

The Hogsmill in January 2022

At last there's been a brief glimpse of "proper" winter this month: frost, fog and even some sunshine that have created eerie vistas along the Hogsmill, highlighted the amazing shapes and colours in the winter landscape and enabled a variety of birds to sunbathe on lofty perches along the riverbanks.



(Photo thanks to Pamela)



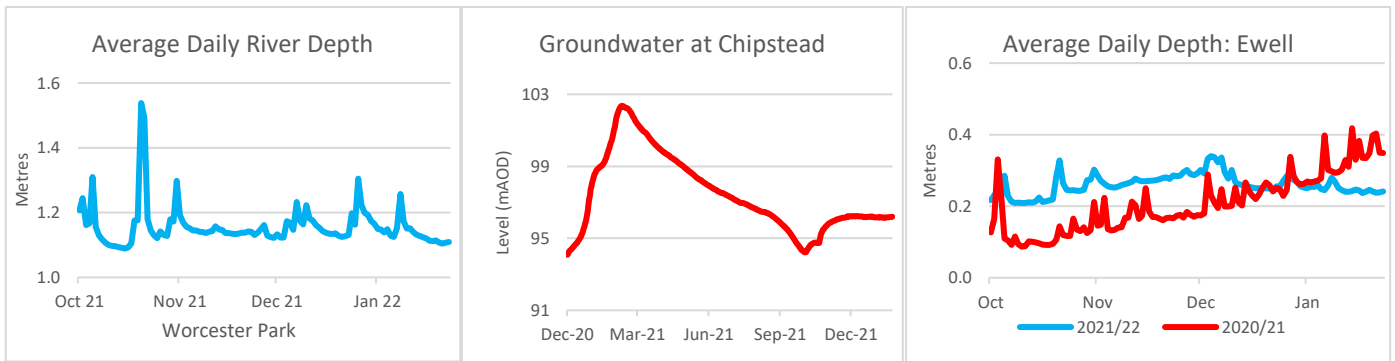
(Photo thanks to Phil)



This newsletter looks at what is happening to the natural world along the Hogsmill, including the problems it faces and volunteer activities to monitor and restore its habitat, working with the South East Rivers Trust (SERT) and other local groups and alongside the Environment Agency (EA) and local water companies, especially Thames Water (TW). This month it also reviews the results of riverfly monitoring in 2021; these provide some positive signs for water quality, although ones hedged by considerable uncertainty.

The Hogsmill in January

Apart from a couple of short wet spells, it has again be a largely dry month continuing the period of below-average rainfall from the autumn. So far the water level and flow in the Hogsmill have just about held up and there looks to be plenty of water in the riverside meadows, but the normal winter boost to the aquifer and the river have been less than in recent years so there could be issues later on if the dry spell continues.



Both of the wet spells led to surges of “brown water” down the Bonesgate and the main river, though these were short-lived; and despite the relatively dry weather, mud on the banks and fields seems as bad as ever.



27th December



Old Malden 6 January



9th January



Malden Way



Rushett Farm

There do not appear to have been any new pollution incidents this month or overflows from the Storm Tanks, but as normal after a dry spell several of the “usual suspect” outfalls have been showing signs of pollution.



