Hampshire Avon Fish Counter at Knapp Mill

Image 1 - Knapp Mill in February 2023 when the flows were still high from the winter.

2023 Q1 update

Whilst there have been some minor issues at the fish counter since the start of the year (1st February), we have recorded fish movements with minimal downtime in counting so far. During March there was a loss of power at the Turbine House, which resulted in some downtime before power was restored. This issue was sorted and has been back up and running well since. So far, the river levels have remained fairly high, resulting in all hatches remaining open since winter as well as occasional use of the side weir. Since the 25th of March until the end of this reporting period (30th of April) the flow has remained above the long-term average flow. Unfortunately, due to these high flows we have been unable to access the channels at the Great Weir to clean the cameras in channels 17 and 18. Therefore, they have not been able to record any clear footage during this period. As the levels begin to drop over the next few weeks of dry weather, we will be giving the counter its all-important spring clean and ensure the cameras in channels 17 and 18 are up and running.

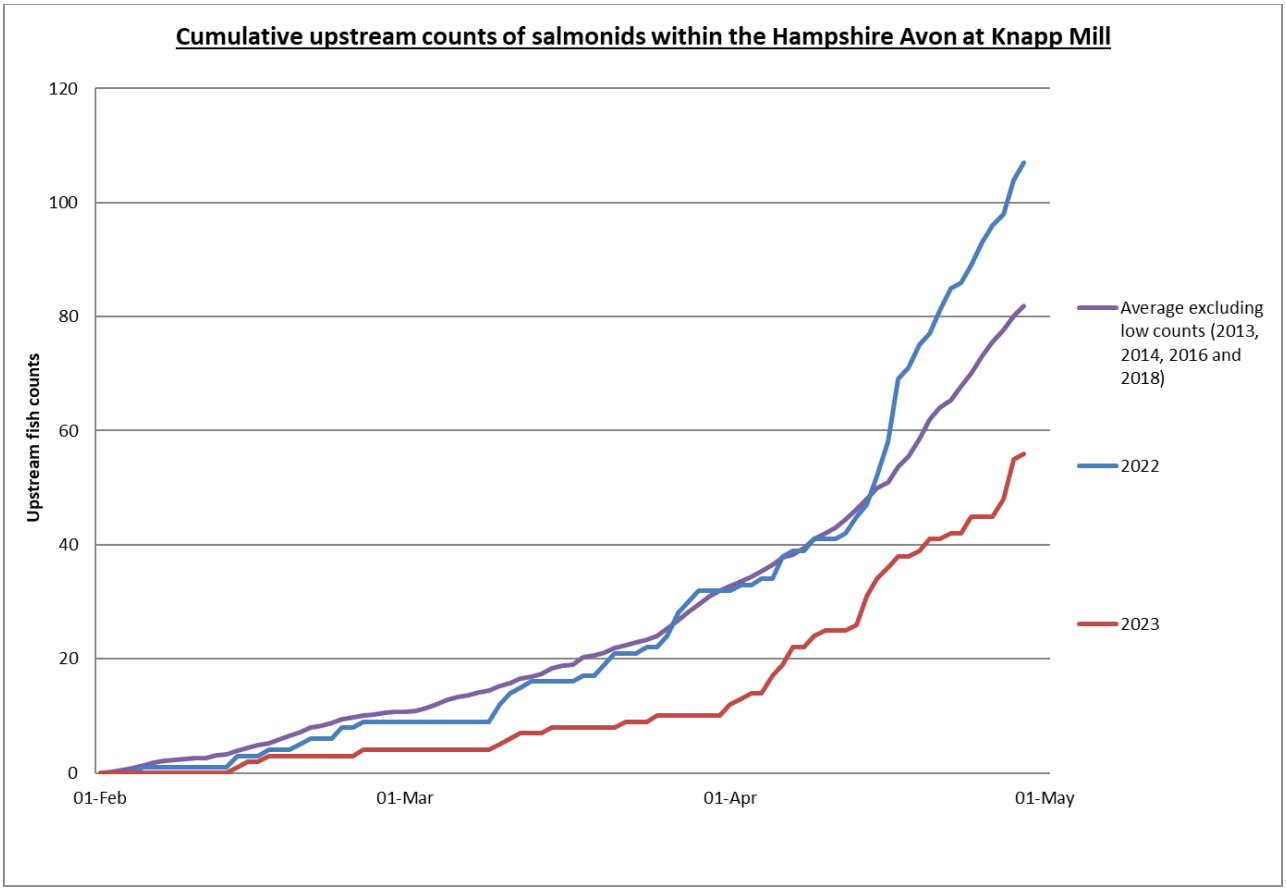
In the last month we have installed a new overhead camera in the Fish Pass located at the Great Weir. This has been set up in the same way as the Turbine House, which should give us clear overhead images of migrating fish in the pass. Soon a side camera will also be

