



**the BIG
Biodiversity
Challenge**
do one thing

**KILLINGWORTH & LONGBENTON SURFACE WATER SEPARATION SCHEME
KILLINGWORTH, NORTH TYNESIDE, ENGLAND
NORTHUMBRIAN WATER GROUP, NORTH TYNESIDE COUNCIL, ENVIRONMENT AGENCY**

BIG Biodiversity Challenge Award Category: *Project of the Year (up to 5ha)*

Project overview

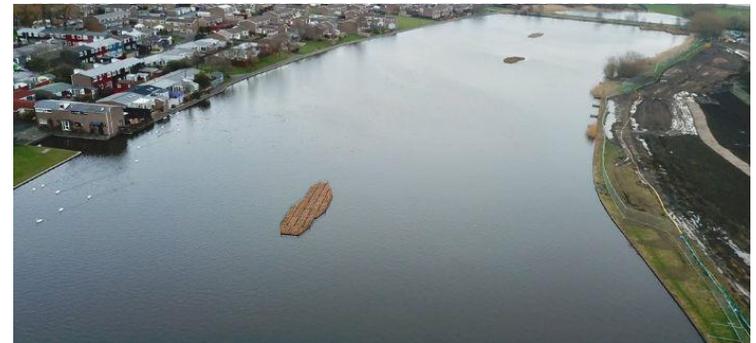
Three floating island eco-systems from Biomatrix Water and submerged planters have been installed in Killingworth Lake, North Tyneside to improve biodiversity and water quality and provide natural habitat as part of a £6 million flood reduction and surface water improvement scheme designed and constructed by Esh-Stantec.

What were the biodiversity conditions on site, prior to the enhancement?

Killingworth Lake is a beautiful spot that provides amenity and recreation including boating and angling. There is also a wide range of waterfowl including tufted ducks, great crested grebes, pochards, common terns and swans, as well as grey herons. Surrounding woodlands support blackcaps, chiffchaffs, and willow warblers. The lake, which is regularly stocked, contains carp, bream, roach, tench, perch, crucian carp, rudd, and pike. Previously, there was one small floating island. The three new islands have added 300 square meters of new habitat.

What were the reasons behind this project ?

To provide an additional 7000 m³ of surface water storage, the level of the lake has been lowered by 100 mm. The island eco-systems mitigate this lower level by helping to clear and clean the lake, providing habitat and protection from predators for fish, wildlife, and nesting birds, and providing shelter for fish from extreme temperatures. The islands align with the Newcastle and North Tyneside Biodiversity Action Plan and Northumbrian Water Group's Biodiversity Strategy. Involving local school children aligns with the project team's desire to engage with the community and inspire future generations to look after the environment.



Three floating island eco-systems on Killingworth Lake (drone photos by Wally Gargett)



One new island on Killingworth Lake

What were the biodiversity measures taken?

Three floating island eco-systems from Biomatrix Water and submerged planters have been installed in Killingworth Lake to provide new habitats, increase biodiversity, and improve water quality. This is the first time that Northumbrian Water Group have utilised floating islands as part of a project, but they will now consider this opportunity on future projects. The islands will be owned and maintained by North Tyneside Council and will be monitored by the council's biodiversity officer. Local groups including the Friends of Killingworth Lake, the Model Boat Club, local anglers, and the RSPB will provide feedback on the impact of these islands to the ecosystem. Pupils and teachers from West Moor Primary School volunteered to help plant and establish these new ecosystems. In addition to the floating islands, there will be new public information signs and new wildflower beddings surrounding the lake.



Setting out and ready to plant – before floating the islands



Pupils from West Moor Primary School helping with planting

Further information

The floating islands designed by Biomatrix Water were brought to site and connected together into the proposed size and shape. These were then planted by a team from NWG, North Tyneside Council, the Environment Agency, Esh-Stantec, and West Moor Primary School. Once planted, the islands were towed by boats to the centre of the lake and anchored in place. Once established, the islands are typically 60% living materials and 40% engineered materials and last for over 20 years.

Project Team

- Clients: Northumbrian Water Group, North Tyneside Council, Environment Agency
- Designers & Contractors: Esh-Stantec, Biomatrix Water
- Volunteers: West Moor Primary School

What was the motivation for carrying out the enhancement?

The overall scheme provides flood protection to over 3500 homes, improves water quality, and provides amenity and biodiversity through the establishment of surface water attenuation areas. Instead of flowing back to the sewerage system, overflows from the lake will spill into natural grassed areas alongside and drain back to a local watercourse instead. The new island eco-systems will add to the water quality improvements to the lake and will establish new habitats above and below the islands and increase biodiversity.



Planting the floating islands



Image of floating island once established providing new habitats above and below (Biomatrix Water)