Thame & Chilterns
Water Quality Update
Winter 2022/23

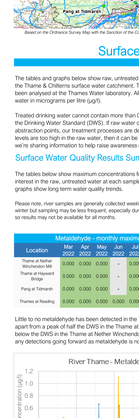
This is a water quality update for the Thame & Chilterns catchment. Updates will be circulated quarterly to keep you updated with the latest water quality data from your catchment.

Diffuse pollution of raw water sources from agricultural pesticides and fertilisers, in both river and groundwater sources, is an ongoing problem for water companies as we regularly detect them in raw water. Removing these compounds through water treatment is expensive, energy intensive and not the most sustainable approach. We're keen to work with farmers and advisors within the catchment to avoid pesticides and fertilisers reaching groundwater and surface water sources in the first place. Please consider the impact on water quality before advising or applying fertilisers and plant protection products.

See an overview of the catchment in the table and map below, followed by short and long term water quality summaries. If you have any questions, or would like to be added to the mailing list, please contact catchment.projects@thameswater.co.uk.

Catchment Overview

Catchment size	~1,160km²
Major towns	High Wycombe, Aylesbury, Henley-on-Thames, Thame, Wallingford
Thames Water drinking water quality priorities	Surface Water: Pesticides (carbetamide, metaldehyde, propyzamide) Groundwater: Nitrate
Thames Water projects	**Catchment Fund action advice:** Thames to Thame and nearby tributaries, Upper, Middle and Lower Thame (surface water) Sheeplands (groundwater)
Contact	catchment.projects@thameswater.co.uk



Based on the Ordnance Survey Map with the Sanction of the Controller of H.M Stationery Office License Number 100019241

Surface Water

The tables and graphs below show raw, untreated water quality data from selected locations within the Thame & Chilterns surface water catchment. These samples are grab samples which have been analysed at the Thames Water laboratory. All results are recorded concentrations in river water in micrograms per litre (µg/l).

Treated drinking water cannot contain more than 0.1µg/l of an individual pesticide; this is known as the Drinking Water Standard (DWS). If raw water concentrations are higher than this at our abstraction points, our treatment processes are designed to remove the pesticides. However, if levels are too high in the raw water, then it can be challenging to reduce them enough. That's why we're sharing information to help raise awareness of the issue.

Surface Water Quality Results Summary

The tables below show maximum concentrations for each pesticide of interest in the raw, untreated water at each sample point and the graphs show long term water quality trends.

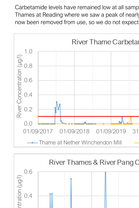
Please note, river samples are generally collected weekly over the autumn and winter but sampling may be less frequent, especially during spring and summer, so results may not be available for all months.

Key: pesticide concentration
- >0.05µg/l
- 0.05-0.1µg/l
- 0.1-0.2µg/l
- >0.2µg/l
- No data

Metaldehyde - monthly maximum river concentrations (µg/l)

Location	Mar 2022	Apr 2022	May 2022	Jun 2022	Jul 2022	Aug 2022	Sep 2022	Oct 2022	Nov 2022	Dec 2022	Jan 2023	Feb 2023
Thame at Nether Winchendon Mill	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.042	0.000	0.000
Thame at Haywards Bridge	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.050	0.000	0.000	0.000
Pang at Tidmarsh	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Thames at Reading	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-

Little to no metaldehyde has been detected in the Thame and Chilterns catchment in the past year, apart from a peak of half the DWS in the Thame at Hayward Bridge in November and a peak just below the DWS in the Thame at Nether Winchendon Mill in December. We do not expect to see any detections going forward as metaldehyde is now banned from use.

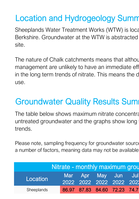


Metaldehyde levels show a seasonal pattern, with elevated levels (~0.1 µg/l) being seen at both sample points in the Thame and in the Thames at Reading most winters, although peaks have been lower in recent years. For the Pang, elevated levels were seen in winter 2012/13 and 2016/17, but in subsequent years levels have remained below the DWS.

