Barton Broad Water Space Management Plan 2006 - 2011

July 2006

Broads Authority
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Barton Broad Water Space Management Plan

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PREFACE

The Water Space Management Plan for Barton Broad is a pioneering document for two reasons. Firstly, it reflects the Broads Authority's integrated approach to the management of its waterways looking at how water quality and plant communities can be improved while maximising the enjoyment by the public. Secondly, the Plan is the result of over ten years of involvement with local people and interested parties, through the Barton Liaison Group, to seek agreement on managing this important water body. Their time and commitment has been essential to the successful outcome for which the Authority is very grateful.

The Plan took two years to prepare and was approved by the Broads Authority at its meeting on 28 July 2006. A full review of the Plan will take place after five years when I hope further considerable progress in the management of the Broad will be evident.

John Packman
Chief Executive
Broads Authority
July 2006

Cover photos: Clear water area with Water Crowfoot flowering at the water surface – Andrea Kelly 2003
Barton Broad Regatta – Simon Finlay 2005 © Broads Authority

1. SCOPE OF THE WATER SPACE MANAGEMENT PLAN

1.1 Purpose

The purpose of this Plan is to provide an integrated and sustainable approach to managing the Barton Broad water space, developed through a consensus-based process led by the Barton Broad Liaison Group.

The Plan considers the quality of natural and cultural features of the water space, in terms of its landscape and biodiversity, and the opportunities these provide for various forms of access and associated recreation, which in turn will contribute to a thriving local economy. The Plan explores issues associated with the use of the features and identifies practical projects to reconcile areas of conflict.

This Plan will be reviewed after a period of five years and the supporting Action Plan will be reviewed on an annual basis.

1.2 Geographic Scope

This Plan covers the water space and adjacent reed and wooded fringes of Barton Broad, which lies within the Broads Authority's executive area. It extends from the northeast corner of the Heater on the River Ant, to the outflow of the broad upstream of The Shoals, including Neatishead Arm and Turkey Broad, as shown on the Site Map 3 (Appendix 1).

Issues relating to the wider catchment, such as nutrient enrichment, management of water flows, coastal defence and Broads tourism industry, are not considered in any detail because they are the subject of other ongoing initiatives. Outputs from these initiatives will need to be considered in a subsequent Plan.

1.3 Governance

The Barton Liaison Group was established by the Broads Authority in 1995 to consult with local interested groups on the development and implementation of a major lake restoration project, Clearwater 2000. Since the completion of this project the membership and purpose of the Liaison Group has developed to reflect the following overall aim:

> ‘To develop by consensus a common vision and plan for sustainably managing Barton Broad, that takes into account its importance and values for natural and cultural heritage, navigation and other forms of recreation, and local livelihoods.’

This aim is subject to a set of Objectives and Operating Principles, which are outlined in the Terms of Reference for the Liaison Group (see Appendix 2).

It is current practice for policy and other recommendations from the Liaison Group to be approved (or otherwise) by members of the Broads Authority, having been informed of any views of the Broads Forum and Navigation Committee.

1.4 Legal Framework

The Norfolk and Suffolk Broads Act, 1988, as updated by the Natural Environment and Rural Communities Act, provides an overall context for managing the Barton Broad water space with respect to the general duty of the Authority to manage the Broads in accordance with the principles of sustainable development for the purposes of:

(a) conserving and enhancing the natural beauty, wildlife and cultural heritage of the Broads;
(b) promoting opportunities for the understanding and enjoyment of the special qualities of the Broads by the public; and
(c) protecting, conserving and developing the navigation

while also having regard to:

(a) the national importance of the Broads as an area of natural beauty and one which affords opportunities for open-air recreation;
(b) the desirability of protecting the natural resources of the Broads from damage; and
(c) the needs of agriculture and forestry and the economic and social interests of those who live and work in the Broads.

The Authority is the local planning authority for the Broads, with responsibility for planning, conservation, development control and enforcement. It is also a harbour and navigation authority, with responsibility for public safety provisions for navigation and boats, and maintenance of the navigation, including moorings, dredging and marking.

The importance of the Barton Broad for biodiversity is recognised under national and international conservation legislation. The Ant Broads and Marshes is designated nationally as a Site of Special Scientific Interest (SSSI), National Nature Reserve (NNR) and internationally as part of the Broads Special Area of Conservation (SAC) and Broadland Special Protection Area (SPA) under the EU Habitat and Birds Directives, respectively. Barton Broad is also designated as a wetland of International Importance especially as a Waterfowl Habitat under the Ramsar Convention. Further details are given in Section 5.5. The extent of some of these designations is shown on Map 1 (Appendix 1).

1.5 Cultural and Recreational Framework

Barton Broad's water space is very important for recreational pursuits including sailing, the boat hire industry and angling, all of which date back from 100 to 150 years. Barton is also important for other forms of recreational boating and land-based forms of recreation, such as walking and cycling. Barton provides a popular destination for those seeking to experience and enjoy among the best examples of the Broads scenery and its associated wildlife.

1.6 Timescales

The Water Space Plan was implemented in July 2006, following its adoption by the Broads Authority.

The supporting Action Plan (Section 10) will be reviewed on an annual basis, prior to the beginning of the financial year. The overall Water Space Plan will be reviewed at the end of its five-year life, in 2011.

2. 20 YEAR VISION

Barton Broad is part of a changing landscape of semi-natural habitats of open water, marshes, fen, reed-bed and woodland, which help to underpin a healthy local economy, and provide for a variety of appropriate recreational uses for local residents and visitors alike. It is commonly understood that these habitats are linked by water and depend on each other for their health and ecological function.

Adequate supplies of nutrient-poor freshwater maintain the open water resource, indicative of a sustainably managed catchment. The water is clear[1] and beneath the surface a diverse assemblage of aquatic plants provide food and refuge for a wealth of wildlife. The reed swamp on the lake edges binds the soil, is actively growing into the water, provides shelter and shade for fish feeding on small invertebrates, and for waterfowl seeking refuge from the open water. The lake supports large numbers of wintering waterfowl where there are sufficient underwater plants for food and quiet water spaces for roosting.

Opportunities exist to access both land and water to experience Barton Broad and its special features. Barton provides a welcoming and fully accessible resource for locals and visitors, with the staithes and boardwalks providing easy, safe access to view the open water of the broad.

The interpretation of special features such as boats and bird life is easily understood and sympathetic. Whether visitors are naturalists, scientists or holiday-makers, they leave better informed about the site's importance.

Recreational activity is popular and welcome on and around Barton and enjoyed by a wide range of interest groups throughout the year. The wide open water space of Barton is in the forefront of the development of eco-boating with sails, electric power, or pollution-free motor boats that glide through the water, in sympathy with the high quality of the landscape.

Helmsmen are inspired to slow down and safely enjoy the naturalness of Barton Broad and its wildlife; they leave with a sense of wellbeing. There is ample water space and water depth for these recreational activities, whilst ensuring that the nature conservation features have space to recover and flourish.

Healthy fish stocks provide food for wildlife and good sport for anglers. The harmony between users allows understanding of each other's needs and aspirations.

The interested parties have a shared responsibility for management of this internationally recognised wildlife site and long established haven for sailing and angling. Through a continuing process of forming trust, through open communication and consensus building, the management plan delivers the shared use of the water space and margins of Barton Broad.

The ecological function and socio-economic importance of the broad is well researched and documented for all audiences. Barton is at the forefront for developing integrated approaches to management and restoration of the broad and River Ant catchment. The restoration is appreciated by those who visit and inspires the rest of the Broads and other inland waterbodies.

[1] The term clear water refers to visibility to the bottom of the broad (mean depth 1.75 m). Water is free from high populations of algae although occasional elevation in suspended matter as a result of wind events and boat traffic may result from the shallow nature of the water body.

3. OVERALL DESCRIPTION OF BARTON BROAD

Barton Broad is situated in northeast Norfolk in the valley of the River Ant, which runs through Barton Broad (Map 1, Appendix 1). Barton Broad, its water space and surrounding reed swamp and wooded margins form a special area for nature and people.

Barton Broad lies within the Authority's executive area, which has three main statutory duties to manage the Broads for the purpose of conservation, navigation and public enjoyment. The water and landscape have evolved since peat digging and subsequent flooding formed the waterbody in medieval times. The broad and surroundings will continue to evolve, through the interaction between nature and people.

The site is of national and international conservation importance with the highest level of protection afforded by the European designations. Hence there is a legal requirement to press forward with its restoration to favourable condition. Barton Broad is currently in an unfavourable recovering condition and, therefore, does meet Government's Public Service Agreement target. The water itself is home to aquatic creatures such as freshwater mussels, dragonfly larvae and fish. In addition resources and refuge are provided to wildlife such as the otter and bittern that feed on fish shoaled in the edges of the broad as well as numerous wildfowl. As a National Nature Reserve, Barton provides opportunity for people to enjoy and find out about the richness of our natural heritage.

The water space has long provided an important resource for recreational activity. Barton is a destination and a thoroughfare for motorised craft in addition to having a reputation as one of the finest open waterbodies for sailing including racing in the Broads and is identified as a Very Important Sailing Area by the Norfolk and Suffolk Boating Association (NSBA). In addition there are several organisations that enable others to enjoy and learn about boating, priding themselves on environmentally friendly boating and education in water skills. Angling is also a popular and traditional activity on Barton Broad, occurring mainly from boats.

The Barton Liaison Group is the basis for involvement of interested parties, ranging from statutory and non-statutory to recreation groups and the local community. The Group has been assigned the task of developing and implementing the Barton Broad Water Space Management Plan by the Broads Authority. Details of its Terms of Reference and membership can be found in Appendix 2.

4. ACCESS AND RECREATION DESCRIPTION

4.1 Current Site-Specific Access Policy or Objectives

The Broads Authority's 20-year aim for access to land and water, set out in the Broads Plan (2004 p.40), is:

'The Broads will be easily accessible for all to enjoy recreational activity on land and water. Access will be sensitively managed, and of a kind and an intensity that respects and preserves the special qualities and ambience of the Broads, its landscapes and delicate ecosystems.'

The Norfolk Wildlife Trust, as landowner, has an access policy to allow and promote access to the open water of Barton Broad, whilst ensuring that the nature conservation features are not damaged.

4.2 Access and Recreation Provision

Sporting and Shooting Rights

Landowners hold the sporting and shooting rights over the area in their ownership. Where NWT is landowner shooting is not active.

Riparian Rights

Fishing is permitted on Barton Broad by Environment Agency (EA) rod licence. Barton is a tidal waterbody with open access for fishing. Landowners hold the rights to access the banks within their ownership for fishing. Eel nets are licensed by EA on an annual basis.

Navigation Rights

The public have a right of navigation on the River Ant and all other tidal waters in the area, including Barton Broad. Motorised traffic passing through Barton Broad is encouraged to use the marked routes.

Mooring Rights

Fixed swinging moorings are managed by NWT and permitted by local authority planning controls. Mud weighting is permitted throughout the broad. The Norfolk Punt Club and Nancy Oldfield Trust have moorings on the broad.

Twenty-four hour mooring is permitted at Broads Authority moorings at Barton Turf, Gay's Staithe, Irstead Staithe and Neatishead Staithe. Mooring at Catfield Wood End Staithe is by agreement not by Broads Authority lease.

Staithes

Five staithes are listed in 'Staithes a Survey and Register' (1986). They are Barton Turf, Gay's, Irstead, Catfield Wood End and Neatishead.

Mineral Rights

It is assumed NWT holds all mineral rights to Barton Broad.

Wayleaves

There are no wayleaves on the site that influence site management.

4.3 Access and Recreation Legislation

Norfolk and Suffolk Broads Act 1988 ('The Broads Act')

Pursuant to the Norfolk and Suffolk Broads Act 1988 the Broads Authority is constituted as the statutory harbour and navigation authority for the Broads Navigation Area as defined in the Act, which includes Barton Broad. The Broads Authority is also a harbour authority within the terms of the Harbours Act 1964.

The Broads Act places a duty on the Authority to maintain the Navigation Area, including Barton Broad, for the purposes of navigation to such standards as appear to it to be reasonably required and to take such steps to improve and develop the Navigation Area as it thinks fit. In this respect the Authority is given specific powers to maintain and improve the broad (along with the rest of the Navigation Area) and to deepen, dredge, scour and excavate it. There is a power to remove and dispose of wrecks. Persons (other than statutory undertakers) engaged in works which may affect the Navigation Area are required to obtain a licence from the Authority, which is also given powers to deal with unsafe moorings, structures etc.

The Act also gives the Authority certain powers to make byelaws for navigational purposes and to give formal directions to those in charge of vessels via its appointed Navigation Officer.

Broads Authority Byelaws

The Authority has used its powers under the Broads Act to make four sets of byelaws which are in force and apply to Barton Broad. These are:

- Broads Speed Limit Byelaws 1992, which regulate the speed of power driven vessels within the Navigation Area;
- Broads Navigation Byelaws 1995, which control the navigation of vessels and such matters as the steering, mooring and anchoring of vessels;
- Broads Registration Byelaws 1997, which require the registration of vessels using the navigation area and the payment of navigation tolls; and
- Broads Vessel Dimension Byelaws 1995, which impose maximum dimensions for vessels regularly using parts of the Navigation Area, including Barton Broad and the River Ant.

The Authority is currently promoting byelaws that will impose Boat Safety Standards on vessels using the Navigation area. All previous navigation and related byelaws have been repealed. However, the East Suffolk and Norfolk River Authority Byelaws, under the Water Resources Act, 1963 and Rivers (prevention of pollution) Acts, 1951-1961 remain in force pursuant to which it is an offence to discharge sewage from any power driven vessel which does not proceed to sea beyond Great Yarmouth.

The Broads Authority also has duties imposed on harbour authorities by Common Law, including to take reasonable steps to remove or make navigational users aware of hazards to navigation for example by navigational marking. Common Law

principles relating to the management and availability of harbour and navigational facilities may also apply as appropriate to the Broads Authority and facilities under its control.