installed in the fish pass on the Great Weir, which will provide us with additional side images to aid species identification.

Image 2 &3 - A photo from the new overhead camera during night time and day light hours.

The year so far….

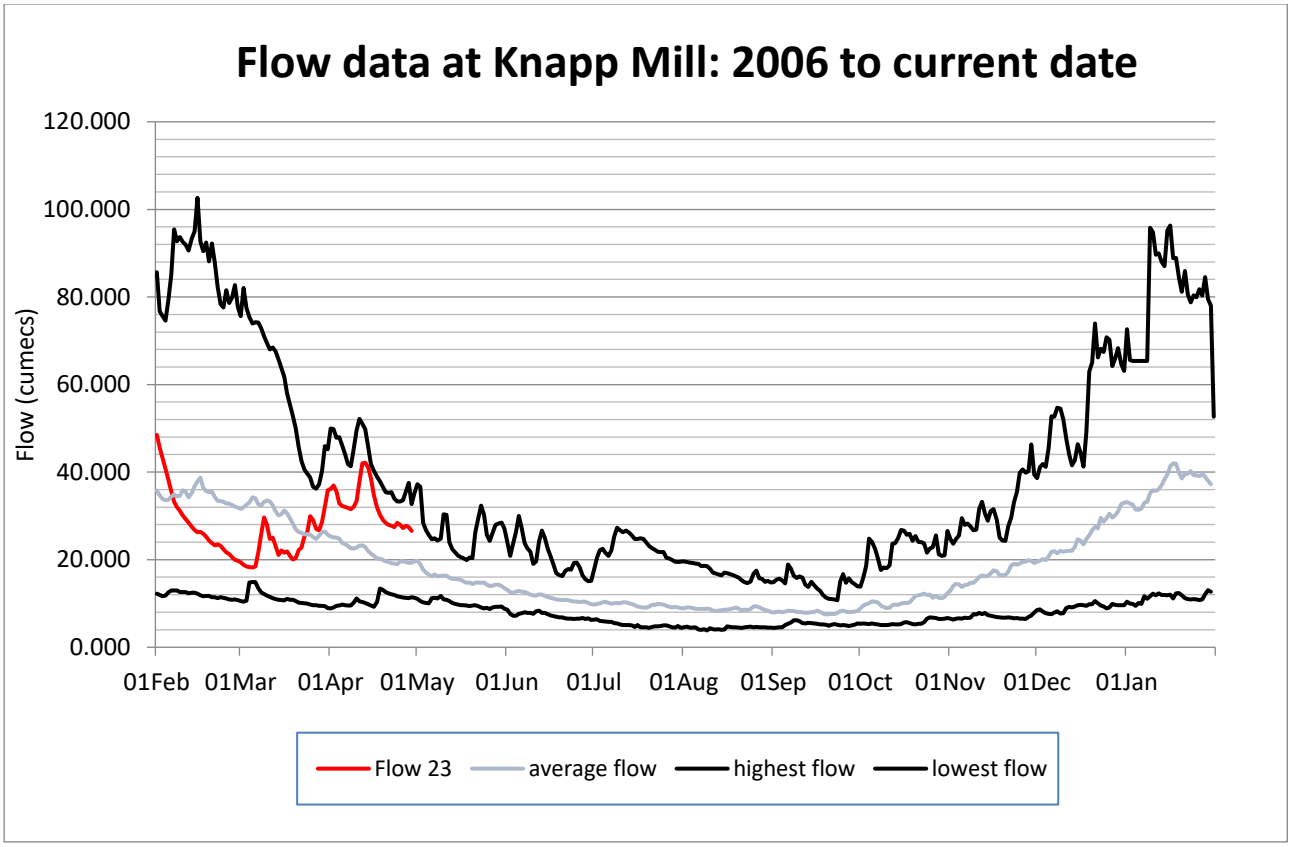
Since the start of February, the number of fish entering the Hampshire Avon and passing through the fish counter at Knapp Mill has been steady. Most days where fish have moved has seen single or low numbers of fish migrating through the counter with 7 being the most on a single day so far, this occurred on the 29th of April. The total so far this year is 56, which when compared to last year (2022) for the same period it is 47.7% lower, as shown in Graph 1. The last two and a half weeks of data in April (11/04/2023 – 30/04/2023) from the Turbine House needs to be processed before being analysed, therefore this data is not included in this report, however it will be included next time. As such, the data represented in the graph below is a minimum estimate of fish passing through the counter so far this year as some fish may have moved during this period.



