

# AINA CASE STUDY

## THE NATURAL ENVIRONMENT

### Barton Broad



*Sailing boats making the most of the rejuvenated Barton Broad*

#### ***Restoration of an important ecosystem***

Clear Water 2000 was the Broads Authority's millennium project to restore the clear water and special landscape of Barton Broad. This is the second largest of the famous Broads and plans aimed to bring back wildlife and increase public access. The site is important for both nature conservation and recreational boating and sailing. Research to investigate nutrients, sediments and water quality were part of the programme, and helped guide development and progress.

The aquatic ecosystem had deteriorated since the 1950s and by the 1970s algal growth, fuelled by nutrient discharge, was impacting upon plant life and fish communities. Restoration work began at Barton Broad in the late 1970s with improvements to sewage treatment works, but large amounts of nutrients remained in the sediments at the bottom of the broad.

Clear water 2000 therefore developed a number of key aims alongside improved water quality, which included opening up areas for navigation, encouraging areas for re-colonisation by aquatic plants, and interpreting the area for visitors.

Two techniques were used: suction dredging and biomanipulation. Dredging aimed to reduce nutrients and increase the depth of water. More than 300,000 m<sup>3</sup> of sediment were pumped into specially built settlement lagoons which were eventually restored back to agricultural use. A sailing depth of around two metres in the winter and 1.5 metres in the summer was achieved and more than a third of the broad was reopened as navigable. Biomanipulation was used to help improve degraded shallow waters, and the temporary removal of selected fish species from isolated bays increased the numbers of zooplankton which in turn brought about a change in the ecosystem with clearer water and rapid fresh plant growth.

Scrub encroachment and bank erosion had caused the loss of reed swamp and Norfolk Wildlife Trust removed a 20 metre strip of scrub from the edge of the broad in order to ensure continued habitat for invertebrates and spawning grounds for fish. Natural England have subsequently continued to work at Barton Broad and a novel floating reed swamp island has been installed to provide cover for fish in open water.

Monitoring of the successful work continues and many of the methods applied could also be used at other lakes and inland waters.