



Eden Catchment – Water Quality Update

Spring 2024

SES Water closely monitor water quality in the River Eden and wider catchment to ensure we can continue to treat our drinking water to the highest standard. Long-term water quality data in the River Eden at Chiddingstone is presented below for our key pesticide and nutrient challenges. Data from various points in the catchment over the 2023/24 winter season are also shown. The sample points are representative of water quality within various subcatchments in the Eden, with each subcatchment highlighted in a different colour on the map.

Pesticides:

In England there are strict Drinking Water Standards (DWS) to which our water must comply. For pesticides, treated drinking water must not contain more than 0.1 micrograms per litre ($\mu\text{g/l}$) of any individual pesticide (this is the equivalent of approximately 1 second in 320 years!). We have treatment in place to help reduce concentrations of pesticides in our raw water, however if concentrations are too high the treatment process can be overwhelmed, which is why we're sharing this information to help raise awareness of the issue. At SES Water we monitor for over 30 different individual pesticides; here we have focused on key pesticides that have presented the water company with a challenge this season (namely propyzamide and flufenacet). All results are recorded in micrograms per litre ($\mu\text{g/l}$). Each active has its own limit of detection (LOD), where concentrations are below the limit our laboratory can reliably analyse.

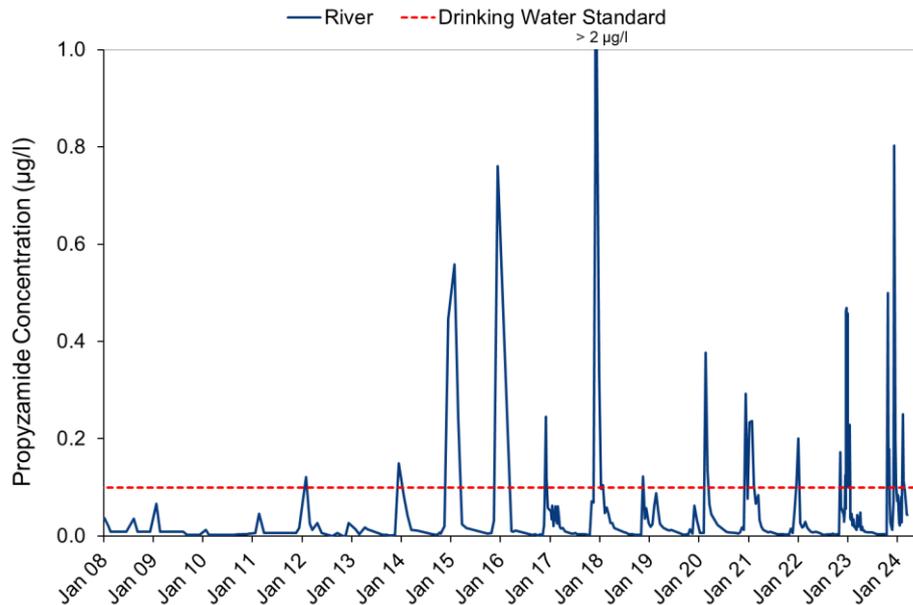
Under the Water Industry National Environment Programme (WINEP), as set out by the Environment Agency, the Catchment Team are currently focused on reducing the impact of pesticides (specifically propyzamide, mecoprop(-p), carbetamide and metaldehyde) on water quality.

Carbetamide and metaldehyde bans brought in from 2022 mean that these actives no longer pose a water quality challenge. Mecoprop is generally used outside of our abstraction window and therefore is also not generally considered a high risk to drinking water quality. Over this autumn/winter, results for all three of these pesticides have been below or very close to the LOD. We have however seen significant detections of propyzamide and flufenacet over this season.

