



PORT MARINE SAFETY CODE

REPORT NUMBER 31006/E0018

ISSUE 5.0

DATE March 2015

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REPORT NUMBER

31006/E0018

SECURITY CLASSIFICATION

N/A

ADMINISTRATION RECORD

Issue	Modification	Approved
A	Early Draft for customer comment at Boating Safety Management Group	N/A
B	Developing Draft for Navigation Committee	N/A
C	Final Draft for customer comment	N/A
1	Formal issue	
1.1	Updated to include corrections	SB
1.2	Updated for external consultation	SB
1.3	Updated to include section 12 and updated hazard log	SB
2.0	Updated to restructure document and Broads Authority Act 209	SB
3.0	Revised following re-organisation, implementation of BA Act, update to PMSC and the guide and updated hazard log	SB
4.0	Revised to incorporate 2013 Marine hazard review and section added to cover land based safety management	SB
5.0	Revised to incorporate 2014 integrated hazard log	SB

<u>Annex</u>		
A	Boating Safety Management Group Terms Of Reference	1.3
B	Training And Development Policy	1.3
C	Health And Safety At Work Policy	1.3
D	Enforcement Policy Navigation Functions	2
E	Sediment Management Strategy	1.2
F	Hazard Identification Sheet	1.2
G	Risk Assessment Instructions And Form	1.3
H	Passenger Craft Check Sheets	1.2
I	Workboat 7 Day Check Sheet	1.1
J	Lifebuoy Daily Check Sheet	1.2
K	Communications Strategy	3
L	Port Marine Operations Training Policy	2
M	Integrated Hazard Review 2014	1
N	Tree Risk Identification and Management	1
O	Safety Management System External Audit 2014 Doc ref 31255/D0902	2

REPORT AUTHORISATION

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EXECUTIVE SUMMARY

The Port Marine Safety Code (PMSC) was published by the Government in March 2000. The Code establishes an agreed national standard for port marine safety, and formalises the duties and responsibilities for safety and environmental protection within UK ports and harbours. The Code is applicable to all harbour authorities, and compliance is not optional.

The Code requires that all harbour authorities base their powers, policies, plans and procedures on a Formal Safety Assessment (FSA), and that they maintain a Safety Management System to control the risks that are identified to a level which is as low as reasonably practicable (ALARP).

The Broads Authority (Pilotage Powers) Order 1991 confirms that the Broads Authority is a “Competent Harbour Authority” as defined the Pilotage Act 1987, and as such the Authority falls under the requirements of the Port Marine Safety Code.

Unlike a port, the Broads Authority is designated a “Special Statutory Authority”, affording the same level of protection as National Park status, but with tailor-made legislation relating to navigation. The Authority therefore balances the navigational duties and powers of a harbour authority with the conservation and recreational duties and powers of a National Park authority. These duties and powers are principally set out in the Norfolk and Suffolk Broads Act 1988.

This Safety Management System (SMS) documents the arrangements put in place by the Broads Authority to ensure, as far as is reasonably practicable, the safety of those working on, visiting or using the Broads.

The SMS makes recommendations for further development, which will enable the system to be strengthened

The Broads Authority is committed to the further development of the Safety Management System and proposes to implement recommendations with the system by end 2015.

The Broads Authority would like to acknowledge BMT Isis Ltd, 210 Lower Bristol Road, Bath, BA2 3DQ for their work on the initial preparation and subsequent formal issue of this document.

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1 Introduction

1.1 Background

- 1.1.1 The Broads is Britain's largest nationally protected wetlands, comprising rivers, broads, marshes, fens and carr woodland. There are over 200km of navigable waterways and over 25% of the area has a European designation, Special Area of Conservation or Special Protection Area, incorporating many National and Local Nature Reserves and Sites of Special Scientific Interest. The Broads is listed under the Ramsar Convention on Wetlands of International Importance, and are home to a diverse variety of rare birds, animals and plants.
- 1.1.2 The Broads Authority ("The Authority") was established as a non-statutory body in 1978 following a report by the Nature Conservancy Council regarding degradation of the Broads.
- 1.1.3 The Broads Authority was formalised as a statutory authority by the Norfolk and Suffolk Broads Act 1988 (Reference 1), ("The Broads Act"), and began operating as such in 1989, for the purpose 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.
- 1.1.4 The Authority is designated a "Special Statutory Authority", affording the same level of protection as National Park status, but with tailor-made legislation relating to navigation. The Authority therefore balances the duties and powers of a harbour authority with those of a National Park authority.
- 1.1.5 The Authority is funded by central government through National Park Grant, as well as tolls paid by users of the Broads.

1.2 The Port Marine Safety Code

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For the purpose of this code, the duty holder should ensure that the harbour authority discharges its responsibilities to:

- Take reasonable care, so long as the harbour is open for public use, that all who may choose to navigate in it may do so without danger to their lives or property.
- Conserve and promote the safe use of the harbour; and prevent loss or injury caused by the authority's negligence.
- Have regard to the efficiency, economy and safety of operation as respects the services and facilities provided.
- Take such action that is necessary or desirable for the maintenance, operation, improvement or conservancy of the harbour.

Section 4, para 4.1

1.2.1 The Port Marine Safety Code (Reference 2) was published by the Government in March 2000 and updated in December 2012. The Code establishes an agreed national standard for port marine safety, and formalises the duties and responsibilities for safety and environmental protection within UK ports and harbours. The Code requires that all harbour authorities base their powers, policies, plans and procedures on a Formal Safety Assessment (FSA), and that they maintain a Safety Management System to control the risks that are identified to a level which is as low as reasonably practicable (ALARP).

1.2.2 The Port Marine Safety Code is supplemented by a Guide to Good Practice on Port Marine Operations (Reference 3) providing further supporting information and advice.

1.3 Purpose and Scope of the Safety Management System

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In order to comply with the Code, the duty holder on behalf of the harbour authority must: Operate an effective marine safety management system (SMS) which has been developed after consultation and uses formal risk assessment;

Summary item 4

1.3.1 The purpose of this Safety Management System (SMS) is to document the arrangements put in place by the Broads Authority to ensure, as far as reasonably practicable, the safety of those using or working on the Broads.

1.3.2 The Broads Authority, as Duty Holder for the Broads, has developed this SMS in accordance with the requirements of the Port Marine Safety Code (Reference 2), taking cognisance of the advice in the Guide to Good Practice on Port Marine Operations (Reference 3). Noting the status of the Authority as a Special Statutory Authority, a pragmatic approach has been taken to the application of the Port Marine Safety Code.

- 1.3.3 As the SMS develops, a wide variety of stakeholders will be consulted with the aim of achieving a SMS, which is practical, workable and supported. The Port Marine Safety Code relates to “marine operations”, which are defined in the Guide to Good Practice on Port Marine Operations Glossary as “.marine operations have been taken to mean the moving, berthing and unberthing of ships and other marine craft within the limits and approaches of a harbour authority.” The code does not apply to areas already regulated by another body, such as the Health and Safety Executive (HSE), or the Maritime and Coastguard Agency (MCA).
- 1.3.4 As such, this SMS relates to marine and navigational safety. It does not address safety on land (except insofar as this has a direct link with marine operations - e.g. embarking from a mooring), nor health & safety issues for Broads Authority premises.
- 1.3.5 The SMS covers members of the public using hired or privately-owned craft, as well as Broads Authority employees when working on the water.
- 1.3.6 In this SMS, the following convention applies to the text of the document:

Blue text in a blue box represents a direct quote from the Port Marine Safety Code;

Red italicised text indicates a current non-compliance with the Code;

Orange bold text indicates a recommendation for future development or consideration.

1.4 Interfaces

- 1.4.1 The Broads Authority’s area of jurisdiction has boundaries with two other authorities, as described below. The details of each boundary are discussed in section 3.
- a) **Great Yarmouth Port Company Ltd:** Statement of Compliance June 2011 (Reference 4) describes their response to the PMSC
 - b) **Associated British Ports Lowestoft:** Associated British Ports Marine Policy 2010 (Reference 5) describes their response to the PMSC. It should be noted that the Manual does not define the geographical limits of Great Yarmouth Port Authority’s jurisdiction, or identify an interface with the Broads Authority;

1.5 Legislative Duties and Powers of the Broads Authority

1.5.1 The duties and powers of the Broads Authority are derived principally from the provisions of three Acts of Parliament.

Norfolk and Suffolk Broads Act 1988

1.5.2 The Norfolk and Suffolk Broads Act 1988 (c.4) (Reference 1) established the Broads Authority as the statutory harbour and navigation authority for the navigation area, as well as the planning authority for the area. It gave the Broads Authority the duty to manage the Broads for the purpose of:

- a) Conserving and enhancing the natural beauty of the Broads;
- b) Promoting the enjoyment of the Broads by the public;
- c) Protecting the interests of navigation.

1.5.3 It also gives the Authority power to “do anything which is necessary or expedient for the purpose of enabling it to carry out its functions.” Specifically, the Authority have the power to raise tolls for the use of the Broads by members of the public and by commercial shipping. The Authority also has the power to raise Byelaws, subject to a process of consultation and parliamentary approval. The Act does not give the Authority power to exclude a boat or person from the public waterways, providing their toll has been paid.

1.5.4 The Act also defined the composition of the Broads Authority, at the time this consisted of 35 members. This was later revised by the Alteration of Constitution of the Broads Authority Order 2005 (Reference 6), reducing membership from 35 to 21, in accordance with Department for Environment, Food and Rural Affairs (Defra) recommendations. The current composition of the Authority is described in Section 2.1

Pilotage Act 1987

1.5.5 The Pilotage Act 1987 (Reference 7) describes the duties and powers of a “competent harbour authority” with respect to the provision and authorisation of pilots. The Act states that a competent harbour authority is required to keep under consideration what pilotage services should be provided to ensure the safety of ships navigating in the harbour, and whether such pilotage should be made compulsory. The Broads Authority (Pilotage Powers) Order 1991 (Reference 8) confirms the Broads Authority’s status as a “competent harbour authority”.

The Broads Authority Act 2009

1.5.5 The Broads Authority Act 2009 (Reference 9) received Royal assent in August 2009, the Act grants the Authority additional powers including:

- a) Giving of general directions to vessels;
- b) Giving of special directions to particular vessels;
- c) Impose a compulsory third-party insurance requirement on vessels registered with the Authority;
- d) Impose construction and equipment standards on vessels for the purposes of safety management;
- e) Regulate and give directions to water skiers;
- f) Removal of Vegetation
- g) Application of the public Health Acts Amendments Act 1907
- h) Take responsibility for the Breydon Water and Lower Bure areas.

1.6 Other Relevant Legislation

Natural Environment and Rural Communities Act

- 1.6.1 The Natural Environment and Rural Communities (NERC) Act 2006 (Reference 10) establishes a body known as Natural England, to replace the Countryside Agency and English Nature.
- 1.6.2 The Act modifies the first two purposes of the Broads Authority as follows (the modification is in *italics*):
- 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;

Health and Safety at Work Act

- 1.6.3 Under the Health and Safety at Work Act 1974 (Reference 11), employers have a duty to ensure, so far as is reasonably practicable, the health and safety of its workers and other persons who may be affected by the Authority's undertakings.
- 1.6.4 In addition, the Management of Health and Safety at Work Regulations (1999) (Reference 12) require every employer to make a suitable and sufficient assessment of all the risks to the health and safety of workers and others arising at or from a work activity.

Byelaws

- 1.6.5 The Broads Act gives the Broads Authority the power to make Byelaws in respect of areas which are owned by the Authority, or to which the general public have a right of access. The Authority is required to obtain the approval of the Secretary of State in order to make Byelaws, and must consult with Natural England for Byelaws relating to the use of land.
- 1.6.6 Five sets of Byelaws have been made, covering Navigation, Vessel Registration, Vessel Dimensions, Speed Limits, Boat Safety Standards however the Boat Safety Standards Byelaws have now been revoked following the implementation of the Construction Standards provision in the Broads Authority Act 2009.

- 1.6.7 A byelaw was made by the East Suffolk and Norfolk River Authority in 1967 relating to control of pollution in the Broads by sanitary appliances on boats. In 1989, with the formation of the Broads Authority and the establishment of the Water Act, the continuing authority of this byelaw was confirmed by a Statutory Instrument (Reference 13).

1.7 Navigation Safety Policy

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Each Harbour Authority should make a clear published commitment to the standard of marine safety required to comply with the Code.

Section 2.1

- 1.7.1 The Broads Authority has developed a Navigation Safety Policy outlining the steps the Authority will take in compliance with the Code. The policy is stated in Figure 1-1 overleaf.
- 1.7.2 The Broads Authority has published the Navigation Safety Policy on the Authority's Website.

Broads Safety Policy

As part of its commitment to facilitating the safe navigation and operation of vessels within the Broads, the Broads Authority has developed a Broads Safety Policy. It is the Broads Authority policy that it shall:

- a. Develop and maintain an effective Safety Management System to enable the Broads Authority to undertake and regulate operations in a way that safeguards the Broads, its users, the public and the environment;
- b. Use risk assessment techniques to identify hazards and risks within the Broads and put in place suitable risk control measures to ensure that the risks identified are As Low As Reasonably Practicable, and that the appropriate emergency plans are in place and well practiced;
- c. Monitor and manage the navigation of vessels within the Broads limits;
- d. Consult widely with the employees, Broads users and other relevant stakeholders in respect of navigational and land based safety issues;
- e. Ensure that an efficient, safe and appropriate level of Pilotage is available in accordance with the Pilotage Act 1987;
- f. Undertake hydrographical surveys and maintenance dredging to ensure that the hydrographic regime is protected;
- g. Place and maintain navigational marks where they will be of best advantage to vessels;
- h. Disseminate any relevant safety information to Broads users;
- i. Regularly review the effectiveness of the Broads Authority legal powers, byelaws and directions in respect of user safety;
- j. Evaluate the safety performance of the Broads Authority through reporting systems contained within the Safety Management System;
- k. Employ suitably qualified personnel and provide the necessary training to ensure that they are competent within the roles they are required to perform, and ensure sufficient resources are available to implement procedures and systems effectively;
- l. Ensure the craft and vehicles used within the Broads Authority have the required certification and are fit for the purpose, and the staff are appropriately trained and qualified for the tasks they are likely to perform.