Portland Road



Surbiton Hill Park



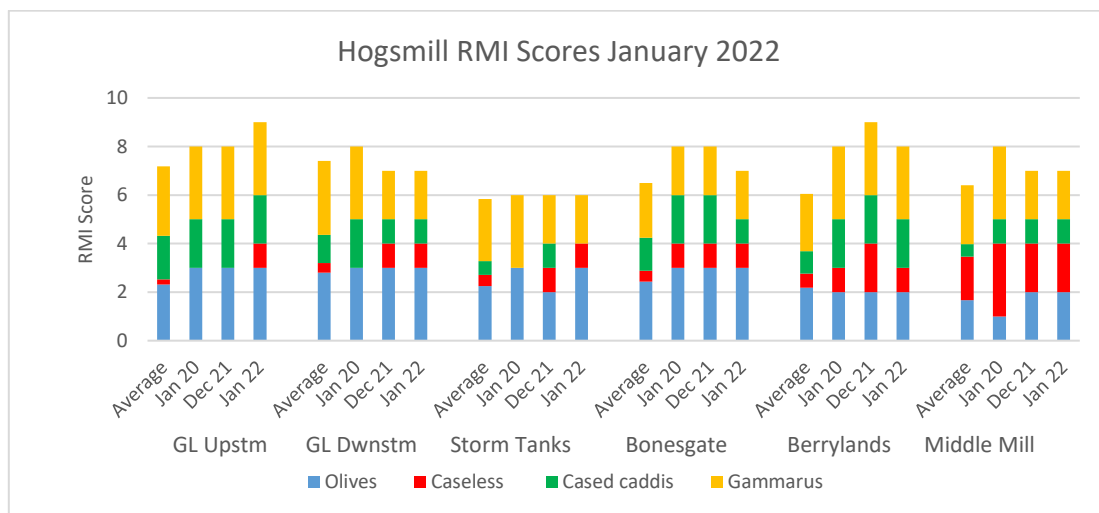
King Charles Road

If you see pollution along the river or indications of possible pollution, such as dying fish, please call the EA Hotline: 0800 80 70 60, and ideally take a photo. You can also contact Thames Water on: 0800 316 9800 (option 2) or on their website: www.thameswater.co.uk/help/emergencies/pollution.

Hogsmill RMI In January

The River Monitoring Initiative (RMI) is a national scheme for monitoring river health that uses “scores” based on counts of certain “water quality sensitive” invertebrates in net samples to assess water quality.

The 6 main Hogsmill sites were sampled between January 12th and 15th. The scores were again good by historical standards; marginally down on December, but this *could* be because the water was much colder making the critters more sluggish and harder to spot:



- the best result this time was the “9” upstream at Green Lanes, albeit an improvement in score based on a single caseless caddis. 35 bullheads were also caught in the nets, perhaps making the invertebrate counts even more impressive given their voracious appetites!;
- there was another good score at Berrylands that would have led to a repeat of last month’s “9” had we found one more caseless caddis;

- the one score below the long-term average was downstream at Green Lanes; still a “respectable 7” but with large drops in olive and gammarus counts. As there haven’t been any large storm surges in the past few weeks it doesn’t seem likely that an overflow of the Epsom storm tanks could have been responsible, at least not a recent one;
- scores and counts at the other 3 sites were broadly similar to December, apart from a large drop in the cased caddis count at Bonesgate;
- again there was good diversity in the samples with all 4 of our “regular species” found at 5 sites;
- there wasn’t a repeat of the high numbers of “tiny stick” cased caddis found last month; this could be a “real” fall, though some could have been missed if they were staying “wrapped up” because of the cold water. But again a number of different types of caddis were found.



Bullhead “shoal”
(Photo thanks to Pamela)

