

BIODIVERSITY



One way to safeguard Thames biodiversity is to enhance the ecology of river walls

Audits of species and habitat along the River Thames have shown that river walls can maintain plant communities similar to those found on intertidal foreshores

Visually, there appears to be a relationship between the physical complexity of walls and the amount of vegetation they support. At Deptford Creek, crevices and ledges created by the installation of timber fenders on sheet piling resulted in the development of plant communities that would typically be found on the intertidal foreshore under more natural conditions.

This physical complexity is also important for supporting faunal diversity. Research looking at the macroinvertebrate diversity of Thames flood defence walls showed that wall construction material influenced the biotic communities found, with the highest levels of diversity found on brick walls and lowest on concrete walls.

Factors such as the construction materials, age, condition, maintenance, size and periodicity of inundation of the river walls are likely to be important in determining the level of biodiversity these habitat features will support. In general, older and more exposed structures likely to support more complex communities

Leaving the last line of defence against flood risk in a poor state of repair because it is a relatively simple way of improving biodiversity would certainly be negligent. There is reticence on the part of river managers to modify walls for this reason



Extensive flood defence measures along the River Thames, which include the Thames Barrier and over 300 km of flood defence walls, may no longer suffice given the impacts of climate change. Extreme weather patterns will increase with time as will overall property losses.

For example, TE2100 concluded that 350 sq km of estuary lands were at threat from inundation, potentially displacing 1.25 million residents from 500,000 homes at a cost of £200 billion

Improvements to existing flood defences will be required. If so, why not take these potentially negative flood defence developments (which could further encroach into waterways) and enhance wall materials



YOUR TIDAL THAMES



Timeline for Biodiversity in Thames Strategy and Policy

'Management Guidance for the Thames Estuary'

Biodiversity

"To maintain and enhance the diversity and populations of habitats and species supported by the Estuary..."

Encourage new developments to assist in creating wildlife to help reinstate an interconnected network of sites throughout the estuary (B2)

Ensure the establishment of an estuary-wide network of nature conservation sites (Landscape scale) (B3)

Encourage the development of brownfield sites to embrace existing features of biodiversity, to enhance these where possible, and integrate them with regeneration (B4)



'Tidal Thames Habitat Action Plan'

Identify and promote opportunities for new environmental approaches to flood defence design



'Thames Strategy East'

Negative developments should be offset by the creation and/or enhancement of habitats that contribute to strengthening the ecological connectivity

Opportunities should be sought to enhance the biodiversity along the river edge and the urban fringe environment through planting, appropriate management and protection of the foreshore (RG 8.7)

Protect the vegetation communities established on the sloping, vertical and hard river flood defence walls downstream of Tower Bridge and encourage habitat provision on existing sterile river walls (RG 1.11)



1999

2003

2005

2008

2011

2002

'Connecting with London's nature' - Mayor's Biodiversity Strategy

London's rivers and waterways are important components of 'green corridors'. An expansion of this corridor network will greatly benefit London's biodiversity

Enhancements to existing river walls can bring about small scale biodiversity gains. In particular, by designing new waterside developments in a way that increases habitat value.



'State of the Thames Estuary'

Enhancements to flood defences need to allow for space for biodiversity



'The London Plan: Spatial Development strategy for Greater London'

Developments should make a positive contribution, using green infrastructure, to the protection, enhancement, creation and management of biodiversity (Policy 7.19 C)



Estuary edges: ecological design guidance - 'greening river walls'

At Deptford Creek (see left picture), old wooden walls had deteriorated to the extent that only plant roots were holding the wall in place. New sheet piling was installed and clad with wooden panelling. A variable void was created between the panels and the sheet pile. This gap was filled with a substrate similar in composition to the nearby foreshore. Artificial burrows for Kingfisher 50cm below the top of the wall, and plastic strips for fish egg-laying were also installed

At Mill Pool (Reach 4 TSE), decaying concrete revetments of low ecological value were replaced with wooden palisade terraces. Upper terraces were planted with local riparian seed. Bottom terraces were planted with Sea Club-rush and Common Reed. Establishment of the latter has been poor after 16 months, but a dense vegetation of brownfield species has emerged.

Examples of Delivery

Thames Landscape Strategy - 'greening river walls'

Construct river banks with materials that accommodate plants. Actively manage the plant and tree growth on a rotational basis to provide a mosaic of sun and shade for plants, roosting and breeding places for birds and attractive river banks for people enjoying the river (Guidance NL 4)

A vertical foreshore on concrete flood defence walls at Brentford Creek and Kew (Reach 11) is being considered to encourage vegetation growth and reduce the visual impact at low tide.

At Richmond (Reach 9) there are considerations to soften the flood wall alongside Cambridge Gardens, when viewed from Richmond Bridge and Richmond Promenade.

Education and awareness

Greening on river walls can provide an important educational resource. Green rivers edges and glimpses of fish will help change public perceptions of water quality, namely that the Thames is a 'dead river'

Recreation

Green river walls provide amenity for residents who may not have access to private gardens. The Thames Path invariably follows the river's edge. An increase in biodiversity provisions creates a healthier and more enjoyable recreation experience

Flood defence

Natural England's 'Walking the Way to Health' scheme estimates that green space can provide savings of £7.18 in health care costs for every £1 invested

Green river walls can support Sustainable Urban Drainage (SUDS) by absorbing rainfall to reduce flooding (see pictures)

Water quality

A small vegetated test bed (3x1 meters) installed in Sheffield provided average stormwater volume retention of 34% over eleven storm events (average peak reduction of 57%)

Greening on river walls can filter diffuse pollution from impermeable surface runoff

Fisheries

Vegetation on river walls can provide refuges from predators for juvenile fish, molluscs and crustaceans. Submerged plastic strips attached to the river wall can provide a place for fish to lay eggs (see left picture)

Improving air quality

Vegetation itself can influence air quality by filtering out pollutants

Evidence from green roof installations in shows that small vegetation provisions can reduce atmospheric pollutants (O₃, SO₂, NO₂, CO, PM₁₀) with an economic benefit of US\$ 394.07 per hectare (at 2004 prices)