This policy will be reviewed on an annual basis with due consideration given to any changes to the operating environment, the organisation and legislation.

Figure 1-1: Broads Safety Policy

2 Roles and Responsibilities

2.1 The Broads Authority

- 2.1.1 The Broads Authority is composed of 21 appointed Members, in accordance with the Broads Act Order 2005 (Reference 14), including representatives from local councils and Defra. The allocation of members is shown in Table 2-1 below.
- 2.1.2 One Member is nominated as the Chair, and he is supported by a vice-chair. Collectively and individually, the Board has responsibility as “**Duty Holder**” as defined by the Port Marine Safety Code.
- 2.1.3 Although the Duty Holders may (and indeed do) delegate the operation of the harbour, including implementation of the SMS, to appropriate professional personnel, they may not delegate or abdicate their accountability for marine safety under the Port Marine Safety Code.

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The duty holder, on behalf of the harbour authority is accountable for managing operations within the port safely and efficiently. The role of duty holder is undertaken by members of the harbour board who are (both collectively and individually) accountable for marine safety under the Code.

Section 2.1.a and 2.3

Body to be represented	Members
Defra	10
Norfolk County Council	2
North Norfolk District Council	1
Waveney District Council	1
South Norfolk Council	1
Broadland District Council	1
Norwich City	1
Suffolk County Council	1
Great Yarmouth Borough Council	1
Appointed from Navigation Committee	2

Table 2-1: Composition of Broads Authority

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2.1.4 Members also sit on one or more of three Committees, which report directly to the Broads Authority. See section 4.2 for more details of the Committees

Committee	Authority Members	Appointed Members
Navigation	5	8
Planning	13	0

Table 2-2: Membership of Committees

2.1.5 The Navigation Committee has a scrutiny role and gives advice on waterways management and navigation issues, including safety. The eight appointed members represent relevant interests such as hire boat owners, private owners and passenger boat owners.

The relationship between these committees, and other groups and fora, is shown in Figure 2-3 below.

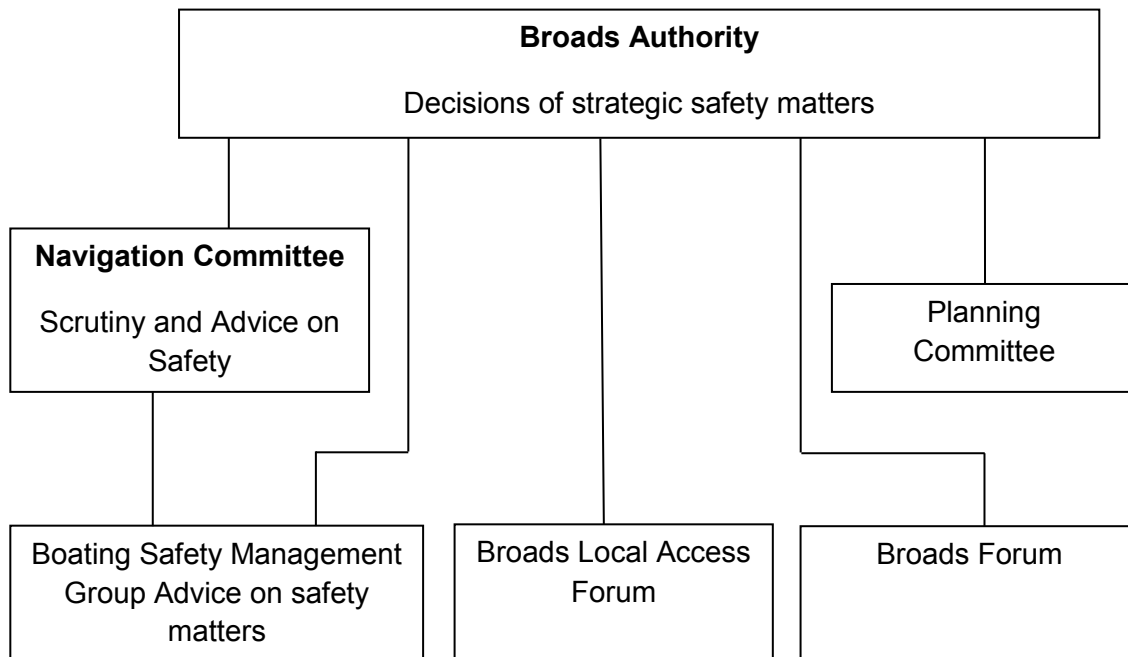


Figure 2-3: Broads Authority Committee Structure

2.2 Executive Structure

- 2.2.1 The Chief Executive (CE) has overall responsibility for operational matters following the strategic direction set by the Members of the Broads Authority. The CE is supported by two directors, and comprise the Management Team.
- 2.2.2 The Management Team is shown in shown in figure 2.4 below.

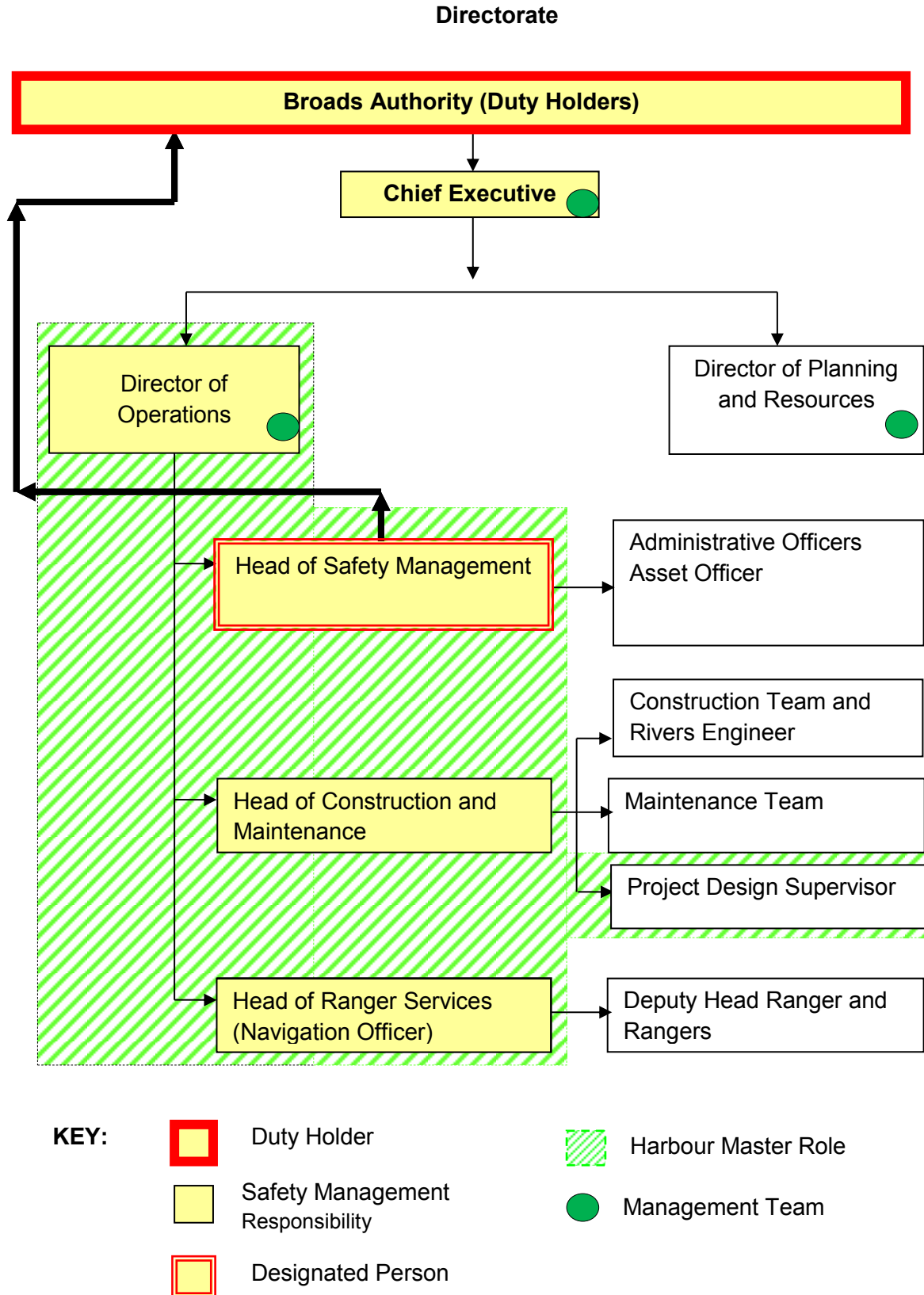
2.3 The Director of Operations

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Each harbour authority must appoint an individual as the designated person to provide independent assurance directly to the duty holder that the marine safety management system, for which the duty holder is responsible, is working effectively.
Paragraph 2.8

- 2.3.1 The Director of Operations has responsibility for navigational safety across the Broads. The Director is supported by the Head of Safety Management and the Navigation Officer appointed as required by the Broads Act 1988 Part 2 Section 10(7), whose functions are set out in Schedule 5 Part 2 Sections 17, 18 and 19.
- 2.3.2 The Duty Holder has appointed the Head of Safety Management to act as the “**Designated Person**” as defined by the Port Marine Safety Code. This persons main responsibility is to determine, through assessment and audit, the effectiveness of the marine safety management system ensuring compliance with the code. The nomination as Designated Person is formalised in the post holders Job Description (see section 2.4). The Head of Safety Management is supported by three Officers.
- 2.3.2 The Director of Operations is also responsible for the Dockyard operation, Works and Construction teams, Ranger services, the Projects Design Supervisor and the Rivers Engineer, all of whom have an impact on safety. The structure of the directorate is shown in figure 2-4 below.

Figure 2-4: Management Team Structure and Operations



2.4 Job Descriptions

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Executive and operational responsibilities for marine safety must be clearly assigned, and those entrusted with these responsibilities must be answerable for their performance.

Paragraph 2.1

2.4.1 The following paragraphs provide the safety-related aspects of the job descriptions of the personnel defined above, including allocation of responsibilities under the Port Marine Safety Code.

Director of Operations

- a) As a member of the Management Team provide advice and guidance to the Chief Executive, other members of the Management Team and members of the Authority on all operational matters.
- b) Support, lead, facilitate, and manage the performance and development of all staff in the Operations Directorate so that they are effective in delivering the Authority's Business Plan and annual priorities.
- c) Provide guidance and advice to the Broads Authority and its committees and working groups on the implementation of all the Authority's plans and projects.
- d) Oversee and manage all the practical work of the Authority including dredging the navigation area and isolated broads, management of fens and sites of nature conservation importance, and sites and facilities which promote the enjoyment and understanding of the special qualities of the Broads.
- e) Programme the practical work of the Authority to make the best use of resources and deliver quality outcomes on time and within budget to deliver the Authority's objectives and plans.
- f) Support and guide the work of Ranger Services in patrolling, enforcing the Authority's byelaws, inspecting and maintaining sites and facilities and providing guidance to the public for the safe enjoyment of the Broads.
- g) Direct and develop an approach to safety management that minimises risks to as low as reasonably practical across all the Authority's activities.
- h) Direct and develop an integrated volunteer service that supports the implementation of the Authority's plans and priorities and delivers a valuable experience to the volunteers in a safe working environment.
- i) Work with stakeholders across the Authority's functions to ensure that they are well informed of the Authority's policies, plans and programmes.
- j) Represent the Authority through close liaison/presentations/negotiations with the constituent authorities, landowners, user groups, the general public, statutory bodies, strategy groups and industry on all strategic planning matters.

Contribute to the setting of the Authority's budget including the formulation of the Operations Directorate budget and to manage and monitor

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expenditure and income of the Directorate to ensure that the Authority receives good value for money. In particular manage external funding bids and programmes to ensure they contribute to the Authority's objectives and deliver on time and within budget.

Head of Safety Management

- a) As the Authority's Health and Safety Advisor to be responsible for the introduction of regulation or best practice guidance, to coordinate and advise on all health and safety at work matters, to chair the Authority's Safety Committee and to ensure, in conjunction with staff safety representatives, that the Authority complies with relevant health and safety legislation and that working practices and systems are safe and in accordance with good practice and regulation.
- b) Investigate, report and, where appropriate, make recommendations to the Authority on Occupational Health and Safety incidents and incidents in the Broads which relate to safety, including boat fires, explosions, personal injuries or accidents on or around boats, serious navigational incidents and drowning or injuries sustained on Broads Authority property. To deal with the media in respect of incidents.
- c) Undertake the role of PMSC *Designated Person* with responsibility to provide independent assurance, directly reporting to the Authority that the marine safety management system is working effectively through the continued development and regular audit of a Marine Safety Management System for the Broads, pursuant to the Port Marine Safety Code.
- d) Work with private users and commercial concerns to ensure sustainable and safe use of the Broads as far as is reasonably practicable.
- e) Responsible for the development and regular review of an Asset Management system, including processes and procedures for the identification of all Authority assets, their regular inspection, maintenance and risk assessment.
- f) Responsible for the development and regular review of an Oil Spill Contingency Plan for the Broads including involvement in the deployment and operation of oil spill clean-up equipment and materials.
- g) Responsible for the introduction of regulation or best practice guidance appropriate to Broads recreation which includes developing and providing advice and assistance to interested parties, and as a qualified boat safety examiner be responsible for training and technical support of staff engaged in licensing and enforcement.
- h) Responsible for the assessment and licensing of Hire Boats and Small Passenger Boats on the Broads

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- i) Responsible for policy development, organising, planning, implementation monitoring, review and audit of corporate Health & Safety Systems
- j) Conduct external consultations on statutory requirements relating to waterways safety management issues and implementation of Broads Authority legislation
- k) To provide technical support to the Authority relating to vessel construction and vessel systems for the purposes of development and maintenance of the Authority's work boats, patrol vessels and passenger vessels.
- l) Responsible for staff training records and to ensure that all staff are adequately trained to discharge the Authority's duties under health and safety legislation, including the delivery of in house and external training and to train staff where appropriate.
- m) Liaise with other organisations/individuals concerned with the safe use of the Broads including the waterways, particularly in connection with technical, operational and general safety matters.
- n) Maintain awareness of current and evolving health and safety, port, waterways and environment legislation, regulations and best practice and ensure that the Authority fully and properly discharges its responsibilities in the context of its Health and Safety, marine operations and its other regulatory functions.

