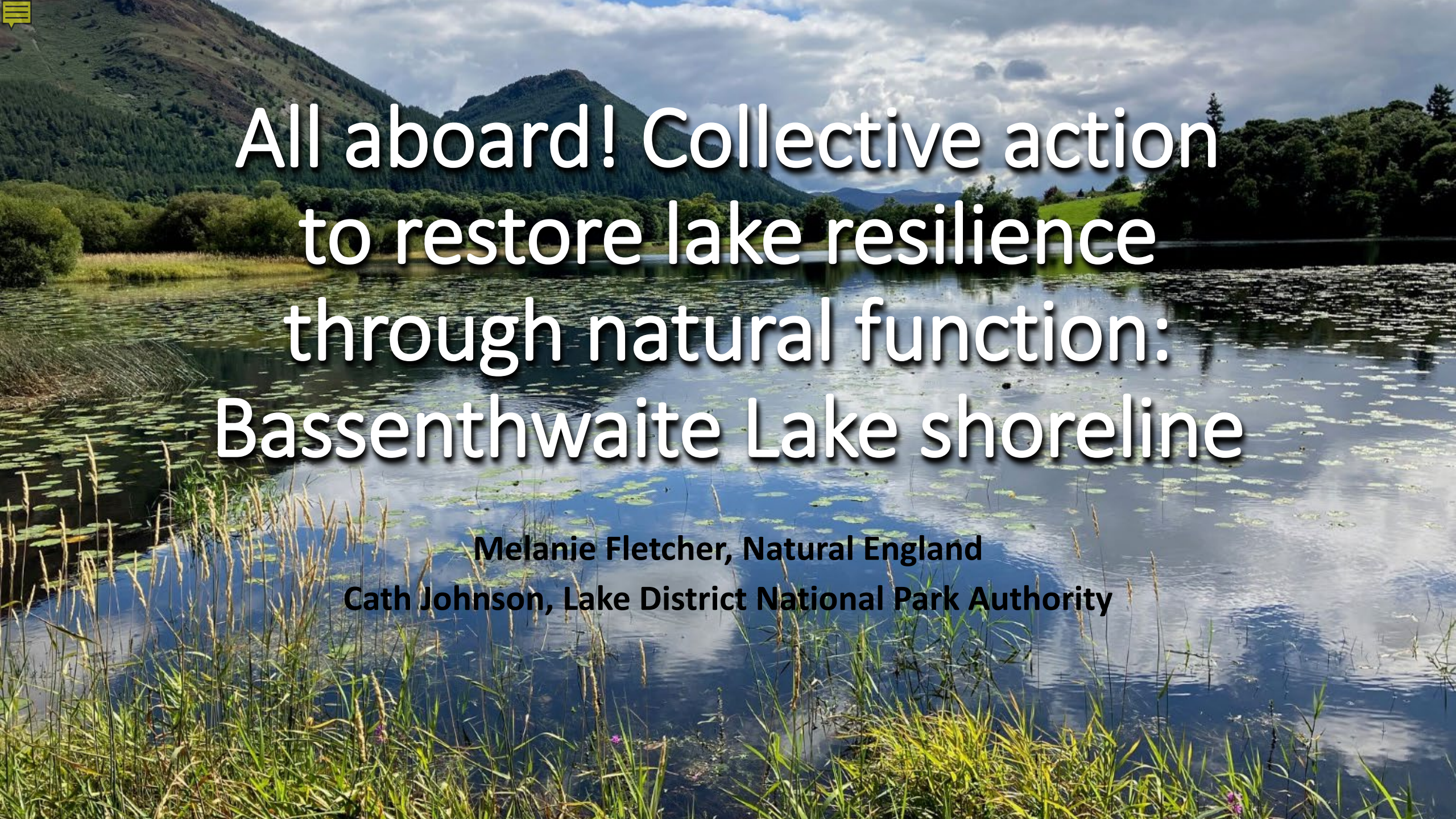


All aboard! Collective action to restore lake resilience through natural function: Bassenthwaite Lake shoreline

Melanie Fletcher, Natural England

Cath Johnson, Lake District National Park Authority

Bassenthwaite Lake

- Large, shallow, intermediate nutrient levels, large catchment, high rainfall, low retention time
- Important habitat and iconic lake
- Protected site: Site of Special Scientific Interest (SSSI), Special Area of Conservation (SAC), National Nature Reserve (NNR)
- Features: Breeding birds; Vendace; Floodplain fen and wetland habitats; Mesotrophic lake; Upland mire grasslands and rush pastures; Floating Water-plantain; Wet woodland
- Surrounding context e.g. land use and infrastructure