Green Lanes Ewell



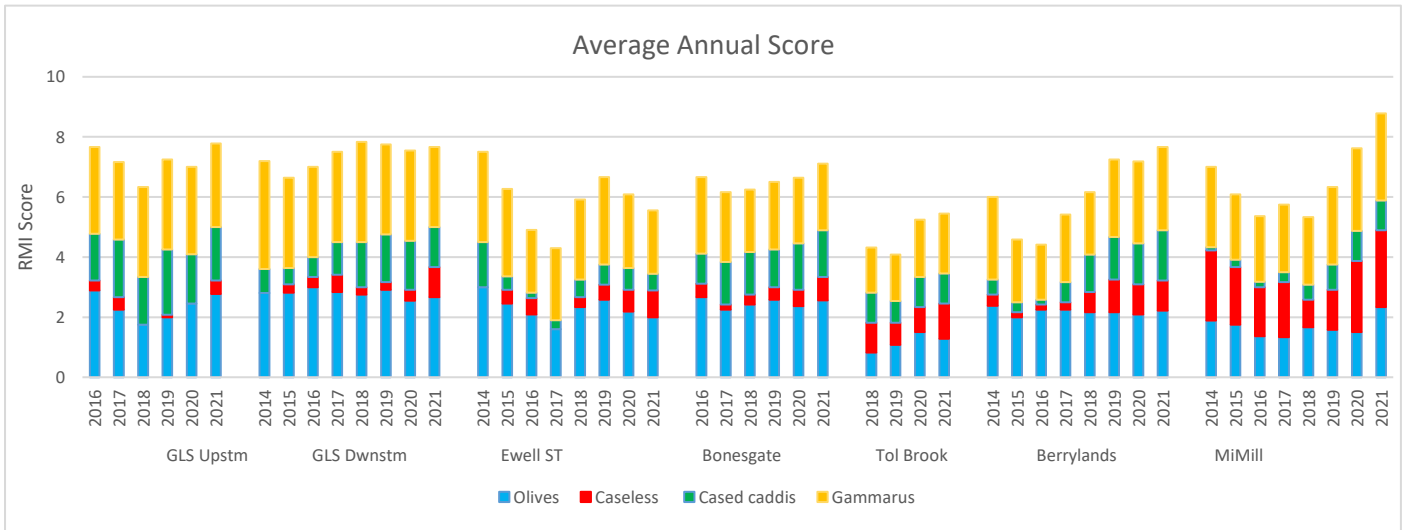
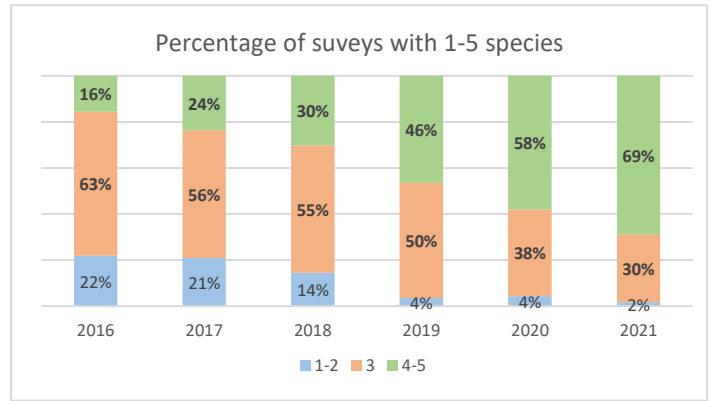
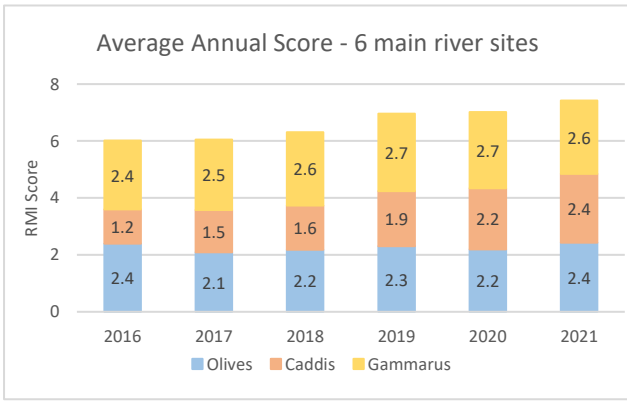
Cased caddis
(Photo thanks to Robb)

Hogsmill RMI in 2021

Despite a hiatus at the start of the year, we managed to collect 9 samples at each of the 6 main-river sites in 2021 and 7 at Tolworth Brook, bringing the total since monitoring began in 2014 to well over 500 surveys.

Results were quite variable, but scores were generally higher than in previous years:

- the average score across the 6 main-river sites of “7.5” was the highest in the 5 years that all of these have been monitored and well above the “6” in 2016;
- the increase was mainly driven by greater diversity in the species found, in itself a positive sign. Most of the rise in score was the result of higher caddis counts; and in 2021 we found 4 or more species in about 70 per cent of the samples compared to about 15 percent in 2016;
- the average scores in 2021 at the three downstream sites were all the highest recorded and substantially above those found 2-3 years ago;
- the results at the upstream sites were mixed, but two of them had the highest annual average score and also the highest monthly score so far:



