



# Why do we need to remove metals?

Water and Abandoned Metal Mines (WAMM) programme  
Cleaning up rivers polluted by abandoned mines

## The problem: polluted rivers

- Barney Craig adit is the most significant source of metals polluting the River West Allen, releasing about 3 tonnes of zinc and cadmium each year.
- The adit is a tunnel built by the miners in the 1700s to drain water out of the mine workings.
- This mine water pollutes at least 40km of the River West Allen, River Allen and the River South Tyne. These metals ultimately collect in sediments in the Tyne estuary.
- The River West Allen is one of the most severely metal polluted rivers in England. The metal concentrations are so high that they cause severe harm to river wildlife like river insects and fish.
- The worst environmental damage is caused at lower river flows when the metal concentrations are highest.

## The solution: mine water treatment

- Tackles pollution at the source before it enters the river by treating the contaminated groundwater (mine water) that drains through the Barney Craig adit.
- Metals are removed from the mine water as it passes through a treatment layer containing natural materials on the bottom of open water ponds: this nature-based solution requires limited input of energy and chemicals.
- More than 90% of the metals are expected to be removed in the treatment ponds before the treated mine water is returned to the river near the Barney Craig adit.
- The scheme will make the biggest difference to water quality at lower river flows. It is designed to blend into this landscape that is protected for ecology and natural beauty, and for its important industrial heritage.

## What are the benefits of this scheme:

- Cleaner, healthier water for people and wildlife.
- Improve water quality in the River West Allen and help achieve the Environment Act metal mines water target.
- More resilient fish and river-flies and improved biodiversity.
- Protect economic activity in the Tyne estuary.

Photograph of Barney Craig adit  
discharging into the River West Allen.  
(Image credit MRA, 2024).