Restoration Approach

Restoration of natural processes – with absence of impacts from:

Hydrological: e.g. abstraction, modified inflows/outflows

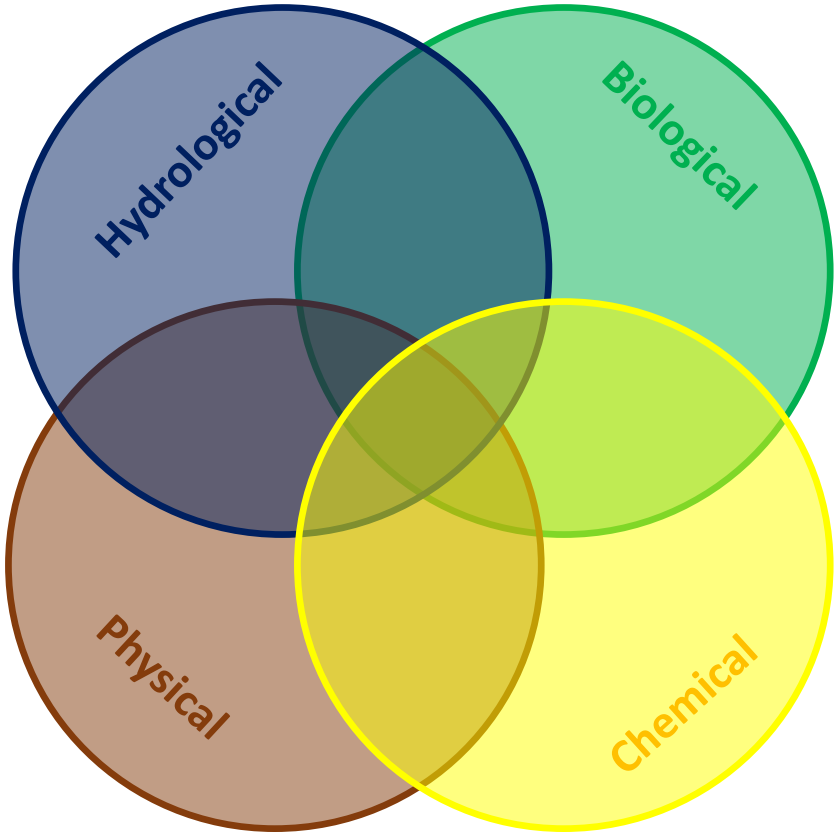
Biological: e.g. Invasive Non Native Species

Chemical: e.g. excess nutrient and sediment inputs

Physical: e.g. artificial reinforcement

Dynamism, mosaics, connectivity

Scale - temporal and spatial



UK context of lake issues

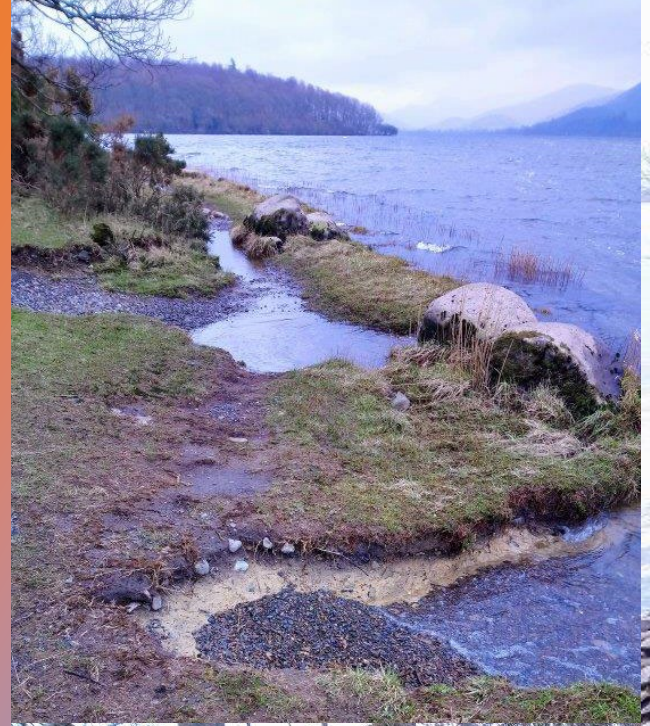
- Water quality (including nutrients and siltation)
- Hydrological modification
- Physical modification and surrounding habitat
- Invasive Non Native Species

