

Sustainable Water

Church Field Footbridge

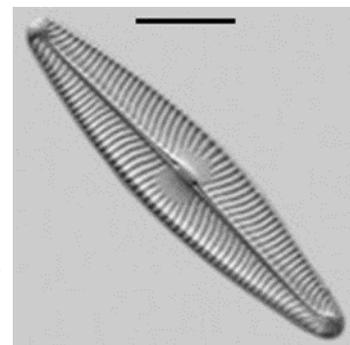
At some stage, certainly before the first accurate maps of the village were drawn in the mid-19th century the channel of Town Beck was re-aligned to run around the edge of Church Field, creating land less prone to flooding and easier to cultivate. The line of the original channel can be seen when the field floods as it did most extensively on the 26th December 2015.



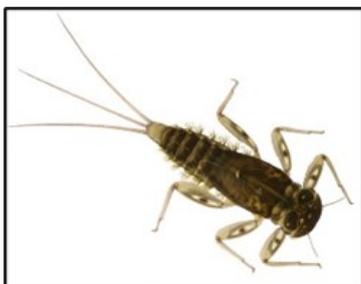
This point in the Field is a good place to observe life in the beck and the bend on the beck approximately 60m upstream of the footbridge provides good access for sampling. Conditions have deteriorated considerably since the 1990s when native white-clawed crayfish occurred here and brown trout were common. Today there are relatively few trout and native crayfish have been replaced by the invasive signal crayfish.

Diatoms

The brown slime (or biofilm) growing on the rocks mainly consists of algae and the dominant algae are diatoms, either attached to the stones or living in the film. They are photosynthetic organisms and are excellent food for insect larvae and other invertebrates such as snails in the beck. Diatoms are excellent biological indicators of water quality, especially nutrient pollution. They can be sampled by brushing them off the stones into a container. To identify the different species accurately it's then necessary to clean the samples in a laboratory, make glass microscope slides and examine them at a magnification of 1000 times. The image here is of *Navicula lanceolata*. It's an indicator of relatively poor water quality and occurs in some abundance in Town and Back Becks.



Macro-invertebrates



The invertebrates living in the beck belong to several different insect groups including mayflies, caddis flies and stone flies. There are also small snails, and blood worms. The image is a mayfly nymph. It has three tails, a characteristic of all mayflies, and this type of mayfly nymph has a flattened, stream-lined body suited to clinging on to stones in fast flowing water. It occurs in Town Beck and is very abundant in the Wharfe.

Macro-invertebrates can be sampled by kicking the bed of the river (wearing waders) and collecting animals dislodged in a pond net.

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Fish

Jon Grey of the Wild Trout Trust has used electro-fishing to show that trout still occur in the beck and the presence of “young of year” indicates that spawning also still takes place. But judging from records kept by local resident Derek Law and from past observations they are much less abundant than in the past. We believe that changes in water flow and water quality in the becks caused by surface water runoff from housing estates built in the 1990s are to blame.



Crayfish



Native white-clawed crayfish used to occur in Town Beck. They were last seen in the 1990s and probably disappeared for the same reason as the decline in trout populations. Town beck is now home to signal crayfish, an American species of crayfish introduced by fish farmers to the UK in the 1970s and now, following escapes from fish farms, spreading rapidly throughout the country, including our Addingham becks. They have moved in from the R. Wharfe and can now be found as far up Town Beck as Townhead. Jack Greenhalgh from Bristol University has been using DNA testing of water samples to map their distribution in all our main becks.

