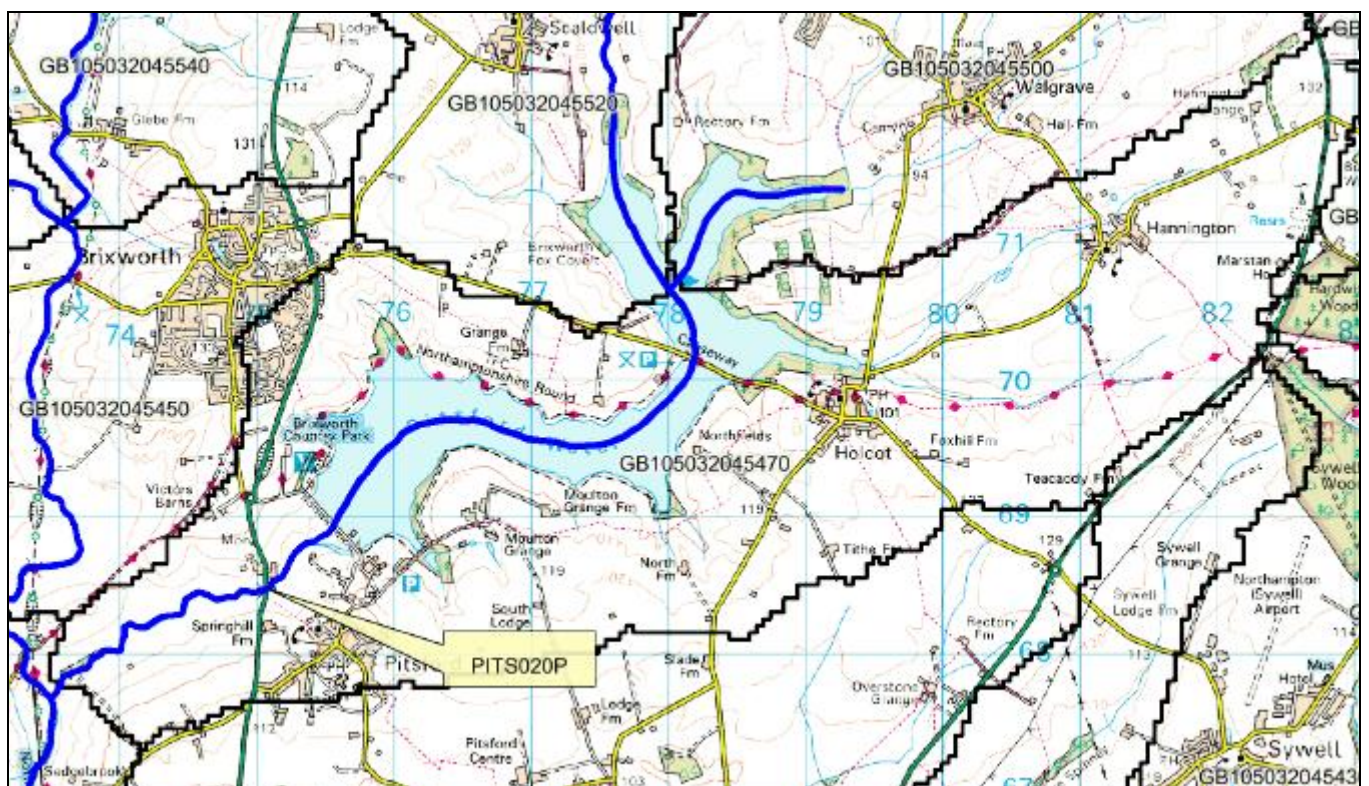
The catchment is mainly rural, with some woodland areas including the woodland area of Brixworth Country Park. Agricultural practices consist of predominantly arable with semi improved and improved grasslands for grazing.

## Current status

The Pitsford Arm of the Brampton Branch has been classified at **Moderate** status by the **Water Framework Directive (WFD)**. The Environment Agency has one permanent sampling point (PITS020P) relevant to this catchment, which has been monitoring the water quality since 2002 and on a monthly basis since 2005. The sampling point is located at the A508 road bridge.

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.