Graph 1- A graph comparing the long-term average since 2006 (excluding 2013, 2014, 2016 and 2018) with the current years data (2023) and last year's data (2022).

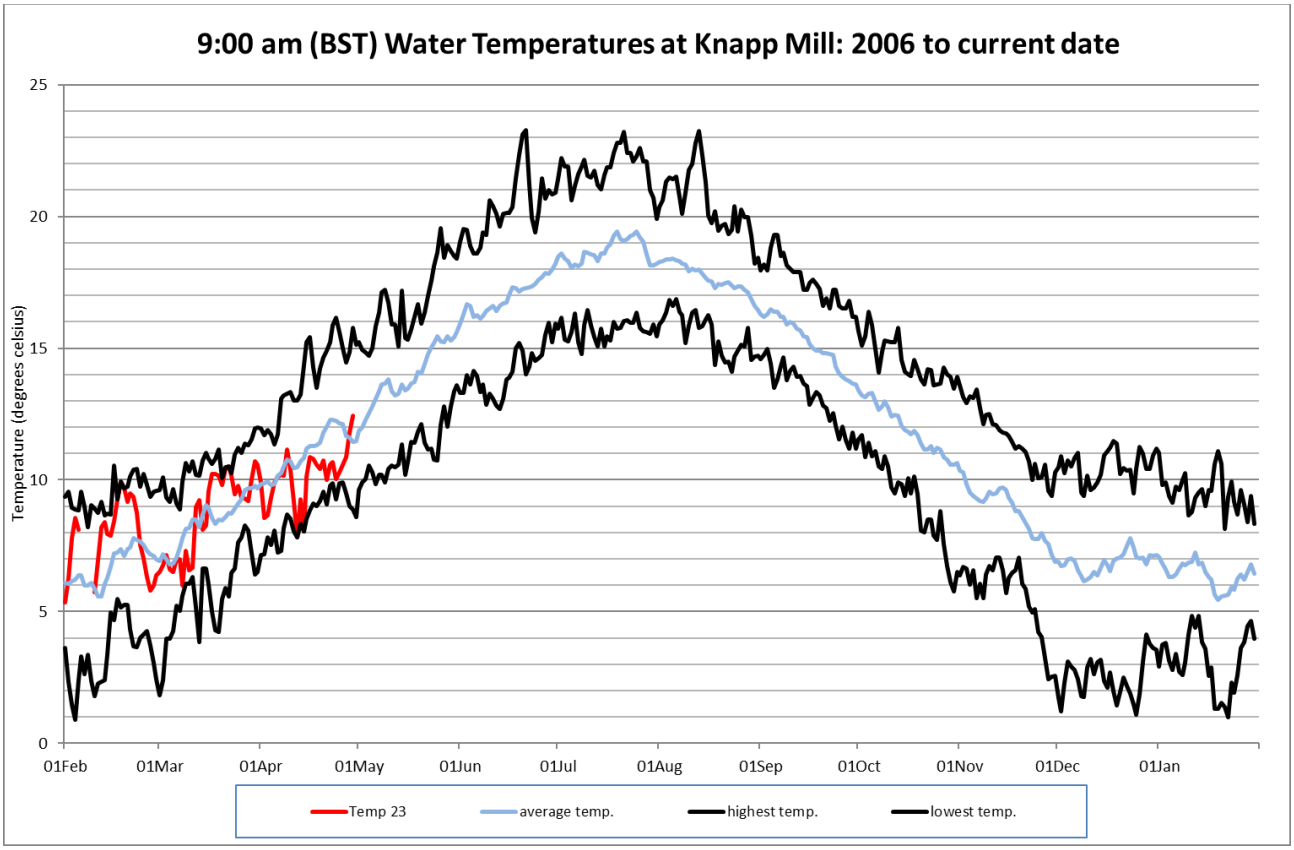
After analysing the data from the last few months, it is clear that when the flows are high, less fish use the Turbine House and the majority pass through the Great Weir. This reinforces previous observations made on fish behaviour, as the flow of the Great Weir, when operating at full capacity, is more prominent and attractive to fish than that of the Turbine House. Currently, all hatches at the Great Weir are open as well as some hatches on the side weir, which means fish movements through the Turbine House have been low. Based on the data we have so far, no fish have been recorded moving upstream through the Turbine House. Notably, as the flows begin to drop over the next couple of weeks, the importance of the Turbine House will be shown, and we will expect to start seeing the fish using this route throughout the summer.