Public Right of Navigation

Under Common Law there is a presumption of a public right to navigate in tidal waters. The Authority's Navigation Area is defined in the Broads Act in terms of those waters, which were in use for navigation by virtue of public right at the commencement of the Act (1st April 1989). The public right to navigate over the entirety of Barton Broad is well established (although that right may not extend to minor private dykes within private properties at the edge of the broad). The right of the public to navigate within the Navigation Area is expressed to be subject only to payment of the tolls and navigation charges as prescribed in the Broads Registration Byelaws. The Broads Act also empowers the Broads Authority to close defined parts of the Navigation Area to navigation for certain closely defined periods and purposes. It would be unlawful for any other person to seek to close or deny navigational access by the public to any part of the Navigation Area.

Public Right of Fishing

Under Common Law (Magna Carta) there is a public right to fish in tidal water. Environment Agency Fisheries Byelaws, Anglian Region 2002, apply and include a closed season for rod and line fishing between March 15 and June 15 inclusive. Eel fishing is allowed with appropriate licensed fyke nets all year round. Licensed fyke nets are regularly used on Barton.

Statutory Regulations

The Broads Authority is a Competent Harbour Authority within the terms of Pilotage Act 1987. This obliges the Authority to consider whether pilotage should be compulsory within any part of its Navigation Area, and if so, to provide a pilotage service. As a competent Harbour Authority the Broads Authority is also required to comply with the provisions of the Port Marine Safety Code, which requires the Authority to manage all navigational and related risks in accordance with established risk assessment principles and to put in place a Safety Management System which will ensure that all risks are managed so as to be as low as reasonably practicable.

The Broads Authority is also bound by the Merchant Shipping (Oil Pollution, Response and Co-operation) regulations 1998 to prepare and keep updated an approved contingency plan to deal with spillages of oil into its waters, and to have in place measures for containment and clean up of oil spillages. The Authority is required regularly to exercise its contingency plan.

4.4 Access and Recreational Use of Barton Broad

Introduction

Barton Broad has been for generations and remains a popular site for quiet recreation such as sailing, angling and wildlife watching. Shooting no longer occurs on the broad.

In the mid-nineteenth century wherries were at their height, transporting goods and merchandise. Wherries still occasionally visit Barton with visitors on board. Hire and private craft along with many cruising and racing sailing vessels use the broad. The

Norfolk Punt Club has been in operation on Barton since 1926. The numbers of hire craft have been decreasing and private craft increasing since the 1970s. Small rowing boats and canoes are also regular visitors to the broad. A passenger carrying solar boat, called Ra, takes visitors on guided tours during the summer season. Barton also provides an educational resource for novice sailors, school parties and scientists amongst others.

Access to view the site from the land has improved with the opening of Herons' Carr boardwalk in 2003. The other land access points are shown on Map 3 (Appendix 1).

Boating

The boat census survey at Irstead in 2002, carried out by the Broads Authority, showed that the majority (64%) of vessels passing the census point were hired motor craft, 16% private motor craft, 16% were hire and private day launches and 4% private sailing cruisers under power. The number of private sailing boats is likely to be higher on the broad as many boats are moored around the broad and would not pass the census point in order to get to the broad.

Sailing

Barton Broad is one of the best and most popular sailing areas in the Broads. Sailing yachts as well as smaller sailing dinghies regularly use the Broad, in a full programme of racing and regattas as well as casual cruising and sail training.

Several sailing/activity groups use the broad, including Barton Turf Adventure Centre (BTAC), Norfolk Punt Club and Nancy Oldfield Trust. There are approximately 550 members of the Norfolk Punt Club, which has an agreement for boat storage with BTAC. Members tend to moor or launch their boats from BTAC and Cox's Boatyard, also using BTAC's car park facility. BTAC launches its boats from its own slipway adjacent to the staithe at Barton Turf.

In addition to training provided by Clubs, training is provided by the Norfolk Broads School of Sailing, which is an RYA approved Training Centre (based at Eastwood Whelpton, Upton). Various schools and Christian groups run courses on hire yachts at Easter and in August to introduce young people to sailing, they all sail on Barton for part of their week's course.

Sailing yachts as well as smaller sailing dinghies regularly use the broad, in a full programme of racing and regattas as well as casual cruising. In addition, there are approximately 75 cabin hire sailing craft that use Barton on a regular basis from April to the end of October.

Canoeing and Rowing

Currently there is no provision for canoe hire close to Barton Broad. The nearest canoe hire centres are at Sutton Staithe and Wayford Bridge. Currently, there is no organised canoeing or rowing on the broad.

Motor Craft

Barton Broad is a destination as well as a through route for motor craft and sailing cruisers alike. Hire craft originate from the boatyards upstream at Stalham and Wayford Bridge, as well as from yards elsewhere in the system.

Royal Yachting Association (RYA) powerboat training is permitted by special arrangement with the Broads Authority.

Education/Interpretation

The How Hill Trust provides education for school children and adults; Barton Turf Adventure Centre provides watersports activities, tuition and environment al education for all school children; the Norfolk Punt Club runs a number of training courses for juniors and adults covering basic sailing as well as race training and power boat handling; and Nancy Oldfield Trust provides opportunities and tuition for people with disabilities to go boating. All of these establishments use the broad regularly for educational purposes.

Schools, colleges, universities and other educational institutions also visit the broad largely for environmental education.

Science and Research

There has been a long history of research, monitoring and surveying on the broad, including the establishment and operation of a laboratory at Longmoor Point, Sutton Broad, upstream of Barton Broad, from 1903 until the outbreak of the First World War. Current research is focused on nutrient loading, aquatic life, reed swamp regression and restoration techniques.

The Environment Agency and predecessor organisations have been monitoring water quality and aquatic biology since 1975; the Broads Authority routinely monitors aquatic plants, contracts regular surveys of the fish curtains, fish populations and aquatic plants; and Norfolk Wildlife Trust undertakes regular vegetation monitoring in the surrounding fens. Barton is also part of wider research programmes, such as the Wetland Bird Survey managed by the British Trust for Ornithology, and PhD research (Appendix 3).

Angling

Anglers fish from the staithes as well as from boats. It is a long established and very good recreational fishery which attracts many people, both local and visitors. Barton's fishing is improving and is considered to be plentiful in silver fish, mainly roach, and bream have increased in size. It is not unusual to catch individual bream in excess of 7 lbs. There is also a considerable head of smaller fish in the 2 lb – 4 lb range although these are not so easy to locate. Perch can be caught in large numbers and several specimens over 3 lbs have been reported. Pike can exceed 20 lbs but there are many small, under 5 lbs, fish around.

Environment Agency data records show the fishery being dominated by small (<69 mm) roach, with the recording of a mean density of 41.62 fish per $100m^2$ in 2005. Other fish species present include common bream, perch, ruffe, eel and pike.

Professional angling guides regularly work the water. On occasion trolling under power has been reported. There are perceived conflicts between angling and predators, such as cormorants and otters.

Viewing the Water Space and Bird-Watching

Views across the open water of the broad from the land are limited to the Herons' Carr boardwalk. Bird-watching occurs from boats and from the land. Herons' Carr

boardwalk provides views from the land across the open water. The boardwalk has a reed screen, which is put up each winter season to minimise disturbance to wintering birds while viewed. Around 25 bird species are commonly seen on the broad in the winter.

4.5 Access to Barton Broad

This section describes how visitors and locals can reach and travel within the site. Map 3 (Appendix 1) shows the key access points.

Pedestrian

A 610 metre long boardwalk, built and managed by the Broads Authority, was opened in 2003 and runs through **Herons' Carr** at the south west of the broad. Access to the boardwalk is provided by a short footpath and road walk to the car park and cycle racks near Gay's Staithe. A small number of parking spaces for disabled people are available close to the boardwalk. (See Map 3 in Appendix 1).

A boardwalk runs around the northern edge of **Paddy's Dyke**, to the north of the Heater. Its main function is to facilitate access to the moorings along Paddy's Dyke. The Broads Authority under agreement with the landowner, Barton Turf Adventure Centre, manages the boardwalk. (See Map 3 in Appendix 1).

Informal low-key pedestrian access from **Wood End Staithe** to the edge of the broad is not a registered footpath, but is often used by local people.

Boat

The navigation access points onto the water from the river are from upstream (Stalham, Sutton and Wayford Bridge) and downstream (Ludham and River Bure) of Barton Broad on the River Ant. Private moorings provide additional access points and public boat launching for small craft is possible from Cox's Boatyard.

The average water depth of 1.75 m poses little problem for boat access across the whole broad, with the exception of the two remnant peat baulks that are marked by posts and buoys.

The Broads Local Access Forum (BLAF), set up under Section 5 of the Countryside Rights of Way Act (2000), has the remit of advising on open air access for recreational purposes in the countryside, which includes advising on access to water as endorsed by the Minister for Rural Affairs.

The Broads Authority is working with and being advised by the BLAF to develop a slipway and staithes strategy.

Public Transport

The current bus service does not provide drop-off points close to the broad. There are currently three buses a day serving the Barton Turf and Neatishead area.

Bikes

Bikes can be hired from Wayford Bridge, Sutton and Wroxham. Several recommended cycle routes bring cyclists close to the broad.

4.6 Restrictions Over Access

There are no access restrictions on the water, other than to private dykes with landowner access only and temporary fish exclusion areas that are difficult to access with boats other than small rowboats or canoes.

Land access and restrictions are based on and largely controlled by land ownership; Catfield Fen is not open to the public although The Rand is frequently used by local people for walking.

4.7 Numbers of Visitors and Locals that use Barton Broad

The formal information on visitor numbers on Barton Broad includes:

- Four-yearly boat census monitoring from Irstead Staithe shows an average of 424 boat movements in a period of three days in August 2002 (Table 1).

2002 August Boat Census	Boat Movements
Sunday 18 August	484
Tuesday 20 August	346
Thursday 22 August	442

Table 1: 2002 Boat Census Results for Irstead Staithe

- The numbers of passengers on Ra, the Broads Authority solar powered passenger carrying boat, have fluctuated (Table 2).

Year	Numbers of Passengers on Ra
2001	1321
2002	887
2003	2500
2004	1622
2005	1865

Table 2: Numbers of Passengers on Ra (2001-2005)

There is no data on visitors using the broad apart from the four-yearly boat census. Usage of the water space is seasonal, with peak numbers during the summer regatta and only a few boats using the broad on a winter's day. Early and late in the day are also quiet periods on the broad. Numbers of pedestrians accessing the boardwalks are likely to be more consistent throughout the year, with peak times during the August bank holiday.

Visitors arrive by car and boat; residents report a recent increase in the number of cyclists.

4.8 Visitor Characteristics and Reasons for Visiting

Barton is a popular site for visitors who come for quiet recreation. Two thirds of boat visitors may not be specifically visiting Barton Broad but rather passing through on route to other parts of the Broads. In addition, local residents and people from the region, as well as those from local organisations and businesses, use the broad.

4.9 Current Infrastructure

Note: All references to local businesses may be subject to change over time.

Access to the Water

The current infrastructure for public water access includes marked channels, slipways, moorings, mud weighting, visitor information, speed restriction signs, boat trips on Ra from Gay's Staithe, boat (Stalham Staithe) and canoe (Wayford Bridge and Sutton Staithes) hire.

Provision of formal moorings within Barton will be reviewed as part of the Authority's Moorings Strategy. Mud weighting in the open water will not be part of this assessment.

Parking and Land-Based Access

The current car parking infrastructure includes Herons' Carr boardwalk disabled car park, the public car park near Gay's Staithe, and limited parking at all staithes. Land-based access infrastructure includes Herons' Carr and Paddy's Lane boardwalks. (See Map 3 in Appendix 1).

Interpretation and Signage

Public interpretation is located at staithes, Ra, Herons' Carr boardwalk and parish notice boards. National Nature Reserve signs are located at the river inflow and outflow. The interpretation aims to be subtle and low-key. The promotion of the site is minimised in line with local community aspirations.

Toilets and Waste Disposal

Two public toilets with disabled access are located in the public car park near Gay's Staithe. There is no other provision for public toilets in the area.

Refuse from boats and other users can be disposed of at Gay's, Irstead, Barton Turf and Neatishead Staithes. Currently the bins are provided and emptied by North Norfolk District Council, with the exception of the bins at Gay's Staithe, which are managed by the Broads Authority.

Holiday Accommodation and Eating

There is one small general store and post office at Neatishead along with a licensed restaurant and a pub. Some Bed and Breakfasts operate in the local area.

Boatyards

Cox's Boatyard at Barton Turf provides mooring for approximately 162 sailing boats and 69 motorboats year-round (based on 2003 figures). It also provides boat repair and crane services. No pump outs or fuel are available.

There are several boatyards upstream, which provide pump out and fuel. One yard, Richardsons at Stalham, currently provides facilities for disposal of chemical toilet waste.

5. NATURE CONSERVATION DESCRIPTION

5.1 Summary

Barton Broad lies within almost 743 hectares designated for nature conservation interest. The national designations include Ant Broads and Marshes Site of Special Scientific Interest (SSSI) and National Nature Reserve (NNR). The international importance of this area has been recognised in its designation as part of a Broads Ramsar site, part of the Broads Special Area of Conservation (SAC) and Broadland Special Protection Area (SPA).

Barton Broad, currently in an unfavourable recovering condition, is of conservation interest both for its ornithological interest and aquatic invertebrate assemblages as well as for the adjacent carr woodland, which is internationally important.

Ant Broads and Marshes NNR lies mainly over peat and gravel, at, or just above sea level. This area is greatly influenced by the hydrological regime of the River Ant, which has a tidal influence on Barton Broad.

Much of the carr woodland is currently managed by non-intervention, but the open fen areas are managed by mowing sedge beds and reed-beds on a rotational basis and minimising scrub encroachment on the broad's edge.

Barton Broad has been the subject of a programme of restoration, which has included reducing nutrient input from effluent discharge as well as from the lake bed by a programme of dredging. Biomanipulation, which has followed the nutrient reduction programme, has resulted in areas of the broad being restored to a clear-water state.