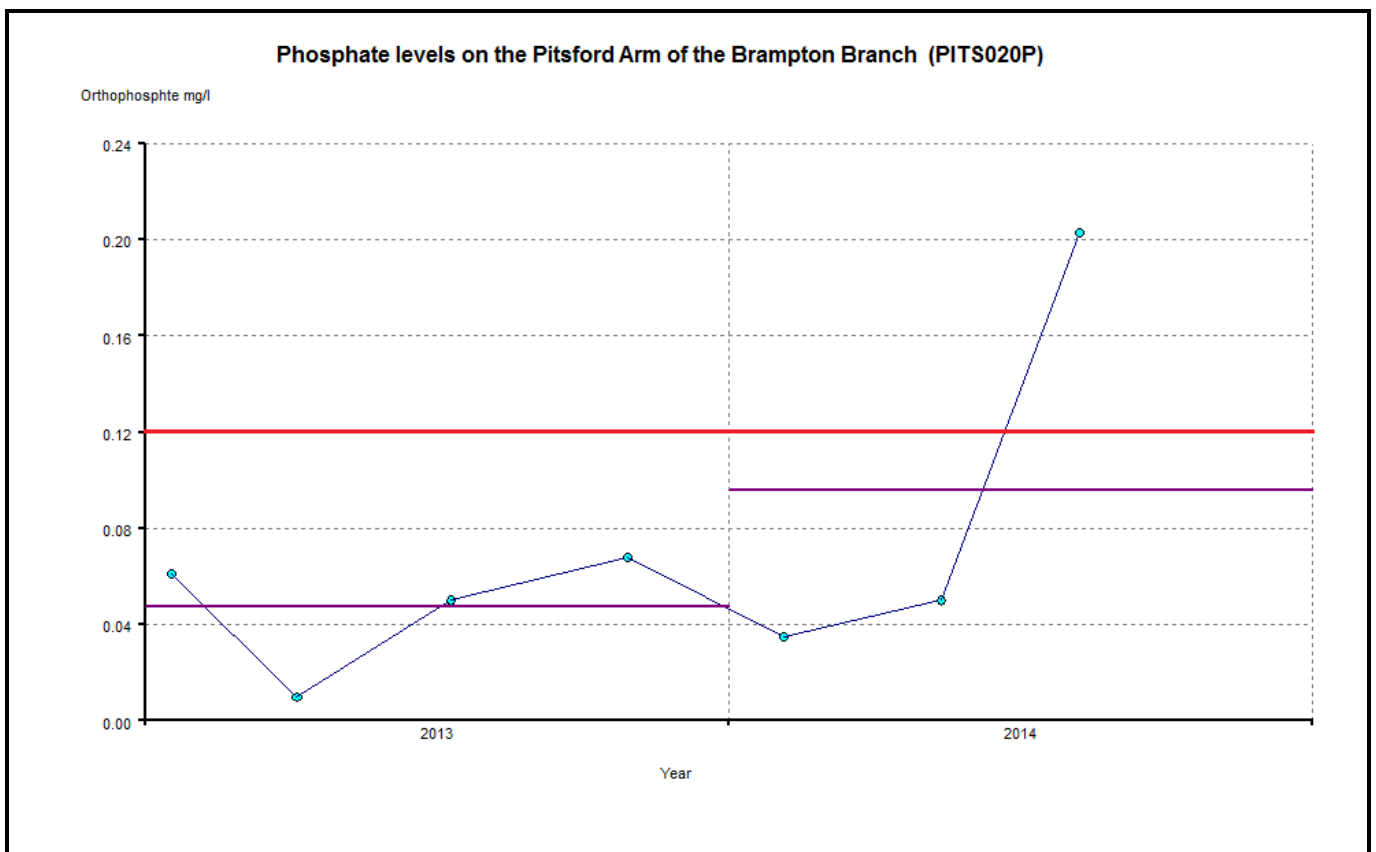
The map below shows the location of the Environment Agency monitoring point.



## Phosphates

Phosphate is the most common failing element nationally under WFD. 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. 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%.

The WFD target for 'good status' for phosphate is 0.12mg/l. The graph below shows that the levels of phosphates in the Pitsford Arm of the Brampton Branch are currently below this target, with an annual average of 0.05 mg/l in 2013. These results indicate that is unlikely that the Pitsford Arm of the Brampton Branch is currently at risk from phosphate pollution from agriculture.



## Impacts of phosphates

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.

