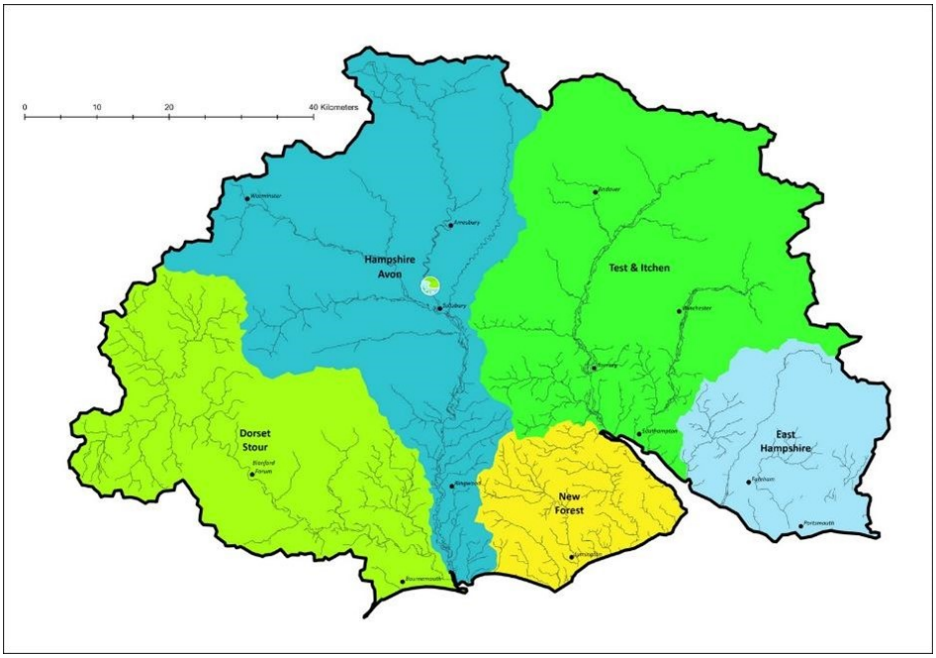
WHO ARE THE WESSEX RIVERS TRUST?

AN ENVIRONMENTAL CHARITY DEDICATED TO THE CONSERVATION OF STREAMS AND RIVERS.

Wessex Rivers Trust is an environmental charity dedicated to the conservation of chalk streams in the Wessex region, working towards healthy rivers for wildlife and people through work within catchment partnerships and development and delivery of restoration projects. Educating the public about the importance of our rivers increases their value to people, and ultimately builds support for the future of these fragile environments.

Wessex Rivers Trust forms part of the UK's Rivers Trust movement that has been at the forefront of influencing policy and delivering catchment-wide environmental initiatives for over 20 years. This membership places us in an excellent position to shape and deliver action for these globally important and threatened habitats. Wessex Rivers Trust works across five main catchment areas, including the New Forest .



Whilst the Trust are a relative newcomer to the New Forest Catchment Partnership, we've been busy working to investigate and improve the health of two of the Forests peripheral waterbodies since 2017, the Blackwater and the Ripley Brook.

The Blackwater – the dark waters feeding a world-renowned chalk stream.

The Blackwater is the most downstream tributary on the River Test and one of the catchment's better kept secrets. The Blackwater is a small watercourse which forms amidst the surface streams and ditches in the north east of the New Forest, before joining shortly upstream of the tidal reaches of the River Test at Testwood. Whilst recognised as one of the Test catchment's most important spawning tributaries for the migratory sea trout, comparatively we know very little about this stream which borders the New Forest and chalky lands of Hampshire.

Alex Deacon and Andy Blincow, Wessex Rivers Trust

In autumn 2019, surveyors from the Trust undertook walkover surveys of the Blackwater catchment, comprising of the following WFD waterbody sub-catchments: the Blackwater, Whiteparish Tributary and Sherfield English Stream. Data was collected using a bespoke survey design to appraise the hydro-morphological (interaction between river flow and the physical channel form) status of the waterbodies and identify the condition of the rivers in relation to their 'natural' benchmark. In addition, due to the acknowledged importance of the Blackwater catchment to anadromous (migratory) salmonids, notably sea trout, detailed data was also captured regarding salmonid habitat suitability with specific reference to spawning, nursery and adult holding habitat. This has helped identify critical spawning and nursery reaches of the catchment for sea trout. In-channel artificial structures which may pose a risk to fish passage and the integrity of the sea trout population were also identified during the walkover surveys. Significant point and diffuse sediment sources were also identified, categorised and mapped utilising a standardised Environment Agency approach – providing an assessment of this major pressure to fish and invertebrate communities.

The many unmodified and naturalised reaches of the Blackwater and its smaller tributaries provide excellent habitat for a range of wildlife, including a vital spawning ground for migratory sea trout.

