Southern Water – Improving the Lukely Brook

Project background

The Lukely Brook is an important chalk stream that flows through Carisbrooke on the Isle of Wight, providing valuable chalk stream habitat and supporting the ecology of Plaish Meadows which is designated as a Site of Interest to Nature Conservation (SINC). Southern Water operates two licensed groundwater abstractions near to the Lukely Brook, which supply the Isle of Wight with clean drinking water.

Southern Water has environmental regulatory undertakings as part of the Environment Agency's Water Industry National Environment Programme (WINEP), which aims to investigate and ensure there is the right balance of water available for the natural environment, and for public water supply.

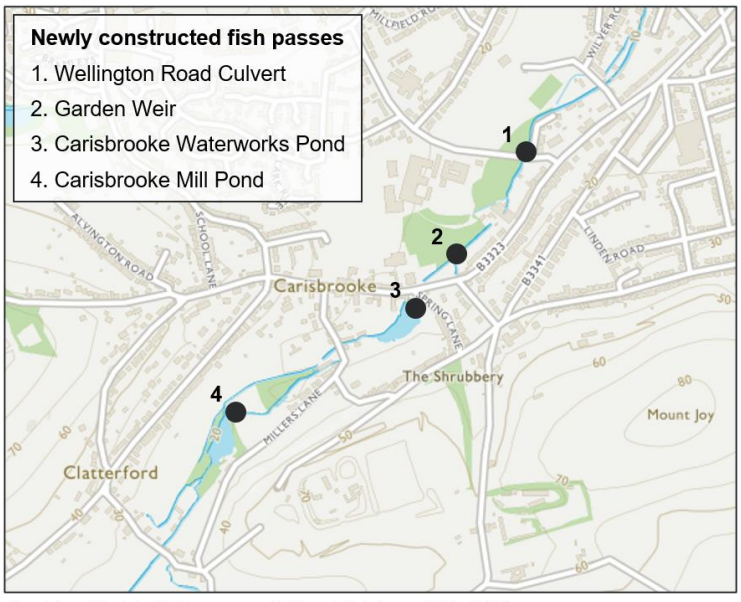
Often just making more water available for the environment, through the reduction of abstraction, does not necessarily fully address the issues facing our chalk rivers and streams, which might have become heavily modified through the passage of time. Consequently, to fulfil the objective of protecting the important chalk stream habitat, Southern Water also carries out river and wetland enhancements, often as part of a mitigation package that includes abstraction reduction, which helps to provide ecological resilience to the river and can include the creation and enhancement of natural habitat, the removal of barriers to fish passage and improving the hydromorphological function.

While the upper part of the Lukely Brook is rural, the urbanised reach of the Lukely Brook downstream of Clatterford is designated under the Water Framework Directive (WFD) as a Heavily modified Water body (HMWB), as a result of historic modifications associated with industry (e.g. water mills), with the Brook flowing through a series of mill ponds, leats and fords. An investigation undertaken by Southern Water in collaboration with the Environment Agency in 2011-2014 identified the Lukely Brook as being in a less than good ecological condition, with fish movement being negatively affected by these historic modifications.

Work undertaken to date

To progress towards the ultimate objective of achieving Good Ecological Potential (GEP) in the heavily modified reach, Southern Water in 2020 undertook enhancements to improve fish passage, allowing fish (and eel) to travel uninhibited up to 1.3 km further upstream than has been possible historically.

Fish passes have been installed within existing weir structures at Carisbrooke Mill and Southern Water's Waterworks in Carisbrooke. A series of three pre-barrage weirs were constructed below the culvert at Wellington Road, and the Garden Weir (behind Carisbrooke Road) was replaced with three small rock weirs.



Southern Water, Southern House, Yeoman Road, Worthing BN13 3NX
southernwater.co.uk




From left to right: Wellington Road Culvert, Garden Weir, Carisbrooke Waterworks Pond and Carisbrooke Mill Pond

In addition to improving fish passage, Southern Water has also agreed with the Environment Agency to reduce the licensed abstraction quantities at two of its groundwater abstractions near to the Lukely Brook. These changes were implemented in 2020, to increase the water available to the natural environment of the Lukely Brook during dry summer periods, at the same time providing a long-term sustainable public water supply.

On-going and future work

Southern Water are currently (between 2022 and 2024) implementing a further range of physical river habitat enhancements on the Lukely Brook between its source near to Bowcombe, to Towngate Pond in Newport that will provide ecological resilience to environmental change, improve the hydromorphological function of the watercourse, and provide increased public amenity value.

Southern Water are currently working with specialist consultants Atkins, and the Newport Rivers Group to develop and refine designs for the river habitat improvement options, including further removal of barriers to fish passage, and improvements in the quality of river habitat through new aquatic planting, tree works to improve light penetration to the channel to encourage macrophytes to establish, gravel redistribution and in-channel works to improve flow dynamics during low flow drought periods.