Head of Ranger Services

- a) **Safety of the Public**
Oversee the work of the Ranger Team and volunteers providing formal line management to the Deputy Head of Ranger Services, direction on training, and guidance on the Team's day to day management. To ensure that conditions are present for the safe, orderly and environmentally sustainable use of the Broads for recreational purposes and that the Authority's byelaws and regulations are observed and where appropriate enforced. Liaise with the Rivers Engineer to ensure that contractors or others seeking to undertake works in or affecting the navigation area are advised of the Authority's requirements concerning navigation and river safety.
- b) **Practical Works and Monitoring of Sites**
Develop and monitor a programme of work to record the condition of sites and visitor facilities in the Broads and ensure Rangers carry out minor works to improve access, biodiversity and public safety, such as tree and scrub management, maintenance and minor improvements to ensure the locations are kept in good order.
- c) **Role of Navigation Officer**
Undertake the duties and responsibilities of Navigation Officer as defined

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in the Norfolk and Suffolk Broads Act 1988. Give navigational directions to vessels as appropriate, including for towing. Grant permissions for events and regattas under schedule 5 of the Norfolk and Suffolk Broads Act 1988. *[Note: This consists of the ability to give directions to specific vessels in relation to navigation, mooring, loading/unloading, etc. Broads Act, Schedule 5, Paragraph 18];*The duties include inclusion on the roster as required, and provision of out of hours emergency cover.

d) **Prosecutions**

Progress prosecutions where appropriate, maintain the required records and discharge the functions of Officer in Charge for the purposes of Criminal Procedure and Investigations Act 1996. Ensure that the Ranger Team is properly trained in the processes of prosecutions and evidence gathering. Investigate and record reported incidents, liaising with the Safety Management Officer concerning the investigation of incidents, particularly those of a technical nature.

e) **Equipment and Assets**

Ensure that operational bases, vehicles, vessels and other equipment are kept secure, in good and safe repair and that defects are promptly rectified. Ensure that Authority assets including signage, countryside furniture and moorings are kept in good and safe condition and that defects are noted and reported and that prompt action is taken in accordance with asset management systems to mark hazards and obstructions. Ensure that sites operated by the Authority are used in accordance with the Authority's policies and that instances of unlawful use are promptly dealt with and that abandoned and sunken vessels are dealt with according to the Authority's powers and procedures.

f) **Emergencies**

Liaise with the Police, Coastguard and other emergency services to ensure that the Authority's personnel and resources are appropriately used in emergency situations. Take part in emergency exercises ensuring that the Authority takes a proper role in exercises and emergency response training. Prepare emergency/major incident plans. Assume the role of designated person under the Oil Pollution Preparedness, Response and Co-operation (OPRC) regulations. . *[Note: This is not to be confused with the "Designated Person" identified by the Port Marine Safety Code.]* Provide leadership and assume responsibility in incident or emergency situations including oil spill incidents. As appropriate, to be included in the emergency call-out list provided to police, coastguard and emergency services and, in the event of an incident, to attend and help mobilise the Authority's response.

g) **Engagement with Stakeholders**

Liaise with a wide variety of external organisations, where necessary representing the Broads Authority at meetings.

h) **Partnership working**

Negotiate and supervise the Broads Beat annual agreement to ensure optimum specialist policing liaison, support the work of the Local Access Fora (Norfolk and Suffolk) by undertaking agreed priority route management, and maintain close links with other partners as required.

Broads Authority Safety Management System

- i) **Health and Safety**
Ensure that health and safety best practice is followed by the Ranger Team and their volunteers including the routine and monitored production of risk assessments.
- j) **Directing Volunteers**
Ensure that volunteers working with the ranger team are trained and supported so that they can contribute effectively to the Authority's aims and objectives and that their health and safety is protected, and receive a worthwhile experience.
- k) **Community Liaison, Events and Education**
In order to promote a greater understanding of the special qualities of the Broads and raise awareness about safety matters arrange with the Communications Team appropriate attendance and support at events and schools, in accordance with corporate priorities and the agreed annual programme of events.

2.5 Training cycle

PORT
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Harbour Authorities must assess the fitness and competence of all persons appointed to positions with responsibility for safe navigation. Achieving marine port safety is a team operation and people in these roles must be competent and adequately trained. *Paragraph 3.13*

- 2.5.1 The Port Marine Safety Code refers to the National Occupational Standards for Port Marine Operations (Reference 15), and states that the training and competence of officers with safety duties should be in compliance with these standards, or demonstrably equivalent to them.
- 2.5.2 The Authority has a Training and Development Policy, which demonstrates the Authority's commitment to identifying and providing an appropriate level of training and development for all staff employed by the Authority. The Policy can be found at Annex B.
- 2.5.3 The Authority has a Marine Operations Training Policy which details training needs following a formal skills matrix analysis of both safety management personnel, field personnel and those personnel with direct responsibility from their collective roles as Harbourmaster. This policy allows for the review of compliance and equivalence qualifications or experience with the National Occupational Standards for Port Marine Operations, Reference 13. The Policy is detailed in Annex L

The Authority has also published a Health and Safety Policy, which can be found at Annex C. Its objective is as follows:

" The Broads Authority ("the Authority") recognises and accepts its responsibility as an employer for providing a safe and healthy workplace and working environment for all its employees and volunteers and others affected by its undertakings.

The Authority will take such steps as are reasonably practicable to meet this responsibility, including the provision of funds and resources, paying particular responsibility to the provision and maintenance of:

- a) plant, equipment and systems of work that are safe and without risk to health;*
- b) safe arrangements for the use, handling, storage and transport of articles and substances;*
- c) sufficient information, instruction, training and supervision to ensure that all employees are aware of the hazards to their own health and safety at work, and of the necessary measures which should be taken to protect against these hazards and which would contribute positively to their own health and safety at work;*

Broads Authority Safety Management System

- d) a safe place of work, and safe access to and egress from it;*
- e) a healthy working environment;*
- f) adequate welfare facilities and arrangements; and*
- g) a review and monitoring procedure to ensure the effective management of health and safety across the Authority.”*

2.5.5 Whilst this policy refers principally to land-based workplaces, it also has relevance for employees working on the water, especially with regard to the requirement to conduct risk assessments.

2.5.6 The following minimum standards are set for those working in the field:

- a) all staff working in the field are expected to undertake appropriate first aid training;
- b) all staff working in the field should undertake manual handling training;
- c) all Broads Authority staff who are required to operate boats (including workboats, launches and public trip boats) must hold a RYA Level 2 Power Boat qualification at a minimum;
- d) officers responsible for fire safety and emergency procedures must have undertaken fire safety awareness training;

2.5.7 The Authority has also formed a Safety Committee, the role of which is to ensure that the Authority's safety policy is implemented effectively, that safety standards are maintained and to provide a forum whereby matters relating to health and safety at work can be discussed.

The role of the committee is set out in Section C4 of Annex C.

2.6 Planning and Implementing

- 2.6.1 As required by the Broads Act, the Authority has produced a five-year plan, known as the “Broads Plan” (Reference 16). The Plan sets out a vision for the Broads, supported by both long-term (20 year) aims and short-term (five year) objectives.
- 2.6.2 The Broads Plan 2011 has recently been published setting out new objectives.
- 2.6.3 Section 2.4 of the current Plan (Management of the Navigation) identifies one objective (NA4) related to safety management. This objective is broken down into sub-objectives which are set out in the plan.
- 2.6.4 The safety objectives are described in Figure 2.5 below.

NA4 - Implement, manage and promote safety management measures for the navigation and boats, to minimise risk and reduce environmental impacts

NA4.1: Transfer responsibility of Breydon Water and Lower Bure into navigation jurisdiction of Broads Authority

Target / Indicator: Transfer completed as soon as reasonably practicable

NA4.2: Implement Safety Management System and Hazard Review/Action Plan

Target / Indicator: Improvement in safety levels on navigation (all hazards within ALARP region)

NA4.3: Maintain and enhance navigation patrolling function, supplemented through volunteer programmes and working in accordance with Enforcement Policy

Target / Indicator: % compliance with the specified river patrolling service level

NA4.4: Promote navigation byelaws, Better Boating and Waterways Code information and ‘super safety days’ to improve responsible boating behaviour

Target / Indicator: Annual Monitoring Programme

NA4.5: Implement and monitor water ski review recommendations

Target / Indicator: Annual Work Programme Targets

Figure 2-5: Safety objectives from Broads Plan 2011

Broads Authority Safety Management System

Progress against objectives

2.6.5 This document has been introduced in response to objective NA4.1 from the Broads Plan. The current status of the other actions is listed for completeness in below.

Objective	Current Status
NA 4.1	This implements a provision in the 2009 Act which allows for the extension of the Authority's jurisdiction to include Breydon Water, The transfer of jurisdiction from the Great Yarmouth Port Authority was completed in June 2012.
NA 4.2	This object relates to the ongoing maintenance and development of the Safety Management System and to include regular reviews of Hazards. At the Hazard Review in March 2013 and at the recent stakeholder hazard review in October 2014 all hazards were declared ALARP.
NA 4.3	The regular patrolling of the Broads Waterways is of utmost importance, during the recent re-organisation changes have been made to the Ranger Service which will allow for additional patrols using a more flexible workforce. Compliance against predetermined patrol targets are reported annually to the Authority.
NA 4.4	The activity specific safety leaflets have been prepared, and published, a safety DVD is available to users and on the Broads Authority Website, promotion of the Byelaws is primarily carried out by Ranger interaction with the users who take an approach of advice and guidance. Super Safety days are a regular feature of the main boating season. The Authority continues to work with partners to deliver effective safety messages such as the recent "wear it" campaign which focuses on lifejacket use.
NA 4.5	The Water Ski Action plan detailed a number of actions which are to be completed during 2014, A further Review of Water Skiing on Breydon Water is due for sconsideration by the Authority dureing 2015

Table 2-6: Status of Action Plan Objectives

3 A Navigation Area Overview

3.1 Introduction

- 3.1.1 This section of the SMS defines the geographical boundaries of the navigation area and the limits of jurisdiction of the Broads Authority, identifies channels and berths within the area, describes meteorological data relevant to the navigation area, and identifies sites subject to various environmental designations.

3.2 The Navigation Area

- 3.2.1 The navigation area under the responsibility of the Broads Authority is defined in Section 8 of the Broads Act.
- 3.2.2 The Broads Act defines the navigation area as all navigable stretches of the rivers Bure, Yare and Waveney and their tributaries (rivers Ant, Thurne and Chet), including Oulton Broad, Haddiscoe New Cut, and the navigable part of the river Wensum in Norwich upstream of its confluence with the Yare.

Interface with Great Yarmouth

- 3.2.3 The Broads Act excludes those areas which are the responsibility of the Great Yarmouth Port Authority under the Great Yarmouth Port and Haven Acts and Orders 1866 to 1986.
- 3.2.4 The navigational responsibilities for Breydon Water and the lower reaches of the Yare, Bure and Waveney have been transferred from Great Yarmouth Port Authority to the Broads Authority in June 2012.
- 3.2.5 Provisions in the Broads Authority Act 2009 allowed for the transfer of responsibility for the navigation of these areas to the Broads Authority. This transfer resulted in the boundary of the Broads Authority's navigation area being extended to include Breydon Water, the lower reaches of the rivers Yare and Waveney to a limit upstream of Haven Bridge on the river Yare. This point is also the current limit of navigation for hire craft.
- The Broads Authority has previously been heavily involved in patrolling of Breydon Water, and therefore this SMS now includes the area.

Interface with Lowestoft

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- 3.2.7 At Lowestoft, Mutford Lock, at the eastern end of Oulton Broad, marks the boundary with Associated British Ports Lowestoft. Mutford Lock is operated by Waveney District Council on behalf of the Broads Authority. The lock is used almost exclusively by private craft - there is little commercial traffic, and hire craft are not permitted to pass through the lock.
- 3.2.8 The navigation area is summarised in Figure 3-1 below. The Limits of the Broads Authority's navigational responsibility are marked by red bars.



Figure 3-1: Map of the Broads

3.3 Principal uses

3.3.1 Unlike a commercial port, the Broads is home to a wide variety of river traffic. Commercial freight traffic is almost non-existent. The following represents the principal uses of the Broads:

- a. Day hire craft (self-drive);
- b. Larger hire craft, typically hired out for a week (self-drive);
- c. Guided tour boats - approximately 10 MCA-certified passenger craft offering guided excursions;
- d. Small passenger boats (less than twelve passengers);
- e. Private motor boating;
- f. Sailing - including hire self drive, private and tuition;
- g. Water skiing - in specific areas and at specific times as designated under the 2009 Act;
- h. Rowing and Canoeing
- i. Power Boat racing (Oulton Broad only);
- j. Angling, either from the bank or from a moored craft;
- k. Infrequent Delivery of Heavy Fuel Oil to the sugar beet factory at Cantley by Coaster

3.3.2 These activities are mostly seasonal, with the majority of activity taking place between April and October; however there remains a lower level of activity over the winter months.

3.4 Meteorological Data

Guide to
Good
Practice on
Port Marine
Operations

In addition to information about general conditions, harbour authorities should also have procedures to make available timely information on prevailing and forecast meteorological conditions such as wind, tide and other factors liable to be affected by the weather and the way the harbour is used. .

Section 6.1

3.4.1 The Guide to Good Practice on Marine Port Operations recommends that the authorities should make available information about current and forecast meteorological conditions. Although the effects of the weather are likely to be less significant on an inland waterway than a port, there can be an impact, especially on large bodies of water such as Breydon Water.