Between the 1st of February and the 30th of April, the average flow was 28.3 cumecs. This is higher than last year's average flow during the same period, which was 19.5 cumecs. However, it was much lower than the average flow recorded in 2020 for the same period, which was 45.1 cumecs. Interestingly, 2020 also had the highest number of fish recorded since 2006. In Graph 2 you can see that 48.3% of the days within this time period is above the LTA flow.



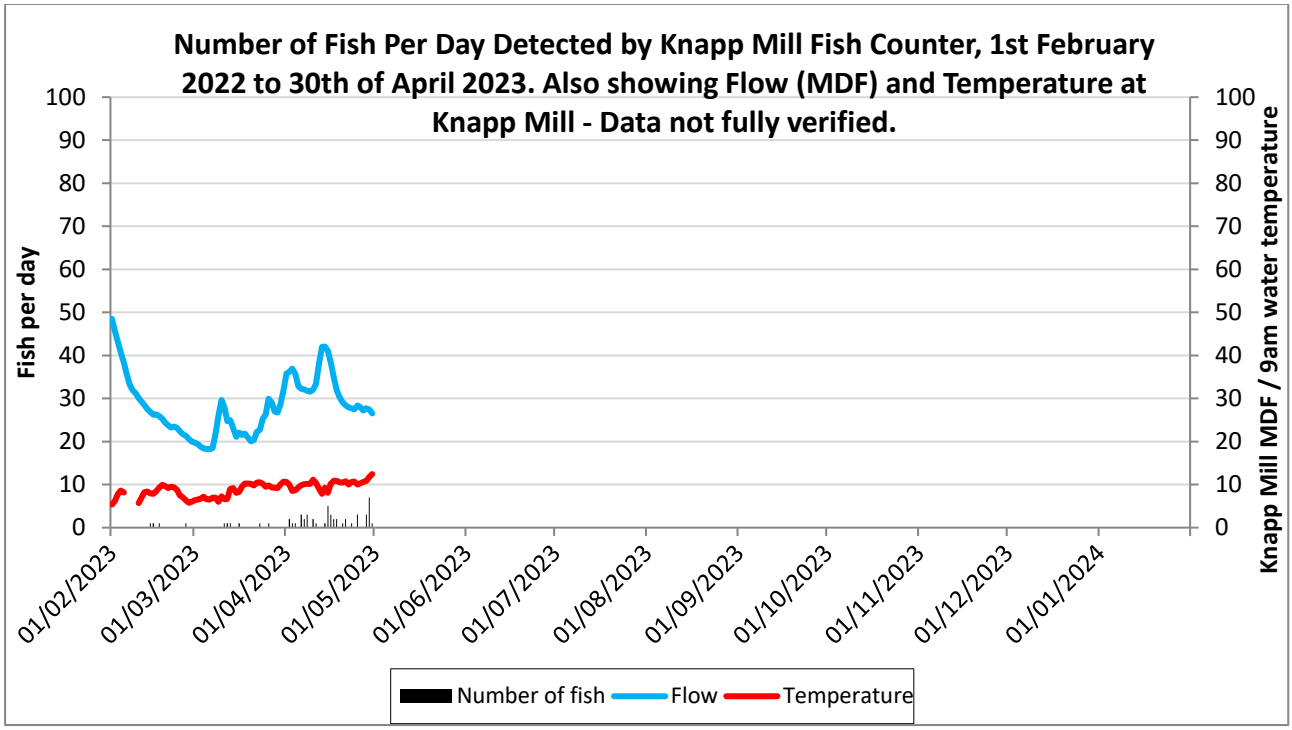
Graph 2- A graph comparing the long-term average flow data (2006-2023) with the current year's flow data (2023) as well as the highest and lowest flow recorded for each day since 2006 until 2023.

Looking at the same period from the 1st of February until the 30th of April for temperature, this year so far there were 50 out of the total of 89 days that were below the daily LTA (Graph 3). This means 56.2% of the days during this period were cooler. In comparison, there were only 29 out of the total of 89 days that were below the daily LTA in 2022, which is only 32.6% of the days during this period. Interestingly, there are 58% more days in 2023 that are below the daily temperature's LTA than in 2022. However, earlier in the year around February and March, temperatures were above the daily LTA and on four of these days a new highest temperature for that day was set (17th, 18th and 19th of February and the 23rd of March).



Graph 3- A graph comparing the long-term average temperature data (2006-2023) with the current year's temperature data (2023) as well as the highest and lowest flow recorded for each day since 2006 until 2023.

