



Tees estuary habitat creation

Summary report

IMMERSE project
Activity 4.1

Tees River Trust



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1. Introduction

The aim of this note is to report on the findings and achievements as obtained under activity 4.1 during the IMMERSE project period.

The IMMERSE project in the Tees estuary aims to create habitat along a stretch of the river which has been heavily modified using structures which will hold back sediments and form mud flats. Woody materials such as brash bundles made from Birch and Alder tree branches, coir rolls and rock rolls have been used to retain the sediment. The pilot site is located in an industrial area on a section of the river where large ships still operate. There are old jetties either side of the site which are no longer in use but offer excellent habitat. The work was carried out by members of staff from the Tees Rivers Trust over the course of several months in windows of opportunity when low tides allowed safe access to the site.

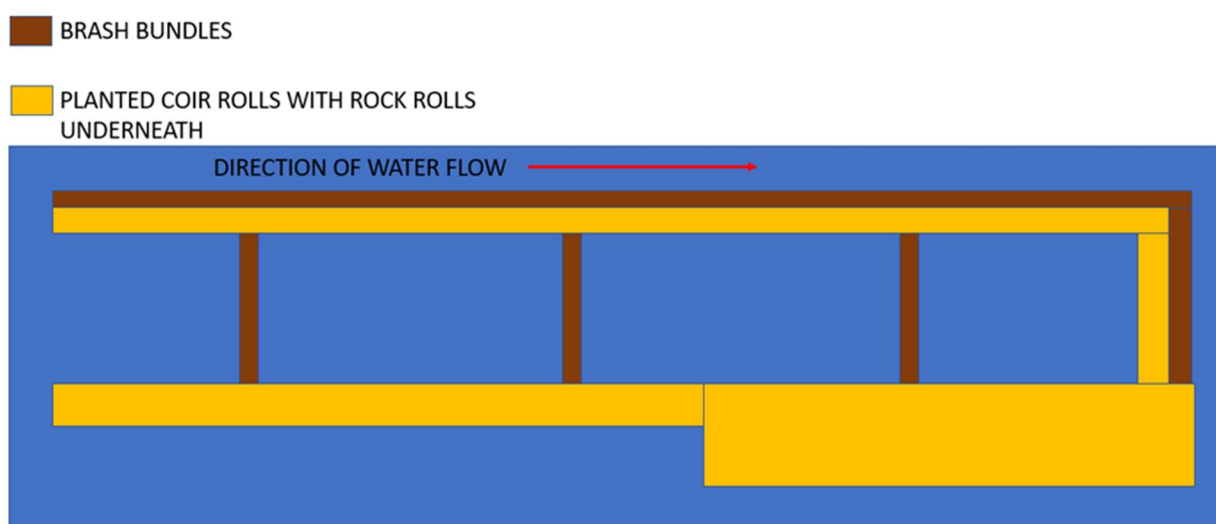


Figure 1 Basic diagram of the completed IMMERSE site lay out

2. Phase 1 - Installation of wooden posts and brash bundles

Untreated wooden posts were inserted into the ground which are to secure the brash bundles, rock bags and coir rolls into position. The brash bundles were cut and bundled during a wet woodland thinning project in late winter of 2022 and transferred to the IMMERSE site. These bundles will catch sediment and offer shelter to fish, insects and crustaceans.



Figure 2 Wooden posts inserted into ground



Figure 3 Brush bundles being secured to posts



3. Phase 2 - Moving rock rolls into position

Rock rolls were moved into position by members of staff using wooden boards to slide them across the site. The rock rolls will trap sediment over time and provide habitat for crustaceans and smaller fish.