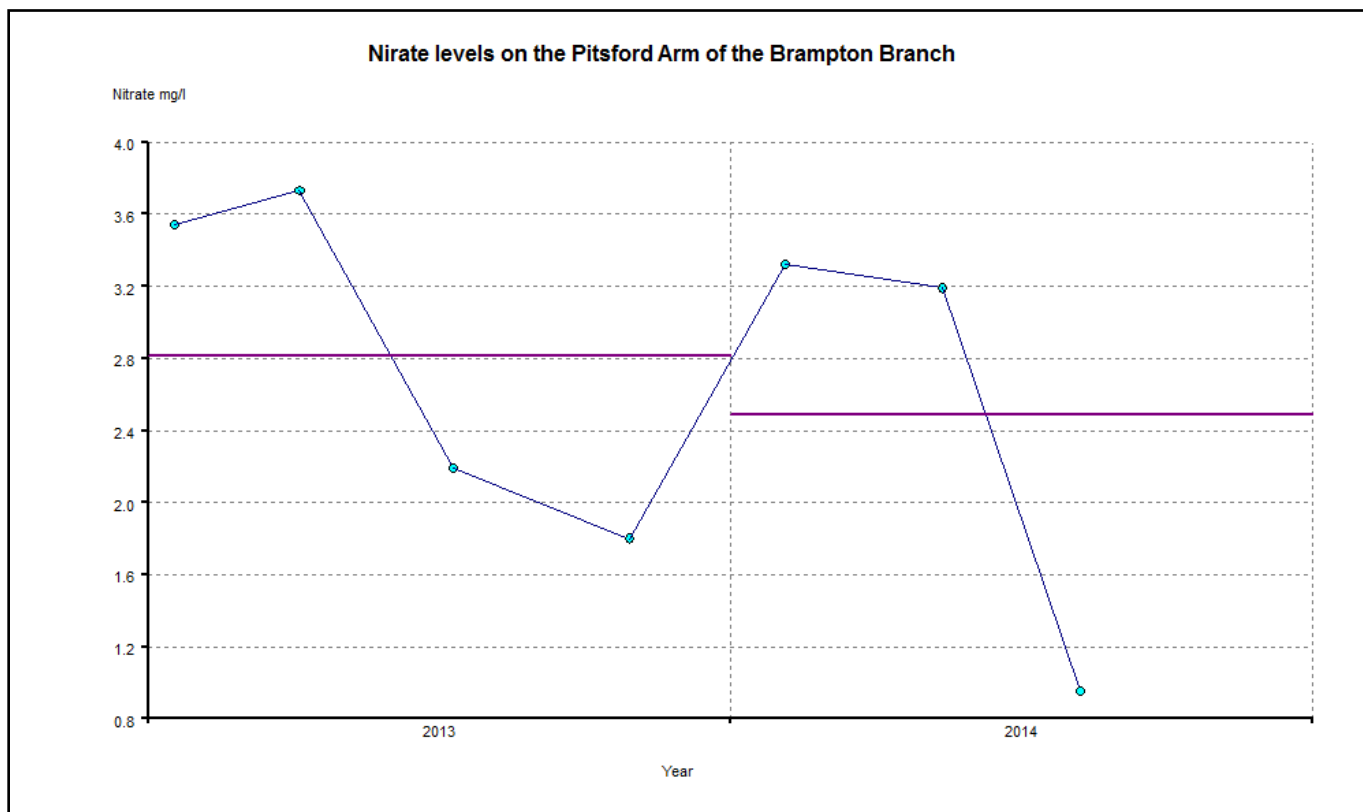
### Nitrates

The catchment of the Pitsford Arm of the Brampton Branch, 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 human 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.