What did we find? Highlights of the 2019 walkovers are detailed below:

Over 50 in-channel structures were recorded and assessed within the Blackwater catchment, with varying impacts upon hydrology for example upstream impoundment and morphology, and interruption of sediment transport identified. Of these structures, 23 barriers to salmonid (Atlantic salmon and brown trout) fish passage were identified. The vast majority of these structures were previously unrecorded, and the number of structures logged is a significant increase on the <10 structures within the pre-existing Environment Agency 'Priority Barriers' dataset. Combined with the 40km+ of hydro-morphological data collected which allowed the Trust to classify reaches based upon their suitability for salmonid spawning and nursery habitat, it is possible to prioritise barriers to fish passage based upon both the pass-ability of the structure and the quality of inaccessible habitat upstream.

Approximately 80 diffuse and point source sediment sources were recorded and categorised based on severity and a wide range of parameters recorded. Predominant sediment sources in the Blackwater catchment include heavy river bank poaching from livestock, agricultural compaction, sedimentation and run off from nearby roads and verges, wastewater treatments works, invasive non-native species including Himalayan balsam and signal crayfish.

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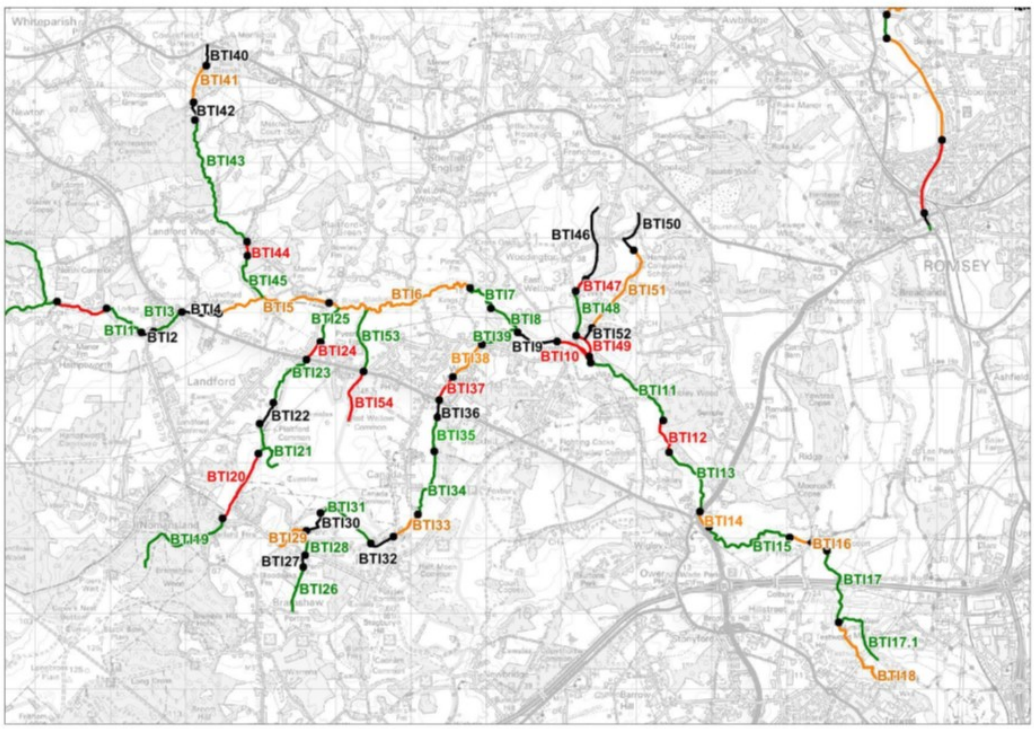

The map displays the walkover survey coverage and channel classifications from the 2019 Blackwater walkover surveys. Reaches marked in red require intensive restoration to achieve a more favourable condition, whilst those marked green require the least.

Ford crossings are a common site amongst the watercourses in the New Forest, but they prevent sediment transport, pose a barrier to fish passage and impound the river upstream which negatively affects habitat quality. Larger water control structures such as weirs and culverts pictured above have a similarly detrimental effect on the ecology of the Blackwater.