Figure 4 Tees River Trust staff moving rock rolls into position between posts

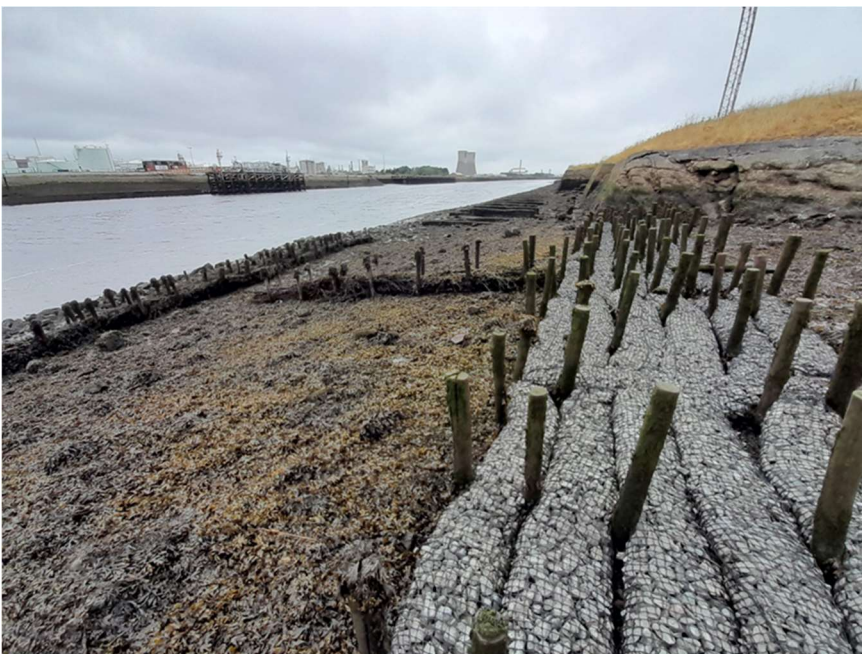


Figure 5 Rock rolls positioned



4. Phase 3 - Moving/Securing coir rolls

Coir rolls were secured on top of the rock rolls using 1.5 metre metal pins at either end of each roll. These pins will keep the coir in place in heavier currents and high tides. The coir will complement the rock rolls and brash bundles in trapping sediments and act as shelter for fish, insects and crustaceans.



Figure 6 Coir Rolls being laid into position and metal pins being hammered in to secure rolls

5. Phase 4 - Planting up coir rolls

Lastly the coir rolls were planted up with Sea Aster, Sea Arrow grass, Sea Rush and Sea Plantain to provide diverse cover for bird species once established.



Figure 7 Staff members planting plugs into coir rolls



6. Phase 5 - Installation and filling of Geotubes

With the assistance of PD Ports and their utility vessel/crew, Geotubes were installed along the site and filled with silt from the riverbed. These were anchored down using pre-made rock bags which were filled at the port of Middlesbrough by a contractor and transported to the IMMERSE site by the PD Ports utility vessel.



Figure 8 Rock bags being filled by contractor



Figure 9 Rock bag anchors onboard utility vessel



Figure 10 Onboard the utility vessel whilst geotubing is rolled out into position

7. Conclusion, lessons learned and next steps

The objectives of this pilot were twofold:

- Test proof of concept for creating space for natural habitat to establish on heavily engineered banks of post-industrial river;
- Generate biodiversity credits for sale to the private sector, proceeds of which could be used to fund further intertidal creation work.

With the site now completed and given time to establish the next steps are to monitor the progress of sediment captured and the performance of materials used. This research will allow us to adjust the methodology for future IMMERSE sites where necessary. The site also highlighted issues we will avoid for future locations such as accessibility for machinery for example. The site was only accessible to smaller vehicles so materials had to be moved by hand from the path which ran along the river bank.

It will likely be 3-5 years before there is sufficient uplift in biodiversity to sell on as credits. However, the interest in buying these is strong. Much development is planned around Teesside and, with new legislation surrounding planning and which requires developers to mitigate for lost habitat due to development as well as a 10% uplift requirement, intertidal habitat is a premium.

The principle lesson learned was that delivering environmental improvement works in the UK marine environment is regulated onerously and that the process for gaining permissions is lengthy and costly. Discussions through IMMERSE have identified that this is a shared experience by national and EU Partners. In the UK North East it has kickstarted conversations between the Marine Management Organisation and delivery bodies about how the permitting process can be streamlined for projects that are delivering environmental benefits.