The aquatic and terrestrial habitats of the National Nature Reserve (NNR) together support a total of 2 nationally rare plant species and 11 nationally scarce plant species. A total of 8 birds listed in Schedule 1 of the Wildlife and Countryside Act occur regularly on the reserve. Many of these species are listed on Annex 1 of the EEC Birds Directive and 6 other Annex 1 birds also occur on a regular basis. The invertebrate interest comprises a number of nationally rare species, including 10 Red Data Book species with a greatest degree of threat of 1 (RDB1), 26 RDB2 species, 24 RDB3 species, 3 RDB species where the degree of threat is unknown, 20 regionally notable species and 86 locally notable species, making this one of the most important sites in Broadland and in Great Britain as a whole for invertebrate conservation.

5.2 Environmental Information: Physical

Geology, Geomorphology and Soils

Upper Cretaceous Chalk underlies Barton to considerable depth. This Upper Chalk is overlain by deposits of Norwich Crag - the general term for iron-rich sands, gravels and clays laid down in the Pleistocene period when the eastern part of Norfolk was covered by a shallow sea. Above the Crag are layers of Norwich Brickearth, which are glacial deposits of sandy clay and sandy-clay loam. The deposits of Norwich Crag and Brickearth have been cut by the River Ant.

On the floodplain of the Ant, successive sea level changes have resulted in deposition of peat and clay layers. Above these layers are peat beds, deposited following a change to a predominantly freshwater system following the partial closure

of the mouth of the estuary at Great Yarmouth. The peat is in turn capped by fluvially deposited clays, silts and loams close to the main river channels, although it is exposed towards the upland margin where the freshwater influence is greatest.

Barton Broad was formed partly by peat cutting. The course of the River Ant was artificially altered in several places during the medieval period. The river was diverted through the broad to improve navigability and access to villages.

The basin of Barton Broad was excavated to a depth of almost 3.5 metres in some areas (Jennings, 1952), but there are still 2 to 4 metres of solid brushwood peat remaining beneath the thin layer of accumulated sediment which remains following the recent suction dredging of the basin.

Hydrology and Water Quality

Barton Broad and the surrounding carrs and fens are essentially flood-plain systems on the basis of their position within the river valley. The majority of the water supply to the broad is from the River Ant, although there may be some spring input to the broad, which receives seepage water indirectly from the adjacent fens.

The River Ant is tidal which, with varying weather conditions, influences the water levels in Barton Broad. The narrow width of the river at Ludham Bridge acts as a restraint to strong water flow. This helps prevent serious saline water incursion, though records show that this does occur from time to time. Flooding as a result of heavy rainfall and combined with high tides and strong northerly winds also occurs.

Much of the River Ant catchment upstream of Wayford Bridge is arable land. This catchment supplies much of the water that enters the river system and enrichment from fertiliser application and septic tanks is therefore a significant source of nutrients in this system. A number of sewage treatment works discharge into the River Ant, including large discharges from Stalham Sewage Treatment Works (STWs), and smaller ones at Worstead and Southrepps. All of these STWs were fitted with phosphate stripping equipment in the late 1970s and early 1980s. This work has dramatically decreased river phosphorus loadings in the Ant upstream of Barton Broad. There are plans to filter the final effluent from Stalham STWs through a reed-bed to also reduce nitrogen concentrations entering the River Ant.

The mud pumping operation (see restoration Para 5.4 below) may have, in the short term, increased the residence time of the water within the lake basin from 16 to 20 days in the summer.

Barton Broad itself covers about 77 ha and following mud pumping is approximately 1.75 metres deep, compared to 1.5 m prior to the lake restoration. The current Waterway Specification defined by users for Barton Broad is 1.8 m. The Sediment Management Strategy will confirm the final Waterway Specification, after taking into account additional constraints such as bed depth. Current sediment accumulation rates are estimated at 1-1.5 cm per year. The water is rarely clear, but visibility is relatively good in winter and spring (transparency 0.6 – 1.0 m), with blue-green algal blooms limited to late summer since the mid nineties, with the exception of 2005 where blue-greens occurred throughout the growing season. Water quality has improved in recent years. Figure 1 shows a decrease in phosphorus, a key nutrient involved in loss of good water quality and a corresponding improvement in water clarity, as measured by the algal pigments (Chlorophyll *a*). These improvements are in line with other water quality improvements in the Broads.

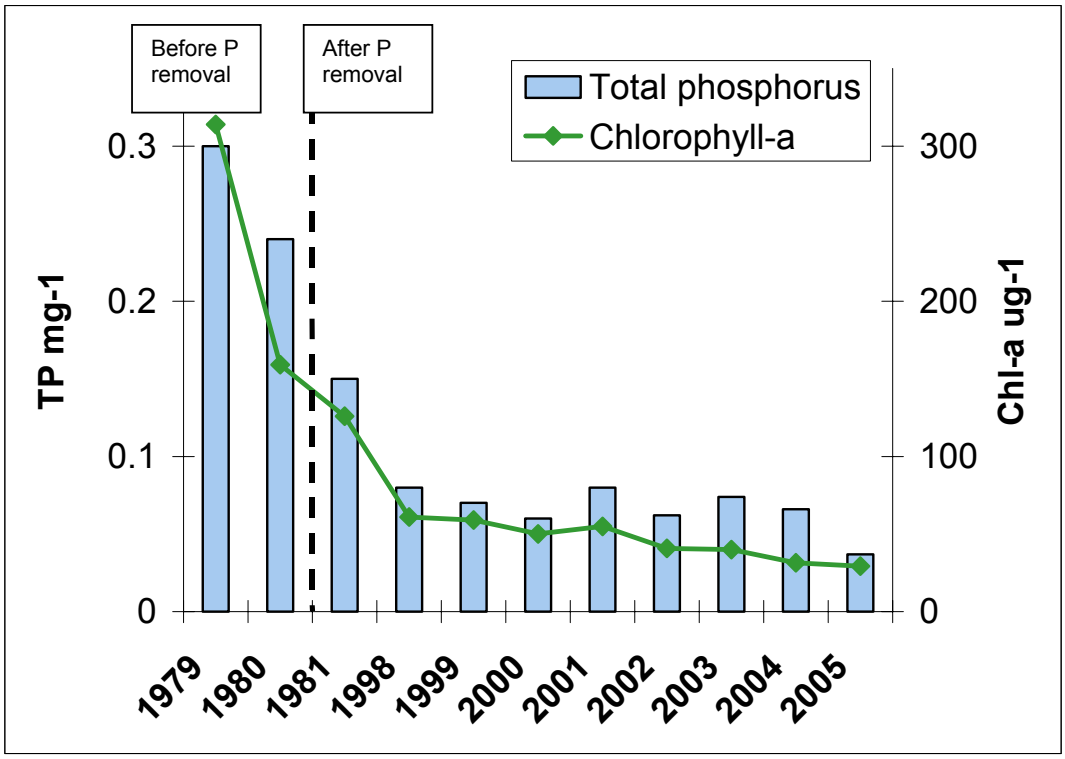

Figure 1: Annual average total phosphorus and algal (Chlorophyll *a*) concentration in Barton Broad before and after phosphorus (P) removal from sewage treatment works (Data source: Environment Agency)

5.3 Environmental Information: Biological

Communities

The following National Vegetation Classification (NVC) communities have been found in Barton Broad and the marginal vegetation.

National Vegetation Community (NVC)	National Vegetation Community (NVC) Definition
A3,4,9,13	Aquatic communities
S4[1]	Common reed reed-bed
S13[1]	Lesser Reedmace swamp
S24a[1]	Common reed – Milk Parsley tall herb fen, Greater Tussock Sedge sub-community
S24g[1]	Common reed – Milk Parsley tall herb fen, Bog Myrtle sub-community
S26d[1]	Willow Herb sub-community
W5a[1]	Alder– Greater Tussock Sedge woodland, Common reed sub-community
W5b[1]	Alder – Greater Tussock Sedge woodland, Yellow Loosestrife sub-community
W2b[1]	Grey Willow – Birch – Common Reed woodland, Mosses spp. sub-community

Table 3: NVC Communities at Barton Broad

[1] Broads edge vegetation communities

Flora

Since annual recording began in 1983 aquatic plant growth in Barton has been sparse (Figure 2). In 2005 aquatic plant beds have been recorded in some marginal areas of the open water.

The following nationally rare and scarce **vascular plants** have been recorded from Barton, the reed swamp and water habitat:

- holly-leaved naiad (*Najas marina*);
- milk parsley (*Peucedanum palustre*);
- cowbane (*Cicuta virosa*).

In addition, several aquatic plants and stoneworts have been recorded from the clear water areas. These include:

- bristly stonewort (*Chara hispida*);
- common stonewort (*Chara vulgaris*);
- delicate stonewort (*Chara virgata*);
- fragile stonewort (*Chara globularis*);
- water crowfoot (*Ranunculus circinatus*);
- canadian pondweed (*Elodea canadensis*);
- yellow and white water lily (*Nuphar lutea, Nymphaea alba*);
- hornwort (*Ceratophyllum demersum*);
- starwort (*Callitriche spp.*);
- lesser pondweed (*Potomogeton pusillus*); and
- horned pondweed (*Zannichellia palustris*).

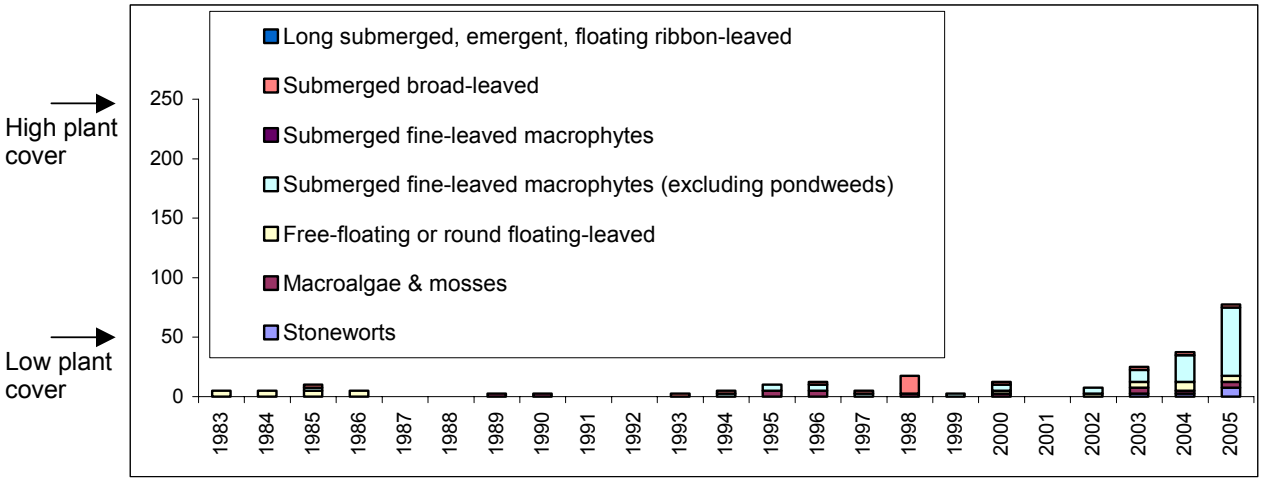

Figure 2 Macrophyte Scores for Barton Broad for groups of aquatic plants. Scores of less than 50 indicate low cover. Hickling Broad has scores of 250. (Scores are not additive).

Fauna

Protected **mammal** species including otter, water vole and various bat species have been recorded at Barton. Other significant species recorded are water shrew.

The internationally and nationally important **birds** that use the water space and marginal vegetation include:

- kingfisher (*Alcedo atthis*);
- bittern (*Botaurus stellaris*);
- cetti's warbler (*Cettia cetti*);
- marsh harrier (*Circus aeruginosus*);
- gadwall (*Anas strepera*);
- shoveler (*Anas clypeata*);
- bearded tit (*Panurus biarmicus*);
- marsh tit (*Parus palustris*);
- reed bunting (*Emberiza shoeniclus*);
- willow tit (*Parus montanus*);
- common tern (*Sterna hirundo*);
- grey heron (*Ardea cinerea*).

Five species of reptile and amphibian (**Herptiles**) have been recorded, namely common frog, common toad, smooth newt, common lizard and grass snake. It is likely that all of these species may breed around Barton Broad.

Barton Broad has been well studied for **invertebrates**. Some of the key species of national importance are:

- large-mouthed valve snail (*Valvata macrostoma);*
- diving beetle *(Dytiscus dimidiatus);*
- soldier fly *(Odontomyia ornata);*
- water measurer *(Hydrometra gracilenta);*
- water cricket (*Microvelia buenoi umbricola).*

The marginal vegetation supports:

- swallow tail butterfly (*Papilio macheon*);
- Norfolk hawker (*Aeshna isosceles*);
- and 18 nationally rare or notable moths.

Summary of Site Features and Importance

The following table summarises the site's features, their importance and the condition status of the habitats, assessed as part of Defra's Public Service Agreement (PSA) target for Sites of Special Scientific Interest (SSSIs). The only habitat currently in favourable condition is carr woodland.

Feature	International	BAP priority species or habitat	Status on Barton
HABITAT			
Lake and Dyke communities (Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation) NVC A3, 4 9, 13	Special Area of Conservation (SAC)	Yes	Barton Broad, dykes. Current condition Unfavourable
Carr woodland NVC W5a & b	SAC	Yes	On some margins of broad. Current condition Favourable
Habitat for otter	SAC	Yes	Throughout. Current condition Favourable
Habitat for Desmoulin's whorl snail	SAC	Yes	Littoral reed swamp. Current condition Unfavourable
All swamp habitat	Special Protection Area (SPA)		Reed swamp, littoral fringe. Current condition Unfavourable
All reed-bed including reed swamp	SPA	Yes	Reed swamp, littoral fringe. Current condition Unfavourable

Table 4: Site Features and Importance

5.4 Restoration

In late 1995 mud pumping to remove accumulated nutrient enriched sediment from the basin of Barton Broad commenced. This is the largest Broads restoration project to be undertaken, and so far results show a continued improvement in water quality since mud pumping commenced. No lasting impact on aquatic wildlife (e.g. native mussel or fish) has been recorded as a result of mud pumping. As water quality naturally improves the eventual recolonisation of the broad by a diverse assemblage of aquatic macrophytes is expected. Sediment from the broad was deposited in a series of lagoons to the west of the broad, which were restored to agricultural use.