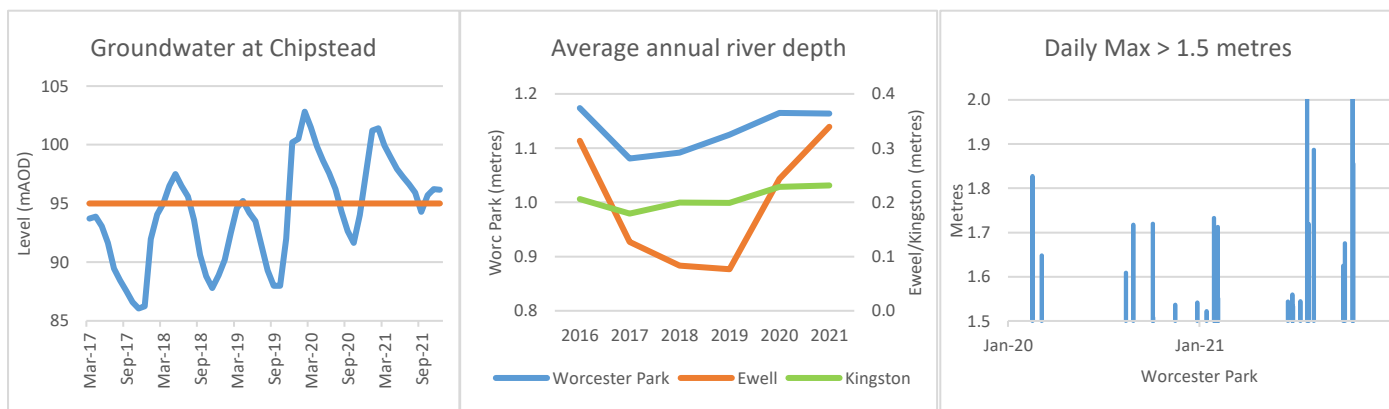
There are many uncertainties over what lies behind these results; sampling issues may have played a part, especially with “missing months” in the last 2 years. But changes in the [level and flow of water](#) and perhaps also in [pollution](#) seem likely to have been important.

On the first, after two wet years, total rainfall fell slightly in 2021 but the cumulative effect of 3 years of above-average rain provided a large boost to water in the aquifer. Its level fell below 95 metres, which appears to be a “trigger” for the Ewell springs to flow, for only a month compared to 4 months in 2020.

As a result, the average water level at the upstream end of the river rose substantially in 2021 for the second year running. Average levels further downstream didn’t change much, probably because of lower rainfall, but two years with increasingly good depth and moderate flows and presumably a greater proportion of “clean spring” water should have created more favourable conditions for riverfly to thrive.

On the second, changes in pollution entering the river could also have had an impact, particularly in explaining the more marked improvements at downstream sites. Most of the outfalls that have improved after TW work to tackle misconnections are mid-river so the benefits should have been felt downstream.