- 3.4.2 Some harbour authorities have dedicated weather stations, or purchase customised weather information from the Met Office. Given the sheltered inland nature of the Broads and the geographic spread of the area, it is suggested that this level of detail would be inappropriate for the Broads.
- 3.4.3 Publication of forecast tidal information is currently carried out by the Authority (annually in a booklet and a visitor newspaper, and weekly on the Broads Authority website).
- 3.4.4 The Authority has developed a weather forecast policy See figure 3-2.

Figure 3-2: Broads Authority Weather Forecast Policy

Broads Authority Weather Forecast Policy

In accordance with the Port Marine Safety Code, the Broads Authority has a duty to make available timely information on prevailing and forecast meteorological conditions.

It is the Authority's policy that it will:

- a) Maintain a link to a nationally recognised weather forecasting agency, from the Broads Authority Website, the forecast from the link will include general weather conditions, wind speed and direction including weather warnings for the local area.
- b) Maintain forecast weather data information via the Broads Authority website, at yacht stations, Broads Authority visitor centres and Navigation Rangers.
- c) Keep this policy under review as part of the planned monitoring and auditing of the Safety Management System Action Plan;
- d) Act in a proportionate and timely manner to address any perceived shortfalls in this policy.

3.5 Navigation Channels and Berths

- 3.5.1 Several areas are currently marked, either by posts or buoys, and these are regularly checked by the Rangers. A report is issued when works are required, and this is then programmed in, either using the maintenance team or contractors as appropriate.
- 3.5.2 The Broads Authority is developing a Geographic Information System (GIS) based Navigation Asset Management System to regulate the management of navigation channels. The system will flag up planned regular maintenance as it becomes due, and will also provide a means for Rangers to record observed problems with navigation channel markings.
- 3.5.3 The only commercial berth within the navigation area is the quay at the sugar beet factory at Cantley. This quay is owned and managed by British Sugar. There are many staithe around the Broads system, the historic use of these staithe was for loading and unloading of goods to service local communities, however very few of these staithe are now used for this purpose.
- 3.5.4 The Broads Authority Act 2009 includes a provision for the Authority to designate areas for the loading and unloading of any goods.
- 3.5.5 There are a large number of public and private moorings throughout the Broads. Moorings are discussed under section 8.3.

3.6 Traffic Monitoring

- 3.6.1 Given the large and geographically dispersed nature of the Broads, there is no Vessel Traffic System (VTS) or similar traffic monitoring system. Traffic is monitored on a daily basis by the Head of Ranger Services and his team of Rangers, who maintain regular patrols across the area, using Broads Authority launches.
- 3.6.2 Some private vessels and the larger trip boats communicate by VHF radio. Hire boats and small vessels do not have radios. Hirers will generally call on mobile phone if necessary, e.g. for bridge opening, problems with their boat, or to contact the emergency services.

3.7 Environmentally Sensitive Sites within the Broads

- 3.7.1 The Broads is one of Europe's finest and most important wetlands for nature conservation. It includes designated sites for nature conservation, including 28 Sites of Special Scientific Interest (SSSIs), which cover 24% of the Broads executive area. One-third of SSSIs are designated National Nature Reserves (NNRs) (Figure 3-3). Virtually all SSSIs also have international designation under European Habitats and

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Birds Directives and Ramsar Convention on Wetlands (Figure 3-4). For more on the legislation see section 3 in this Appendix.

- 3.7.2 The Broads, apart from having many designated sites for nature conservation, is also important for wildlife throughout its area, with land and water managed for both biodiversity and landscape. Often, hydrological connections between the waterways, fens and grazing marsh dykes will result in pollution in one part of the wetland affecting a wide area.
- 3.7.3 Biodiversity Action Plans, derived from the UK's ratification of the Convention on Biological Diversity, give guidance and targets for species and habitat management and protection.
- 3.7.4 The Water Framework Directive establishes a framework for protection of surface water, groundwater, and coastal and transitional waters. Targets are set to protect and improve the ecological status of the water bodies.

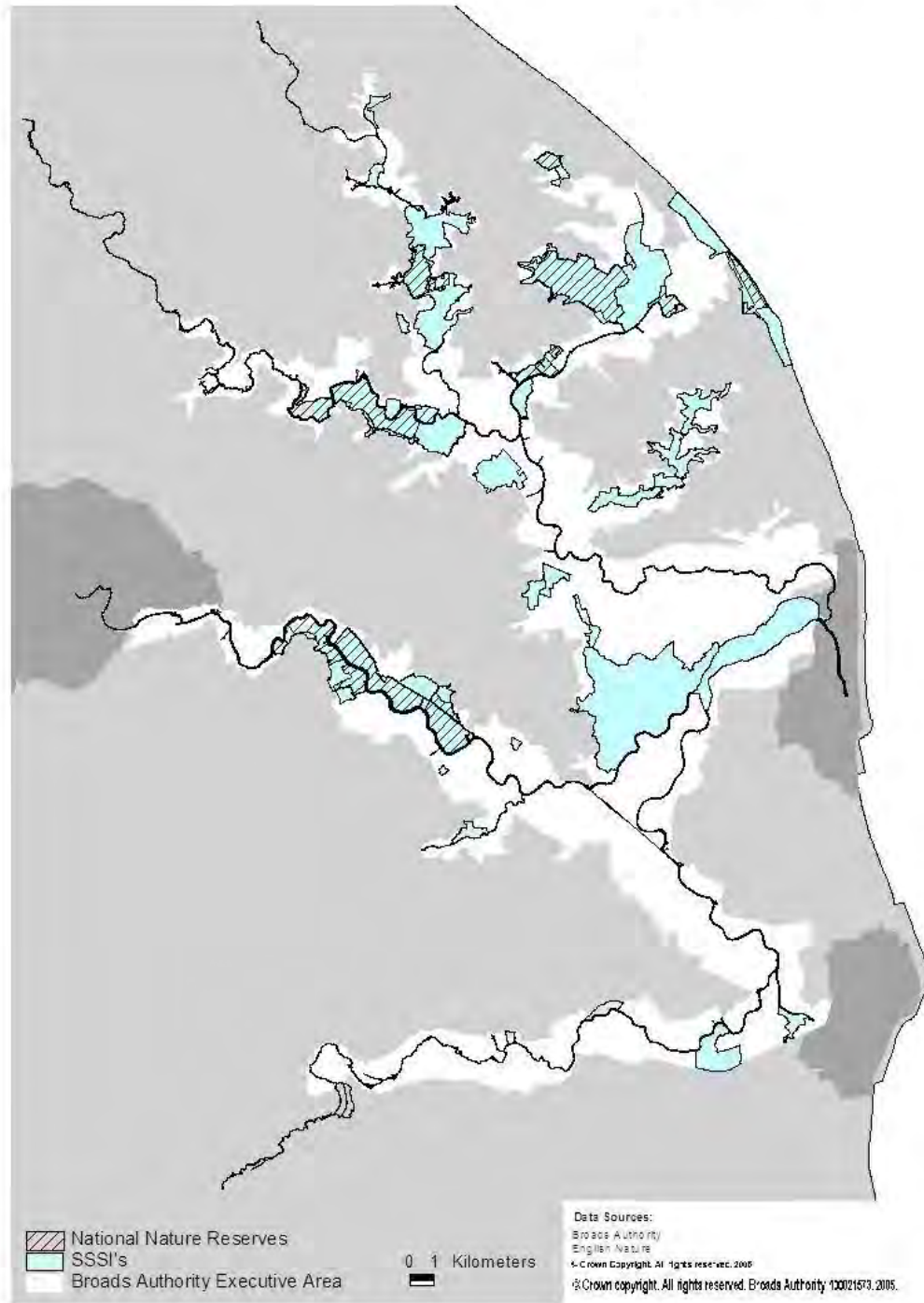


Figure 3-3: Network of SSSI's and NNRs in the Broads

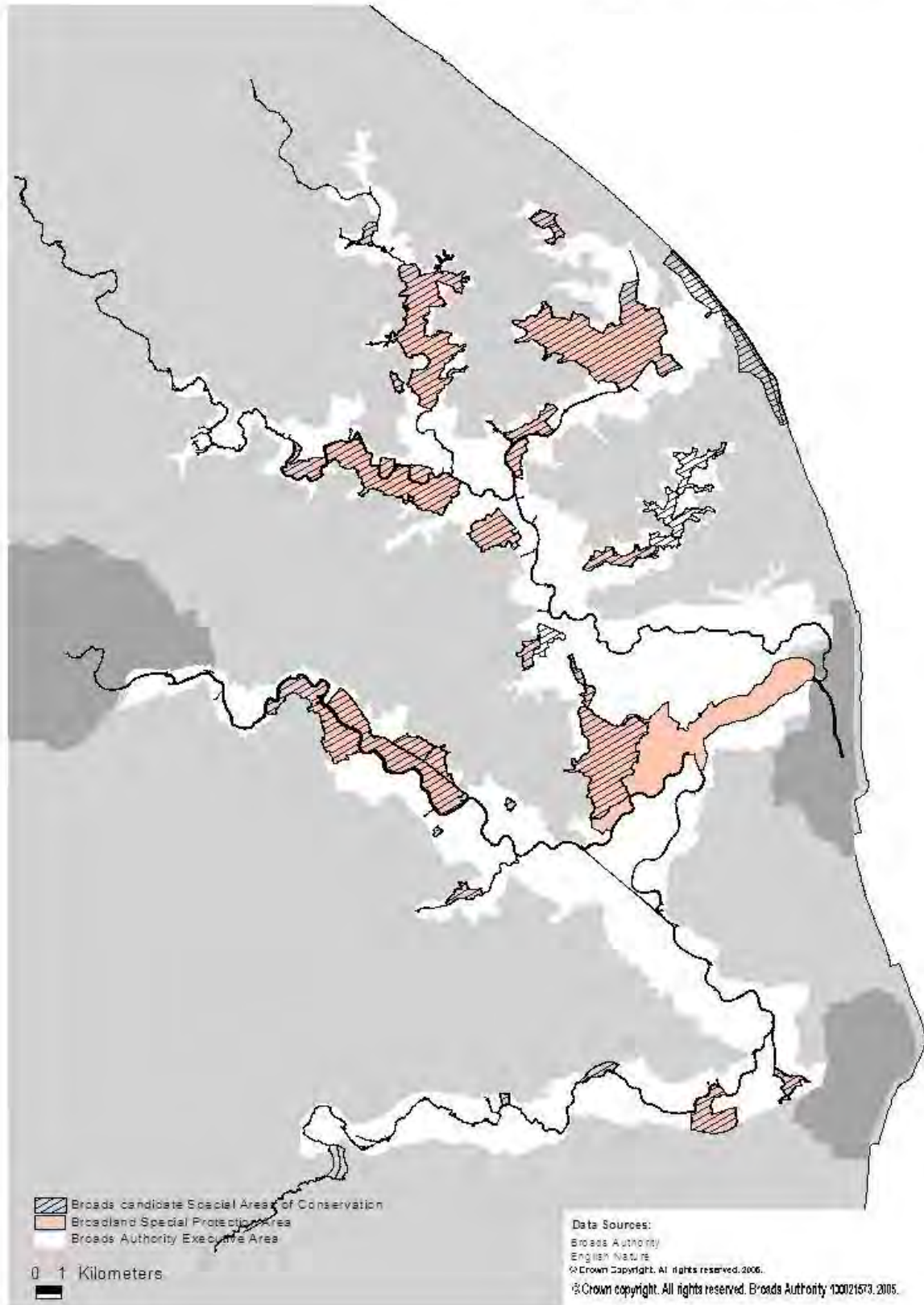


Figure 3-4: SSSIs that are also of European Importance

4 Consultation

4.1 Introduction

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MARINE
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Harbour authorities should consult, as appropriate, those likely to be involved in or affected by the marine safety management system they adopt. This opportunity should be taken to develop a consensus about safe navigation in the harbour

Para 3.12

4.1.1 The implementation of the Safety Management System will affect a wide variety of stakeholders.

4.1.2 This section of the SMS describes the mechanisms in place for consultation, and how, in particular, consultation will be handled for this SMS.

4.2 Navigation Committee

4.2.1 The role of the Navigation Committee is to reflect the position as set out in the Broads Act. Its purpose is to comment on and advise the Authority on matters relating to the strategic management of the waterways. The Navigation Committee is the statutory scrutiny and consultation forum for issues relating to protecting the interests of navigation, which includes safety issues.

4.2.2 Members of the public have the opportunity to attend and give notice to raise questions at meetings of the Navigation Committee, or at any of the Authority's formal committee meetings (see 2.1.4).

4.2.3 The membership of the Navigation Committee is defined in the Broads Act, and consists of thirteen members as follows:

- l. Five members of the full Authority;
- m. Two persons representing the interests of hire boat owners;
- n. One person representing the national interests of private boat owners;
- o. One person representing the local interests of private boat owners;
- p. Two persons representing the interests of passenger and goods shipping;
- q. One person representing other interests.
- r. One person appointed by the Great Yarmouth Port Authority

4.2.4 The Committee receives advice from officers of the Authority who also attend.

4.3 Boating Safety Management Group

- 4.3.1 The Boating Safety Management Group was established to evolve in detail the policy and processes on which the SMS is to be based.
- 4.3.2 The Group is chaired by a member of the Authority (as a representative of the Duty Holders), with membership including the Director of Operations, the Head of Safety Management (“Designated Person”), Head of Ranger Services, the membership of the Group also includes representatives from the Navigation Committee and outside bodies with a particular interest and involvement in boating safety issues.
- 4.3.3 The Group reports directly to both the Full Authority and the Navigation Committee on a regular basis.
- 4.3.4 The Terms of Reference for the Group were reviewed in 2012 and have been approved by the Authority. The terms of reference provide the formal nomination of the “Designated Person” and are attached at Annex A.
- 4.3.5 The Group has a supervisory role, in consultation with relevant interests, for the implementation and maintenance of this Safety Management System.

