

Summer dredging campaigns and their effect on water quality

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Abstract The Canal & River Trust was established in July 2012 within England and Wales, to manage inland waterways, docks, reservoirs and estates that had previously been the responsibility of British Waterways. The key purpose of the new Trust is to “*act as guardian for the canals and rivers of England and Wales – ensuring that history, nature and communities are central to everything we do*”. As part of this remit, the Trust is responsible for maintaining navigation for approx. 2000 miles of waterways. In order to achieve this, the Trust needs to dredge sediment out of its waterways to maintain a minimum depth of ~1.5 m. In the past, dredging was only conducted over the winter months from October through to March, but due to contractual changes and a backlog of identified problems, a “year round” dredging programme has been operating since 2011. In September 2011, dredging on the Aylesbury Arm contributed to a fish kill in the area. On investigation, mean ammoniacal nitrogen in the sediment was 181 mg kg⁻¹, coupled with water pH 8.0 and temperature of 15.1°C, led to ammoniacal nitrogen concentrations >4 mg L⁻¹ in the water column. A second fish kill, in the Tame Valley canal during a dredging project in July 2012, appeared to be attributed to high water temperatures, BOD and COD in the sediment leachate samples taken after the event. Parallels were drawn between the two cases and questions were raised about the sediment sampling regime, which historically has been based on determining a safe and cost-effective re-use or disposal routes. This paper discusses the events over the last two years and the proposed new approaches to future sediment testing and water quality monitoring as well as reinstating on-site emergency remedial measures.

Key words dredge; sediment; water quality; fish kill; Aylesbury Arm, UK; Tame Valley, UK; canal