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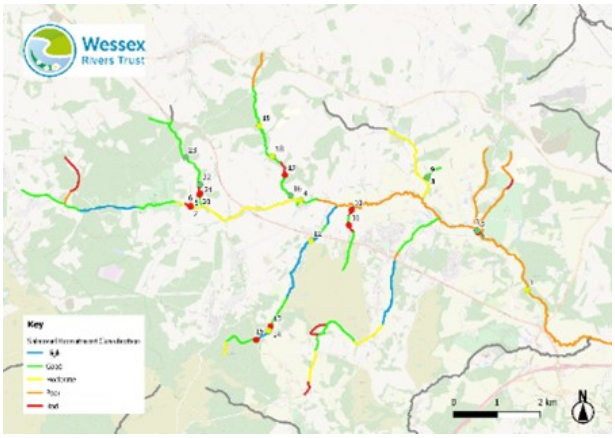

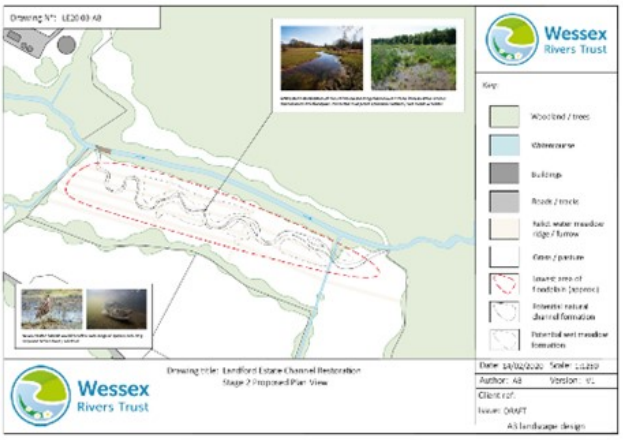

Details of project proposals including a map of prioritised fish passage barriers against salmonid recruitment habitat quality (left), and an outline design proposal for a 'stage zero' type river restoration project in the headwaters of the catchment.

Working with natural processes to reduce flood risk and improve river habitats

The Ripley Brook is one of seven 'New Forest streams' entering the Hampshire Avon between Fordingbridge and Christchurch. Two thirds of the Ripley Brook catchment lie within the New Forest, where the brook starts life near Burley Street, flowing in a south-westerly direction for 11km before joining the Avon at Sopley. Historic management practices have left the brook straightened and lacking in morphological diversity, limiting the ecological health, and raising the flood risk posed by the brook.

Large sections of the brook around the village of Ripley were over-shaded by commercial forestry, rhododendron and brambles which prevents native macrophytes (aquatic plants) from flourishing. This failure at the base of the food chain limits in-stream biodiversity and the natural processes that would otherwise promote a greater diversity of habitat for fish and aquatic invertebrates. In addition, the Ripley Brook catchment responds very fast to heavy rainfall events and is known to cause nuisance flooding of downstream residences on a relatively frequent basis. Healthy river catchments store water in the landscape and slow the flow of water downstream, but our modern river landscape is very different from what nature intended. Human modification of our river channels, such as straightening, and dredging has enabled them to move water very quickly. However, this has left our rivers unable to cope with the severity of rainfall we are experiencing now and in the future through climate change, making flooding more likely to impact communities.

Working with the local landowners and Environment Agency, between 2017 and 2020 the Trust carried out a programme of works including investigations, designs and delivery of multiple natural flood management projects, and habitat enhancement.

Natural Flood Management (NFM)

In February this year, the Trust delivered our third phase of NFM work on the brook. Initially, the brook was partially connected to an old forestry ditch with the aim of encouraging the ingress of water into the ditch during times of heavy rainfall and increased flows. This would reduce the volume of water carried within the main channel of the brook during peak flows, thereby reducing the impacts of flooding downstream.

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Trees were felled into the newly connected ditch, with the aim of slowing the flow of water through the ditch and trapping excess sediment, resulting in cleaner water re-entering the brook downstream – a multi benefit approach! The loss of land-based sediment, such as soil washed off surrounding land during heavy rainfall poses a significant risk to lowland rivers and streams. Sediment can smother the channel bed, including macrophytes, invertebrates and the gravel based habitats used by fish to spawn, ultimately limiting the ecological health of our rivers.

Trees were winched into the newly connected ditch to slow the flow of water and act as a filter for sediments entering the Ripley Brook

Wessex Rivers Trust - Ripley Brook delivery team

A further phase involved re-routing a drainage ditch and creating a flood water attenuation pond beside the brook. The aim was to slow the rate at which water running off adjacent farmland reaches the river, reducing the impacts of peak flows on downstream communities. A sluice system was installed on the downstream edge of the attenuation pond to control the level of water retained there. The sluice system will remain open until heavy rain is forecast. Land managers will then drop the sluice boards to hold the water back, draining the pond down only once the peak flows have passed.

Top left: Ditch re-cut into field, moving it away from the track, notice the profile of the ditch is deep and narrow at this point.

Top right: Profile of ditch changed from deep and narrow to wide and shallow to allow greater conveyance of water, reduce the chances of erosion to the ditch and enable livestock and machinery movements over the area.

Bottom: Sluice system installed to allow drainage to be managed. This means the field can be utilised during the dry months and used to store water when required.

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