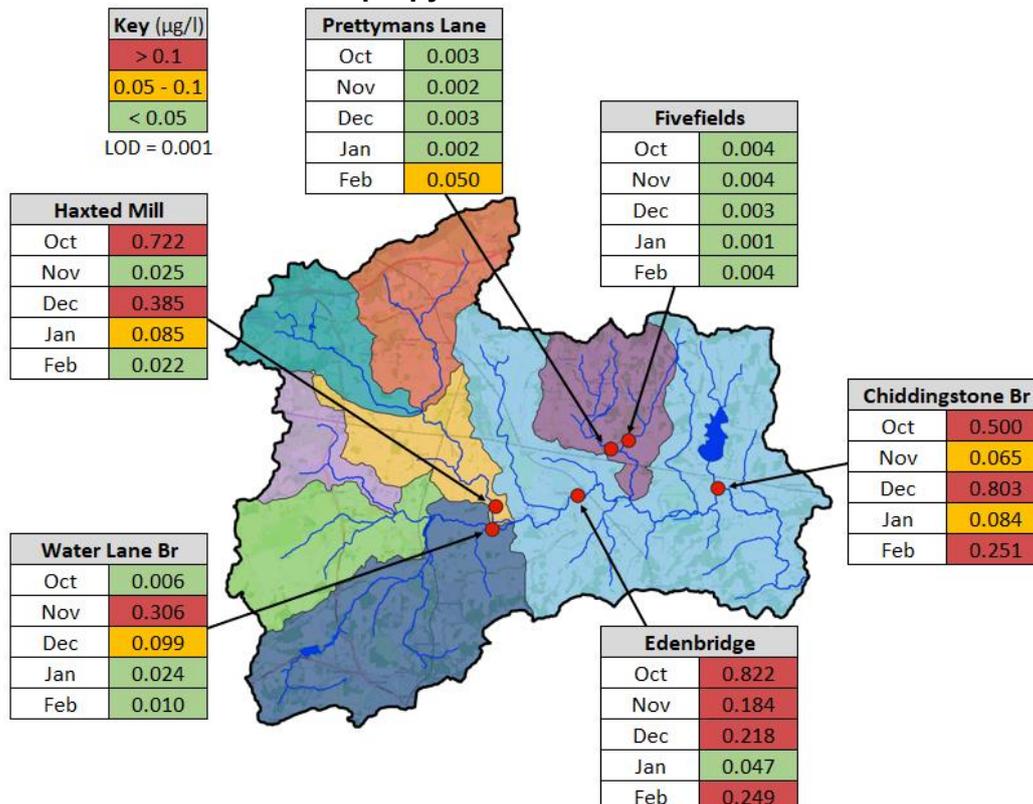
Propyzamide (an important herbicide for the control of grasses in oilseed rape, trade names include: Kerb flo 500, Astrokerb)

- Propyzamide is a key focus for SES Water, and we appreciate that it is a very valuable active in local farmers' arsenals. It is important that it is used responsibly to protect this product and help ensure it remains available for use. Elevated concentrations are detected in the winter months when the product is applied to cold, moist soil, and before the cut-off date for application of 31 January. This season we have detected a few notable spikes in the River Eden in October (which is earlier than usual), December and early February following heavy rainfall.

Long-term propyzamide trend in the River Eden at Chiddingstone Bridge



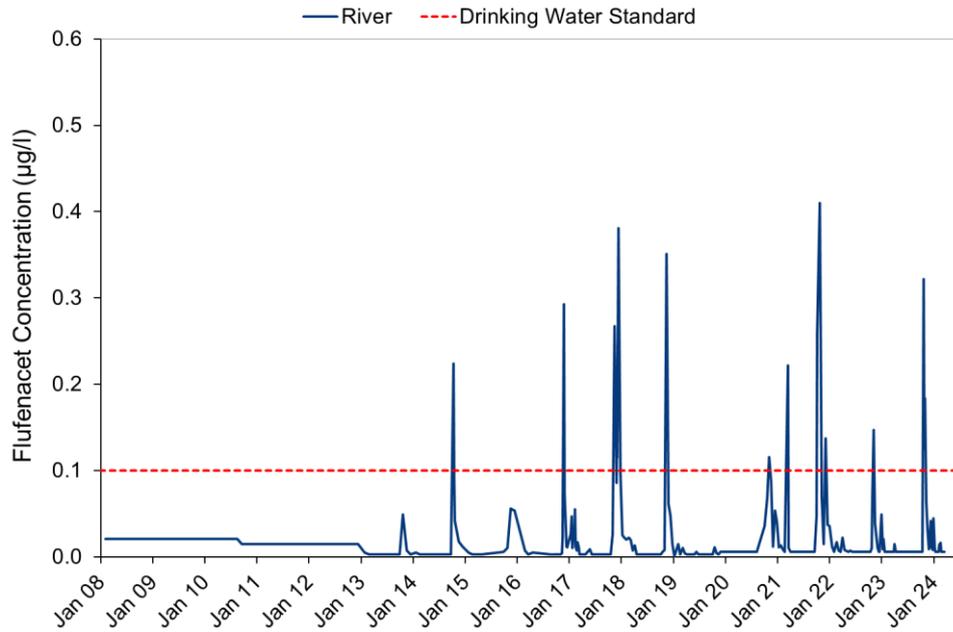
Maximum propyzamide concentrations: 2023-24