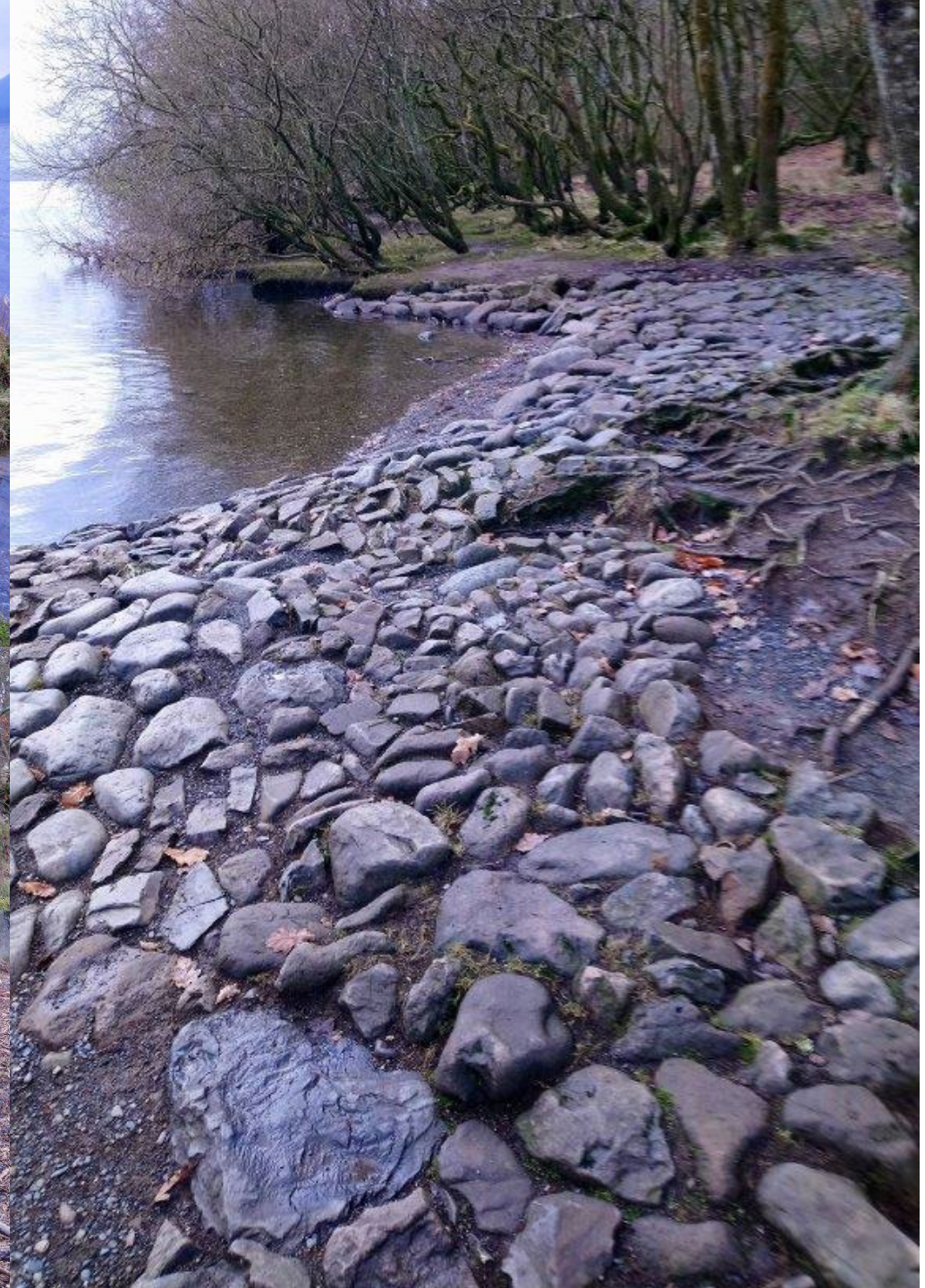
Benefits of restoring natural processes to shorelines

- Reduction in nutrient and sediment inputs
- Improvement in water quality
- Flood and drought resilience
- Physical resilience to erosion and infrastructure pressure
- Increase in nature and diversity – transition between aquatic and terrestrial environments

Restoring resilience to lake shorelines at Bassenthwaite Lake

- Work continues to address other multiple pressures
- Diverse fringing habitats, relatively undisturbed
- Centre for Ecology and Hydrology (UKCEH) - Walkover survey to identify key pressures and locations
- Suggested restoration measures, costs and monitoring effectiveness
- Tests and trials of measures





What are the pressures?

- Hard engineering
- Recreational access
- Grazing pressure
- Drainage and water quality
- Substrate modification
- Vegetation disturbance
- Multiple pressures



What are the solutions?