4.4 Broads Forum

- 4.4.1 The Broads Forum is a consultative forum, which acts as a reference group to offer advice and comment on the Broads Authority's strategic aims and objectives. It promotes closer liaison and understanding between the various interest bodies and organisations, which have an interest in the Broads and its wider catchment area.

4.5 Broads Local Access Forum

- 4.5.1 The Broads Local Access Forum is a statutory advisory body to provide guidance and advice to relevant authorities on the improvement of public access to the countryside of the Broads Executive Area and to contribute to opportunities for the enjoyment of the area. The Forum also acts as a reference group to offer advice and comment on the Broads Authority's relating to access land, exclusions, restrictions and the appointment of access wardens on land where new rights of access exist.

4.6 SMS Potential Stakeholders

4.6.1 Table 4 -1 below represents a proposed list of stakeholders who should be consulted about various elements of the SMS. The list is not necessarily exhaustive, and it is not proposed that all stakeholders should comment on all aspects of the System.

OTHER HARBOUR AUTHORITIES
Great Yarmouth Port Company
AB Ports – Lowestoft
STATUTORY / LEGISLATIVE BODIES
Environment Agency
Defra
Natural England
Maritime and Coastguard Agency
Association of Inland Navigation Authorities
SPECIAL INTEREST GROUPS
Broads Hire Boat Federation
British Water Ski and Wakeboard
British Marine Federation
Inland Waterways Association
Association of Pleasure Craft Owners
Norfolk and Suffolk Boating Association
Royal Yachting Association
British Canoe Union
British Rowing
LOCAL COUNCILS
Norfolk County Council
Suffolk County Council
North Norfolk District Council
Waveney District Council
Broadland District Council
Great Yarmouth Borough Council
South Norfolk Council

Table 4 -1: SMS Stakeholders List

4.7 Consultation Process

- 4.7.1 The Authority has published a “Statement of Community Involvement” (Reference 17) as part of the Broads Local Development Framework.
- 4.7.2 Whilst this statement principally relates to planning matters, the sections on consultation (Chapters 5 and 6 of the Statement) may be applied to consultation on any subject. These describe the Authority’s approach to consultation, identification of hard-to-reach groups who may require to be consulted, and the means by which the consultation will be publicised.
- 4.7.3 It is proposed that the guidelines in Chapters 5 and 6 of the Statement of Community Involvement are followed in the consultation regarding the development of this Safety Management System.

5 Conservancy

5.1 Introduction

PORT
MARINE
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A harbour authority has a duty to conserve the harbour so that it is fit for use as a port, and a duty of reasonable care to see that the harbour is in a fit condition for a vessel to utilise it safely.

Para 4.3

5.1.1 This section of the SMS describes the issues relating to conservancy of the navigation area of the Broads, and describes the Authority's approach to managing these issues.

5.2 Responsibilities

5.2.1 The Port Marine Safety Code states that the harbour authority has a duty to conserve the harbour so that it is fit for use.

5.2.2 The Broads Act gives the Authority the duty to maintain the navigation area for the purposes of navigation to such standard as appears to it to be reasonably required, and take such steps to improve and develop it as it thinks fit.

5.3 Management of Hydrography

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CODE

Harbour authorities duties include:

- To survey as regularly as necessary and find the best navigable channel
- To keep proper hydrographic and hydrological records;
- To ensure that hydrographic information is published in a timely manner

*Paras 4.3, a), d),
and e)*

5.3.1 A comprehensive hydrographic survey of all areas of the Broads (with the exception of Breydon Water) was conducted for the Broads Authority by Broadland Environmental Services Ltd (BESL) during October 2005.

5.3.2 Continued hydrographic monitoring and surveying has proceeded over the years. This monitoring covering the lower reaches every two years, and the other areas no less than every five years.

5.3.3 The Authority is duty bound to provide hydrographic information to its port users however the United Kingdom Hydrographic Office, the organisation who prepare admiralty charts, do not require the Authority to publish the data to them as they would not prepare charts for an inland area which had such infrequent commercial traffic and where the Authority provided a mud pilot in such rare events.

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- 5.3.4 The Authority publishes up to date hydrographic data for the whole of the Broads area on its website, this data includes notes on navigating each area of the Broads network.
- 5.3.5 A Waterways Specification (Reference 18) has been drawn up identifying the recommended channel depths and widths for all areas of the Broads. The survey revealed that many areas do not currently meet this specification. A Sediment Management Strategy has been produced, which established a regime of dredging across the Broads. Areas will be prioritised according to a range of criteria, including need. This strategy is attached to the SMS as Annex E.
- 5.3.6 The Rangers respond to specific instances of sedimentation or shoaling reported by users of the Broads, and will mark shallow areas with buoys or posts.
- 5.3.7 The Authority has developed a Hydrographic Policy see figure 5-1.

5.4 Tidal Heights and Streams

- 5.4.1 The Rivers Yare, Bure and Waveney empty directly into the sea at Great Yarmouth, and are strongly tidal. At Great Yarmouth itself, the difference between high and low tide can be as much as 2.2m, with strong tidal currents flowing.
- 5.4.2 The strong tidal flow introduces hazards for navigation, for example on the approach to obstacles such as bridges, especially for inexperienced helmsmen, and the tidal range means that certain areas are only navigable at certain states of tide. Areas such as the mud flats of Breydon Water are under water at high tide but not navigable at any time, resulting in the risk of grounding.
- 5.4.3 To mitigate this risk, the Broads Authority maintains channel markings in certain areas. Examples are Rockland Broad, Barton Broad and Hickling Broad, as well as the lower reaches of the rivers Yare and Bure and Breydon Water.
- 5.4.4 The Authority also publishes tide tables, in the form of an annually-published booklet, and monthly tide tables are placed on the Broads Authority website. Information is also published, both online and in "The Broadcaster" visitor newspaper, providing advice on navigating the strongly tidal area upstream of Great Yarmouth.
- 5.4.5 A safety leaflet has been produced which deals with specific safety issues and advice relating to crossing Breydon water

5.5 Management of Aids to Navigation

- 5.5.1 In certain areas of the Broads, aids to navigation have been put in place, including marker posts and buoys. These mark safely navigable channels in accordance with the Waterways Specification across shallow Broads, examples being Rockland Broad, Hickling Broad and Breydon Water.
- 5.5.2 The Authority is in the process of establishing a GIS-based inspection system for all navigation and land based assets. This will set out frequency and responsibility of inspections, and be used to produce annual maintenance programmes.
- 5.5.3 It is proposed that the GIS inspection system for aids to navigation is introduced, and its use documented in a formal procedure. This procedure can then be referenced in a future issue of the SMS.
- 5.5.4 The proposed GIS inspection system will replace the paper based “Navigation Works Reports” system currently in use.

Figure: 5-1 Broads Authority Hydrographic Policy

Broads Authority Hydrographic Policy

In accordance with the Port Marine Safety Code, the Broads Authority has a duty to maintain safe navigable channels throughout its area of operation.

It is the Authority's policy that it will:

- a) Maintain a 5 year programme of hydrographic surveys, conducted in accordance with Broads Authority specification, of the navigation area, covering the navigable extents of the Broads;
- b) Use the outcome of the surveys to prioritise and inform the dredging programme detailed in the Sediment Management Strategy Action Plan, in accordance with the waterways specification;
- c) Mark safe channels in areas of particular danger, but with due regard for conservation of the natural beauty of the area;
- d) Ensure that those conducting hydrographic surveys, whether Broads Authority employees or third party contractors, are appropriately equipped, trained and competent to undertake the work;
- e) Maintain forecast tidal data information via the Broads Authority website, and at yacht stations and visitor centres;
- f) Publish Hydrographic survey data on the Broads Authority website and in cruising notes.
- g) Keep this policy under review as part of the planned monitoring and auditing of the Safety Management System Action Plan;
- h) Act in a proportionate and timely manner to address any perceived shortfalls in this policy.

6 Management of the Navigation

6.1 Introduction

6.1.1 This section of the SMS describes the Broads Authority's approach to the management of navigation. This includes the use of legally-granted powers, byelaws, policies, procedures, codes of practice and guidance.

6.2 Responsibilities

6.2.1 Under the Broads Act, the Broads Authority is the navigation authority for the Broads navigation area. The Pilotage Act also designates the authority as a "competent harbour authority", with the power to make Pilotage Directions.

6.2.2 The Broads Authority Act 2009 granted extra responsibilities relating to the management of safety on the Broads including the following provisions relating:

- a) The power to give general directions to all vessels, or particular classes of vessels, for example to designate safe navigation routes, directions to regulate mooring within the Authority's navigation jurisdiction, directions to regulate the towing of vessels.
- b) The giving of special, i.e. one off, directions to vessels in one off cases. This will extend the existing powers in the 1988 Act to deal with safety issues where the existing provisions have proved ineffective.
- c) The power to designate construction and equipment standards for vessels allowing for the continuation of application The Boat Safety Scheme previously introduced into the Broads in 2007 by byelaws.
- d) The power to introduce compulsory third party insurance for vessels.
- e) Powers to require the licensing of pleasure boats let for hire to the public
- f) Powers to better regulate waterskiing and wakeboarding in the Broads.
- g) Powers to deal with overhanging vegetation that poses a hazard to navigation.
- h) The removal of the requirement to have a separate navigation account dealing purely with navigation income and expenditure.

6.2.3 The Authority also has many other responsibilities including promoting the enjoyment of the Broads by the public. The Authority aims to strike a balance between these responsibilities.

6.3 Byelaws

6.3.1 In accordance with the Broads Act, Byelaws relating to the use of land are made in consultation with the Natural England, and all Byelaws are confirmed by the Secretary of State for the Environment.

6.3.2 The Broads Authority has made five sets of Byelaws relating to the use of the Broads, under the provisions of the Broads Act. They are as follows:

- s. Navigation Byelaws, 1995. These are general byelaws covering Steering & Navigation, Lighting, Signals, Mooring & Anchoring etc.
- t. Vessel Dimension Byelaws, 1995. These specify the maximum length and beam of vessels which are permitted to navigate within the Broads. These dimensions vary for different areas of the Broads.
- u. Speed Limit Byelaws, 1992. These specify the maximum speed limits applicable within the Broads. The speed limit varies between 3 and 6 miles per hour, and was introduced principally to limit the effect of wash on other vessels, and reduce erosion of the banks, however the limits also enhance safety. The Byelaws also identify zones where commercial boat testing may take place, during which activity the speed limits may be legally exceeded.
- v. Vessel Registration Byelaws, 1997. These byelaws govern the registration of vessels, and the payment of dues to the Broads Authority.
- w. Boat Safety Standards Byelaws 2006. These byelaws formalise the requirement to comply with the national Boat Safety Scheme within the Broads. However these byelaws have been revoked following the introduction of Construction Standards under provisions in the Broads Authority Act 2009.

6.3.3 A byelaw was made by the East Suffolk and Norfolk River Authority in 1969 relating to control of pollution in the Broads by sanitary appliances on boats. This byelaw remains in force.

6.4 Directions

6.4.1 The Authority has the power to make Specific Directions to a particular vessel,

6.4.2 The Authority has the power to make General Directions to all vessels, or particular classes of vessels, the procedure for the consultation and issue of such direction is set out in the Broads Authority Act 2009.

6.5 Policies

- 6.5.1 The Authority has set out a formal Navigation Safety Policy, which has been endorsed by the members of the Authority. This policy is given in full in section 1.7 of this SMS.
- 6.5.2 The Broads Authority has a policy regarding the bringing of prosecutions against offenders when it is appropriate to do so. The policy is attached in Annex B.
- 6.5.3 The Broads Authority has a policy regarding the towing of vessels. The policy is given in full in section 8.5.
- 6.5.4 The Broads Authority has a policy regarding the publication of weather forecasts and weather warnings and is given in full in section 3.4.
- 6.5.5 The Broads Authority has a policy for pilotage which is given in full in section 7.1
- 6.5.6 The Broads Authority has a policy for the training of marine operational and management personnel; the policy is referenced in 2.5 and given in detail in Annex L.
- 6.5.7 A policy for hydrographic surveys is published by the Authority and is given in full in section 5.3. A discussion of survey arrangements can be found at section 5.3.
- 6.5.8 A Moorings Safety Policy has been defined, and is included in the Mooring Strategy (Reference 19). The policy is discussed at section 8.3 of this SMS.

6.6 Notice to Mariners

- 6.6.1 The Broads Act 1988 requires that Notices to Mariners are published whenever navigation is restricted or suspended for any reason - principally due to maintenance works. Notices are published in the local press, and on the Broads Authority's website, 35 days in advance of the date of the works.
- 6.6.2 The Navigation Area Works Guidance (Reference 20) requires contractors to apply for publication of a Notice to Mariners for works that significantly affect navigation - e.g. severe height or width restrictions, or river closure. Because of the busy nature of the Broads, closures are not permitted unless unavoidable.

6.7 Publications Promoting Boat Safety

The Broadcaster

- 6.7.1 The Broadcaster is a free visitor guide published annually around Easter by the Broads Authority. It is a free newspaper containing articles of interest relating to the

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Broads (e.g. recent conservation work), essential boat safety advice including emergency arrangements, tide tables as well as guides on things to do, places to eat, etc.

- 6.7.2 The Broadcaster is made widely available to visitors to the Broads, including placing copies at all boatyards and in local shops, restaurants etc. A copy can also be requested online.

Safety DVD

- 6.7.3 A DVD has been produced covering basic boat handling techniques and promoting boat safety which boaters may purchase, or which boatyards may show to hirers during the show-out. The DVD is available to both private boat owners and to hire companies to make available to hirers, the DVD has been placed on the Broads Authority website and hire companies have been encouraged to create links from their own websites.

Other publications

- 6.7.4 The Broads Authority publishes a number of leaflets promoting safety and codes of conduct for users which are widely available, these include:

- Angling
- Bridges
- Crossing Breydon
- Sailing
- Rowing and Canoeing
- Mooring
- Boat Wash
- Waterskiing
- Basic Safety Advice "Go Safely"
- Winter Boating
- Day Boats

6.8 Permits

- 6.8.1 Water skiing is permitted in certain areas at certain times on the Broads; The Authority has a permit scheme (Reference 3) to regulate waterskiing and wakeboarding on the Broads. These permits are granted following compliance with rigorous requirements and the permits themselves set a number of conditions to regulate the activity.