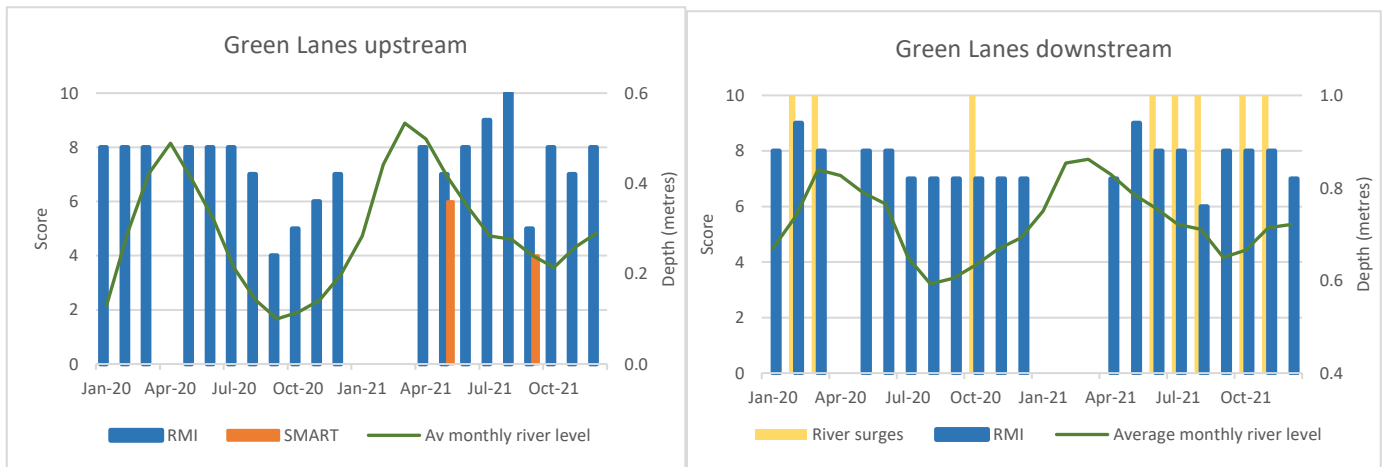
Also the partial data so far available indicates that the upstream Storm Tanks overflowed for longer in 2021, probably reflecting more “storm surges”: the river level at Worcester Park exceeded 1.5 metres on 17 days in 2021 compared to 8 in 2020. There may well be other factors involved, but the two sites that *didn't* show notable improvements in 2021 were those just downstream of the Tanks.



As well as changes in annual averages, there were larger variations in monthly scores in 2021, often mirroring in-year swings in water levels; and also variations between sites reflecting their particular characteristics. At 5 of our main-river sites, experts from Salmon and Trout Conservation took RMI-type riverfly samples in the spring and autumn as benchmarks for the Hogsmill joining the SMART river project. These can be used to calculate RMI scores but also a range of other indicators of pressures on water quality. While we have some concerns about these surveys, they provide additional information on what is going on at these sites.

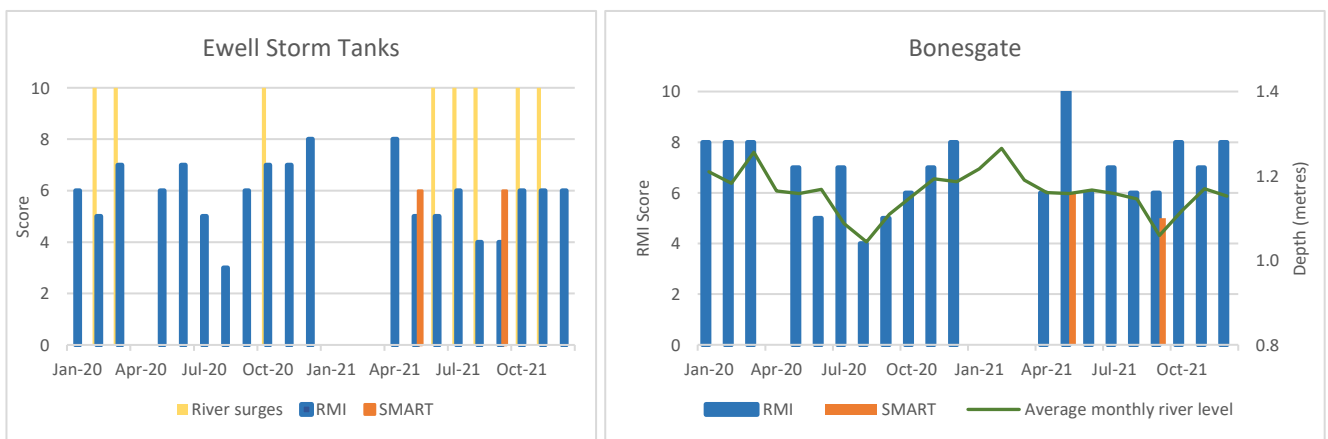
Large swings in score in 2021 were a feature [upstream at Green Lanes](#): a rise to the highest ever score in August was followed by a very large fall. The SMART surveys also showed a big autumn fall that they suggested were associated with rising chemical and organic pressures, which is strange as there are no obvious pollution sources upstream nor were there signs of a pollution “incident”. There was a similar drop in 2020 again closely following a fall in river level so perhaps the slower flow allowed underlying pressures to persist. There could also be seasonal effects as there is usually a summer “spree” of caddis; and sampling issues as late-year weed makes surveys challenging.