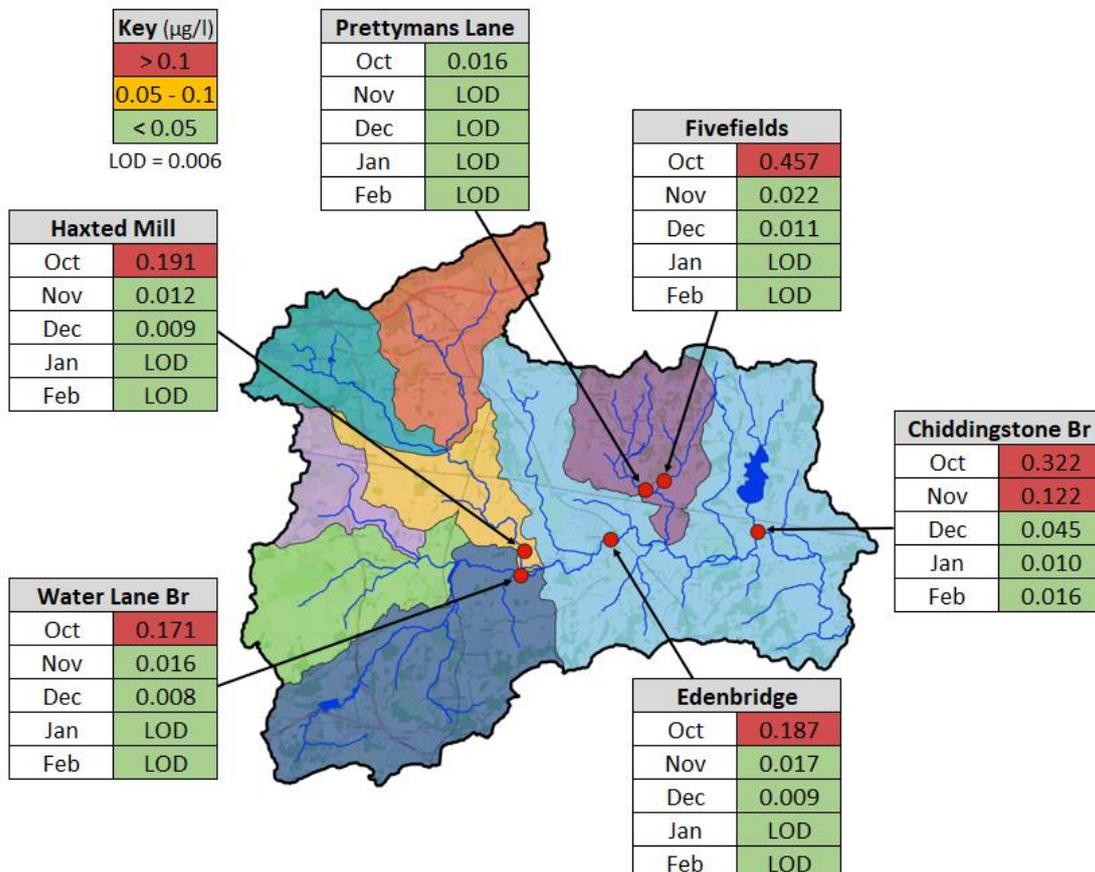
Flufenacet (used for the control of grasses and broad-leaved weeds in various crops including winter wheat and winter barley, trade names include: Liberator, Shooter, Firebird)

- Recognised as an emerging risk in the Eden catchment, peak concentrations are often detected in October/November which coincides with when we usually start abstracting. Thanks to communications with farmers, this season we were able to manage abstraction to minimise the impact of flufenacet on water quality in Bough Beech Reservoir.