6.9 Procedures

- 6.9.1 Standing Orders have been produced for the Mud Pilot (Reference 21), for the passage of commercial traffic to Cantley.

6.9.2 Complementary Standing Orders have also been produced for the Broads Authority launches which accompany large coasters navigating to Cantley (Reference 22).

Navigation Area Works Guidance

6.9.3 The Navigation Area Works Guidance (Reference 20) has been published to advise anyone wishing to carry out work within the Broads area of legislative requirements, provide practical health and safety advice, and highlight other possible considerations.

6.9.4 Although titled as “guidance”, this document in fact contains mandatory procedures for the issuing of Works Licences. The Broads Act 1988 gives the Authority the power to require a Works Licence to be applied for prior to any work being undertaken, and to determine whether or not such a Licence should be granted.

6.9.5 It defines the general requirements that contractors must comply with, along with specific requirements for certain types of work, e.g. diving, towing etc.

6.9.6 It should be noted that the Navigation Works Guidance does not apply to Statutory Undertakers such as contractors working on behalf of the Environment Agency on the Broadland Flood Alleviation Project (see Hazard 021 in section .)

Other procedures

6.9.7 A Management plan has been developed jointly with the Lowestoft and Oulton Broads Motor Boat Club (Reference 23) with regard to the regulation of navigation on Oulton Broad during power boat races. The management plan will be reviewed on an annual basis.

6.9.8 A set of conditions relating to a concessionary toll have been developed for commercial operators of canoes for hire to the public covered under the Authority’s Broads Paddling Scheme(Reference 24). These conditions include a variety of safety matters including requirements for the inspection of equipment and appropriate briefings for the hirers.

6.9.8 Procedures for Broads Authority workboats and launches are currently prepared and used on an informal basis. It is proposed that these procedures are formalised, and added as an Annex to the SMS.

6.9.9 Procedures relating to the implementation of provisions of the Broads Authority Act 2009 have been developed in consultation with the Navigation Committee. Including

- Special Directions
- Entry and Inspection of Vessels (Hazardous Boat Checks)
- Removal of unsafe Vessels
- Removal of Vegetation

- Requests for information
- Entry onto Land
- Construction Standards (Boat Safety Scheme)
- Hire Boat Licensing
- Compulsory third party insurance cover

6.10 Licensing

6.10.1 The arrangements for registration of boats with the Broads Authority do not contain any element of licensing. The issue of a registration number merely indicates that the vessel has been registered, and does not imply that the vessel has been inspected or approved.

6.10.2 The Licensing of motorised vessels which are let for hire to the public came into force in 2010, the License requires hire boat operators to have successfully demonstrated via a stability test or calculation that their vessels are capable of carrying the number of persons that they are licensed to carry. The license conditions (Reference 25) which are based on the Code for Design, Construction and Operation of Hire Boats (Reference 26) include such topics as in risk assessment, the safety of the boat, handover procedures (“Show-out” to a hirer) and the BSS.

6.10.3 Currently the Authority has no licensing regime for unpowered vessels which are let for hire to the public. It is the intention of the Authority that Licensing conditions will be developed following the publication of a national code relating to unpowered craft let for hire.

6.10.4 Small Passenger boats are operated on the Broads and the Authority introduced a licensing scheme in 2012 for vessels carrying no more than 12 passengers from April 2012. Licensing conditions are based on the requirements of the Small Passenger Boat Code (Reference 27)

7 Pilotage

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Competent Harbour Authorities have specific powers under the Pilotage Act to enable them to discharge the duties imposed under the Act.

Para 5.17

7.1 Introduction

- 7.1.1 This section of the SMS describes the Broads Authority's approach to pilotage, and identifies any areas within the navigation area where pilotage may be necessary.
- 7.1.2 The navigation area of the Broads is unusual compared to a commercial port, in that the area is large, there is little commercial traffic, and the majority of traffic remains within the navigation area. This contrasts with a port where vessels are continually arriving, loading and leaving on strict timetables.
- 7.1.3 Nevertheless, the Authority recognises its responsibility with regards to pilotage, provides appropriate measures and has developed a Pilotage policy figure 7-1 below.

Figure 7-1: Broads Authority Pilotage Policy

Broads Authority Pilotage Policy

The Broads Authority (BA) is a Competent Harbour Authority (CHA) within the meaning of the Broads Authority (Pilotage Powers) Order 1991 and publishes Pilotage Directions. There are currently no circumstances in which pilotage has been declared compulsory under the terms of the Pilotage Act.

It is the Authority's policy that it will:

- a) Review the need for pilotage at least annually. This will include reviewing any extant Pilotage Directions, and will take into account any changes in the status quo with regard to large commercial vessels' usage of the Broads.
- b) Ensure that the operation of the pilotage service is compliant with national regulations, guidelines and competency standards;
- c) Ensure that the Standing Orders for pilots and the accompanying Authority launches are kept up-to-date and accurate
- d) Ensure that pilots employed or authorised by the Authority meet the requirements of National Occupational Standard 5;
- e) Employ succession planning to ensure that an authorised and qualified pilot is always available should the requirement arise;
- f) Ensure that the means of boarding and landing pilots are regularly reviewed to ensure that these operations are always undertaken as safely as possible;
- g) Share pilotage information with other users or authorities via relevant fora;
- h) Keep this policy under review as part of the planned monitoring and auditing of the Safety Management System;
- i) Act in a proportionate and timely manner to address any perceived shortfalls in this policy.

7.2 Responsibilities

- 7.2.1 The Broads Authority (Pilotage Powers) Order 1991 (Reference 28) confirms the Authority's status as a "competent harbour authority" as defined under the Pilotage Act 1987. As such, it has a duty to determine whether any and, if so, what pilotage services need to be provided to secure the safety of ships navigating in or in the approaches to its harbour; and whether such pilotage should be compulsory.
- 7.2.2 This duty is reinforced in the Port Marine Safety Code, which goes on to state that authorities should exercise control over the provision of pilots by means of controlling recruitment, examination and authorisation of pilots.

7.3 Requirements for Pilot and Pilotage Directions

- 7.3.1 There is one circumstance in which pilotage is provided by the Broads Authority. In this circumstance, pilotage is strongly recommended, but has not been made compulsory by means of a Pilotage Direction.
- 7.3.2 Occasionally, oil tankers navigate from Great Yarmouth along the River Yare to the sugar beet factory at Cantley. Seagoing vessels are strongly encouraged to use the services of the Mud Pilot. The Mud Pilot manages the entire journey, including the passage of Breydon Water, coordinating the journey departure time with the opening of the Reedham Swing Bridge, and assisting with navigation of several sharp bends in the river. One or two Broads Authority launches accompany the coaster, to ensure that vessels ahead of the coaster are aware of its approach, and that vessels are moved from moorings on the sharp bends. These launches operate to their own published procedures (see section 6.9). It is several years since such a passage last occurred, and the future of this activity is currently in doubt.
- 7.3.3 In 2014 there were two occasions where pilotage was provided to third parties the first a large barge carrying plant to Cantley was piloted by the Broads Authority during its transit. Additionally a historic trading barge the Cumbria also required pilotage on key sections of the navigation.
- 7.3.4 There are also two bridges where pilotage is available. The Broads Authority believes that pilotage is not necessary for experienced helmsmen to safely navigate these bridges. However it is accepted that the majority of craft are hire vessels helmed by novices. As such, the boatyards have provided pilotage services to protect their own assets. The Broads Authority does not authorise or regulate these pilots.

Potter Heigham Bridge

- 7.3.5 Potter Heigham Bridge is an ancient road bridge that spans the River Thurne. The tide flows quickly through the bridge. At high water the clearance is too small for most craft to pass under the bridge. Pilotage is mandated by some hire companies for most of their hire craft. Where pilotage is compulsory, it is provided at no charge

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to the hirer. A fee is charged for this service. Pilotage is not required for helmsmen of privately-owned vessels.

Wroxham Bridge

7.3.5 This ancient road bridge spans the River Bure at Wroxham. Tidal streams are gentle and there is a very small range of tide, influenced more by rainfall/fluvial flow than by tidal action. However, the area is very congested in summer and the bridge is on a bend in the river. Pilotage is available but not mandatory. A fee is charged for this service.

Works Pontoons/Vessels

7.3.6 The Navigation Area Works Guidance advises contractors of the potential need for the Mud Pilot if movements of very large vessels are to be undertaken. In practice, such vessels are not usually piloted, but escorted by Broads Authority launches.

7.4 Authorisation of Pilots

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Harbour authorities, may authorise suitably qualified pilots in its area. Authorisations may relate to ships of a particular description and to particular parts of the harbour

Para 5.23

- 7.4.1 Pilots at Potter Heigham and Wroxham Bridges are provided by nearby boat yards. They are neither required by, nor authorised by, the Broads Authority.
- 7.4.2 The Mud Pilot for coasters is employed by the Broads Authority on an ad hoc basis, and has extensive experience of many such journeys, as well as holding a Coastal Skipper Ticket. The Mud Pilot works to published Procedures, described in section 0 below.
- 7.4.3 The Mud Pilot was formally a full time employee of the Authority but has now retired; a replacement has been identified, and has received relevant training. 7.4.4 Compliance with the PMSC will be via the following approach;-
- a) The training of the Broads Authority Mud Pilot to National Occupational Standard for Marine Pilotage

7.5 Pilotage Procedures

- 7.5.1 Detailed procedures have been prepared by the Broads Authority covering all aspects of the journey. The Standing Orders for Broads Authority Mud Pilots (Reference 29) details the responsibility of the Pilot prior to and during the journey, and provides contact details for relevant stakeholders, such as swing bridge operators, and the Broads Authority Broads Control.

7.6 Pilotage Exemption

- 7.6.1 No pilotage exemption certificates have been awarded by the Authority. Because there are no formal pilotage directions, there has been no requirement to consider exemption. A procedure for the issue of pilotage exemption certificates will be developed by the Authority in the event that such an activity appears likely to occur.

8 Marine Services

8 Marine Services

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Good Practice
on Port Marine
Operations

An authority's Safety Management System should cover the use of harbour craft and the provision of moorings. The authority should ensure that harbour craft are fit for purpose, and the crew appropriately trained and qualified.

Section 10.1.2 a,c

8.1 Introduction

8.1.1 This section of the SMS covers the provision of Marine Services by the Authority. Marine Services are defined as support services available in a harbour, such as tugs, workboats, pilot launches and moorings.

8.2 Responsibilities

8.2.1 The Authority has a responsibility under the Broads Act to maintain the interests of navigation. In support of this, it has the power to provide and maintain moorings throughout the navigation area.

8.2.2 The Authority also has a duty under the Pilotage Act to ensure that workboats are maintained in good order.

8.2.3 The Authority has a duty of care under the Health and Safety at Work Act 1974 to maintain its workboats in good order, and to ensure that personnel operating them have received appropriate training.

8.3 Moorings

8.3.1 The Broads Authority is responsible for the provision and maintenance of a network of approximately 60 "twenty-four-hour" moorings. This means moorings at which it is permissible to moor for the night, as opposed to temporary moorings, which are for short term use only e.g. for sailing boats to raise or lower their sails and or mast.

8.3.2 The Broads Authority has published a Mooring Strategy document (Reference 30) which outlines the Authority's approach to the management of all moorings, to include temporary moorings and staithes as well as the 24-hour moorings.

- 8.3.3 The 24-hour moorings have been classified according to the facilities available, from “Flagship” where amenities such as toilets and showers are available, to “Wild”, which are alongside rural uninhabited land. A risk assessment has also been conducted of each of the Broads Authority managed moorings, quantifying the risk of falling into the water, and noting the controls in place at each mooring (e.g. ladders, chains/ropes, etc.)
- 8.3.4 The moorings are inspected by the Navigation Rangers on a fortnightly or monthly basis, in accordance with the mooring’s Management Plan. Inspections are conducted in accordance with the Mooring Inspection Guide contained within the plan.
- 8.3.5 The Mooring Strategy contains the Moorings Safety Policy, as follows:
- The Broads Authority has a commitment to ensuring the safety of users of the 24hr moorings network and will develop a 24hr mooring site management plan for each of its sites. This will be done in conjunction with the Rangers, and include an agreed inspection regime, agreed routine maintenance specification, development plans, risk assessment, property holding details and a site plan. A process for the generic risk assessment of all Broads Authority moorings has been developed and this has led to the identification of improved safety measures, which will be incorporated into all new sites when developed. Further, the Broads Authority is committed to ensuring that moorings are adequately spaced to allow reasonable facilities in the event of emergency, and considers 30 minute spacing appropriate.*
- 8.3.6 There is a temporary mooring at Mutford Lock, provided to enable boats to moor whilst waiting for the lock, which is provided by the Broads Authority, but is outside of the Authority’s navigational area. This mooring has no access to land, and is now managed by the operators of Mutford Lock on behalf of the Broads Authority.
- 8.3.7 There are also many private moorings and staithes, which are not maintained by the Authority. The Broads Act gives the Authority the power to demand that owners make improvements where there is a danger to navigation.

8.4 Workboats and Launches

8.4.1 The Broads Authority owns and operates a number of small workboats, as below. Passenger craft are dealt with separately at section 8.7.

- a) Eight Broads Authority launches and one RIB, for the purpose of patrolling, escorting, offering assistance and enforcement.
- b) Three self-propelled workboats;
- c) Three dumb barges;
- d) One weed harvester;
- e) Four Dredgers
- f) Nine Powered Wherries
- g) Two Dumb Lighters
- h) Two Tugs
- i) A small number of dinghys;

8.4.2 Workboats and launches have a daily check in accordance with the form at Annex I. See Section 6.9 for proposals regarding the formalisation of launch/workboat operating procedures and risk assessments.

