









**Dr Juliet Staples** 

### Liverpool's Floating Ecosystems







This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 730426



# Horizon 2020 URBAN GreenUP Project, Funding, Partners

c. € 14 million+ research based bid between UK, Spain and Turkey
c. € 4 million awarded to Liverpool as a Lead Front runner city

Liverpool Partners:

Liverpool City Council The University of Liverpool The Mersey Forest

June 2017 – May 2022

Trial and monitor the retrofitting of a range of Nature Based Solutions in the city - including 2 floating ecosystems

- Saltwater Floating Ecosystem in the city docks
- Freshwater Floating Ecosystem in a park lake

# Saltwater Floating Ecosystem, Wapping Dock



### **Initial Proposal Wapping Dock Ecosystem**



#### Location

Urban Heritage Dock area Working navigation channel Multiple water users Shelter versus Accessibility Aesthetic and visible

#### Design

Exposed estuarine habitat Range of pollinator planting Vegetation height Open water habitat within island Underwater reef structures Supported by Canal and River Trust



### **Manufacture and Installation**

#### Assembling in docks



#### Towing to location



### **Ecosystem Design Features Above The Water Line**

High buoyancy planter



#### Mixed planting



# Rainwater catchment planters



#### Lightweight leca





### **Ecosystem Design Features Below The Water Line**





#### Submerged reef structure



Submerged shingle shelf

### **3 Months Later**



## Wapping Dock Ecosystem Island

Size & Construction: Area of 63m<sup>2</sup> and made from recyclable/non-toxic materials Planting: Planted with a range of saltwater tolerant plants Functions: Improve biodiversity/replicate habitat tiers occurring in an estuarine ecosystem



**Benefits:** Improved contact for people with nature, enhance dock environment, new habitat provision, attract wildlife, increase biodiversity, strengthen fish stocks, encourage investment, act as route marker, promote climate change work in city.

# **Freshwater Floating Ecosystem**



### **Initial Proposal Sefton Park Freshwater Ecosystem**



#### Location

Green site, secluded location Award winning and well used park Shelter versus Accessibility Aesthetic and visible

#### Design

Simple and smaller Pollination and biodiversity Address water quality issues Look natural, deter nuisance species Supported by Friends of Sefton Park

### **Planting and Installing the Ecosystem**





Socially distanced community planting Freshwater reeds and pollinator species Island parts jointed together

### Sefton Park Lake Freshwater Ecosystem



**Size & Construction:** Surface area of 25m<sup>2</sup> and constructed from recycled materials and coconut coir.

Planting: Planted with a range of freshwater reeds, grasses and flowering plantsFunctions: Providing habitat and forage for pollinating insects and a new aquatic habitat in the lake. Improving water quality.

Benefits: New habitat provision, attract wildlife, increase pollinator species and biodiversity, Community engagement, University research, improve local water quality, inspire new projects and promote climate change work in city.

### **Lessons Learnt/Feedback to date**

### General

Biomatrix led the scheme for us – much easier than we initially feared. Terminology of 'Ecosystem' rather than 'Island' or 'Garden' to better convey multiple benefits Monitoring data being collated – delays in analysis due to Covid-19

### Saltwater Ecosystem, Wapping Dock

Project was well received, although one resident overlooking the docks objected/2 year trial Staff changes at the local college and Canal and River Trust impacted on the project Dock site is in a heritage area but planning permission not needed Phased planting to accommodate lockdown issues Good external media promotion and subsequent enquiries from Seattle, Romania, Australia Covid -19 and Canal and River Trust licence costs/ongoing maintenance and exit strategy Future costs to replicate could be reduced

### Freshwater Ecosystem, Sefton Park

Smaller with less visual impact but well loved Adopted/monitored by the Friends of Sefton Park and often features on their Twitter Promoted by a Liverpool City Council intranet/Twitter footage and interviews Inspiration for another (privately funded) park project Providing a cost effective trial for other park sites with poor water quality



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