Long-term flufenacet trend in the River Eden at Chiddingstone Bridge



Maximum flufenacet concentrations: 2023-24

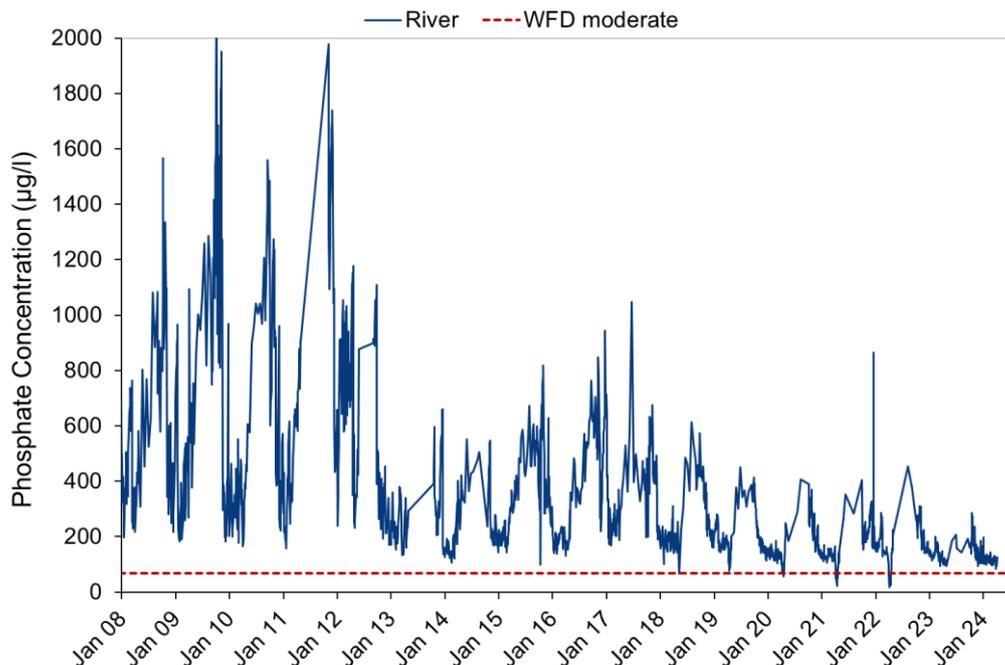


Phosphate:

We also have a WINEP scheme in the Eden catchment aimed at preventing deterioration of water quality with respect to phosphate.

There is no specific drinking water standard for phosphate, however the presence of phosphate in the river (and Bough Beech Reservoir) can promote algal and cyanobacterial growth which can have a detrimental impact on the environment, and pose a challenge in the treatment of drinking water. There are Water Framework Directive (WFD) targets in place for all waterbodies across England and Wales to reach good ecological and surface water chemical status and to progressively reduce pollution. Investigations by SES Water suggest that wastewater treatment works (WwTW) discharges are the primary source of phosphate in the Eden, however agricultural sources and properties not on mains drainage also contribute. Concentrations can often be higher over summer months when there is less flow to dilute WwTW discharges. A step change in phosphate concentrations can be noted from 2012 onwards due to improvements made at the upstream WwTWs, however work is needed to further reduce concentrations. We liaise regularly with the local wastewater provider and are also working to help reduce agricultural and unsewered property inputs.

Long-term phosphate trend in the River Eden at Chiddingstone Bridge



* Graph shows the WFD 'moderate' classification concentration for phosphate in Bough Beech Reservoir for reference.

Maximum phosphate concentrations: 2023-24

