

Rock Mattresses for Bank Stability in Lewes



Before works commenced

Salix worked with The Environment Agency in Lewes where block work was losing integrity due to tidal inundation and groundwater seepage.

The Environment Agency are responsible for the river bank stability at Railway Lane, Lewes.

The integrity of the existing blockwork facing was deteriorating as a result of the tidal inundation and draw-down cycles together with areas of groundwater seepages emanating from the slope profile.

Before work commenced in March 2013 the blockwork lines showed signs of slumping and bulging.

A fast and cost effective solution was required.

Products Used

- **Rock Mattresses**



Prefilled Rock Mattresses are lowered into place

Rock Mattresses, a simple and effective product

The Environment Agency required a product which they could install at Lewes which was cost effective and proven to deal with tidal inundations.

Prefilled Rock Mattresses were an ideal solution, lowered into place they fitted snugly where the block had been removed.

The old block facing was reused as rip-rap at the toe of the slope. The bank is regraded and dressed with a heavy duty needle-punched separation fabric.

The Rock Mattresses are all butted and mechanically stitched together with “hog rings” so as to form one continuous flexible revetment.

The pore-water pressure from the profile can be released through the fabric and porous rock sheet.

As the tides flood over the surface and retreat, so the engineered appearance will moderate with the accreting sediment that will lodge in the stone interstices.

Rock Mattresses are a robust and permanent revetment for use around reservoirs, shorelines, lake edges, streams and river banks. They are cost-effective revetments that are suitable alternatives to rock rip rap and gabions in many scour applications.



Rock Mattresses come prefilled and can be easily lifted into place using the convenient straps

Benefits

Rock Mattresses accrete silt due to small stone size and can be fully vegetated. This is not possible with rock armour and large rip rap.

Along with this process will come the opportunity for colonisation by plants, adding biodiversity and landscape value.

Working with Swansea University's SEACAMS project, it has been demonstrated that this product is beneficial for local biodiversity.

Both Rock Mattresses and Rock Rolls have been proven to provide excellent habitat for a wide range of species.

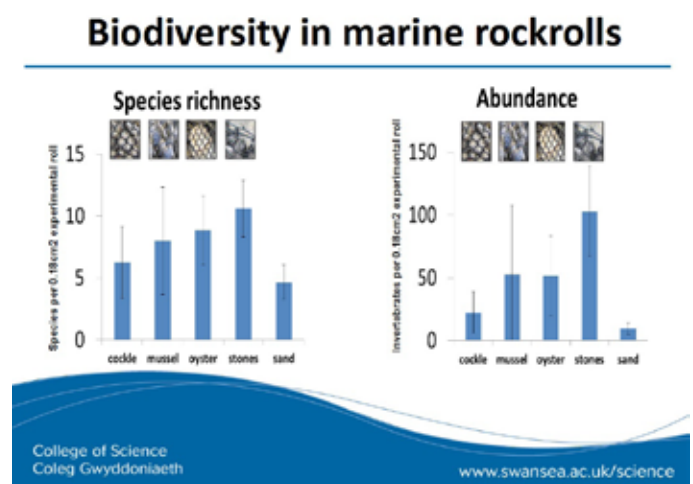
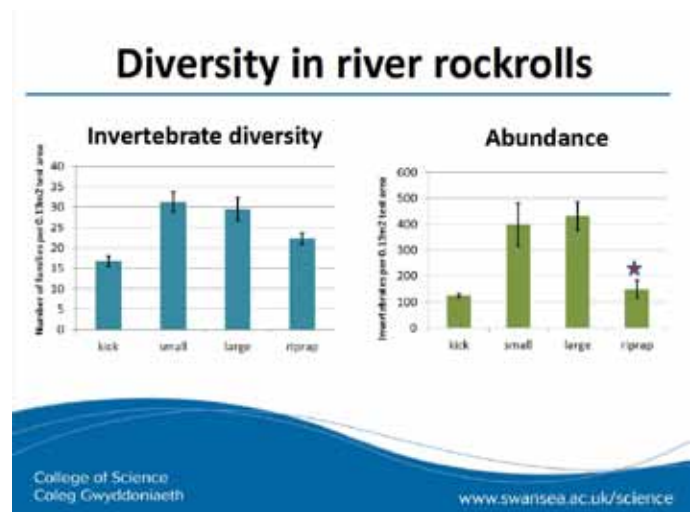
More traditional hard engineering products such as tetrapods, rip rap and sheet piling do not support the same level of biodiversity.

The Swansea study found that both species abundance and diversity was significantly greater than in rip rap.

Sediment accretion was 50 times higher than in rip rap, which allows both vegetation to establish (further improving bank stability) and provides habitat for invertebrates.

Rock Mattresses provide an instant flexible solution to many scour problems particularly below low water level where pure bioengineering techniques will not function.

A talk from Dr Ruth Callaway, of Swansea University SEACAMS project, on how beneficial these products are for biodiversity can be seen on Salix's YouTube channel <http://bit.ly/SwanseaResearchVideo>



Graphs provided courtesy Swansea University

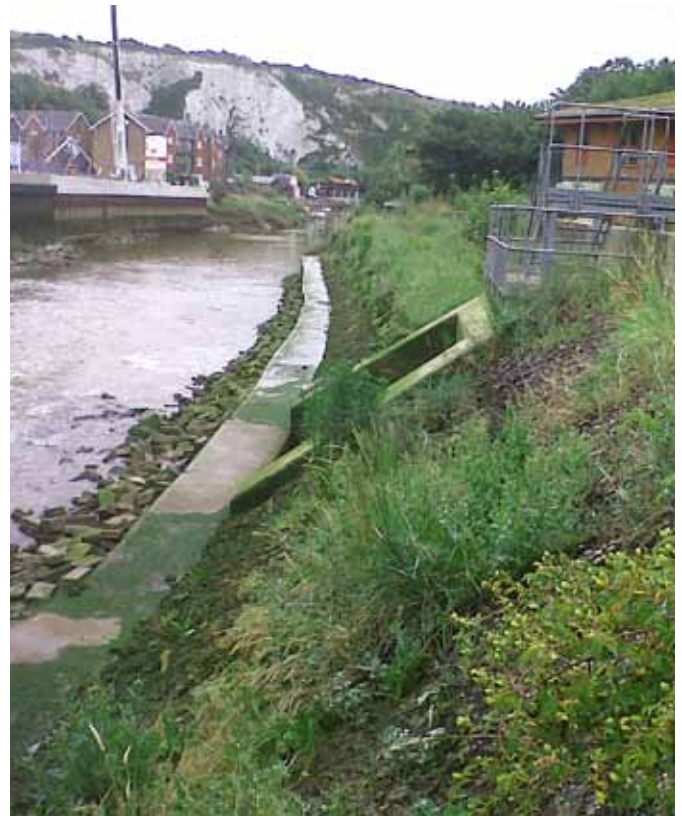
A quick solution

Rock Mattresses are easy to put into place with the inbuilt straps; they provide an immediate solution to erosion and allow vegetation to establish rapidly.

They are an excellent alternative to traditional hard engineered approaches.

The amenity value is improved quickly as the area greens up, in this instance the local plant communities were allowed to encroach making it more pleasing to the eye as well as introducing natural soft engineering to the bank.

The work at Lewes was completed on time and in budget.



Vegetation rapidly establishes from local plant communities