Why are we carrying out the projects?

Once fully operational, the completion of the West Cumbria Water Supplies project means that Crummock Water, Chapelhouse Reservoir, Overwater and Ennerdale Water will no longer be used as sources for drinking water supplies.

As a consequence, we have an obligation to remove the abstraction related infrastructure and restore these sites to a more natural state which will provide benefits to flood risk and the environment.

Crummock Water and the River Cocker are subject to high levels of environmental protection. The work for these schemes has been split into three separate phases:

- Phase 1 Feasibility assessment which demonstrated that there are benefits to both flood risk and the environment from the removal of infrastructure.
- Phase 2 Detailed design and environmental assessments to support the planning application.
- Phase 3 Infrastructure removal.

Working together We've been working with key stakeholders including the Environment Agency, Natural England, Lake District National Park Authority, National Trust, Landowners, Local Authorities/Highways and other interest groups to develop long-term plans that would maintain and enhance access for visitors, while sensitively returning these water bodies back to nature - helping to protect the habitats and environment which depend on compensatory flows.

feedback

We're continuing to carry out investigations, surveys and detailed designs to develop the most appropriate long-term plans and, as our plans progress, we'll hold further community information and update sessions in 2023.



Your views are important to us and we welcome your









Proposed programme for our long-term plans









Crummock Water

Our proposed work could involve removing the weir structure, equipment used for collecting water supplies and supporting infrastructure. This could lower the water level in Crummock Water by approximately 1.35 metres, allowing rivers and streams to return back to their historic natural channels.

The proposed work currently includes:

- The removal of around 550 metres of the concrete wave wall to allow restoration of the shoreline.
- Removing around 300 metres of the upstream concrete and block stone channel at Park Beck.
- Reinstating the natural connection between the rivers and the lake removes the need for man-made fish/eel passes.
- The existing stepped pedestrian footbridges would also be removed and new footbridges installed to provide continued access over the River Cocker.
- Restoration of sections of the River Cocker and Park Beck.



Crummock existing outlet to the River Cocker



Existing condition of Park Beck



Existing avulsion/scour point on Park Beck (upstream of existing blockstone bank protection)





Design proposal for Crummock outlet



Design proposal for Park Beck restoration



Chapelhouse Reservoir and Overwater

Our proposed work could involve removing the existing weirs and the dam at Chapelhouse Reservoir and removing the equipment used for collecting water supplies and supporting infrastructure at both water bodies. Wherever possible, we'll restore rivers and streams back to their historic natural channels.





The proposed work at **Chapelhouse Reservoir currently** includes:

- Full removal of the 8 metre dam crest, pump house, spillway channel, overflow pond and abstraction tower.
- Realigning around 800 metres of the River Ellen, located at the bottom of the valley.
- Realignment of the existing public right of way and the creation of a new bridge crossing.



currently includes:

- Ellen.

The proposed work at Overwater

• Removal of the existing weir and a section of the embankment.

• Realigning a short section of White Beck at the confluence with the River

Assessment of flood risk

Chapelhouse Reservoir and Overwater

Extensive hydraulic modelling studies have been carried out to assess how the proposed work at Chapelhouse and Overwater may alter pass forward flows to provide an evaluation of any impact to flood risk.

- The hydraulic model developed for this study is a linked one-dimensional/two-dimensional (1D/2D) hydraulic model.
- Peak flow and flood level is shown to decrease in the larger magnitude events along the River Ellen.
- As part of the modelling assessment, offline storage is being assessed to inform a more natural flood attenuation provision in the upper reaches of the Ellen catchment.
- The hydraulic modelling is assessing impacts on both flood flow and flood level throughout the catchment down to Maryport.

Assessment of flood risk

Crummock Water

Extensive hydraulic modelling studies have been carried out to assess how the proposed work at Crummock Water may alter pass forward flows to provide an evaluation of any impact to flood risk. • The hydraulic model developed for this study is

- a linked one-dimensional/two-dimensional hydraulic model.
- Re-naturalisation of the overflow at Crummock Water significantly reduces pass forward flow and reduces flood risk downstream along the **River** Cocker.
- Removing the western wave wall along Crummock Water further reduces flood risk downstream by allowing flood water from Park Beck to enter Crummock Water.
- The hydraulic modelling is assessing impacts on both flood flow and flood level throughout the River Cocker catchment and into the River Derwent at Cockermouth.

Helping to protect the environment and biodiversity

We understand the reservoirs are valued spaces and an important landscape for visitors and the surrounding communities. The proposed schemes incorporate elements which would maintain and enhance access for visitors to the sites. We're working closely with the Environment Agency and Natural England and have engaged specialist ecological contractors to carry out a wide scope of surveys and assessments. These assessments began in 2021 and will continue through to 2023.

The scheme will deliver several environmental benefits including the restoration of natural salmon habitat, removing barriers to fish and eel movement, the restoration of natural flows and sediment transportation along with tree planting enhancements which will form an integral part of our planning applications.

- We'll ensure that contractors appointed to carry out the work are experienced at working in sensitive locations, following construction practices to protect the local landscape and habitats during the project.
- Measures will be put in place during the decommissioning programme to reuse excavated earth in other activities of the programme. For example, during work to realign a section of the **River Ellen**.
- Sediment controls will be in place to reduce the impact to rivers, streams and lakes during the decommissioning activity.
- There would be an increase in construction vehicles and heavy machinery during the construction phase. Traffic management will form an integral part of the project planning phases to minimise the impact to local roads and communities.

Ennerdale Water

Ennerdale Water has been used as a water source for our customers in the Whitehaven area for more than 120 years. With the completion of the new Thirlmere pipeline and water network, the Environment Agency will remove our abstraction licence and we're looking at plans for the future of the infrastructure at Ennerdale.

We're also carrying out feasibility studies to explore a range of options to help evaluate and develop our long-term plans for Ennerdale Water - using the knowledge and learning from these projects will be invaluable.

The plans are very much in the early stages, and there are lots of things to consider including:

- Impact on the environment
- Protecting and enhancing habitats
- Flood risk

We'll be holding further sessions to keep you updated on our plans as we work through the feasibility studies and investigations, before we decide on the final options.

Recreation and leisure

opportunities in and around Crummock Water.

Access routes

During construction, access to several areas will be restricted, along with the closure of some access routes.

We'll provide temporary alternative routes to areas not impacted by our work and when it becomes safe, return the

existing access routes to users as quickly as possible.

There will be permanent changes to some of the existing Public Right of Way routes, but we'll make sure that long-term pedestrian access is not restricted and impact of our work is kept to a minimum. We're working closely with the Lake District National Park Public Right of Way Officers and the National Trust.

The use of Crummock Water for swimming and other water based activities (excluding powered crafts) is the responsibility of the National Trust. We're not aware of any plans to change these following completion of our work.

The dramatic landscape of lakes and mountains makes the Buttermere Valley a popular destination for both locals and tourists alike. We understand the importance of visitor enjoyment and the wealth of recreational

Access to the water

Our proposed work will generate an increased lake margin and have carried out assessments to understand the shoreline gradients and whether the lowered water level will impact access to the water for recreational activities.

A heat map shows the lake margin gradients against both the existing and lowered water levels alongside section drawings at the most popular access points. The assessment illustrates:

- The lowered water level will not generate significantly different gradients to those of the existing gravel shoreline.
- The widened lake margin generated by the works, may influence how the lake is enjoyed in the future by opening up more areas.