

## A background to the Green Walls project

In 2007, Thames21 obtained funding from the Esmée Fairbairn Foundation to begin 'Project Habitat', which was aimed at evaluating ecological habitat condition and potential for improvement along the Tidal Thames through central London. Collaborating researchers Rob Francis and Simon Hoggart from King's College London began surveying plant and invertebrate diversity along the most degraded and heavily modified reaches of the Thames from Mortlake to Woolwich. They quickly determined that flood defence walls, generally perceived to be harsh and hostile to life, actually represented the most biodiverse habitats, supporting a relatively mixed and diverse plant community with over 90 plant species found in a single survey.

Further investigations determined that plant diversity was significantly influenced by the construction materials of the embankment walls, as well as position on the wall surface in relation to tidal disturbance. Macroinvertebrate and algal diversity were similarly found to be related to wall type. This was the first work anywhere in the world to determine the role of river wall characteristics in influencing plant communities, and was reported in several scientific articles such as '*Waste not, want not: the need to utilise existing artificial structures for habitat improvement along urban rivers*' in the journal Restoration Ecology, '*Urban river wall habitat and vegetation: observations from the River Thames through central London*' in Urban Ecosystems, '*The flora of urban river walls*' in River Research and Applications, and '*Macroinvertebrate richness on flood defence walls of the tidal River Thames*' from Urban Ecosystems.

The observation that rougher, more fractured wall materials such as brick and stone often supported more plants, algae and insects than concrete or steel walls led to the hypothesis that more species could establish on the walls if a suitable surface could be provided. Francis and Hoggart subsequently trialled coir rolls as such a surface, and determined that such fibres effectively trapped seeds and sediment on the wall surfaces, which successfully germinated. The coir trapped twice as many species of plant seed compared to those found growing on the walls, leading to the possibility of such artificial surfaces potentially doubling the plant diversity of the Thames in central London (as reported by the researchers at the [RGS-IBG annual conference 2010](#))



Image above: Installing green walls on the hard flood defence walls of the River Thames.

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As a result of this research, Thames21 have continued to trial the use of coir-based green wall modules on the species-poor steel walls of the Thames to determine if this was a viable technology to improve the river habitat and plant diversity. Further collaborative funding for Thames21 and King's College London was obtained in 2010 from the Crown Estate's Marine Communities Fund, to build and install green walls at selected Thames river sites owned by the Crown Estate. 76 wall modules were constructed and installed by Thames21 at Brentford Ait, Kew Gardens, Battersea and Woolwich in 2012. Their success is currently being monitored by researchers at King's College London and it is anticipated that such efforts will be effective in 'softening' the hard river walls making the habitat more hospitable and enhancing species diversity. Green wall modules have also been added to the River Lea in an EA funded project to soften the walls and provide some habitat, and there is the intention to expand the technology and increase community engagement within ongoing efforts as part of the Tower Hamlets Local Biodiversity Action Plan.