Following mud pumping temporary and selective fish removal (biomanipulation) has created clear water areas in parts of Turkey Broad and Neatishead Arm. These clear water areas are supported by selective fish removal as required. Where clear water has been present for three consecutive years aquatic plants have re-grown without the need for plant introduction or re-seeding.

Biomanipulation helps the natural recovery processes by switching turbid water to clear water conditions. The technique involves temporary removal of selected fish species, in order to create the right conditions for zooplankton (e.g. *Daphnia*) to feed on the algae and, thereby clear the water. Biomanipulation is a management tool that often needs repeating. It is not the solution to long-term lake restoration, which relies on lower nutrient levels.

The majority of this section has been summarised and adapted from the Norfolk Wildlife Trust Management Plan for the Ant Broads and Marshes NNR.

5.5 Legislation

International Legislation

Ramsar Convention, or to give it its full title, the 'Convention on Wetlands of International Importance, especially as Waterfowl Habitat'**.** This is a global convention, signed at Ramsar in Iran in 1971, and ratified by the UK in 1976. It has three main aims: designation of wetlands as Ramsar sites, 'wise use' of wetlands, and international co-operation. Barton Broad is part of the Broads Ramsar site.

EU Legislation

Habitats Directive. To promote maintenance of biodiversity by requiring member states to take measures to maintain or restore habitats and species at 'favourable conservation status', with national governments reporting to the EU every six years. It includes designating a series of protected sites (Special Areas of Conservation SAC), which together with SPAs classified under the Birds Directive (see below) make up an EU-wide network of sites (the Natura 2000 series).

Birds Directive. Requires member states to take steps to protect listed bird species and the habitats on which they depend by classifying Special Protection Areas (SPA). Barton Broad is part of the Broadland SPA.

Both the Habitats and Birds Directives are enshrined in UK legislation under the Conservation (Natural Habitats &c) Regulations 1994, otherwise known as the 'Habitats Regulations'. Barton Broad is just one component part of a Broads-wide Natura 2000 site.

Water Framework Directive. To establish a framework for integrated and co-ordinated management of all waters in England and Wales, through an environmental outcome driven approach. It aims to ensure all waters meet 'Good Status' by 2015 by identifying environmental problems through risk-based assessment and target resources efficiently to address these problems. The Directive requires member states to establish river basin districts and management plans, to be reviewed every six years.

UK Legislation

Wildlife and Countryside Act 1981 (as amended). This underpins statutory nature conservation in the UK, and most significantly, makes provision for the notification by English Nature of Sites of Special Scientific Interest (SSSI), and where appropriate, National Nature Reserves managed by 'approved bodies' other than EN. This is the case at Barton, where the water space forms part of the Ant Broads and Marshes NNR.

The Act is supplemented and amended by the Countryside and Rights of Way Act 2000, which strengthens protection of SSSIs by giving English Nature greater enforcement powers, and makes provision for open public access to certain types of land (defined as mountain, moor, heath, and down). Section 28 places a duty on all public bodies, including the Broads Authority, to enhance the special interests of SSSIs.

The provisions of the 1995 Environment Act (Section 62) and 2000 CRoW Act (Sections 85 and 97) confer statutory duties on 'relevant authorities', which include statutory agencies and local authorities, to have regard to the purposes of national parks, Areas of Outstanding Natural Beauty and the Broads.

Biodiversity Action Plans (BAPs). These are a framework for achieving wildlife conservation based on targets for habitats and species. These are identified and planned for at local, regional and national level, and usually implemented by local partnerships. They can embrace habitats (i.e. fens and grazing marshes) or the needs of the smallest insects or plants (such as Norfolk hawker dragonfly). The production of BAPs derived from the UK's ratification of the Convention on Biological Diversity, itself one of the outcomes of the Earth Summit in Rio in 1992.

6. INTERESTED PARTIES DESCRIPTION

The Barton Liaison Group is the basis for involvement of interested parties, ranging from statutory and non-statutory to recreation groups and the local community. The Group has been assigned the task of developing and implementing the Barton Broad Water Space Management Plan by the Broads Authority. Details of its Terms of Reference and Membership can be found in Appendix 2.

Members of the Barton Liaison Group have developed Statements of Interest for their representation. These Statements describe the function of the organisation/group, origin of interest in Barton Broad and future aspiration for Barton Broad and those that use it.

It is acknowledged that activities and interested parties relevant to Barton Broad will evolve and the membership of the Barton Liaison Group should also evolve to reflect this.

Organisation	Statement of Interest
Barton Turf and Irstead Parish Council	As its name suggests has the villages of Barton Turf and Irstead within its parish boundary. There are 155 homes in Barton Turf and 42 in Irstead. Each village has a staithe providing water access to Barton Broad for local inhabitants. In Irstead there is also a boardwalk with viewing platform that provides access to the broad for land based visitors and local inhabitants. The parish supports two charming historic churches, St Michael (Irstead) that dates to the 14thC and St Michael & All Angels (Barton Turf) that provides a record of its first vicar in 1199.
Barton Turf Adventure Centre (BTAC)	The BTAC is licensed by the Adventure Activities Licensing Authority to provide specific water sport activities, such as sailing canoeing, kayaking and rafting, and is also an RYA Recognised Training Centre. Sailing tuition takes place mainly across the full width of the broad at its northern end, although time spent in the marked channel is minimised for safety reasons. Canoeing and kayaking activities generally take place close to the Staithe with some longer expeditions. BTAC have some 14 acres of private nature reserve, which will be used for environmental education for primary to undergraduate level education.
Barton Turf & Irstead – Residents	Representing the interests of the parishioners of Barton Turf and Irstead on the Barton Liaison Group and report to the Parish Council. Main concerns centre around conservation and studied development to enhance the access and appropriate recreation on and around the broad coupled with awareness of the limitations of the local infrastructures.
Broads Angling Strategy Group (BASG)	BASG is a group of experienced Norfolk anglers whose objectives are to promote and expand all forms of angling throughout the Broads system. The aspiration of the group is that angling can be improved through various measures including better access and good fisheries management and education.

Organisation	Statement of Interest
Broads Authority	The Broads Authority is a Special Statutory Authority established under the Norfolk and Suffolk Broads Act, 1988 with a general duty to manage the Broads for the purposes of: • conserving and enhancing the natural beauty of the Broads; • promoting the enjoyment of the Broads by the public; and • protecting the interests of navigation. None of these three purposes takes precedence. Management is based on principles of sustainable development with respect to the natural and cultural heritage, people and economy of the Broads. The Authority has statutory responsibility for both planning and navigation within the Broads. It is a member of the National Park family.
Broads Hire Boat Federation	The Broads Hire Boat Federation is part of the British Marine Federation, representing all the holiday boats on the Norfolk and Suffolk Broads. The future aspiration for the Broads is to keep the Navigation open so that the public can enjoy cruising and seeing the beauty of the Broads.
Broads Society	The Broads Society is open to anyone wanting to help secure a sustainable future for the Broads as a unique and protected landscape in which leisure, tourism and the local economy can thrive in harmony with the natural environment. It is uniquely placed to help reconcile those often conflicting interests, ones which are particularly relevant to Barton Broad. Formed in 1956, it pioneered the creation of the Broads Authority when the future of the Broads looked bleak.
Catfield Parish Council	Catfield has three staithes: Catfield Staithe onto Hickling Broad; Crowe's Staithe on the river Ant between Irstead and How Hill and Woodend Staithe onto Barton Broad. Crowe's Staithe is owned by the Parish Council and successors to the parish Drainage Commissioners while the other staithes are owned by the Poors Trust. All were allotted by the Enclosures Award of 1808. The Parish Council also owns and maintains the 'Rand', an embankment or causeway through Catfield Fen from Woodend Staithe to Crowe's Staithe and this is used as a permissive footpath. The Poors Trust owns Great Fen between the Rand and Barton Broad which is leased to the Norfolk Wildlife Trust. Woodend Staithe has free 24-hour moorings from where a green lane and Fenside Road lead to the parish church and then to the village.
Cox's Boatyard Ltd	Cox's Boatyard Ltd provides service, maintenance and moorings for all types of Broads boats. It is a thriving company committed to providing the highest standards of marine service in harmony with the characteristics of the area and recognising the charm and ecological importance of Barton Broad and the surrounding marshes.

Organisation	Statement of Interest
English Nature	English Nature is the Government agency that champions the conservation of wildlife and geology throughout England. English Nature has notified the Ant Broads and Marshes Site of Special Scientific Interest (SSSI), and declared Ant Broads and Marshes National Nature Reserve (NNR), of which Barton Broad forms a major part. We are charged by Government with enabling the achievement of favourable condition for the natural features of these sites through our own work and through encouraging other public bodies to fulfil their duties to further the enhancement of SSSIs.
Environment Agency	The Environment Agency is the lead non-departmental public body for protecting and improving the environment in England and Wales. Its vision is for a healthy, rich and diverse environment, working to the environmental goal of sustainable development. Its activities range from influencing Government policy and regulating major industries, right through to day-to-day monitoring and pollution clean up operations at a local level. The Environment Agency also has an important role in warning people about the risk of flooding, and in reducing the likelihood of flooding from rivers and the sea. Much of its work is delivered in partnerships, with Government Agencies, local businesses, councils and interest groups. It aims to work together to achieve enhanced environmental benefits and work towards sustainable development.
Gay's Staithe Management Committee	Appointed by the adjoining Parish Councils (Neatishead, Barton and Irstead). The role of the Committee is to maintain the Staithe for the benefit of the parishioners.
Nancy Oldfield Trust	The Nancy Oldfield Trust was founded by Richard Kenyon in 1984 and provides water activities for people who are disabled or disadvantaged. The activities include sailing, canoeing, motor-boating, fishing and bird-watching. The Trust owns three motor cruisers, one of which is electric powered, and all of which have wheelchair lifts. There are two Bass boats, three half-deckers, a 30-foot yacht, a dory and a 20-foot diesel rescue boat. The Trust runs residentials from a disabled-friendly bungalow and also has the 'Ark', a floating base on Barton Broad.
Neatishead Parish Council	Neatishead Staithe is reached from Barton Broad via Lime-kiln Dyke which, historically, was a vital local trade and communication route. Around the fine village sign, commemorating a long association with the RAF, is the Victory (village) Hall, village shop, public house and restaurant and nearby Accessible Sailing Base. The Primary School, St Peter's Church and Baptist Chapel are further centres in a population of about 500 people spread over a wide geographical area.

Organisation	Statement of Interest
	Much of today's road access to Irstead, Gay's Staithe and the Barton Broad Boardwalk passes through Neatishead, which has always shared many Community activities with both Irstead and Barton Turf.
Neatishead - Residents	The main interest in the Barton Liaison Group is to represent the views expressed by the people of Neatishead. Personal interests include protecting the rights of fishermen and local boating people. The wildlife and its preservation is also of particular interest, as is a further knowledge of the flora of the Broads.
Norfolk Punt Club	The Norfolk Punt Club has been located on Barton Broad for over half a century. It has 550 members who enjoy sailing on the broad, enjoying the companionship and competition together with the wildlife and scenery of the broad. The club runs regular racing on Sundays and Tuesday evenings as well as many open events for different classes of boats throughout the season. The Norfolk Punt Championships are held every August and are keenly contested by all local punt sailors. It also hosts a major Sailing Regatta on the Norfolk Broads when sailors from all over the country come to enjoy the ambience of the broad and the renowned hospitality of The Norfolk Punt Club. The club provides sailing tuition for both adults and juniors together with the opportunity to improve boat handling and racing techniques.
Norfolk & Suffolk Boating Association	NSBA works to serve, protect and promote the interests of private users of pleasure craft in the Norfolk and Suffolk Broads. It has forty organisations directly affiliated with a combined membership in the region of 9000 people. Itself affiliated to the Royal Yachting Association, NSBA is committed to helping to safeguard the wellbeing and special character of Barton Broad in harmony with the traditional rights, use and access to the broad for recreation.
Norfolk Wildlife Trust	Norfolk Wildlife Trust, part of a national network of Trusts, has 25,000 members and owns or manages 40 nature reserves and other protected sites around the County. It works for the protection and enhancement of Norfolk's wildlife and wild places, to secure a better future for wildlife, and improve its understanding and appreciation. Barton Broad and its surrounding wetland are owned, leased and managed by the Trust. Its main aim at Barton is to work with others to protect and restore the site's wildlife, while at the same time recognising the site as a location for appropriate recreation, access and education.

Organisation	Statement of Interest
North Norfolk District Council	North Norfolk District Council looks after a patch of 373 square miles, along 43 miles of North Sea coastline (three quarters of which has Area of Outstanding Natural Beauty status). The Council's services include planning, regeneration and economic development, building conservation and design, preventing homelessness, environmental health, building control, recycling and rubbish collection, administering housing and council tax benefits, developing the arts, sports development and health promotion, community safety, and providing leisure facilities like sports centres, parks and the Pavilion Theatre.

7. LANDSCAPE AND CULTURAL HERITAGE DESCRIPTION

7.1 Medieval Origins

Barton Broad is one of the few broads with a river running through it. Originally the river ran to the east of it and the old course is still the parish and hundred boundary between Catfield in Happing hundred and Barton Turf with Irstead in Tunstead hundred.

