

Cocker Tidal Channel & Cockerham Marsh SSSI Restoration Investigation

Task 3 Nature Based Solutions in the Cocker Catchment: Summary

The Cocker Tidal Channel and Cockerham Marsh SSSI Restoration Investigation, led by Natural England, Lancashire Wildlife Trust and the Environment Agency, forms part of the wider Our Future Coast programme in North West England.

‘Task 3 – Catchment Nature Based Solutions’ identifies nature based solutions (NBS) that could help address two major catchment scale challenges in the River Cocker system: land drainage issues caused by poor outfall function and blocked tidal gates, and sediment supply from agricultural land that contributes to siltation in the channel and Morecambe Bay.



Soil aerator

The report uses desk based analysis, LiDAR and land use data, flood risk mapping, and available modelling to understand catchment pressures and identify locations where NBS could be most effective.

Baseline data show that the lower catchment experiences high fluvial and surface water flood risk, particularly in low lying farmland adjacent to ordinary watercourses. Much of the catchment has soils vulnerable to erosion or nutrient loss, and water body classification data for the Cocker (Lune) water body indicate moderate ecological status, with phosphorus and ammonia pollution linked to agricultural activities.



Wetland creation



Cross-slope 'beetle bank'

Available modelling further highlights high runoff connectivity and erosion risk in the northern and central parts of the catchment, identifying likely sediment source areas. Using this evidence base, the study maps potential NBS options aimed at slowing surface flow, reducing sediment transport, and improving catchment hydrological function.

These are:

1. intercepting fast flow pathways;
2. installing floodplain or riparian woodland;
3. adding large woody material in channels;
4. enhancing riparian buffer strips;
5. cross slope beetle banks;
6. cover cropping and increasing grassland;
7. reducing stocking density;
8. wetland creation;
9. improving floodplain reconnection; and
10. improving soil quality.

Each option is spatially targeted using available modelling outputs, land use mapping, and floodplain delineation. The report notes that most interventions would be small scale and farm specific, requiring landowner engagement and more detailed design at future stages.



Cover crops



Large woody debris

The report concludes that NBS can help mitigate terrestrial sediment supply and improve land drainage by reducing rapid runoff and trapping sediments before they reach the Cocker Channel. These measures cannot address offshore sediment inputs into Morecambe Bay, but they can improve agricultural resilience, water quality, and the functioning of drainage infrastructure.

The accompanying GIS data and maps are intended to support the next phase of discussion between the Environment Agency, relevant agencies working on flood risk in the area and landowners on feasible site specific measures.