

ARTIFICIAL RAFTS AND FLOATING ISLANDS ON MINERALS SITES: DESIGNS.

Rafts are useful in providing nest habitat in areas of open water, where the depth is greater than 45-50cm. They improve breeding success by providing areas safe from flooding, disturbance or predation.

Floating islands and vegetation rafts are an interesting, alternative option because they are more naturalistic and can provide extra benefits for wildlife above and beyond that of rafts.

Floating islands and vegetation rafts are a fairly recent concept. Increasingly popular on nature reserves in the UK and beyond, they offer an exciting opportunity for minerals sites with open water. See below.

General points for rafts and artificial islands:

- They need to float, preferably with the deck/base of vegetation just above the water line.
- They need to rise and fall easily with the water over the maximum flood range.
- They need to be stable, so as not to be tipped or spun by current, waves or wind.
- They need to provide sheltered nesting, which is high enough not to be swamped by storm waves.
- Means of access and some protection from waves and current for young birds.
- Practical factors e.g. water not excessively deep, lake shore accessible by vehicle, for bringing in boat, raft and materials, and for regular maintenance checks.

TERN RAFTS

Things to consider:

Anchors: minimum of two anchors attached to opposite corners of the raft to prevent it from swinging in the wind. Anchor the raft to the lake bottom, not the shore, to reduce vandalism and predator access.

Gravel covering: preferably 15mm-25mm gravel with larger pieces and rocks to provide **shelter**, and give sufficient weight to push running board down to water level.

Re- entry system (for chicks falling overboard): where raft sides are left open, they should include some **protection from waves and currents** and a **means of access** (eg small wooden ramp) for young birds that fall off. Locate the ramp away from prevailing wind; create from wooden plank fixed at an angle.

Optional removable security fence: these comprise four frames 230mm by 0.3m, made from 50x50mm planks covered with 25mm chicken wire, bolted along each side and fixed at top corners.

Maintenance: remove plant growth each winter. Colonising vegetation which starts to cover the raft can prevent birds from nesting.

Nesting areas: rafts need to provide a dry, sheltered nest area, which does not attract the attention of crows or other avian predators.

- ✓ Tyre nests are used successfully by breeding terns on rafts at Preston Marina in Lancashire and Broom Gravel Pits in Bedfordshire. Part fill old (clean) car tyres with washed gravel (see fig 1)

Figure 1 Common tern nest in recycled tyre at Preston Marina.

Image Paul Ellis



Portmore Lough Tern raft, Northern Island

- ✓ Recycled plastic with mesh sides, covered with shingle. Made from two pontoon sections that have been joined together to create an 8.5m x 4.2m floating platform for nesting terns.
www.fusionrecycledplastic.com/news_ternraft.html

Figure 2: Portmore Lough Tern raft, Northern Island



‘DIY’ artificial tern raft design: RSPB Otmoor, Oxfordshire

1. 5 x 210L sealed barrels are lashed to main frame.
2. Main frame pieces held together with coach screws
3. ‘Flooring’ on top of raft 1800mm x 150mm x 19mm
4. 4m x 4m piece of Astroturf used to cover raft
5. Anchorage: large concrete blocks with eyebolts with ropes attached.
6. The anchor ropes attached to the raft using karabiners so can easily be unclipped and moved.
7. 800kg of washed gravel placed onto the raft.
8. The raft measures 3m x 3m and weighed about 1000kg. Barrels give enough buoyancy: 5 barrels support up to 1050kg
9. Small electric fence erected around the outside to keep predators off the raft.

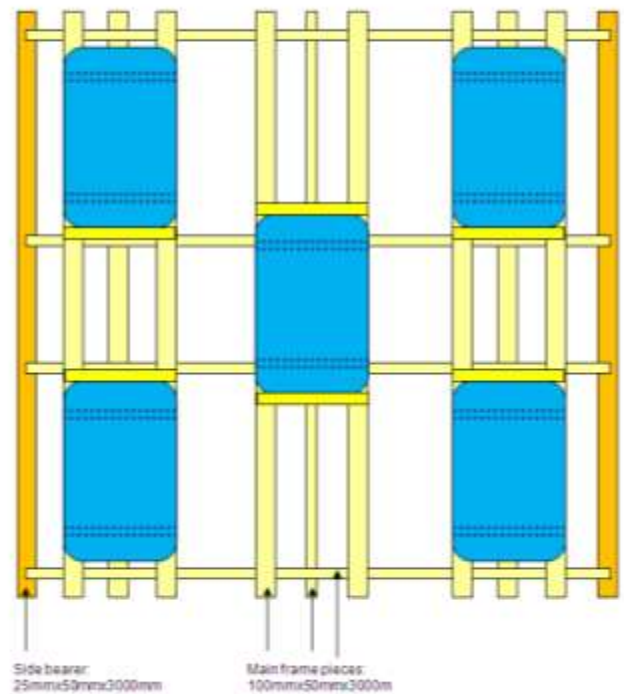




Figure 3: Constructing and launching the tern raft at RSPB Otmoor

Filcris Recycled Tern Rafts

Design is similar to the model in figure 4, from Moor Green Lakes, Berkshire, a restored gravel site.

www.filcris.co.uk/products/wildlife-products/tern-rafts

- ✓ Thick polycarbonate sides are mink proof help protect against predation.
- ✓ Newer designs allows two or more rafts to be joined together.



Figure 4: Tern raft ready for launch at Moor Green Lakes

Further information

[British Trust for Ornithology designs](#) detailed information on construction and design is on page 13.

RSPB raft designs and advice: www.rspb.org.uk/Images/Designofrafts_tcm9-212589.pdf

FLOATING ISLANDS

- ✓ Like rafts, these can be used in deep water but they can also be positioned in strategic locations e.g. close to view points or to dampen wave energy to protect valuable shorelines from erosion.
- ✓ They can look more natural and provide instant habitat for aquatic mammals, amphibians, invertebrates and fish (refuges and spawning areas), as well as breeding and feeding sites.
- ✓ They can also contribute to improving water quality by removing pollutants such as nitrates, and increasing the dissolved oxygen in a water body.

Floating Tern Islands, California

- ✓ Created by the Orange County Water District in the Burris Basin and successfully used to attract Least Terns: <http://birdchaser.blogspot.co.uk/2010/04/artificial-nesting-islands-for-terns.html>



FLOATING VEGETATION RAFTS

Floating Vegetation Rafts, Leighton Moss, Lancashire

At RSPB Leighton Moss reserve, mats of emergent vegetation including yellow flag iris, have been cut in late summer from the mere sides, floated into open water and secured by stakes driven through the vegetation and into the lake bottom.

- ✓ the rafts can rise and fall with changing water levels.
- ✓ rafts can last over 10 years.



Figure 6: Vegetation rafts at Leighton Moss

Floating vegetation rafts do not have to be large to be useful. Moorhens, coots and grebes nest on rafts little bigger than their nests. Rafts for species used to disturbance can be anchored close to viewpoints.



Figure 7: Small, floating wetlands are used as fishing platforms by great egrets at Lake Wister (Oklahoma).

Further information

- <http://www.floating-islands.co.uk/> A modular system that allows the creation of custom made islands.
- www.biomatrixwater.com 'nesting islands for birds which are easy to install' and fish refuge islands fish.
- www.aquaticengineering.co.uk designer of **floating island systems** and specialise in floating reedbeds.

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