8.5 Towing

8.5.1 The Broads Authority does not operate any tugs for the purpose of towing third parties. Broads Authority launches are occasionally used for towing duties (e.g. assisting boats who have engine failure etc.). If necessary, a tug from a local boatyard is contracted to provide support.

8.5.2 The Broads Authority has published a policy for towing see figure 8-1 over.

Broads Authority Towing Policy

In accordance with the Port Marine Safety Code, the Broads Authority needs to lay down guidance for towing within the navigation area

It is the Authority's policy that it will:

- a) Respond to emergencies for recreational vessels if BA vessels are available providing that prevailing conditions are favourable.
- b) In cases of emergency, tow vessels to a safe mooring or safe situation or recover passengers and crew
- c) Maintain towing capability for recreational vessels in an emergency or access to such capability through a register of competent operators, for situations reasonably expected to be encountered on the Broads, and keep this capability under review;
- d) Develop and maintain risk assessments of towing activities for various types of boats (e.g. day boats, yachts, etc) in various circumstances (e.g.,propulsion failure etc);
- e) Ensure that Authority personnel involved in towing have appropriate equipment for the task, are suitably trained, and are competent;
- f) Ensure that any third parties employed by the Authority for towing activities have suitable equipment and are trained and competent to the same extent, in accordance with the BA towing specification
- g) Share towing information with other users or authorities via relevant fora;
- h) Keep this policy under review as part of the planned monitoring and auditing of the Safety Management System;
- i) Act in a proportionate and timely manner to address any perceived shortfalls in this policy.
- j) Require that towing of commercial vessel is in line with the requirements laid down in the Navigation Works Guidance

Figure 8-1: Broads Authority Towing Policy

8.6 Third Party Involvement

- 8.6.1 Where towage or other services may be required by the Authority, the work may be subcontracted to a local boatyard. For any such subcontract, the Authority will require compliance with the Navigation Works Guidance and appropriate demonstration of crew competency.

8.7 Passenger Craft

- 8.7.1 The Broads Authority operates three passenger craft for the purpose of providing guided tours and trips to members of the public.
- 8.7.2 Each of these craft carries less than twelve passengers.
- 8.7.3 The boats have specified checks, which must be carried out on a daily and weekly basis. These exist for all the Authority's boats; by way of example the check sheets for the Electric Eel are included at Annex H.I
- 8.7.4 The MCA's Inland Waters Small Passenger Boat Code (Reference 31) applies to vessels that do not go to sea, and carry less than twelve passengers. The Code is a best practice guide rather than a statutory requirement and the Authority's passenger boats and their operation comply with the requirements of the code.
- 8.7.5 Stability tests have been conducted and recorded on all the Authority's passenger boats, and maximum passenger numbers defined accordingly.
- 8.7.6 The Broads Authority introduced a licensing scheme for small passenger boats in April 2012 and the Authority's passenger boats comply with this licensing scheme.
- 8.7.7 The Authority's passenger boats have been certified in accordance with the Boat Safety Scheme.

8.8 Lifebuoys and Personal Rescue Equipment

- 8.8.1 Lifebuoys and personal rescue equipment are stationed at several locations on the Broads for use in an emergency. They are checked daily at yacht stations in accordance with the form at Annex J. Personal rescue equipment such as lifebuoys and rescue lines which are located on the Authority's 24 hour moorings are checked by the Rangers when completing the routine mooring inspections.

9 Hazards

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The duty holder on behalf of the harbour authority must:

- Ensure all risks are formally assessed and as low as reasonably practicable in accordance with good practice;
- Operate an effective marine safety management system (SMS) which has been developed after consultation and uses formal risk assessment;

*Summary of the
code 3 and 4*

9.1 Introduction

9.1.1 This section of the SMS describes the Broads Authority's approach to the systematic identification, assessment and control of hazards, and the minimisation of the risks they pose to the public and to employees of the Authority to a level, which is as low as reasonably practicable.

9.2 Responsibilities

9.2.1 The Broads Act gives the Authority a duty, *inter alia*, of "protecting the interests of navigation". It is therefore important that hazards to navigation are identified, and appropriately managed.

9.2.2 In addition, the Management of Health and Safety at Work Regulations (1999) (Reference 32) require the Authority to make a suitable and sufficient assessment of all the risks to the health and safety of workers and others arising at or from a work activity.

9.3 Formal Risk Assessment

9.3.1 A structured approach to the identification and analysis of hazards, and the assessment of the risks they pose, is at the centre of any Safety Management System. The process is described in section 10.4. In accordance with the Port Marine Safety Code, this includes:

- a) The identification and analysis of risks.
- b) An assessment of these risks against an appropriate standard of acceptability;
- c) A cost effectiveness analysis of risk reducing measures where appropriate.

9.3.2 In May 2003, a Formal Safety Assessment (Reference 33) was undertaken on behalf of the Broads Authority. This assessment identified 28 hazards, and proposed risk reduction measures.

9.3.3 The methods used to identify hazards, and assess and mitigate risk, are described in section 10.

9.4 Discussion of the Existing Hazard Log

- 9.4.1 All of the hazards identified during the FSA have been formally reviewed as part of the ongoing development of the SMS. The reviews occur annually and their audience alternates between a full stakeholder group and the Boating Safety Management Group and or the Broads Local Access Forum. At each review the group review experience gained in the intervening year and reviews proposed actions and whether the status of the hazard has changed.
- 9.4.2 Annex M of this SMS records the outcome of the most recent reviews, and makes recommendations for prioritisation and further action.
- 9.4.4 Further formal hazard reviews are scheduled with the appropriate groups of stakeholders, to review the risk assessments and progress against actions, and to generate ALARP statements where possible.

9.5 Hazard Identification

- 9.5.1 The Sheet at Annex F was used to record hazards at the 2003 FSA. This was conducted using the “Structured What If Technique” (SWIFT) however the sheet could easily be modified for other techniques such as HAZOPS (Hazard and Operability Study).
- 9.5.2 Such techniques are an ideal method of identifying hazards, since they gather together a group of suitably-qualified people to discuss the hazards. This provides assurance that the hazard is valid, and that the assessment of the hazard, and the safeguards proposed, are suitable.
- 9.5.3 Hazards may also be identified by any employee of the Authority, or indeed any person. Any hazard raised in such a way should be discussed and considered for inclusion in the hazard log. Decisions should be recorded to provide an audit trail.
- 9.5.4 The ongoing management of hazards identified by such processes is described in the next section.

10 Risk Assessment

10.1 Introduction

10.1.1 The conduct of a formal risk assessment is central to the effective operation of the Safety Management System. Risk assessments must also be conducted for specific activities undertaken by the Authority.

10.2 The ALARP principle

10.2.1 The principle of ALARP (As Low As Reasonably Practicable) is considered to be best practice by the Health and Safety Executives, and is derived from case law in accident investigation cases. The HSE's document "Reducing Risks, Protecting People" (Reference 34) gives the background to ALARP.

10.2.2 The aim of the ALARP principle is to strike a balance between the severity of the consequence of a particular hazard, and the cost and difficulty of implementing control measures.

10.2.3 A risk can be declared ALARP, provided it is not in the "intolerable" region described below, if it is believed that all possible mitigating actions and safeguards have been identified and, if considered reasonably practicable, implemented.

10.2.4 The ALARP principle therefore recognises that it is seldom possible to entirely remove risk, and this is particularly true in a marine environment.

10.2.5 ALARP statements are to be generated following the formal hazard review. This may entail further analysis of the hazard or identification of additional mitigating actions.

10.3 Risk Classification System

10.3.1 The Formal Safety Assessment conducted in May 2003 derived risk levels by using the risk matrix approach shown at Figure 10-1. The risk matrix approach is used to combine the estimated likelihood of a hazard with its estimated consequences to people, the environment and assets (the higher the risk numbers the greater the risk).

10.3.2 Figure 10-1 also shows the risk acceptance criteria for this project: those that fall in the green region (C) are considered to be "Broadly Acceptable" and those within the red region (A) are "Intolerable". Risks that fall between these categories are in the As Low As Reasonably Practicable (ALARP) region. It should be noted that it is incorrect to say that a risk in region B "is ALARP". Its placement in this region means that the risk has to be demonstrated to be ALARP by means of mitigations and risk reduction.

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- a) Intolerable risks (class A) would require urgent attention and be the focus of regular reviews by the Broads Authority and any suitable risk control measures that are identified should be seriously considered for implementation. Such risks cannot be declared ALARP, a means of reducing or avoiding the risk must be found and implemented;
- b) Risks in the ALARP region (class B) require review to ensure that they can be satisfactorily weighed against the time, trouble, cost and physical difficulty in taking further measures to reduce them;
- c) Broadly acceptable risks (class C) would require some attention and occasional review (e.g. annually) to ensure that they remain under control.

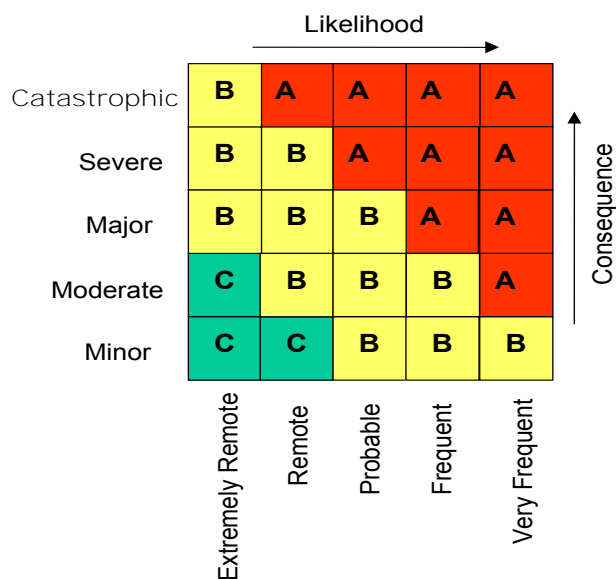


Figure 10-1: Risk Assessment Matrix

10.3.3 Risks are judged in terms of their likelihood (the probability of an incident occurring) and their impact (the worst-case consequence, if an incident occurs, on people, assets and the environment).

10.3.4 The estimates that were provided in the original FSA were considered to be worst credible scenarios, however, it is important to emphasise that these values should be viewed in relative terms and are not absolute measures of risk. Empirical evidence has shown that experts tend to be pessimistic when estimating risk levels (particularly when relating to safety) and this should be considered when reviewing the results of risk assessments.

Assessment of Incident Likelihood

10.3.5 The likelihood categories range from less than 1 incident per 100 years to a likelihood of more than 1 incident per month, as shown in Table 10-2 below.

Likelihood Category	Definition
Extremely Remote	Less than 1 incident per 100 years.
Remote	Between 1 incident per 10 years and 1 incident per 100 years.
Probable	Between 1 incident per year and 1 incident per 10 years.
Frequent	Between 1 incident per month and 1 incident per year.
Very Frequent	More than 1 incident per month.

Table 10-2: Risk Likelihood Categories

Consequence to People

10.3.6 The consequences to people to people range from no injuries or damage to health to >5 fatalities or >50 major injuries, as shown in Table 10-3 below.

Consequence Category	Definition
None	No injuries or fatalities.
Minor	1 minor (recoverable) injury.
Moderate	1 major injury (e.g. broken bones); or <10 minor (recoverable) injuries; or 1 minor occupational illness.
Major	1-10 major injuries; or multiple occupational illnesses.
Severe	1-5 fatalities; or up to 50 major injuries.
Catastrophic	>5 fatalities or >50 major injuries.

Table 10-3: Consequence to People

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Consequence to the Environment

10.3.7 The consequences to the environment range from no environmental damage to persistent and severe environmental damage over a large area with, as shown in Table 10-4 below.

Consequence Category	Definition
None	No environmental damage.
Minor	Minor local pollution with short-term environmental damage; limited pollution response required by Broads Authority and/or other local organisations.
Moderate	Moderate local pollution with medium-term environmental damage; significant pollution response required by Broads Authority and/or other local organisations.
Major	Major but recoverable (in the medium term) environmental damage over a local area; significant pollution response required by Broads Authority and/or other regional organisations.
Severe	Severe but recoverable (in the medium to long term) environmental damage over a large area; significant pollution response required by the Broads Authority and/or other regional organisations.
Catastrophic	Persistent and severe environmental damage over a large area; major pollution response required by the Broads Authority and/or other national organisations.

Table 10-4: Consequence Categories – Environment

Consequence to Assets

10.3.8 The estimates of consequences to assets ranged from no damage to assets to complete disruption to commercial activities; cost of repair >£10M; all river users affected, as shown in Table 10-5 below.

Consequence Category	Definition
None	No damage to assets.
Minor	No disruption to commercial activities; cost of repair £0-£10K.
Moderate	Brief and partial disruption to commercial activities; cost of repair between £10K-£100K; few river users affected.
Major	Significant short-term or minor long-term disruption to commercial activities; cost of repair between £100K-£1M; many river users affected.
Severe	Significant and long-term disruption to commercial activities; cost of repair £1M<£10M; many river users affected.
Catastrophic	Complete and long-term disruption to commercial activities (e.g. river closure for up to 1 week); cost of repair >£10M; all river users affected.

Table 10-5: Consequence Categories – Assets

10.3.9 The estimates of likelihood and consequence were made in terms of orders of magnitude, using expert judgements which were provided by the Project Team preparing the Formal Safety Assessment, with advice from the Head of Navigation Strategy, the Navigation Safety & Projects Officer and the Head Ranger (Navigation), plus reference to historical incident data. More background may be found in the Formal Safety Assessment report (Reference 35).

10.4 Management of hazards and risk

10.4.1 Having identified hazards and controls, it is important to verify that those controls are put into place, and that they are effective in mitigating the hazard.

10.4.2 This requires that the hazards are reviewed on a regular basis, and that completion of the actions is recorded. It is also important to identify the actions for any given control measure, and to ensure they are aware of, and accept, the action.

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10.4.3 The Guide to Good Practice on Port Marine Operations identifies the steps of hazard management as shown to the right of Figure 10-6.