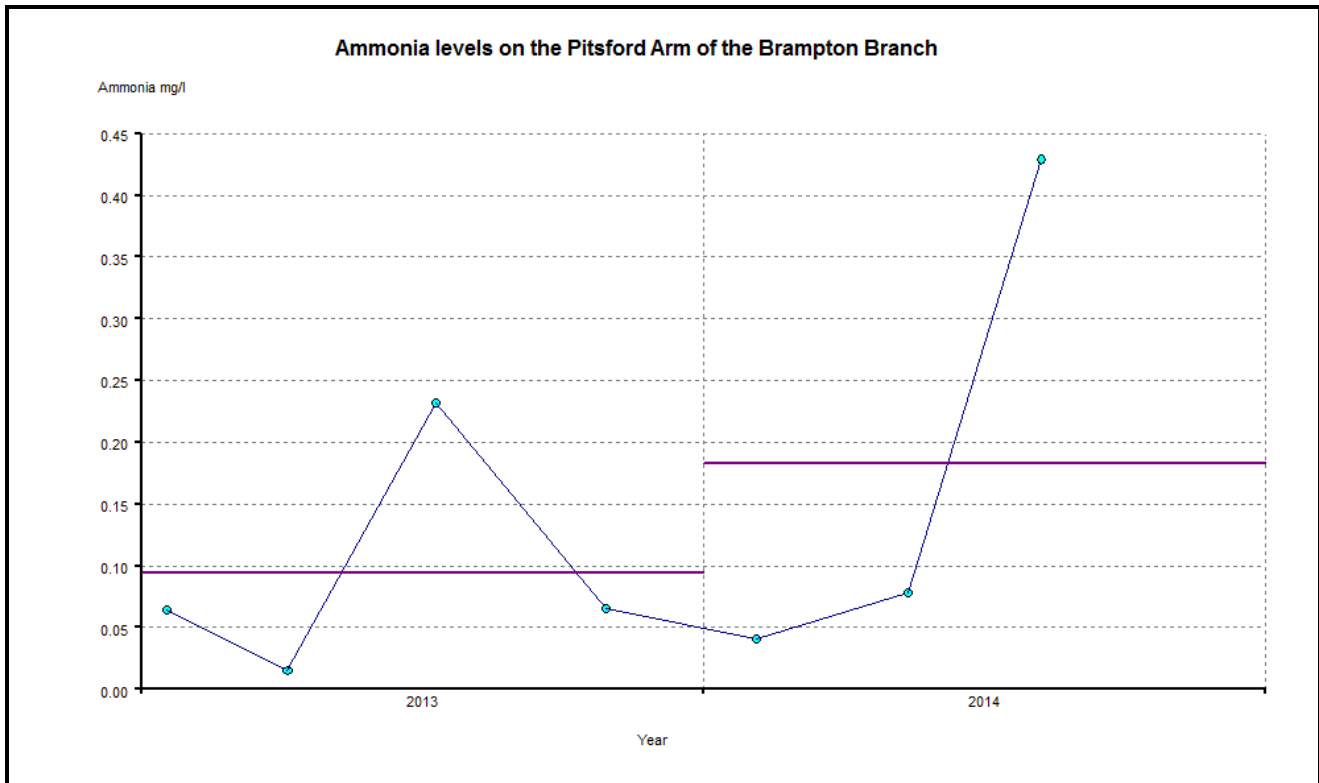
The WFD limit for nitrates in water is 50mg/l. Levels of nitrates the Pitsford Arm of the Brampton Branch are well below this limit and have decreased through the implementation of the NVZ rules.



## 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/l. The graph below shows that average levels for ammonia in the Pitsford Arm of the Brampton Branch are less than half of this limit, with an annual average of 0.09mg/l in 2013.