In the early Middle Ages the broad was dug as a peat quarry isolated from the river. The peat diggings were flooded in the later Middle Ages and at some unknown date the river was diverted through the broad. This diversion was part of a larger river improvement scheme which cut off wide loops in the River Ant around Catfield Fen and Reedham Marshes leaving part of Irstead parish east of the river and parts of Ludham and Catfield parishes west of the river. The new course was cut close to the 'upland' near Irstead Church and near How Hill creating gravel shoals where people and animals could cross to reach their marshes and fens. It is likely that only St Benet's Abbey would have enough wealth and influence in these parishes to carry out such a scheme which would mean that it was done before 1540. [See T. Williamson, 1997, pp 74-77 and M. George, 1992, pp 40-41.]

7.2 Boundaries

Since 1935 Barton Turf and Irstead have been united into one civil parish but the old boundary between them was a straight line across Barton Broad from Woodend Staithe in Catfield into the western arm of the broad. This boundary line was established in the early Middle Ages or even earlier as a line of sight across open fens before substantial peat digging took place. Several such straight line-of-sight parish boundaries exist in the Ant and Thurne valleys usually sighted onto a church in the distance. The Barton-Irstead boundary lines up with both Coltishall Church six miles to the west and Horsey Church seven miles to the east. [See K. Bacon, unpublished dissertation, 1993 and M. George, 1992, pp 84-85.]

7.3 Peat Baulks and Islands

An important archaeological feature of Barton Broad was the uncut peat baulks left when the peat was dug. Unfortunately these have largely been obliterated by dredging in the last fifty years. They can be seen clearly in aerial photographs from the mid-twentieth century. It seems that the peat was cut in straight bands from the edge of the upland out across the fen. The baulks served as both property boundaries between diggings and access routes to extract the peat. The baulks were aligned south-west to north-east in Irstead parish and north-west to south-east in Barton parish. [See J. Lambert et al RGS, 1960, M. George, 1992, p 82 and B. Moss, 2001, pp 107-111.]

Some baulks formed substantial islands in Barton Broad. In a letter of 1803, just before the enclosure of Irstead's commons, the writer stated *'Hamment used to dry his boulders on hills in the broad called Rakes that are very high. These Rakes…..are 2 or 3 feet higher than the surface of the water, where people cut flags and rushes – they are called the greater and little Rakes – I think the greater Rake contain about 4 to 6 acres.'* [Norfolk Records Office (NRO) MC 121/238-240]. The same writer explains how although Neatishead parish only touches onto Lime-kiln Dyke and the broad, the people of Neatishead shared common rights with those of Irstead on the common fen and water in Irstead parish. *'John Morter cut his boulders and gladding on Irstead Broad and landed them at Irstead Staithe'* (Gay's Staithe) by

the common rights attached to his Neatishead cottage. Neatishead stock had been driven into Irstead Fen across the shoals throughout living memory. [NRO MC 121/12]. The Irstead enclosure awards of 1810 gave $26^{3}/_{4}$ acres of Irstead Fen to be Neatishead Town land.

In addition to the features formed by baulks, floating swamp communities occupied a large proportion of the area of open water [See M. George, 1992, p172 and 182]. This community was made up of true bulrush, lesser reedmace, common reed, with a submerged aquatic plant community in the open water. These communities are no longer found in Barton Broad.

7.4 Family Estates

Before the enclosure awards for Barton and Irstead in 1810 it seems the broad, like most of the surrounding fen, was common waste owned by the lords of the manors but open for parishioners to boat, fish and gather fen crops. In the enclosure awards the Barton part of the broad was awarded to the Durrant family, owners of Barton Hall, and the lords of the manor of Barton Kybalds, and the Irstead section was awarded to the Horner family, owners of Irstead Hall. The Preston family of Beeston Hall bought the Irstead Hall Estate in 1822 and the Barton Hall Estate in 1830. [NRO MC 337/41+127].

7.5 Landscape

Until modern times the landscape around Barton Broad was largely open fen. The Ordnance Survey maps of 1885 and the 1900s show it as open fen with substantial parts of the broad filled with presumably lesser reedmace and reed. On these maps the only carr woodland is at Herons' Carr and around Lime-kiln Dyke. A photo in a 1918 sale catalogue shows the view from Barton Hall over the broad with reed fringes uninterrupted by alder carr. [NRO MC 337/295]. By the mid-twentieth century the whole broad was surrounded by alder carr and sallow carr, because of the decline of traditional fen management. Barton Broad formerly extended further north but by 1885 the OS map shows this northern end overgrown with vegetation with channels from Barton Staithe to both the river and the broad. This has since become a triangular island called the Heater.

7.6 Staithes

In modern times four staithes onto the broad are in public use: Barton Staithe, Gay's Staithe in Irstead, Neastishead Staithe and Woodend Staithe in Catfield. All four were in use by 1810 after the enclosure awards and probably long before enclosure. A map of 1790 shows Gay's Staithe on what was marked as part of Irstead Common and with a branch off a private staithe at Grove Farm. It is named 'Gay's' Staithe as Grove Farm was owned by the Gay family of Aldborough Hall until Mrs Gay sold it to a Mr Joy in 1807. [NRO MC 337/121-124]. 'Woodend' Staithe is so called because the upland on the Catfield side of the Ant valley was formerly an ancient wood belonging to the Earl of Abergavenny. This was cleared in the 1790s and became Wood Farm. Half the 150 acre wood is shown on Faden's map which was surveyed in 1794 and the clearance was described by Arthur Young. [A. Young, 1804, p381 and W. Faden map, 1797].

Other staithes onto Barton Broad may have been public before enclosure (1807-1810) but have been private since. Faden's map of 1797 shows roads leading to the edge of the broad through the former Catfield Wood, near Barton Hall and at Callow Green. The private staithe at Wood Farm, Catfield is shown on the 1885 OS map.

The private staithe near Barton Hall at Hall Dyke is shown on an estate map in 1830. [NRO MC 33/267]. A private staithe existed at the Lime-kiln on the northern side of Lime-kiln Dyke as shown on the 1885 OS map. This map also shows several other 'boat houses' on dykes off the broad.

8. MANAGEMENT OBJECTIVES

8.1 Aim

To achieve and subsequently maintain an ecologically healthy aquatic system in favourable condition whose special features are conserved in harmony with the sustainable management of traditional rights and access to the broad for purposes of navigation and recreation.

1. To achieve and maintain Favourable Condition[2] for the international, national and locally important features of the open water and margins of Barton Broad

As a minimum the following conditions would need to be met:

- Good water quality.
- Clear water.
- Extensive aquatic plant beds in the waterbody.
- Actively-growing reed swamp margins.
- Suitable habitat to support healthy winter waterfowl populations.

2. To maintain and enhance existing recreational access throughout Barton Broad as a resource for public enjoyment.

As a minimum the following conditions would need to be met:

- Maintain appropriate water depth[3] for sailing over an extensive area of the broad, without prejudice to navigation rights.
- Enforce current speed limits to reduce wash and promote eco-friendly boating with sails, electric power, or pollution-free motorboats.
- Maintain existing access on foot to the broad.
- Maintain access for angling.

3. To promote and enhance engagement with interested parties in the management of Barton Broad.

- Maintain shared responsibility for water space management, through a process that builds trust by open communication and consensus building, and deliver a Water Space Management Plan for the shared use of the broad and its surroundings.

4. To facilitate research into the restoration and management of aquatic habitats and species, and the use of these resources to benefit people.

- Continue research into the ecological, socioeconomic and access aspects of lake restoration.

[2] Favourable Condition is defined as 'good ecological health that can be maintained in the longer term'. The requirements of favourable condition are defined by English Nature.

[3] Appropriate water depth to the bottom of the broad and to the top of aquatic plants as defined by Waterways Specifications.

5. **To promote greater public understanding of the natural, cultural and social heritage values of the system in order to inform and develop appropriate use of the site.**

    - Continue to provide readily accessible, well-interpreted information on the cultural and social heritage of the site.
    - Promote the site at an appropriate level and in a consistent manner with respect to it values and services.

6. **To allow for a changing landscape, whilst protecting physical resources of cultural heritage significance.**

    - To identify, protect, retain and/or record and interpret cultural heritage resources.

7. ***To encourage a viable local community and a thriving local economy****.*

    - Encourage initiatives within the objectives of this Plan which enable people to develop the local economy

These objectives will be implemented in a sustainable manner and in line with the set of Guiding Principles outlined in the 2004 Broads Plan, particularly with reference to the following:

Guiding Principle 1 *The Broads will be promoted as a national park, accessible to people of all abilities and social backgrounds to enjoy in quiet and environmentally sustainable ways that are in keeping with its distinctive natural and cultural beauty and that are appropriate to a nationally and internationally protected area.*

Guiding Principle 5 *Water resources within the catchment will be managed sustainably to ensure the proper functioning of the Broads as a wetland system. Habitats, with their associated plants and animals, will be maintained and enhanced to protect them from damaging development, and degraded habitats will be restored to good ecological status. Opportunities will be sought to create new habitats to counter historic trends in the fragmentation and degradation of habitats, and to increase the capacity of the flood plain to function more naturally.*

Guiding Principle 7 *The enjoyment of the waterways is part of the culture of the Broads. The waterways will be maintained and enhanced for purposes of navigation and their safe enjoyment and understanding by the public.*

Guiding Principle 9 *Where there are likely threats of serious or irreversible damage to the environment, as a precaution, cost-effective measures will be taken to prevent environmental degradation in the absence of full scientific certainty of the outcome of such threats.[4]. Such precautionary action will be based on assessment of the costs and benefits of action, and transparency in decision-making.*

Guiding Principle 12 *The impacts of climate change, particularly in respect to sea level, rainfall and storminess, and combined with those of a sinking coastline, will be managed sustainably over the longer term. It is inevitable that some habitats will become wetter and water more saline over the next 100 years.*

These objectives will be implemented with due regard to rights of access, as documented in Section 4, and relevant legislation, as summarised in Sections 1.4 and 5.5.

[4] Based on the definition of the Precautionary Approach in the *Rio Declaration on Environment and Development*, 1992.

9. IMPACT ASSESSMENT: CONSTRAINTS AND RATIONALE

9.1 Constraints

This section discusses the major impacts that may constrain achievement of the ideal objectives of the Plan.

Category	Impact
Natural trends	
Feral geese grazing on reed swamp	Loss of reed swamp habitat via grazing, trampling and localised eutrophication.
No viable seed bank in the sediment	As a result of the absence of aquatic plants for many years the surface sediment does not contain many viable aquatic plant seeds, thus natural regeneration may be impaired. However silt removal may expose viable seed bank.
Encroaching scrub	Dense scrub can shade reed vegetation, dry out land, reduce wind speed for sailing vessels, alter wind direction and create a hazard if trees become unstable.
Nuisance aquatic plant growth (e.g. invasive species, blanket weed)	Abundant aquatic plant growth of certain species can out-compete other species and prevent free and safe access for boating.
Man-induced trends	
Climate change	The effects of climate change are difficult to predict for Barton, since it is not known precisely what form this will take. A move towards milder, wetter winters may lead to improved survival of some invertebrate species and extend the water sport and visitor season. The predicted increase in rainfall and storminess may have positive impact of greater overall water input but impacts of increased soil loss from surrounding arable land may have negative effects on the site. Drier summers could have potentially adverse effects on flow rates of the River Ant, with the consequence of increasing nuisance algae and turbid water as a result. The fringing vegetation could also be affected by low summer water levels or long periods of elevated water level. Rising sea levels may increase the frequency of saline incursion in Barton.
Tidal surge / coastal breach	Tidal surge could impact on Barton by increasing the frequency and magnitude of penetration of saline water upriver to Barton Broad, but the degree of this is not possible to describe with the current state of knowledge. Major coastal breach may also impact on Barton Broad.
Resistance to further biomanipulation	Biomanipulation, involving the temporary removal of selected fish species to facilitate development of clear water conditions via influence on the food web, is a proven management tool for restoration of degraded broads. Biomanipulation in Barton is done by installation of fish-proof curtains, which also exclude access of most craft while in place. Many boaters have expressed concern about the use of water space for biomanipulation due to the loss of navigation and the impacts of aquatic plants on boating. Larger scale restoration through biomanipulation at Barton would be difficult to achieve given limitations of existing techniques.

Category	Impact
Bird disturbance and lack of natural refuges	Boats and people can lead to disturbance of birds especially where there are few places for birds to avoid disturbance. Disturbance and the effect on birds has not been measured for Barton Broad.
Boat pollution	Research by the Centre for Environment, Fisheries & Aquaculture (CEFAS) and others indicates that Tri-butyl Tin levels had an impact on the degradation of the Broads ecology. Biocides and copper in currently used antifouling are also thought to have a negative impact on aquatic life. The impact of grey and black water is unknown but likely to be low compared to the nutrient originating from the catchment, however bacterial water quality should also be considered. Oil pollution from boats and businesses close to watercourses is a risk.
High boat numbers	The impact can be negative in terms of noise and stress, or positive in terms of the exhilaration of sailing races.
Aquatic plant cutting	Cutting and removing aquatic plants to attain water depth for recreation and access has a potential positive effect by removing nutrient from site and creating space for boat use, which is essential for supporting the local tourism economy and enjoyment. However the impact can be negative in terms of damage to habitats and species and thus has to be carefully considered.
De-silting	De-silting to maintain water depth and space for water recreation and access, in addition to removing nutrients from the waterbody has resulted in positive impact. However, dependent on the frequency of de-silting, freshwater mussels and aquatic plants can be affected and the impact on fishery is unknown.
Sediment accumulation	High rates of sediment accumulation from algae, bank and catchment input, can impact on available water space for recreation and wildlife. Measured sediment accumulation in Barton remains high at around 1.5 cm yr^{-1}.
Nutrient enrichment	High concentrations of nutrients have resulted in turbid water and a decrease in the diversity of species and habitats, reducing wildlife value of Barton Broad. Blue-green algal blooms can also result, impacting negatively on water sports.
Invasive species	Potential impact on recreation and conservation interest from aquatic plant species (Floating pennywort and New Zealand stonecrop). Mink have a negative impact on water vole populations.
Litter and discarded tackle	Litter and discarded fishing tackle is unsightly and can prove hazardous to wildlife and people.
Bankside development	Impacts should be picked up via planning controls.
Lack of toilet facilities	No toilet facilities anywhere apart from Gay's Staithe. Inconvenience for visitors.
Public awareness limitations	Lack of information on importance of site for uses can lead to a lack of appreciation of the value of the site.
Seasonality of tourist trade	The tourist trade is mostly limited to the summer holiday season. High numbers of boats can result in conflict of water uses and cause disturbance to wildlife. However, out of peak season, when the water is quiet there is little conflict/disturbance.
Appropriate sign posting	Without adequate sign posting people are unsure about where to navigate on the water. This can result in disturbance to the margins or result in conflicts between users, such as hire craft and children learning to sail. Signs themselves can have a negative impact on the natural landscape.

