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Baseline assessment of flow alteration below Yorkshire reservoirs on fisheries

The Haverah Park area contains four Yorkshire Water (YW) reservoirs: John O' Gaunts, Beaver Dyke, Scargill and Ten Acre. Compensation flows are released from reservoirs to maintain the flow of rivers downstream. Beaver Dyke reservoirs has been decommissioned and the compensation flow into Oak Beck is released from John O'Gaunts reservoir, supported by Scargill reservoir during the summer. Oak Beck is now failing under the Water Framework Directive (WFD). Therefore, it is essential for Yorkshire Water to develop a scheme to rebalance compensation flows between John O'Gaunts and Scargill in order to supply Scargill and Oak Beck with a suitable water supply to ensure the river does not fail under the WFD. This research project assessed the baseline status of the fish populations and habitat in Scargill and Oak Beck to ensure the future rebalancing of flow will not have a detrimental effect of fish.

In August 2016, both John O'Gaunts and Scargill reservoirs were low and there was no flow down Scargill Beck resulting in disconnected pools of water and large areas of dry river bed therefore Scargill Beck was not sampled. Fisheries and habitat surveys at six sites on Oak Beck showed that abundance classification for juvenile (0+) and adult (>0+) trout were poor, although suitable habitat is available and should support a larger density of trout.

A number of factors could collectively contribute to the low number or absence of brown trout, Regulated flows could remove seasonal flows needed to 1) cue brown trout to migrate upstream to their natal spawning habitats, 2) oxygenate redds and the eggs within the gravel, 3) de-silt gravels, 4) create natural barriers. Here, it is important to not only maintain average flows but also seasonally high and low flows to trigger migration and de-silt gravels for salmonid spawning.