Working with natural processes and layering methods

Development of lake shoreline restoration techniques

West Cumbria Rivers Trust trials – engagement and mimicking natural processes to manage access

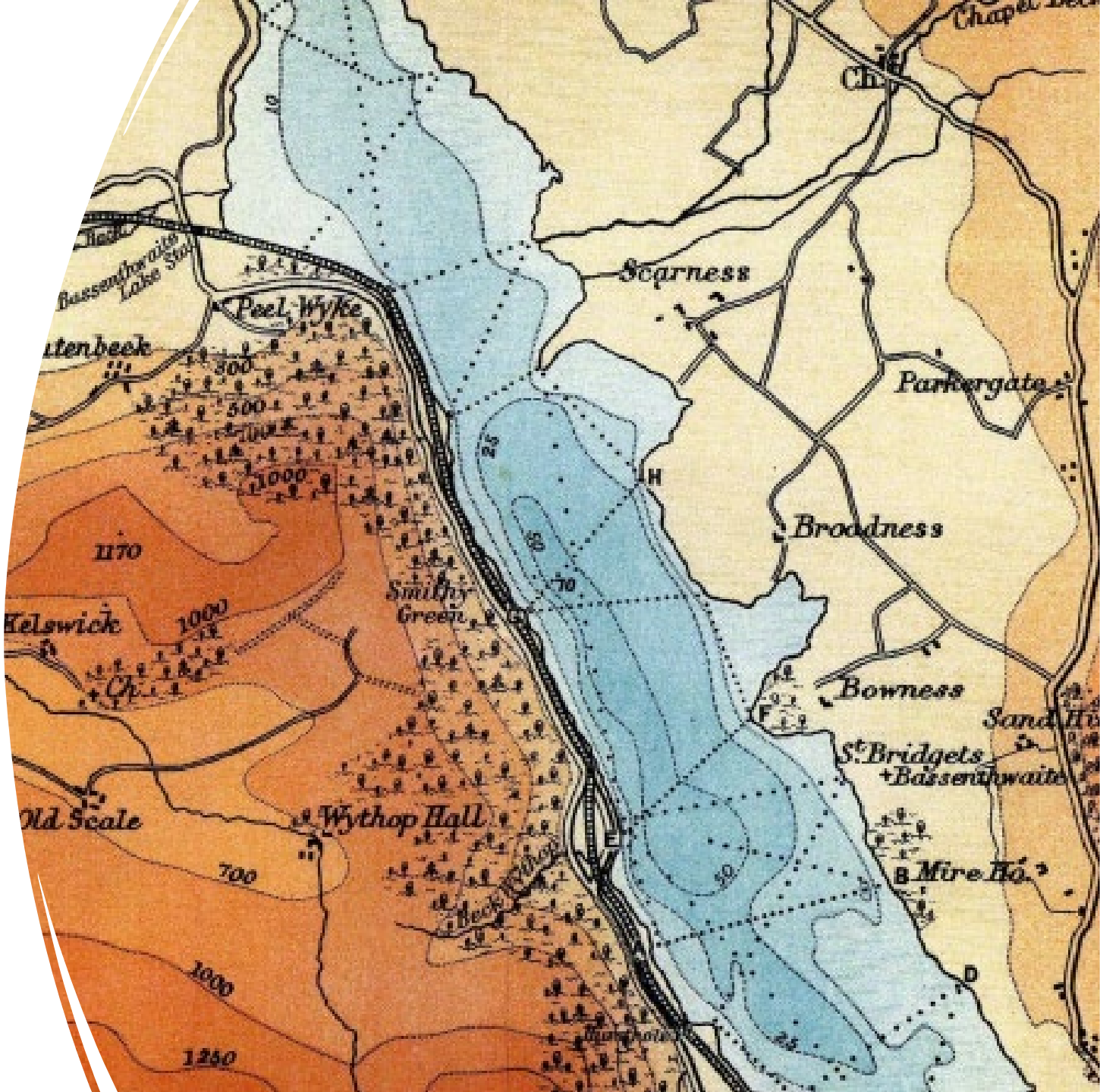
Images courtesy of West Cumbria Rivers Trust

Next steps

- Continue shoreline restoration
- Beyond the shoreline - working with landowners/lake users/stakeholders to find funding and prioritise and implement wider restoration measures
- LDNPA – e.g. Citizen Science project (similar to Big Windermere Survey FBA) – some funding already identified
- Links to species work – building on salmon smolt tagging project and vendace project – habitat improvement
- Scale and recovery lag

National Nature Reserve Management Plan

- The NNR Management Plan is currently out for consultation until 24th November



Thank you and any questions?

With many thanks to Ellie Mackay at CEH, Luke Bryant and colleagues at WCRT, and Cath Johnson at LDNPA for additional photos