
# Biomatrix Water

- Floating 'islands' of plants that help to clean waterways and provide habitat.

Rivers and lakes are vital natural resources, which provide drinking water, habitats for wildlife, and are used for industry and recreation (http://jncc.defra.gov.uk/page-1375).
Biomatrix use their engineering and design innovation expertise to provide effective solutions to the problems of water pollution and habitat degradation which many UK towns and cities are experiencing with increasing urbanisation. Their floating islands effectively tackle: pollution, algae, and sewage, whilst also providing habitats.

Since 1991, Biomatrix Water have expanded their ecological technology throughout the world, providing floating ecosystems and project management for waste water treatment and waterway restoration. Their effective team, with over twenty years of experience, are at the forefront of ecological water technology, helping to tackle the growing demand for improved water quality. It is now widely accepted that some of the biggest threats to future generations and sustainability are the availability of freshwater and resource depletion.

Eutrophication is a process where a high concentration of nutrients enters a waterbody and causes algae to grow very quickly, blocking out light and taking up most of the oxygen, causing other plants and animals die. The nutrients are often washed from farmers' fields when they fertilise their crops. Eutrophication has been identified as a big problem in Europe and there are targets to reduce eutrophication, which the UK and other countries need to meet.

Biomatrix offer a solution to this problem. Based in Scotland, they work to create products which combine durable modern materials with biomimicry process. By integrating ecology and engineering, Biomatrix Water have taken lessons from nature and captured the essence of a more circular way of thinking about green space design.
They are not only providing ecosystem services, which benefit people, but are also supporting biodiversity and creating habitats with a greater resilience. Once established, the plants follow cycles of growth and regenerate the areas they occupy. The application of Biomatrix Water technology can be used to improve eutrophic lakes and ponds, nutrient laden rivers, open wastewater channels and wastewater treatment for new or existing developments.

**Water Framework Directive Key aims:**

- Expanding the scope of water protection to all waters, surface waters and groundwater;
- Achieving "good status" for all waters by a set deadline;
- Water management based on river basins.

(http://ec.europa.eu/environment/water/water-framework/info/intro_en.htm)

## Biomatrix Floating Active Ecosystems


Constructed with durable materials which last for at least twenty years, these active islands consist of thermos fused high-density polyethylene floats which are assembled with laser cut stainless steel joints. They require very little maintenance other than some occasional trimming or replanting, as the plants themselves are self-sustaining.

These plants have multiple benefits for the environment; the roots provide a habitat for colonies of beneficial micro-organisms called biofilms, which help clean water and breakdown pollutants. The plants add beauty and green space to urban and rural places, and they provide an important habitat for a diversity of species.

**Learning from Nature Principles supported by Biomatrix Water**

- Nature provides multiple benefits.
- In nature, diversity gives strength.
- Nature is adaptive.

For more information on Biomatrix Water visit their website at;

http://www.biomatrixwater.com/

**What Makes Biomatrix Services and Products Green/Circular**

- Ecosystem services, i.e. wildlife habitats and biodiversity, are used to restore waterways, improve water quality, and treat wastewater; whilst also provide jobs and income.
- Biomatrix Water also benefits society by getting communities involved in the creation of their floating ecosystems. This encourages environmental stewardship and a new way of thinking (turning waste into services/food).
- Habitat biomimicry – imitating nature for a man-made purpose. By using nature's ability to regenerate itself, particularly plants, people benefit from a more sustainable approach to waste water treatment.

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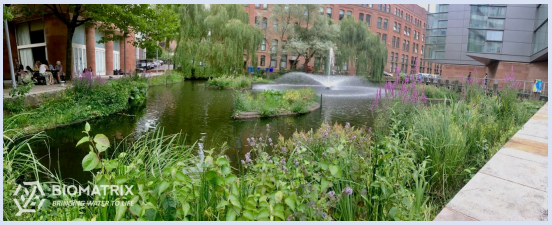
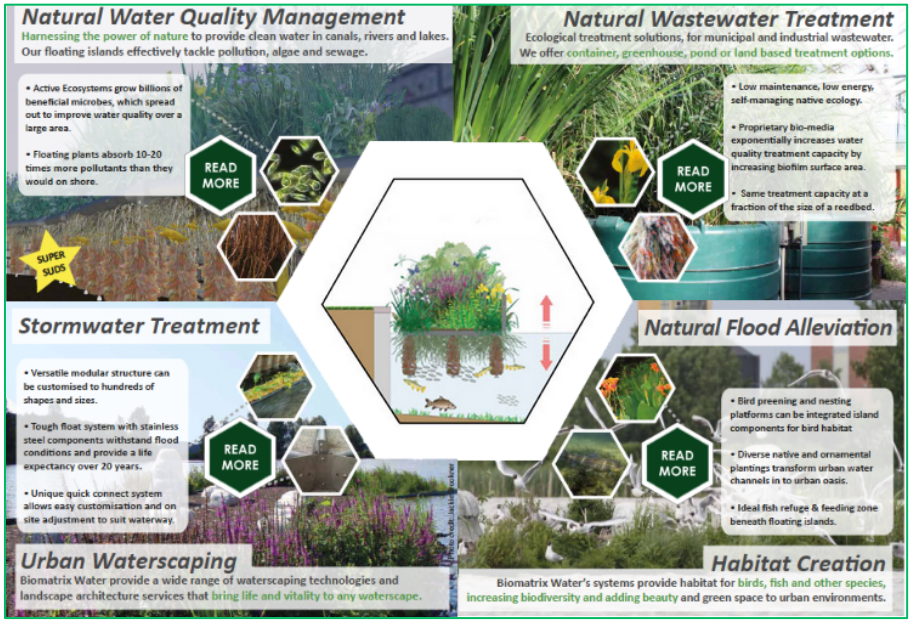
|  | **Floating Islands**<br>Floating islands for water quality enhancement and habitat creation. These floating treatment wetlands increase biodiversity, improve the aesthetics of the waterscape and attract visitors. |
|  | **Turbo Active Island Reactors**<br>These floating treatment wetlands include aeration for turbo charged water treatment of polluted waterways. These are best suited for heavily polluted situations where improving water quality is the top priority. |
|  | **Floating Riverbanks**<br>Floating riverbanks are a ready to install, modular floating treatment wetland system, which transforms degraded waterways with hard steel or concrete edges into vibrant living riverbanks. |
|  | **Bird Habitat Islands**<br>The Royal Society for the Protection of Birds recommends the use of floating nesting islands to increase breeding success and provide year round bird habitat. These islands offer the ideal safe floating habitat for birds. |
|  | **Helix Flow Reactor**<br>Ecologically engineered wastewater treatment for residential and industrial wastewater. These can be based in greenhouses, containers, or in the landscape, and provide a proven cost effective solution for treating wastewater. |




Before


After

**Biomatrix Technology can be used to treat;**

- BOD/ COD Biological / Chemical Oxygen Demand
- Nitrogen
- Phosphorous
- Suspended Solids
- Algae / Cyanobacteria
- Pathogens
- Metals, Copper, Zinc, Iron

**Creation of an Ideal Habitat for Wildlife**

- Birds
- Turtles
- Fish
- Frogs
- Otters
- Butterflies


**Biomatrix is a Sustainia 100 Solution** - Sustainia, a Scandinavian think tank, has featured Biomatrix one of their top 100 leading sustainability innovations.

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