Scores [downstream at Green Lanes](#) have stayed broadly flat for about 4 years. Although they continued to be moderately good in 2021, they didn't improve with the greater flow of water down the main river. This site is closest to the Epsom Storm Tanks that overflowed for much longer in 2021. We don't have details of dates, but overflows usually coincide with storm-related “river surges” that were particularly great around the beginning of August and in October. The first of these was followed by a drop in score to its lowest level for 3 years, though this rapidly recovered, so any effect looks to have been limited.



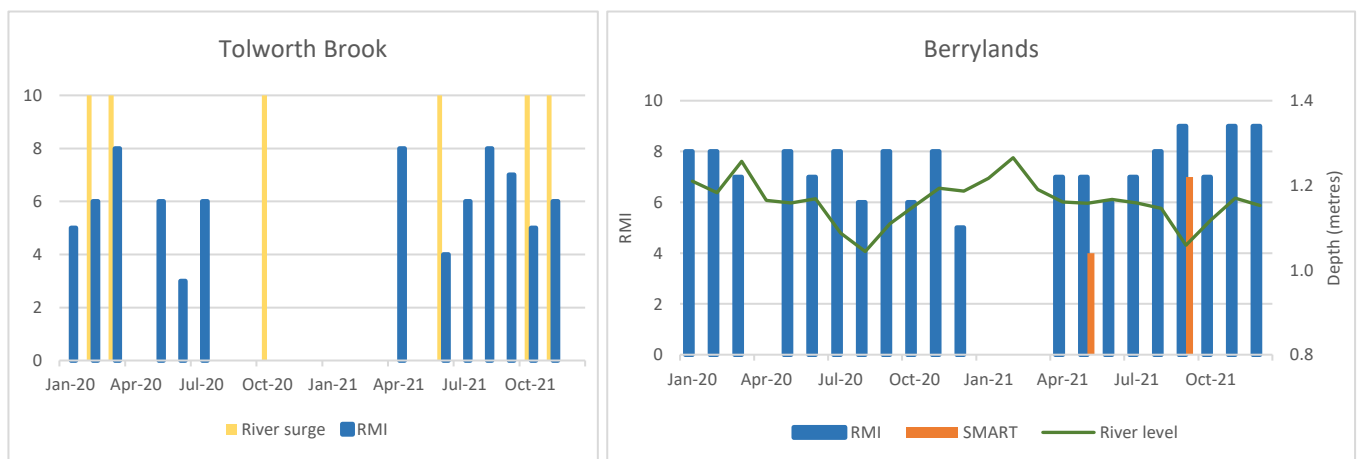
The site just downstream of the [Ewell Storm Tanks](#) was the only one where the average score fell in 2021 and the only one with scores below the “trigger”. This has consistently been the lowest-scoring main-river site, in part because as a naturally shallow location it is particularly susceptible to low water level and flow. This was not the issue in 2021; the SMART survey suggested a healthy flow here. It is very close to the Ewell Tanks and the string of low scores did correspond with times when there were river surges and probable overflows so there could be a link. That said, while the SMART surveys indicated relatively high pressures from chemicals, the organic pressures were not out of line with other Hogsmill sites.

[Bonesgate](#) was another site with a record high monthly score in 2021 partly based on finding blue-winged olives, a species very sensitive to poor water quality. But scores here were very volatile: much lower in adjacent months and the SMART survey, though higher again later on. There are specific factors that could have depressed counts here. It bears the brunt of “brown flows” down the Bonesgate from farm run-off and is close to a regular “dog bathing pool” with associated risks from flea-treatments. The SMART surveys suggested that considerable chemical pressures and some organic pressures were impacting the site. But these factors don’t seem to explain the erratic pattern of results in the middle part of the year.