Category	Impact
Change of landscape and loss of cultural heritage	Erosion and dredging have resulted in a loss of peat baulks. The loss of historical knowledge and traditional land management is threatened by social and economic change.
External factors	
Diffuse pollution	This comes from many sources such as agriculture, roads, airborne, intermittent discharge from sewers, septic tanks and soakaways. The combined impact on Barton is likely to be high.
Water quantity	Abstraction licences control the quantity of water abstracted. Water quantity is linked to water quality. Climate change may also affect the amount of water flowing through Barton.
Pollution events	Pollution from upstream such as a burst sewer, oil spills, or discharge from industry could impact on Barton.
Failure to resolve conflict	Conflicts between users could impact on the future management decisions and policies implemented on Barton Broad.
Legal constraints	
	Duties under the main Acts relevant to waterways are outlined in sections 4 and 5. These sections do not include all Acts that may affect use of the site. Acts that may affect Barton are listed in the References.
Constraints of tenure	Norfolk Wildlife Trust owns all the land within the National Nature Reserve that is within the Water Space Plan area; there are no known constraints of tenure.
Constraints of access and shared use of water space	People have full and free right of access to the water space apart from a few private dykes off Lime-kiln Dyke. Access routes onto the water and surrounding land and supporting infrastructure are outlined in Section 4. The grass track at Catfield should not be used in wet conditions. Beginner and racing sailing craft, fishing dinghy's, pleasure craft, other small craft share the water space. There is potential for conflict between users.
Health and safety of employees	All works carried out on site must be done with full compliance with the Health and Safety at Work Act (1974) and the relevant organisations' own Health and Safety procedures, particularly those applying to lone working. The site is deemed to be hazardous due to the presence of water.
Management constraints	
	Broads Authority, Norfolk Wildlife Trust, Environment Agency and English Nature staff and the financial resources are limited. Generally resources are available for maintenance of water and land access, landscape, conservation features, baseline water quality and species monitoring, navigation safety and interpretation. Additional resources are required for works such as restoration of the sediment disposal site, replacement of channel markers, future sediment removal, continuing lake restoration including maintaining the floating island and additional and scientific research.

9.2 Rationale

This section discusses management rationale for managing impacts in habitat and use terms.

Open Water

Nutrient input (mainly phosphorus) from major sewage treatment works and industry upstream of Barton Broad has been markedly reduced since the late 1970s. However aquatic communities are showing a slow response to this decrease in nutrient, the water remaining turbid enough to restrict aquatic plant growth. Studies have shown that sediment nutrient release has taken 15 years to respond to the decrease in upstream nutrient inputs (Phillips *et al* 2005). Algal populations have however changed in response to the lower nutrient level and water is clearer, with a trend of less blue-green algal blooms recorded from 1980-2004. In 2005 water clarity was good, probably as a result of increased grazing on algae from zooplankton. It is likely that this increased grazing pressure gave large colonial blue-green algae a survival advantage, as in 2005 blue-greens (mainly *Microcystis*) were evident in the open water for much of the summer.

Continued water quality and biological monitoring is essential to further our understanding of this gradual recovery process.

Sediment removal (1995-2001) further reduced sediment nutrient input and increased water depth and space for water recreation. Further bathymetric surveys are required to determine subsequent changes in bed level and sediment chemistry monitoring to determine changes after dredging.

Several, fish free, clear water areas created in bays have, within a two-three year period resulted in aquatic plants' re-growth in these areas. Aquatic plants provide habitat for aquatic wildlife and food for water birds.

These clear water areas are monitored each year and will be fully evaluated in terms of their original objectives in 2007. This evaluation will be subject to consultation with the Barton Liaison Group, and Full Authority Committee if required, before further such structures are installed or removed from Barton Broad.

It is likely that a further nutrient decrease will be required to achieve favourable condition of Barton Broad. This will only be possible if steps are taken to minimise diffuse pollution from agriculture via new agri-environment schemes and leaks from septic tanks and soakaways by increased uptake of first time rural sewerage.

Swamp Communities

The trend of loss of reed swamp vegetation over the last 60 years has not yet been reversed, however the current loss rates are not known. It is certain that some areas of rooted reed swamp are beginning to actively grow, though it is also certain that hover reed swamp areas continue to be lost. Many of the historic peat baulks have been permanently lost and it is important that those that remain are recorded and protected.

In addition to the almost complete absence of submerged aquatic plants, there is also limited emergent vegetation available to aquatic life, such as fish, thus restoration of the reed swamp margin should continue using mechanisms such as

scrub control. Other mechanisms for restoring an actively growing reed swamp should be investigated.

Reed swamp will continue to be managed to be the dominant littoral community as it is valued for landscape, heritage and recreational purposes.

Wet Woodland – at water's edge

Mature wet alder carr woodland around Turkey Broad and Neatishead Arm has been shown to be extremely species-rich for invertebrates. It provides valued habitat for nesting herons as well as providing leaf matter for aquatic invertebrates and cool, safe, shaded water for fish.

Rare and Potential Pest Species

Most rare and local species should be protected by the habitat management measures outlined above, but survey, especially of aquatic plants and invertebrates, should be undertaken to determine what species remain or have re-colonised. Where Biodiversity Action Plans exist for certain species, management should be compatible.

There have been signs of mink on the site and these require a vigorous trapping and eradication programme. English Nature funds trapping on the Ant valley both north and south of Barton, due to the danger presented to water voles.

Access and Recreation

The site is popular with visitors and residents and it has open access at all times of year, although is much less busy in the winter period. Given the current poor quality of the broad as bird habitat, in terms of general low abundance of aquatic plants and associated invertebrates, there should be no imposed change in the level of public use in the short term. In the medium term wildfowl monitoring will be enhanced to provide better information on bird movements as well as numbers. In time this will help inform reviews of bird disturbance and any mitigation needed, including refuges where necessary.

Sedimentation from bank erosion, field and road runoff and algal inputs are continuously reducing water depths in the broad at the rate of approximately 1-1.5 cm per year. Maintenance of appropriate water depth via an approved programme of dredging is critical for maintaining boat access, supporting water based recreation and the Broads boating and tourism economy. However, dredging should not result in the further loss of historic peat baulks.

The National Nature Reserve site status supports facilitating access for people to enjoy and experience nature. It is unlikely that access points to view or board/launch a boat, additional to those currently provided, could be made available. Angling is mainly from boat and staithes. Land based recreation around Barton has recently improved with the installation of the boardwalk and should be maintained at this level and quality.

Barton provides safe inland water for tuition in sailing and other small craft as well as water space for racing sailing, pleasure craft and angling from dinghy. Informal arrangements between sailors from the Norfolk Punt Club and local anglers exist and provide some guidance on water space use during peak times.

Navigation markers are currently a mix of buoys and posts. These should be reviewed in terms of navigation safety, landscape and nature conservation requirements.

Zonation as a Tool for Managing the Use of Water Space in Barton Broad

In order to inform decision-making and facilitate management of the open water, Barton Broad can be provisionally zoned into a central area of potential intervention, in terms of cutting aquatic plants, and a marginal area of non-intervention in terms of no cutting of aquatic plants, as shown in Map 6 (Appendix 1). These zones are based on current priority areas on Barton for nature conservation, with respect to plant and bird distributions, and recreational use, while recognising that there is a right of navigation throughout the entire broad.

The Barton Liaison Group has agreed to adopt a non-intervention zone, comprising a 20m margin around most of the broad including additional quiet bays, such as south Turkey Broad. All other water space is potentially subject to aquatic plant cutting and will need to be examined on a case-by-case basis. Due to its SAC (Special Area of Conservation) status, any proposed cutting (or other) prescriptions not necessary for nature conservation management of the site will need to be subject to an Appropriate Assessment in accordance with Habitat Directive regulations if judged likely to have a significant effect on the integrity of the site (Appendix 4).

These zones are provisional and may need to be modified over time in order to accommodate changes in the ecological condition of the broad and changes in recreational use. The adoption of these zones by the Barton Liaison Group will not prejudice the rights of any party to seek to refine or review them at any time. The provisional zones will be subject to regular review by the Barton Liaison Group.

Process for Assessing any Proposed Cutting of Aquatic Plants

Although not a current consideration for Barton Broad, the available water depth for vessels could be restricted by aquatic plant growth. Depending on the scale of any proposed cutting (or other management) of aquatic plant beds, it is possible that the Broads Authority, as Competent Authority, will be required to undertake an Appropriate Assessment, under the Habitats Regulations, to assess any significant impacts of the proposed management This assessment considers only the impact upon European designated wildlife features. If proposals were considered to result in an adverse impact to the integrity of the European site, then they would need to be changed to avoid such impacts. If this was not possible the project would be unable to proceed, unless a case for ‘over-riding’ public interest could be made despite the predicted significant effect on the site. This process is shown in Appendix 4.

The process would be triggered in the event of significant aquatic plant growth, as evident from the distribution and height of plants, outside of the agreed non-intervention zones that significantly constrains recreational activities. (It is not practicable to define 'significant' in quantitative terms and, therefore, will be subject to expert judgement by the interested parties.)

Once triggered, the Broads Authority would discuss cutting options with interested parties through their representatives on the Barton Liaison Group and keep the entire membership advised of any emerging proposal in order to secure consensus from members. Any objection to the proposal from a party represented on the Liaison Group would be duly acknowledged in the proposal.

The aim of any cutting or related proposal will be to meet the needs of the majority (preferably all) of recreational users (e.g. boaters, anglers, wildlife watchers) without having a significant effect on the site. If this can be achieved, then it would not be necessary to embark further on an appropriate assessment.

If the proposal is deemed likely to have a significant effect on the site, then it will be necessary to undertake an Appropriate Assessment, for which purposes the Broads Authority may engage an independent panel of experts. The Appropriate Assessment will need to demonstrate that, based on current scientific knowledge and available evidence, the proposal has no significant adverse effect on the integrity of the site and its maintenance in favourable condition.

The Broads Authority, independent experts and English Nature aim to respond as quickly as possible and ensure that mechanisms are in place to resolve issues quickly. The Barton Liaison Group will be consulted within one month of developing a cutting proposal. English Nature has a maximum statutory 21-day response time, but aims to respond as quickly as possible. The speed of any response will be related to how much sound scientific information is readily available with regard to the proposal, hence the importance of continuing research and previous experience in management.

Engagement with Interested Parties

Engagement with interested parties is essential with high potential for conflict between users in this important nature conservation and boating site. The Barton Liaison Group is the main mechanism for consultation and forming balanced considered views with interested parties.

Study and Research

The broad is well researched with good water quality, fish and aquatic plant data, extensive studies have been undertaken on catchment water quality. The existing study and research is outlined in Appendix 3.

Further research should be encouraged particularly in the following areas:

- diffuse pollution from the catchment;
- socio-economics, the importance of healthy nature for healthy people, and maintenance of this delicate balance;
- bathymetric survey to determine sedimentation pattern and rates;
- nutrient concentration and release from sediments post dredging to determine long-term success; and
- bird disturbance/refuges with current use.

Education and Interpretation

NNR status supports Barton as a place people come to learn about nature, and man's interaction with the site.

Education and interpretation is currently provided at and by Herons' Carr Board walk, Ra, staithe signs, Broads Authority, Norfolk Wildlife Trust, English Nature, How Hill Trust, Nancy Oldfield Trust, BTAC and via the members of the Barton Liaison Group.

There is an aim to produce a leaflet to summarise the results of the lake restoration project.

Landscape and Cultural Heritage

Reed swamp, open fen and reed-beds around Barton were a valued historic resource, which has resulted in today's landscape. The modern marginal landscape includes wet woodland. Conservation organisations continue to maintain the reed margin of the broad for nature conservation reasons. Management of recent scrub should be considered as guided by the Broads Authority Tree and Scrub Management Guidance.

Remaining peat baulks should be recorded, preserved and where possible appropriately restored.

Staithes on Barton provide public access points to the water, not for launching. Gay's Staithe has a Management Committee, which guides development and use. Historic sunken vessels and other resources of cultural significance should be recorded. A policy and strategy for protecting, maintaining and recording is required. Identification could be via the sites and monuments record held by Norfolk Landscape Archaeology.

10. ACTION PLAN

10.1 Longer Term Projects

In the long-term the character of Barton Broad may evolve from changing land and water management. Whilst not proposing specific projects, the Barton Liaison Group recognises and is supportive of the following Broads-wide project areas:

- Work with landowners to address diffuse pollution from agriculture and promoting Environmental Stewardship take up.
- Develop a catchment vision and delivery project for land and water management in a sub-catchment approach (for example the Ant valley).
- Develop a rural skills base as part of a wider Broads programme.
- Support for the Norfolk Biodiversity Action Plan and emerging Broads Local Biodiversity Action Plan.
- Work with the Broads-wide initiatives to improve the water quality in the catchment.
- Draw together Broads-wide information on feral geese, their movements and review control methods.
- Review boat speed limits, compliance and requirements for any reductions.
- Review use of boat electric charging points and extend where required.
- Encourage Broads boat users to switch to more environmentally-friendly fuels and antifoulants.
- Encourage the Broads Local Access Forum to pursue registration of unregistered Rights of Way by 2020 (CROW Act).
- Monitor moorings condition and implement Moorings Strategy where applicable.