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

## Metalddehyde

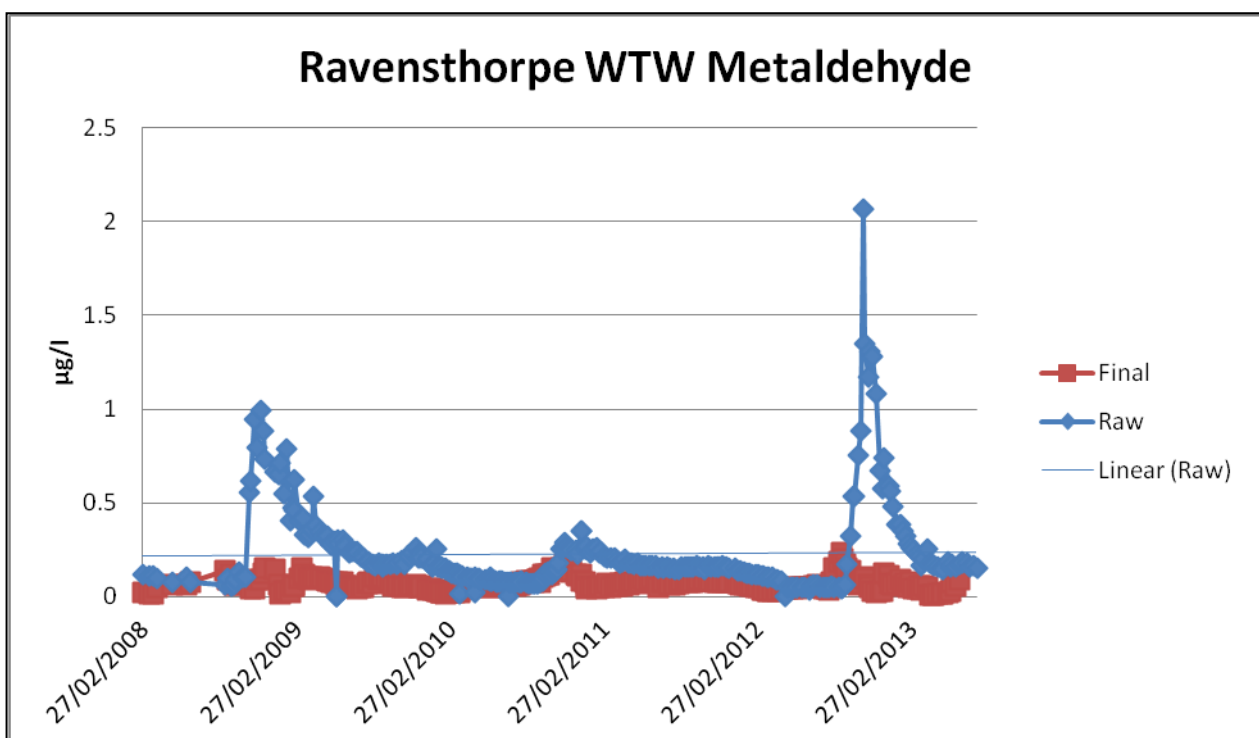
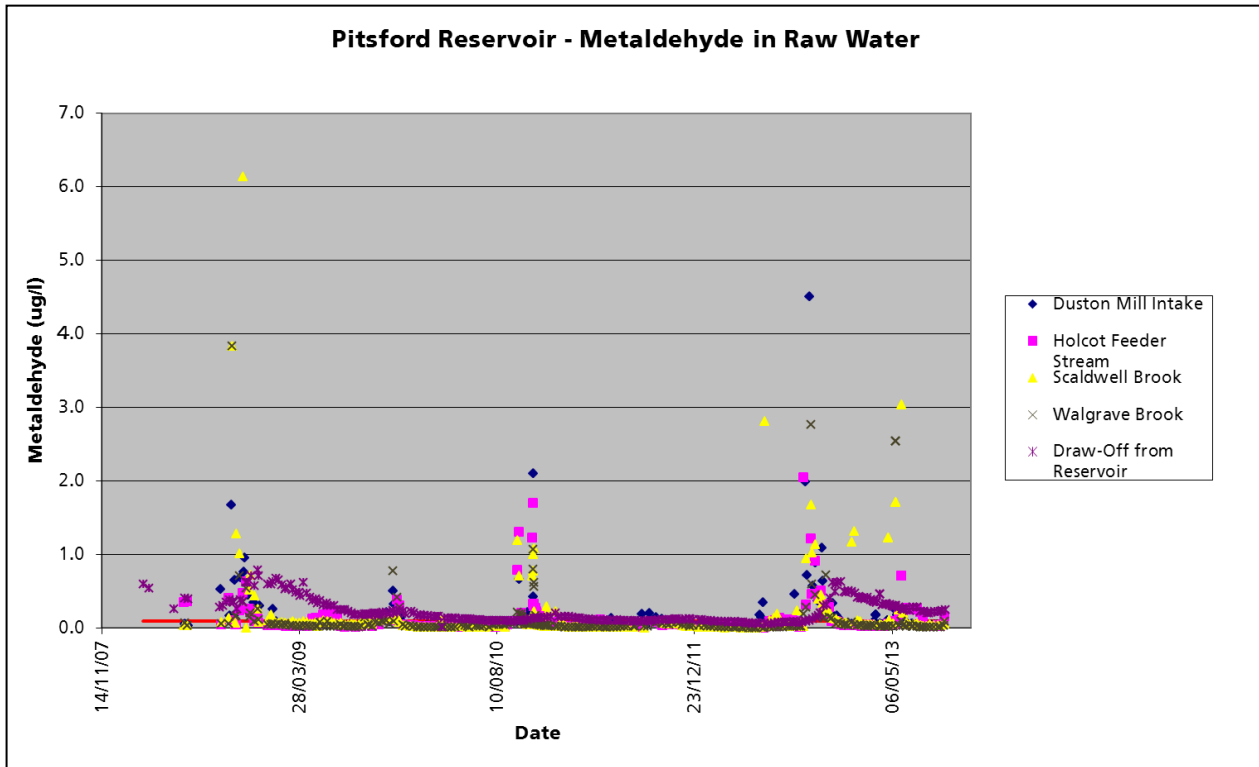
The drinking water limit for metalddehyde is 0.1µg/l. Metalddehyde is the most widely used pesticide for slug control. Monitoring at Pitsford and Ravensthorpe Reservoirs has shown this pesticide is entering watercourses in surrounding catchments.