From the 1st of February until the 30th of April the counter at Knapp Mill has recorded 56 upstream events from both salmon and sea trout (Graph 4). Based on historic data, the run so far is the 12th highest on record since 2006 and below the LTA of 77. This spring run of fish typically coincides with large multi sea winter (MSW) fish returning to the river. This could mean that there are some very large salmon swimming in the Hampshire Avon at the moment.



Graph 4- 2023 daily upstream movements alongside flow and temperature.

Table 1 below shows the total number of upstream events for all years and highlights that 2023 is below average until the end of April. As you can see from the table some years display very low counts (2013, 2014, 2016 and 2018), this is because the counters infrastructure had been damaged by high flows and or was not fully operational during these years.

Table 1: Counter year (Number of upstream counts during the period from 1st Feb to 1st April)																	
2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
108	88	79	63	41	102	68	0	3	39	3	101	87	45	160	100	107	56

Other interesting images

Although we haven't recorded any fish migrating upstream at the Turbine House, we have seen a few fish moving downstream and the images of some of these can be seen below. The image on the left is of an eel and the image on the right is of a barbel.

Images 4 & 5- The two down events that were recorded at the Turbine House.

Additionally, as mentioned previously we have installed a new overhead camera in the fish pass at the Great Weir, below is an image of the camera in situ.

Image 6- This is the fish pass after being cleaned and the new overhead camera having been installed.

For further information

Contact: Isabelle.Ewen1@environment-agency.gov.uk