10.2 Five Year Action Plan

Projects specific to Barton Broad water space are listed in the following tables. Plan years are listed as 1 to 5, with year 1 being April 2006 to March 2007, and year 5 being April 2010 to March 2011.

Nature Conservation

Operational Objective	*Outline Prescription*	*Ref / Project*	***Lead** and partners*	*Years project active*	*Indicative additional total cost*[5]
Achieve and maintain good water quality and quantity	Reduce nutrients and other contaminants to produce clear water conditions	Find an environmentally sustainable solution to the Sutton Staithe intermittent discharge	**AW**	1,2,3	
		Investigate diffuse effluent minimisation, including first time rural sewerage in communities around Barton	**Parish Councils,** AW, BA	Ongoing	
		Deliver scheme to improve sewerage in Neatishead	**AW**	1,2,3	
		Investigate provision of public toilet facility for Barton Turf	**Parish/District Councils, Cox's Boatyard**	1	
Achieve and maintain quality and quantity of aquatic communities	When water quality in Ant/Barton is of appropriate quality restore hydrological connections from the River Ant to the fens	Feasibility study of connecting fen areas to river	**EN,** RDS, BA, NWT	4,5	10,000
	Promote recovery of aquatic plants	Maintain/remove /replace fish-proof curtains and selectively remove fish from 4 enclosed areas	**BA,** EN, NWT	1,2,3	10,000 – 35,000
Monitor aquatic communities and supporting elements	Survey and monitor aquatic plants, animal communities, water quantity and quality	Monitor - fish populations - water quality - aquatic plants in biomanipulation areas	**BA, EA**	Ongoing	
		Review and report on biomanipulation areas	**BA,** consultant	2	2,000

[5] Costs indicated are additional to existing budgets

Operational Objective	*Outline Prescription*	*Ref / Project*	***Lead** and partners*	*Years project active*	*Indicative additional cost*
		Monitor - fish populations - water quality - aquatic plants in the broad and adjacent navigation	**EA, BA**	Ongoing	
	Control pest species	Support and participate in mink trapping	**EN,** BA, EA, IBD, landowners	1	20,000 (All broads)
Maintain and enhance reed swamp communities	Promote recovery of marginal reed swamp growth	Inspect and maintain the floating island	**EN**, BA	Ongoing	
		Review floating island	EN	1	
	Survey and monitor plant communities	Record extent of reed swamp on aerial photos every 4 years	**BA**	Ongoing	
	Manage encroaching scrub	Manage vegetation by rotational reed cutting and scrub control including the island	**NWT**	Ongoing	
Maintain disturbance-free winter bird refuges		Monitor wildfowl numbers and patterns of use.	**NWT**, EN, BA	Ongoing	
		Monitor disturbance to winter wildfowl from people and boats	**BA**, **NWT** EN	1, 2, 3	

Access and Recreation

Operational Objective	*Outline Prescription*	*Ref / Project*	***Lead** and partners*	*Years project active*	*Indicative additional cost*
Maintain and monitor appropriate water depth for sailing	Monitor depth of the broad	Repeat Hydrographic Survey	**BA**	5+	
	Ensure appropriate water depth for navigation	Analyse results of 2005 Hydrographic Survey and feed into dredging programme	**BA**	1	
		Assess impact of aquatic plant growth and management on boating	**BA,** BLG	Ongoing	
		Manage aquatic plant growth and sediment accumulation where required and agreed	**BA**	As required	
		Consider trial aquatic plant cutting in Cox's Boatyard, subject to agreement	**BA,** Cox's Boatyard	1, 2, 3	
Maintain and monitor access on water	Ensure appropriate facilities for water access	Provide guided boat trips on Ra	**BA**	Ongoing	
		Maintain slipways and staithes for launching	Parish Councils, Cox's Boatyard, BA	Ongoing	
	Monitor number and types of boats using Barton water space	Continue boat census every 4 years and consider need and method for additional monitoring on Barton.	**BA**	1, 5	
	Ensure safe water use and access	Explore appointment of community based Auxiliary Navigation Rangers to work with BA patrol staff	**BA**	2,3	
		Use Best Value patrolling targets to improve patrolling and monitor and enforce speed compliance on Barton	**BA**	2,3,4,5	

Operational Objective	*Outline Prescription*	*Ref / Project*	***Lead** and partners*	*Years project active*	*Indicative additional cost*
	Ensure appropriate and safe marking and signage for navigation	Patrol area to ensure current systems are maintained	**BA**	Ongoing	
Promote eco-friendly boating	New electric charging points around Barton	Investigate need for and opportunities for electric charging points around Barton	**BA**	2,3	
Maintain and enhance moorings	Work towards enhancing opportunities in accordance with Mooring Strategy	Consult on and implement Moorings Strategy action plan - likely to resolve to maintain existing moorings around Barton	**BA**	Ongoing	
Maintain and monitor access on foot	Maintain boardwalks in a good condition	Maintain boardwalks and paths, ensuring litter is removed	**BA**	Ongoing	
	Monitor number of people using Herons' Carr Boardwalk	Install a people counter at Herons' Carr Boardwalk	**BA**	1	
Maintain access for angling.	Enhance slipway provision in accordance with Angling Slipway Strategy	Implement Angling Slipway Strategy outputs for areas adjacent to Barton	BA, EA, BASG	Ongoing	

Enhance Engagement with Interested Parties

Operational Objective	*Outline Prescription*	*Ref / Project*	***Lead** and partners*	*Years project active*	*Indicative additional cost*
Maintain shared responsibility for water space management	Communicate the Water Space Management Plan to local interest parties	Launch the Water Space Plan and produce Executive Summary	BLG	1	
	Communicate the Water Space Management Plan to wider stakeholders	Broads Forum, Broads Authority, Navigation Committee	BLG	1	
	Liaison with interested parties	Support and administer the Barton Liaison Group	BA	Ongoing	
		Review Water Space Plan	BLG	5	

Research into the Restoration and Management of Wetland Habitats and Species

Operational Objective	*Outline Prescription*	*Ref / Project*	***Lead** and partners*	*Years project active*	*Indicative additional cost*
Encourage and support study and research	Contribute towards relevant MSc and PhD projects	Investigate sediment nutrient levels and nutrient release rates	**BA**, **EA**	Ongoing	
		Investigate increase in colonial blue-green algae	**BA, EA**	Ongoing	
Provide educational facilities	Provide habitat and species management demonstrations, information and advice to visiting specialists and managers	Guided visits for schools, universities and partners	**BA**, EN, EA, NWT	Ongoing	

Public Understanding

Operational Objective	*Outline Prescription*	*Ref / Project*	***Lead** and partners*	*Years project active*	*Indicative additional cost*
Provide quality interpretation for all and an appropriate level of promotion of the site	Interpret the lake restoration project including Herons' Carr boardwalk	Produce a leaflet summarising the restoration project	BA	1	
		Agree and install signs along the boardwalk	**BA**, BLG sub-group	1	
		Update leaflets for schools	**BA, NWT**, NCC, How Hill	2,3	
		Produce NNR leaflet	**NWT**, EN, BA	1	
		Produce leaflet as part of series for Broads nature reserves	**BA**, NWT, EN,	1	
		Update lake restoration project information on BA web site and link to others	**BA**, BLG	1	
		People and Wildlife workshop	NWT	1	
		Produce information in user group literature	Broads Angling Strategy Group	Ongoing	
		Identify speakers for local groups	BLG	Ongoing	

Protected and Recorded Landscape and Cultural Heritage

Operational Objective	*Outline Prescription*	*Ref / Project*	***Lead** and partners*	*Years project active*	*Indicative additional cost*
Identify protect record and interpret resources of cultural heritage significance	Assess man-made structures for landscape, whilst allowing for history, navigation requirements and cultural heritage development	Consult and review all man-made structures with the Barton Liaison Group	BLG	2,3	
		Restore the old dredging disposal site at the north of the broad by opportunistic removal of material and re-vegetation	**BA**, NWT, EN, BESL	Ongoing	

11. GLOSSARY

Actively-Growing Margins
To provide feeding areas for bittern, feeding, breeding and shelter for other species of birds, fish and mammals, and bank erosion protection.

Aquatic Plant Target for the SSSI
Species composition should be appropriate for eutrophic waterbodies and a mixed aquatic plant community should be maintained. Ideally plant beds would consist of species which are accessible to feeding Special Protection Area (SPA) birds[6].

In the longer term if Barton Broad were to move towards a lower trophic status (<35μg/l), then this would be welcomed for nature conservation. If in doing so tall-growing aquatic plant species were to be replaced by lower-growing ones (and such a change in dominance cannot be certain), and accordingly the lake was able to support fewer wintering birds, English Nature would still view this as favourable. However, if the lake were to maintain itself in a stable tall-growing aquatic plant-dominated state, this too would be favourable.

Competent Authority
Competent authorities are those that have statutory functions, duties and responsibilities to act, consent or authorise plans or projects (e.g. central government departments).

Eco-Friendly Boating
Refers to locally environmentally-friendly and whole life sustainability considerations; these principles are guided by Broads Research Advisory Panel Sustainable Boating Workshop and the Eco-Boat Seminar in 2004. Considerations include noise, fumes, clean and efficient fuel type, antifouling paint type, and hull design.

Good Water Quality
Target of no more than 70μg/l total phosphorus. Targets for nitrogen not yet available in the current state of knowledge.

Interested Parties
Those groups and organisations having an interest or stake in the restoration, use and management of Barton Broad.

Phosphorus and Nitrogen
Substances required by living organisms, generally found in fertilisers and sewage. Target total phosphorus concentrations for nutrient rich (or eutrophic) waters for the Broads are thought to be around $70\mu gl^{-1}$ (mean annual concentration), for naturally lower nutrient (or mesotrophic) waters the target is $35\mu gl^{-1}$, (draft Water Framework Directive Targets). No official targets have been developed for nitrogen, however winter means of $<2.5mgl^{-1}$ are thought to decrease the diversity of aquatic plant species.

Public Service Agreement (PSA)
Defra's target, of having 95% of SSSIs (by area) in favourable or recovering condition by 2010.

[6] Special Protection Area (SPA), under the EU Birds Directive legislation, includes gadwall, shoveler, great crested grebe, coot, tufted duck, pochard and cormorant. All these birds will/do utilise the habitat of Barton Broad.

SSSI Condition
The condition of the SSSI land in England is assessed by English Nature, using categories agreed across England, Scotland, Wales, and Northern Ireland through the Joint Nature Conservation Committee. There are six reportable condition categories: favourable; unfavourable recovering; unfavourable no change; unfavourable declining; part destroyed and destroyed. Refer to English Nature web site for more details: http://www.english-nature.org.uk/

> ***Favourable Condition*** means that the SSSI land is being adequately conserved and is meeting its 'conservation objectives'; however, there is scope for the enhancement of these sites.
>
> ***Unfavourable declining*** means that the special interest of the SSSI unit is not being conserved and will not reach favourable condition unless there are changes to site management or external pressures. The site condition is becoming progressively worse.
>
> ***Unfavourable no change*** means the special interest of the SSSI unit is not being conserved and will not reach favourable condition unless there are changes to the site management or external pressures. The longer the SSSI unit remains in this poor condition, the more difficult it will be, in general, to achieve recovery
>
> ***Unfavourable recovering*** condition is often known simply as 'recovering'. SSSI units are not yet fully conserved but all the necessary management measures are in place. Provided that the recovery work is sustained, the SSSI will reach favourable condition in time.

Waterways Specification
Depth specification, agreed with users, to be achieved by Sediment Management Strategy action plan.

Zooplankton (e.g. *Daphnia*)
Daphnia, otherwise known as 'water fleas'. They are a group of tiny crustaceans (related to crabs and lobsters), who filter the water they live in and eat the algae they find in it. They are actually attracted to wavelengths of light given off by algae. But they can't cope with the long strings of blue-green algae, which clog up their mouth parts, making them waste masses of time cleaning themselves up.

12. REFERENCES

Broads Authority, (2004), Broads Plan.

Bacon K, unpublished dissertation, 1993

English Nature web site for favourable condition attribute tables: http://www.english-nature.org.uk/

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Moss B, Madgwick. J., Phillips G. (1996), A guide to the restoration of nutrient-enriched shallow lakes. Broads Authority, University of Liverpool, Environment Agency.

Phillips G, Kelly A, Pitt J-P, Sanderson R and Taylor E (2005), The recovery of a very shallow eutrophic lake, 20 years after the control of effluent derived phosphorus. *Freshwater Biology.*

Sayer C.D. et al (Submitted), TBT Causes Regime Shift in Freshwater Lakes. *Environmental Science and Technology.*

Williamson T. (1997), The Norfolk Broads: a Landscape History, Manchester University Press.

13. LIST OF ACTS

The following Acts may be relevant to Barton Broad, but they should not be considered as a definitive list.

- Port Marine Safety Code, 2001
- Norfolk and Suffolk Broads Act, 1988
- The Conservation (Natural Habitats &c) Regulations, 1994
- Wildlife and Countryside Act, 1981
- Countryside and Rights of Way Act, 2000
- Water Framework Directive, 2000
- Occupiers' Liability Act, 1996
- Health and Safety at Work Act, 1974
- Town and Country Planning, 1990
- Forestry Act, 1967
- Safety Signs Regulations, 1990
- Disability Discrimination Act, 1995
- Water Resources Act, 1991
- Environment Act, 1995
- Land Drainage Act, 1991

Broads Authority
The Broads - a member of the National Park family

Barton Broad Water Space Management Plan

APPENDICES

APPENDIX 1

Barton Broad: Site Maps

- Map 1 – Barton Broad Conservation Designations (National Nature Reserve, Site of Special Scientific Interest, Special Area of Conservation and Special Protection Area)
- Map 2 – 2004 Aerial Photograph of Barton Broad
- Map 3 – Barton Broad Features of Interest and Importance
- Map 4 – Existing Use 2005 A
- Map 5 – Existing Use 2005 B
- Map 6 – Provisional Zones

APPENDIX 2

Barton Liaison Group: Terms of Reference and Membership

CONTEXT

Barton Broad lies in the north of the Norfolk and Suffolk Broads. The River Ant flows southward through the lake, which covers 77ha and is the second largest area of open water in Broadland. The 87km^2 catchment upstream of Barton Broad is used mainly for arable production, with some livestock production on remaining undrained grazing marshes. The human population of the catchment is 14,000, of which the majority (9,400) live in North Walsham.

