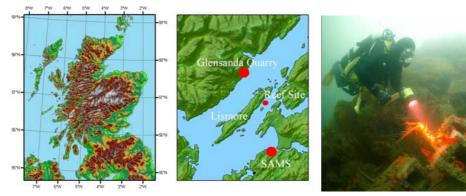


Case study - Loch Linnhe

<u>Location:</u> West coast of Scotland off the island of Lismore. The site is in an area with little fishing activity. It is sheltered from the weather, has a varied current regime, and a depth of 12 - 30 metres.





<u>Authorisation</u>: the reef was licensed under the Food and Environment Protection Act, and was the first to be issued under the OSPAR Guidelines, and a devolved Scottish Executive.

Date of construction: 2001 - 2006.

<u>Purpose of reef</u>: to facilitate research between artificial reefs and the environment, including potentially beneficial effects on fisheries and local biodiversity. The long-term aim is to boost fish stocks by creating commercially viable man-made habitats.

<u>Size</u>, design and materials: The main reef complex comprises 30 reef modules, each of which consists of around 4 000 concrete blocks. Each reef is roughly conical, stands 3 – 4.5 metres above the seabed, and is 10 – 15 metres in diameter. Some of the blocks are solid, while others have voids to create "nesting spaces". The total weight is just over 6 000 tonnes. The concrete contained a blend of cement and coalash (8%), and quarry dust. The blocks were tested prior to construction and were shown to be physically robust and chemically inert.

<u>Monitoring programmes</u>: There is ongoing monitoring as part of the research, to see what species are attracted to the reef.

<u>Did the reef fulfil its purpose</u>? There is an active, multidisciplinary research programme associated with the reef including both fundamental and applied research. This covers: environmental impacts; impacts on the local current regime; water flows around the reef and associated sediment movements; an evaluation of the habitat complexity offered by the reef to crustaceans and fish of commercial importance (especially cod and lobsters); opportunities for seafood production; and comparison of productivity between natural and artificial reefs.

<u>Environmental impacts</u>: The most significant impact detected to date is a reduction in the oxygen levels in the sediments at the edges of the reef as a result of the accumulation of detritus, itself a consequence of reduced current flow. Associated with this is a change in the biological community, with a decrease in species sensitive to low oxygen, and a corresponding increase in those which are more tolerant of such conditions. These effects are more pronounced during summer and autumn, but are at all times limited to within 1 metre of the edge of the reef.

<u>Further reading/information</u>: http://www.sams.ac.uk/research/departments/ecology/ecology-projects/reefecology/researchproject.2007-03-09.9122641718

→ Go to full QSR assessment report on construction or placement of artificial reefs (publication number 438/2009)