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 Metalddehyde 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

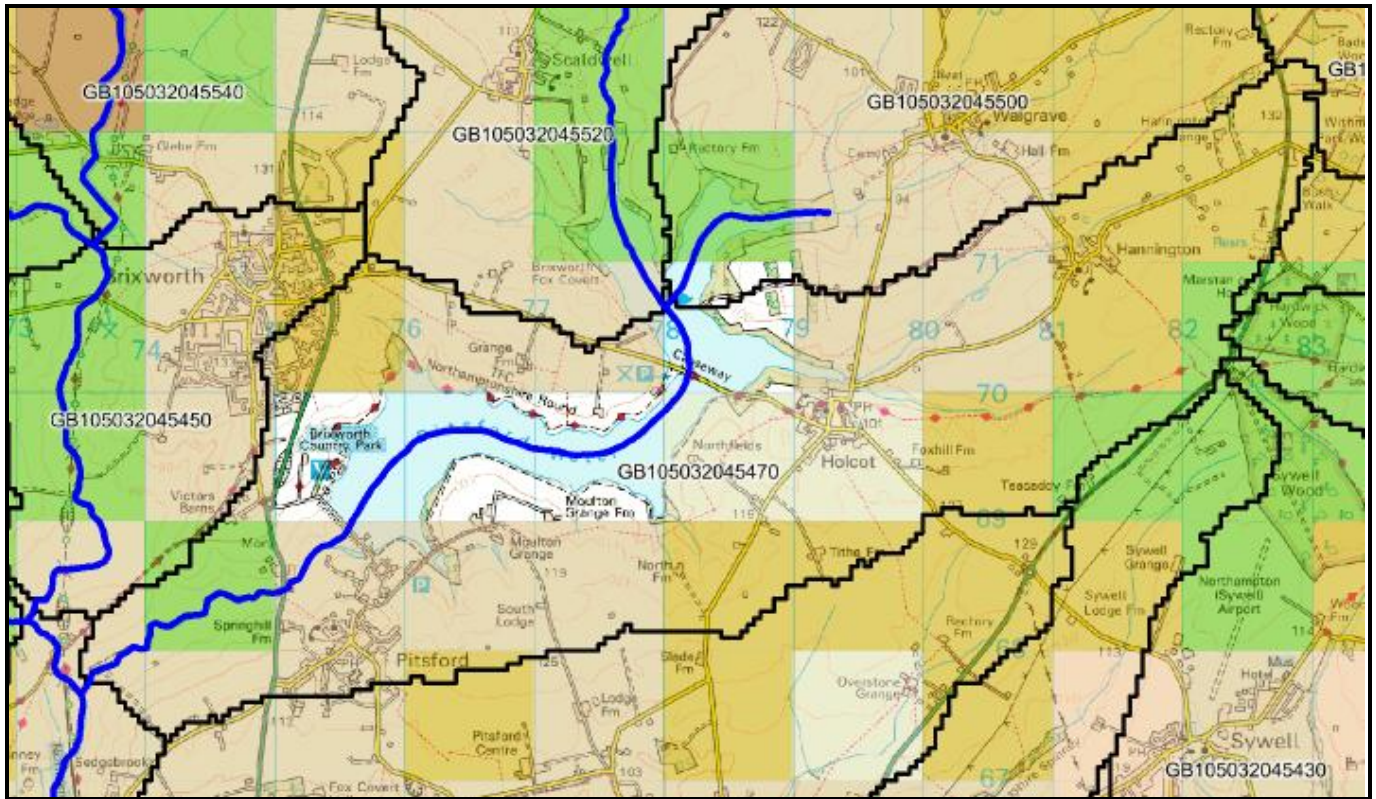
forecast. The use of alternative products such as SluXX, Ferric Phosphate and Methiocarb can also help reduce levels of methaldehyde reaching watercourses. Following these best practice guidelines not only helps to prevent contamination of watercourses but ensures efficient usage of this pesticide which minimises financial losses through loss of product.

The graphs below show metaldehyde levels in both Pitsford and Ravensthorpe Reservoirs. Peaks in levels tend to occur in November and December following autumn application. The presence of metaldehyde in these reservoirs highlights the need to implement good agricultural practices in all river catchments.



## 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 and ooidal ironstone, therefore minor aquifers are present.

### **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](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:

- 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).