Norfolk Wildlife Trust owns Barton Broad, which was bequeathed in 1936. The broad falls within the parishes of Barton Turf and Irstead, Catfield and Neatishead. Public rights of navigation exist over Barton Broad and, as a result of dredging, much of the open water area is a sufficient depth (1.75m on average) for navigation.

The open water of Barton Broad forms a significant part of the 154 ha National Nature Reserve. The broad is also part of the Ant Broads and Marshes Site of Special Scientific Interest (SSSI), notified for its fine examples of unpolluted fen, nationally important stands of mature carr woodland and the wide range of wetland habitats which give rise to an associated fauna of exceptional interest. In association with the other broads in the River Ant Valley, Barton attracts moderate numbers of wintering wildfowl including mallard, teal, wigeon, shoveler, pochard, and tufted duck.

The international importance of the site as an example of a shallow naturally fertile lake is reflected in it being part of the Broads Special Area of Conservation and Broadland Special Protection Area under the European Habitats and Birds directives, respectively. Barton Broad is also part of the Broadland Wetland of International Importance especially as Waterfowl Habitat, designated under the Ramsar Convention.

The character of the landscape at Barton, formed by the kilometre long stretch of open water surrounded by semi-natural and natural habitats, is highly valued by visitors and local residents alike. It has been strongly influenced by human intervention over the ages, from its formation from the extraction of peat, through ecological decline that culminated in the loss of clear water and emergent vegetation by the 1960s to more recent restoration measures, reed-bed management and markers to guide navigation. It is an unusual broad in that, unlike many others, it is not set back from a major river: instead, the River Ant flows through the lake. This is the result of changes made at an unknown date (before the eighteenth century) to improve navigation on the river.

Barton Broad is a very important and popular recreation area particularly for sailing, the boat hire industry and angling. Traffic from pleasure boats is particularly heavy along the River Ant during holiday seasons, en route from the hire yards to the north of Barton to and from the River Bure. Barton Broad is home to a well-established sailing club (Norfolk Punt Club) as a result of the good sailing conditions, and two centres (Barton Turf Adventure Centre and Nancy Oldfield Trust), which respectively provide tuition in water sports and special facilities for disabled people. Canoe hire is also available upstream of the broad and the Authority runs eco-boat trips in Ra, its quietly propelled solar boat. Angling is a popular sport on the broad and adjacent access points, with some large bream and pike to be caught. Other facilities adjacent to the broad include Cox's Boatyard, pubs, shops and the new boardwalk built by the Broads Authority.

Nutrient enrichment over the last four decades has resulted in marked deterioration in water quality and consequent disappearance of most aquatic plants. Restoration began in the late

1970s with phosphorus removal and diversion of effluent from upstream sewage treatment works. This improved overall water quality but remained shallow, as a result of high sedimentation, and dominated by algae. A large-scale programme of restoration measures, including dredging and biomanipulation (temporary removal of fish to create clear water), has improved the depth and extent of the area for navigation, further reduced nutrient levels and produced clear water and associated aquatic plant growth in some small areas around the periphery. Extensive removal of scrub has maintained the reed margin and improved sailing conditions. In addition, a novel floating island of reed covers a submerged navigation hazard and provides a refuge for fish.

AIM

The overall aim of the Barton Liaison Group is to develop by consensus a common vision and plan for sustainably managing Barton Broad that takes into account its importance and values for natural and cultural heritage, navigation and other forms of recreation, and local livelihoods.

OBJECTIVES

1. To develop a common understanding among interested parties of:

(a) the importance of Barton Broad for natural and cultural heritage, navigation and other forms of recreation, and social, cultural and economic activities; and
(b) the legal framework under which the site will be managed.

2. To define and agree by consensus a process and schedule for developing a five-year plan for managing Barton Broad, focused on maintaining the environment and waterways in good, sustainable ecological condition in harmony with the traditional use of and access to the broad for navigation and other forms of recreation.

3. To develop a management plan within the framework provided by the European Habitats Directive/Regulations, given that Barton Broad forms a part of the Broads Special Area of Conservation, and other relevant national and international legislation, including the Norfolk and Suffolk Broads Act, Ramsar Convention and Water Framework Directive.

4. To be responsible for the development of the management plan through a consensus-building approach whereby all valid interests are represented.

SCOPE

The geographical remit of the Barton Liaison Group will cover the open water and adjacent margins of Barton Broad within the executive area of the Broads Authority, and related matters. It will also include adjacent areas of access to the executive area, as appropriate.

The management plan will focus on providing an integrated strategy for achieving conservation and recreation objectives with respect to the open water space.

The management plan will contribute to the aquatic component of an overall management plan for the National Nature Reserve.

OPERATING PRINCIPLES

1. The Barton Liaison Group will be established and administered by the Broads Authority.

2. The Chairperson will be a representative of the Broads Authority, appointed by agreement with the Chief Executive and reviewed every two years. If particularly controversial issues should arise, an independent Chairperson may be appointed by agreement with the Chief Executive.

3. The Group will comprise representatives of conservation, navigation, recreational and local community interest groups. Duplication of representation of a given interest group will be avoided in the interests of the Working Group being small, cohesive and effective.

4. Members of the Group may co-opt a substitute in the event of being unable to attend a particular meeting.

5. The Group will co-opt experts and representatives of other relevant interest groups by consensus for specific issues or meetings, as necessary.

6. Statutory bodies, such as English Nature, represented on the Group will participate in an informal advisory capacity and such input shall not prejudice any formal opinion or advice.

7. The Group will coordinate the formulation of the management plan through a consensus-building process, based on the active agreement of all members. Where consensus cannot be reached on any matter, the reasons for disagreement will be established and attempts made to address the matter through other means as appropriate, such as via subgroups and/or independent conflict resolution. Meanwhile, the Group will move on to other aspects of its agenda.

8. The management plan will be developed within the framework of relevant local, national and international legislation and policies, including the European Habitats and Water Framework directives and the Ramsar Convention.

9. Members of the Group will be expected to take an active interest and participate in initiatives and events concerned with the future management of Barton Broad.

10. Members of the Group will be responsible for consulting with their respective constituencies and affiliated bodies on all proposed policies and management measures.

11. The Group will develop appropriate mechanisms for consulting beyond the constituencies represented by its membership, so that the wider public and local residents and businesses may have opportunities to express their interests and contribute to the management planning process.

12. In the interests of providing for informal discussion and debate, meetings will not be formally minuted**.** Notes will be taken of topics discussed, points of agreement and disagreement, and action points.

13. The Terms of Reference of the Group will have been completed on production of the management plan, for which the Broads Authority will have ultimate responsibility for progressing its implementation. Thereafter, future needs for such a group will be reviewed including its future role in implementing the Plan.

Interested parties represented on Barton Liaison Group

Interested Party[7]

Broads Authority
English Nature
Environment Agency
Parish Councils
- Barton Turf and Irstead
- Catfield
- Neatishead

Local residents[8]
- Barton Turf and Irstead
- Neatishead

District Councils
- North Norfolk

Barton Turf Adventure Centre
Broads Angling Strategy Group
Broads Hire Boat Federation
Broads Society
Cox's Boatyard
Gay's Staithe Management Committee
Nancy Oldfield Trust
Norfolk Punt Club
Norfolk and Suffolk Boating Association
Norfolk Wildlife Trust

Representatives of Interested Parties can change so names have not been given in this document.

Current representatives are happy to be contacted via the Broads Authority (01603 610734).

[7] Each interested party will be represented by one person, except for the Broads Authority which will be represented by an appropriate number of officers to cover conservation, navigation and recreation interests.

[8] Local residents will be invited by the Parish Councils to express their interest in representing local interests. Two representatives, one from each parish, will be appointed annually by the Parish Councils who will collaborate to ensure that a diverse range of interests is represented.

APPENDIX 3

List of Ecological Research at Barton

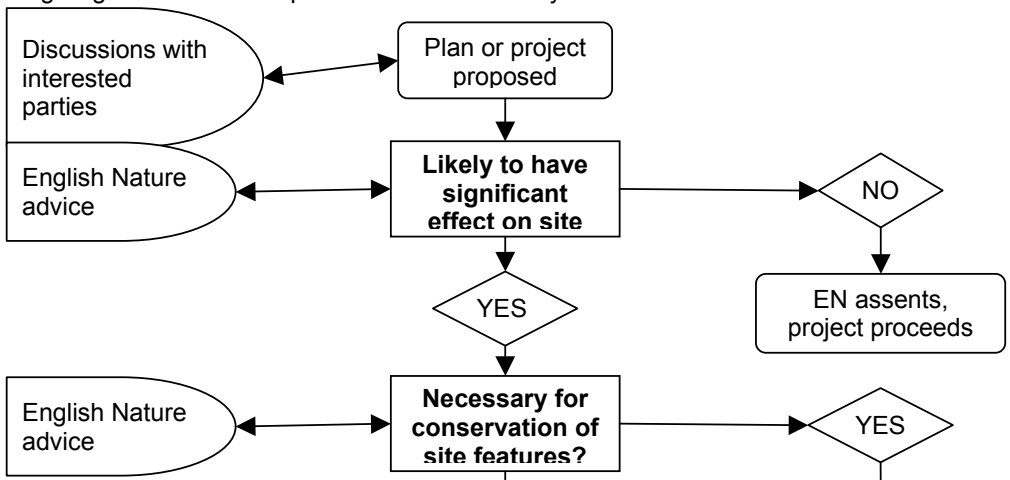
- Nutrient Budget, (1980s), PhD, UEA.
- Sediment Nutrient Release, (1980-date), various studies, UEA, EA, BA.
- Biomanipulation, (2000-2002), research technician, BA, EA.
- Palaeolimnology, (1980-date), various studies, UEA, UCL.
- Sedimentation rates (1980-date), various studies, UEA, UCL.
- TBT contamination, (2003-2006), UCL, QMCL.
- Reedswamp Regression, (1998), MSc, UEA.
- Export Modelling, (1999-2001) contracted research, EA, Reading University, BA.
- Invertebrates at Herons' Carr and likely impact of the construction of a boardwalk, (1999). BA.

This list is not comprehensive and only covers the water space area.

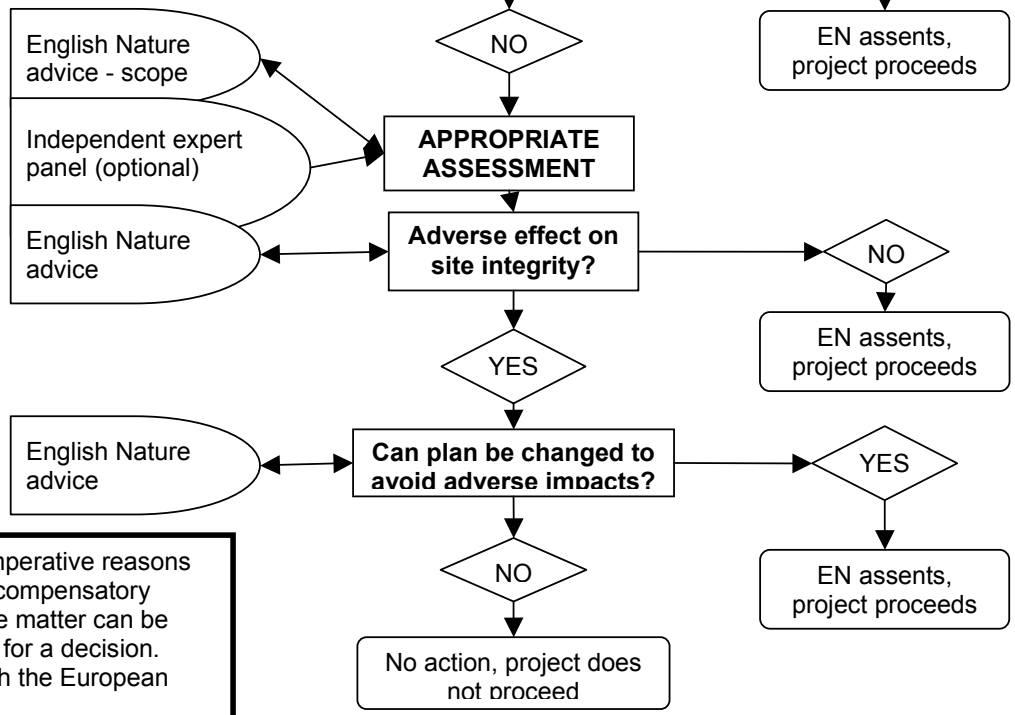
ASSESSMENT PROCESS FOR PROJECTS IN THE BROADS SAC/SPA **APPENDIX 4**

It is the responsibility of the Competent Authority (likely to be the Broads Authority) to produce the Appropriate Assessment through consultation with and advice from others, including English Nature. The process for the Authority is shown in **bold**.

STAGE 1



STAGE 2



NOTE: At Stage 2, if there are 'imperative reasons of overriding public interest' and compensatory measures can be put in place, the matter can be referred to the Secretary of State for a decision. This may involve consultation with the European Commission.

Notes on the Process

The planning stage is crucial.

The Broads Authority will discuss the plan or project with interested parties, including English Nature. The aim should be to produce a plan or project which will not have a significant effect on the site.

If this can be achieved, it will not be necessary to proceed further and the project can be carried out.

Should a plan or project have a likely significant impact on site integrity, and not be necessary for conservation of site features, an Appropriate Assessment would be required.

The Broads Authority, independent experts and English Nature aim to respond as quickly as possible and ensure that mechanisms are in place to resolve issues quickly.

The Barton Liaison Group will be contacted within a month. English Nature maximum response time is 21 days.

The speed of any response will be related to how much information is available on the subject, hence the importance of continuing research.

July 2006