Propyzamide - monthly maximum river concentrations (µg/l)

Location	Mar 2022	Apr 2022	May 2022	Jun 2022	Jul 2022	Aug 2022	Sep 2022	Oct 2022	Nov 2022	Dec 2022	Jan 2023	Feb 2023
Thame at Nether Winchendon Mill	0.017	0.000	0.000	-	0.000	0.000	0.000	0.000	0.027	0.099	0.142	0.019
Thame at Haywards Bridge	0.266	0.000	0.000	-	0.000	0.000	0.000	0.000	0.081	0.095	0.266	0.017
Pang at Tidmarsh	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.021	0.029	0.000	0.005
Thames at Reading	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.096	0.229	0.177	-

Propyzamide levels were around three times the DWS in the Thame at Hayward Bridge in March 2022, then remained low over the spring and summer. Levels started to increase in the late autumn, reaching over half the DWS in the Thame at Nether Winchendon Mill and the Thames at Reading in December, and the Thame at Hayward Bridge in November and December. Elevated levels (>0.1µg/l) were seen in the Thame at Nether Winchendon Mill and the Thame at Hayward Bridge in January, and the Thames at Reading in December and January. In the Pang, propyzamide levels have remained low for the last year.



Propyzamide levels show a seasonal pattern, with peaks above the DWS each winter in the Thame at Nether Winchendon Mill, the Thame at Hayward Bridge and the Thames at Reading. Propyzamide levels in the Pang at Tidmarsh have been consistently low since sampling began in 2020.

Carbetamide - monthly maximum river concentrations (µg/l)

Location	Mar 2022	Apr 2022	May 2022	Jun 2022	Jul 2022	Aug 2022	Sep 2022	Oct 2022	Nov 2022	Dec 2022	Jan 2023	Feb 2023
Thame at Nether Winchendon Mill	0.016	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.031
Thame at Haywards Bridge	0.015	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Pang at Tidmarsh	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Thames at Reading	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.115	0.030	-

Carbetamide levels have remained low at all sample points over the last year, apart from the Thames at Reading where we saw a peak of nearly twice the DWS in December. Carbetamide has now been removed from use, so we do not expect to see any going forward.

In the Thame, we saw particularly high levels of carbetamide in February 2022 (2.36µg/l at Nether Winchendon Mill and 1.38µg/l at Haywards Bridge), but levels have generally otherwise been low, apart from spring 2018 when levels peaked at 0.303µg/l in the Thame at Nether Winchendon Mill. There has historically been a clear seasonal pattern in the Thames at Reading, with levels often peaking above the DWS over the winter months. Carbetamide levels in the Pang have been consistently low since sampling began in 2020.

Groundwater

The tables and graphs below show raw, untreated water quality data from one of our groundwater sources within the Thame & Chilterns surface water catchment. These samples are grab samples which have been analysed at the Thames Water laboratory. All results are recorded concentrations in groundwater in milligrams per litre (mg/l).

Treated drinking water cannot contain more than 50mg/l of nitrate, this is known as the Drinking Water Standard (DWS). If raw water concentrations are higher than this at our abstraction points, our treatment and blending processes are designed to remove the nitrate. However, if levels are too high in the raw water, then it can be challenging to reduce them enough. That's why we're sharing information to help raise awareness of the issue.

Location and Hydrogeology Summary

Sheeplands Water Treatment Works (WTW) is located on the southern edge of Wargrave, Berkshire. Groundwater at the WTW is abstracted from the Chalk aquifer via three boreholes on site.

The nature of Chalk catchments means that although short term changes in catchment management are unlikely to have an immediate effect, current catchment practices are important in the long term trends of nitrate. This means the data below is generally reflecting historical nitrate use.

Groundwater Quality Results Summary

The table below shows maximum nitrate concentrations in the raw, untreated groundwater and the graphs show long term water quality trends.

Please note, sampling frequency for groundwater sources varies depending on a number of factors, meaning data may not be available for all months.

Key: nitrate concentration
- <40mg/l
- 40-47mg/l
- 47-50mg/l
- >50mg/l
- No data

Nitrate - monthly maximum groundwater concentrations (mg/l)

Location	Mar 2022	Apr 2022	May 2022	Jun 2022	Jul 2022	Aug 2022	Sep 2022	Oct 2022	Nov 2022	Dec 2022	Jan 2023	Feb 2023
Sheeplands	50.97	47.83	54.60	72.23	74.71	55.97	54.77	53.97	72.74	72.52	68.14	58.79

Nitrate concentrations in the groundwater at the Sheeplands abstraction are consistently over the DWS of 50mg/l. Notable peaks in concentration include 100mg/l in April 2018 and 109mg/l in February 2021 and a more recent result of 98.79mg/l in January 2023. Concentrations appear to have reduced slightly between 2021 and 2022, however spring 2023 concentrations have increased in comparison with last year.

Thank you for your interest in protecting water quality in your local area. If you have any questions or feedback, please don't hesitate to get in touch.

Catchment.Projects@thameswater.co.uk