

River Restoration and Management



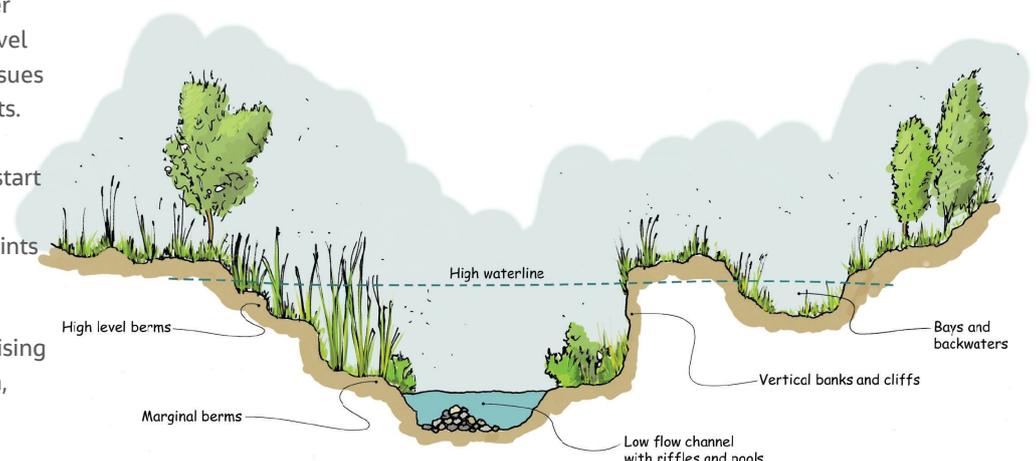
Our Approach

Jacobs has a reputation for developing innovative solutions by combining experience in environmental engineering with expertise in river and wetland processes. Our river restoration services identify practical ways to find a more natural balance between a river running its natural course and robust measures for flood risk management, ecological enhancement and social amenity. By moving towards a more naturally functioning and less constrained river and floodplain, we can reduce the level of intervention needed to manage issues like flooding and maintaining habitats. With the river's dynamic function restored as much as possible, it can start to heal itself and support a more balanced ecology, within the constraints of a modern landscape.

Jacobs has a dedicated team specialising in river restoration and rehabilitation, which applies its considerable experience in all aspects of river and wetland management and restoration, from policy

development and strategic planning to project implementation. We have a reputation for developing innovative, robust and pragmatic solutions by combining experience in environmental engineering with expertise in river and wetland processes. Our award-winning work has gained industry recognition for multidisciplinary capability, positive

relationships and exceptional projects that offer real value to our clients. The team has been established for over 15 years, although individual members have been designing and monitoring river restoration for up to 36 years and have experienced many of the successes and pitfalls of approaches to river restoration.



A typical river section showing desirable habitat features

Our Services

We offer a global service to the public and private sectors, taking projects from inception through to completion. We have expertise in the many diverse specialist areas within river restoration and management, including:

- Hydrological analysis of river flows
- Fluvial geomorphological survey and analysis
- Hydraulic modelling of rivers and floodplains
- Water quality and sediment modelling
- Ecological survey, interpretation and design
- Environmental impact assessment
- Planning and flood risk assessment
- Geotechnical and topographical survey
- Landscape architecture
- Engineering design and economic appraisal
- Construction supervision, including environmental clerk of works

About Jacobs

Jacobs leads the global professional services sector delivering solutions for a more connected, sustainable world. With \$15 billion in fiscal 2017 revenue when combined with full-year CH2M revenues and a talent force of more than 74,000, Jacobs provides a full spectrum of services including scientific, technical, professional and construction and programme management for business, industrial, commercial, government and infrastructure sectors.

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River Avon Restoration Project River Prize Winner (2017)

Working with the Environment Agency and Wessex Water, we produced a robust river restoration strategy for the River Avon SSSI/SAC, including an overall vision, outline restoration options, costs and a prioritisation tool. The strategy continues to guide and prioritise river restoration works across the whole catchment. Critical to the successful delivery of the strategy was extensive stakeholder communication and participation. Following publication of the strategy, we led a series of projects focusing on funding approval, appraisal, outline design and stakeholder communications, recent involvement in detailed design and construction supervision covered a range of river restoration actions to remove or modify water control structures and restore the river bed and banks to a more natural form.



Restoration and diversion of the River Nith

The River Nith, a key route for Scottish salmon, passed through the site of an open-cast coal mine, which has areas of highly permeable ground along a narrow corridor. Permanently diverting 2.8km of river, we designed a clay-lined, two-stage channel profile, incorporating pool-riffle-run sequences to generate suitable habitats for fish and other species. An extension to mining operations provided an opportunity to divert another 3km of river, with further ecological enhancements.



Mayes Brook Climate Change Park Channel restoration (London) Winner of an RRC Gold Award

This £1 million project was funded in part by the Mayor of London, and Jacobs undertook the outline and detailed design aspects for the river restoration component for the London Borough of Barking and Dagenham between 2007 and 2010. The Mayes Brook river, which runs through the park, has been taken out of its concrete channel and redirected through a new one hectare floodplain, providing additional protection against current and future flooding. The new river course is more natural and attractive and, along with the new tree planting, provides better habitats for wildlife.



Lower Woodsford Restoration Project

The Environment Agency's Lower Woodsford project restored 2km of the River Frome SSSI (Dorset) and enhanced 15ha of floodplain, including planting over 20,000 trees. Our designs resulted in the removal of stone bank revetment and the lowering of embankments, which has restored dynamic river processes and improved floodplain connectivity. New channels, scrapes and ditch reprofiling has maximised habitat value whilst further restoring hydrological connectivity. The material gained during construction of scrapes and channels was used for construction of a flood bund to protect a National Grid high voltage pylon, and some of the stone removed from the river was re-used as revetment protection.



Avington and Newbury river restoration

We undertook the detailed design and construction supervision for a two-year river restoration project on the rivers Kennet and Lambourn. The project involved removal and modification of water control structures, as well as river narrowing and raising the riverbed. The Newbury project won the ICE Environmental Award in June 2009 in the Thames region.