The [Tolworth Brook](#) site has been surveyed much less than those on the main river in the last 2 years. But the results we have suggest a significant improvement. Being on a small stream often with low flow but with occasional “storm surges” of road run-off it is never likely to be high-scoring. The unusually large surges in 2021 were followed by sharp drops in scores making the overall improvement even more notable. Much of the increase in scores has been from greater diversity with all 4 species now regularly found. The site is just downstream of the major river restoration work undertaken in the Berrylands Nature Reserve about 4 years ago so this is likely to be the key factor behind the improvement.

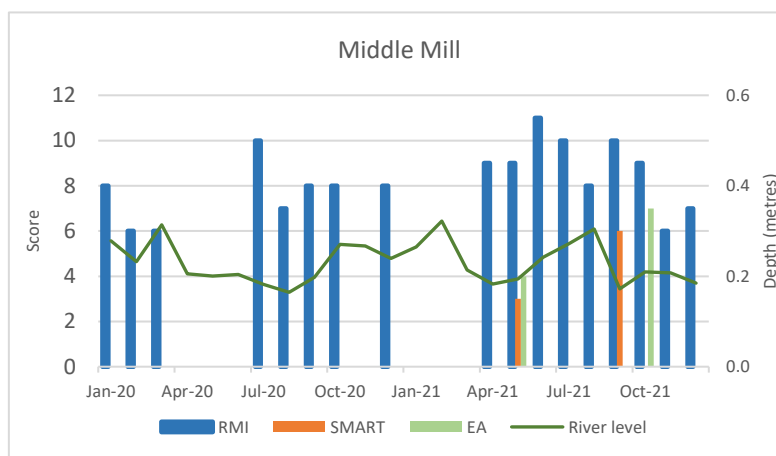
Better water quality in the Brook is probably one of the factors behind the further improvement in annual scores at [Berrylands](#). The site is also the closest to several outfalls where many misconnections that were causing significant pollution have been rectified. Particularly noticeable in 2021 were substantial increases in counts of caddis, especially cased, that with the “banded” scoring system were not fully reflected in higher scores. A caveat is that both SMART surveys produced much lower counts and scores and suggested significant pressures from sediment and nutrients. But this is puzzling as the impression from its general appearance and from our trays is of a much healthier stretch of river.



The final site, [Middle Mill](#), remains the most enigmatic. RMI scores again rose markedly in 2021 with a new site – and river – monthly record score in June, though there was some tailing off later in the year. The condition of the river here is heavily influenced by effluent from the Hogsmill STW: this typically adds 10cm or more to the water level and also raises the water temperature. So it seems unlikely that the benefits of stronger flows or outfall improvements well upstream would have had a major impact here. It also seems unlikely that there has been a significant improvement in the quality of the water coming from the STW; if anything, the reverse: there were long overflows from the storm tanks there in 2020 and while we don’t yet have data for 2021 there were many more storm “events” then.

Other surveys paint a very different picture. Both SMART surveys implied much lower RMI scores and suggested there were significant chemical, sediment and nutrient pressures. EA's regular bi-annual surveys just upstream at Villiers Road also implied lower scores and did not show an improvement over previous years, though these were taken closer to the STW so probably more influenced by discharges.

It is possible that the differences partly reflect sampling issues: the site attracts considerable weed in the summer/autumn that probably attracts invertebrates and perhaps boosts counts. They may also illustrate the limitations of the RMI as a measure of water quality: we know the site also has large numbers of pollution-tolerant hoglice that in broader measures would be given a "negative weight". But what lies behind both the level and trend in our scores here remain very puzzling.



Learning more about Riverfly

There are a couple of upcoming courses/talks by the Field Studies Council that might be of interest:

- "Learn to love riverflies" is a 1 day course on March 15th at Morden Hall Park on the ecology of riverflies. Ticket numbers are limited: <https://www.field-studies-council.org/shop/courses/learn-to-love-riverflies-se/>
- "More than just fish food" is a 1 hour online talk on February 18th about the ecosystem services and benefits that riverflies provide: https://www.eventbrite.com/e/more-than-just-fish-foodthe-ecosystem-services-provided-by-aquatic-insects-tickets-195799651027?keep_tld=1