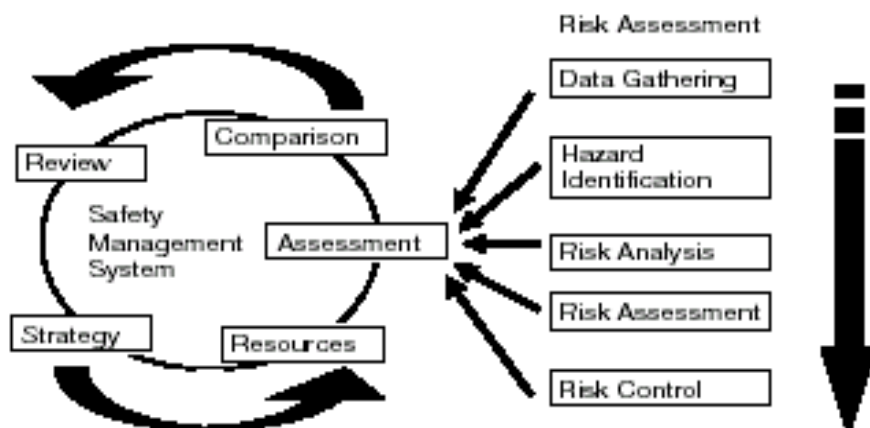


Figure 10-6: Safety Management System and Risk Assessment

10.4.5 The Authority has developed a Hazard Management Policy see figure 10-7.

Broads Authority Hazard Management Policy

In accordance with the Port Marine Safety Code, the Broads Authority has a duty base its policies, plans and procedures based on a formal assessment of hazards and risks.

It is the Authority's policy that it will:

- i) Ensure that all personal are aware that they may raise a hazard
- j) Manage the Hazard Log, which will be the responsibility of the Head of Safety Management.
- k) Maintain and track the Hazard Log, create action plans following subsequent reviews and monitor and record progress via regular meetings of the Boat Safety Management Group.
- l) Review the Hazard log annually, alternating between an internal review by the Boat Safety management Group and followed by a full stakeholder review on the following year.
- m) Keep this policy under review as part of the planned monitoring and auditing of the Safety Management System Action Plan;
- n) Act in a proportionate and timely manner to address any perceived shortfalls in this policy.

Figure 10-7: Broads Authority Hazard management Policy

10.5 Risk Assessment

- 10.5.1 It is a part of the Authority's Navigational Safety Policy that risk assessment techniques be used to ensure that hazards are reduced to a level which is as low as reasonably practicable.
- 10.5.2 It is important that risk assessments are conducted to a common standard, and against common criteria. This will then enable the level of risk to be understood and prioritised.
- 10.5.3 The Authority has developed instructions for the conduct of a risk assessment, including definitions of the probability and consequence of identified hazards. These instructions, along with a blank risk assessment form, are contained in Annex G.
- 10.5.4 These instructions have been used for the risk assessments of the 24-hour moorings (see section 8.3.).
- 10.5.5 These instructions have been used in the preparation of generic and site specific risk assessments, in the Broads Authority's corporate occupational health and safety system.
- 10.5.6 Risk Assessments are stored electronically both on the corporate server and on the Broads Authority Intranet which is available to all employees.

10.6 Boat Safety Scheme

- 10.6.1 The Boat Safety Scheme (Reference 36) is a nationally-implemented scheme. Its aim is to work on behalf of the UK's navigation and harbour authorities to help sustain safety and promote pollution avoidance on the inland waterways in respect of boats, their installations and components.
- 10.6.2 The Scheme concentrates on safety of the fixtures and fittings of the boat principally with respect to fire, fumes and explosion. As such, it concentrates on engines, fuel tanks, gas appliances/piping and electrical equipment/cabling. The BSS does not cover navigational safety, stability or watertight integrity of hulls.
- 10.6.3 The BSS has been introduced in three phases between April 2007 and April 2009, with the larger craft and hire craft requiring earlier compliance.
- 10.6.4 The version of the BSS issued in 2002 applies to hire craft, whereas a revision published in 2005 (with less prescriptive requirements) applies to private craft.
- 10.6.5 The Authority initially introduced the Boat Safety Scheme through byelaws however the Broads Authority Act 2009 made compliance with the Boat Safety Scheme mandatory under the "Construction Standards" provision which will allow for greater flexibility in the event of an update to the Boat Safety Scheme. The byelaws were revoked when the Construction Standards provision was implemented.

11 Emergency Response

**PORT
MARINE
SAFETY
CODE**

The Civil Contingencies Act 2004 provides a framework for civil protection in the event of an emergency that threatens serious damage to human welfare, the environment or security. Harbour authorities are classified as category 2 "cooperating bodies". They will be involved in the associated planning work, and heavily involved in incidents that affect their sector. They are responsible for co-operating and sharing relevant information with category 1 (emergency services and local authorities) and other category 2 responders

Section 4.6

11.1 Introduction

11.1.1 This section of the SMS describes the Authority's preparedness for emergency situations, and their procedures for dealing with an emergency should it arise.

11.2 Responsibilities

11.2.1 The Broads Act does not give the Authority a responsibility to act as an emergency service. Nonetheless, the Rangers and Broads Control frequently receive emergency calls, and have a responsibility to liaise appropriately with the emergency services.

11.3 Reporting of an Emergency

11.3.1 In the event of an emergency on the water, boaters are instructed to call the Emergency Services on 999. The Coastguard acts as co-ordinator for any action which may be required, liaising with Broads Control and the Rangers as necessary.

11.3.2 The Broads Authority is not a designated Emergency Service and is not a declared Search And Rescue (SAR) resource by H.M. Coastguard. However, the Authority's staff and patrol launches are frequently called on to assist the official emergency services in searching for missing persons or overdue vessels, communicating emergency messages to vessels, providing guidance on locations and access to the rivers network and sometimes transporting police, fire, ambulance or coastguard personnel or equipment.

- 11.3.3 The Broads Authority's personnel and resources are controlled via the "Broads Control" VHF Radio Base station in Norwich. Broads Control is operated during office hours seven days a week in summer, shorter hours in winter. Callers with emergencies or serious problems are directed to dial 999 and ask for the appropriate emergency service. H.M. Coastguard will co-ordinate any major incident that requires any of the maritime SAR assets to be used.
- 11.3.4 Some areas of the Broads have good access to the road network, so the usual land based emergency services can reach any casualty in these areas. For the open waters of the Broads, and those rivers with no direct road access, the Broads Authority provides patrol craft manned by Rangers and trained volunteers. The Norfolk Constabulary "Broads Beat" has a RIB available to assist with SAR activities. The Hemsby Inshore Rescue RIB can be transported to the Broads and regularly exercises on the waterways. The RNLI has established an inland Lifeboat Station at Great Yarmouth. This is equipped with a directly launched D Class inflatable and also a small portable inflatable deployed to distant locations on a specially adapted four wheel drive pickup. Most of the sailing and boating clubs on the Broads have dedicated rescue craft afloat during racing and regattas. An RAF Sea King SAR helicopter is based at Wattisham, which can reach the Broads in about 30 minutes. This aircraft has night vision equipment and has para-medics in the crew. The helicopter has the capacity for 17 passengers, plus the crew.
- 11.3.4 Broads Control operates a messaging/incident recording system for recording all calls received - whether an emergency or not. Incident records are kept and maintained for analysis and the derivation of trends and statistics.
- 11.3.5 The Broads Authority provides a 24 hour 365 days a year standby facility for the Emergency services usually coordinated by the Coastguard. The on call standby manager has immediate access to another operational member of staff and can ultimately call on all available officers to assist where necessary. All standby staff are trained in boat handling, first aid and oil spill procedures.

11.4 Incident Reporting System

- 11.4.1 Incidents can be reported to the Broads Authority by a variety of methods, verbally to Broads Control, via a prepaid postal form and online via the Authority's website. Out of office hours the Coastguard control unit can contact the duty standby manager via a pager system in the event of an incident.

11.5 Assessment of the Situation

- 11.5.1 If the Authority receives a call from a person in distress, the Rangers need to determine the nature of the situation, and decide whether it is necessary to call the Emergency Services, or whether to attend themselves.

11.6 Response to a Minor Emergency

11.6.1 In the event of a minor emergency (for example a vessel which has run aground), a Ranger will attend and provide support as required. All Broads Authority personnel operating in the field are first-aid trained, as described in the Training and Development Policy (Annex B).

11.7 Oil spills

11.7.1 The Authority has produced two plans for management of oil/fuel spills.

11.7.2 The "Oil Spill Contingency Plan - Broads Navigation Area" (Reference 37) is for spillages relating to private and hire craft. Such spills are generally relatively minor in nature, and consist of spillage of diesel during fuelling, and the leaking of engine oil or fuel into bilges and thence into the water.

11.7.3 The plan has been compiled in consultation with the Environment Agency, English Nature, Defra, Norfolk County Council and the Great Yarmouth Port Company.

11.7.4 It describes three tiers of response, in terms of the quantity of spillage, the organisation and mechanism for response, and the resources at the Authority's disposal for containment and disposal of oil. The plan interfaces with Local Authority and National plans for the higher tiers of severity. In all cases, containment and recovery of the pollutant is the preferred option - the use of dispersants is avoided unless necessary.

11.7.5 The other type of oil spill which may occur is the escape of Heavy Fuel Oil (HFO) from the tanker supplying fuel to the British Sugar factory at Cantley. Because this is a very rare operation, and the potential severity of a spill is significantly higher than the situations in the main plan, a separate plan has been developed in conjunction with British Sugar. The "Broads Authority/British Sugar Oil Spill Contingency Plan - Cantley Trade" (Reference 38) outlines the arrangements for responding to a major spillage of HFO in this situation.

11.7.6 The plans include consideration of arrangements for the safety of those involved in the oil spill response, a definition of the level of training required, and a regime for the conduct of exercises.

11.8 Communications

11.8.1 In the event of calls being received by the Authority as a result of a major incident, the call will generally be passed to the officer with the appropriate technical background to respond.

11.8.2 A Communications Strategy has been developed by the Authority, which details aims and procedural information for all communications both internally and to external bodies inclusive of the media . (Annex K)

11.8.3 A number of key staff have received training in dealing with the press effectively including response to major incidents.

11.9 Emergency Response Exercise

11.9.1 The Authority isn't an Emergency Response Organisation.

11.9.2 The Authority takes part in emergency planning exercises with the emergency services and the County Emergency Planning team.

12 Monitoring and Auditing

12.1 Introduction

12.1.1 The SMS will evolve and develop as the Broads area changes. Effective management and maintenance of the SMS will be required, to monitor any changes and the impact that those changes have on safety.

12.1.2 The PMSC requires that the SMS is monitored and audited to ensure that it continues to meet the requirements of the code. Such monitoring and auditing comprises three basic types:

- a) Proactive monitoring: This involves regularly reviewing aspects of the SMS to ensure that it is continuing to deliver an appropriate level of safety. This is generally achieved by reference to a defined set of performance indicators;
- b) Reactive monitoring: This involves reviewing the causes and outcomes of any incidents or accidents, and ensuring that any implications on the SMS are captured and implemented;
- c) Auditing: This involves taking a detailed and independent look at some or all of the SMS to verify its compliance with the PMSC and its effectiveness.

12.2 Proactive Monitoring

12.2.1 The PMSC requires that monitoring is carried out to demonstrate to the Duty Holder that the SMS is achieving its goals.

12.2.2 To monitor performance, it is necessary to identify a set of performance indicators which will cover all aspects of the SMS.

12.2.3 The following performance indicators will be monitored monthly to provide evidence of the continued functioning of the SMS, and enable progress towards (or away from) targets to be assessed. The status of each indicator, in relation to its defined target, will be recorded on the Authority's website.

Conservancy and Management of Navigation

- a) Delivery of Annual dredging programme (Target: 100%, however a phased increase in target may be preferred based on the Sediment Management Strategy Action Plan);
- b) The number of navigational aids (markers/buoys/lights) which are overdue for scheduled inspection (Target: Zero);
- c) The number of Channel markers and buoys renewed against annual maintenance programme.

- d) The number of formal written warnings issued by Rangers (Target: No target set, however the indicator provides a measure of the level of activity);

Pilotage

- e) The number of piloted movements undertaken within the reporting period (Target: No target set, however the indicator provides a measure of the level of activity);
- f) The number of escorted movements undertaken in the reporting period (Target: No target set, however the indicator provides a measure of the level of activity);

Marine Services

- g) Number of moorings and land sites which are overdue inspection (Target: Zero);

Hazards and Risk Assessment

- h) Number of non-ALARP hazards. (Target: Zero)
- i) Number of hazards overdue for review (Target: Zero)

Emergency Response

- j) Number of recorded incidents. (Target: No target set, however the indicator provides a measure of the level of activity. It may also be argued that a low number of incidents is partly due to the successful implementation of a Safety Management System);
- k) Number of oil spill incidents (Target: No target set, however the indicator provides a measure of the level of activity. It may also be argued that a low number of incidents is partly due to the successful implementation of a Safety Management System).

12.3 Reactive Monitoring

- 12.3.1 The purpose of reactive monitoring is to ensure that any incidents or accidents are reported and investigated, and that where an amendment to the SMS might reduce the risk of reoccurrence, that amendment is made.
- 12.3.2 The Authority has an incident reporting procedure that utilises the Incident Reporting and Investigation System (IRIS) application to log and record incidents. It is the Authority's policy that all reports from this system will be reviewed on a monthly basis to determine whether an amendment to the SMS might be required.
- 12.3.3 Each incident report is to be risk-assessed in accordance with the criteria at Section 10 of the SMS. This assessment should take into account that a low-category incident recurring regularly may, on aggregate, merit a higher category.
- 12.3.4 Category C issues are to be logged for implementation at the next scheduled SMS update. Category B issues are to be raised to senior management, and a decision

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taken as to whether an immediate update of the SMS is required. Category A issues should be notified to senior management, and an update to the SMS issued promptly.

12.3.5 Examples of the kind of amendment which may be required include updating a policy, or changing the status of a hazard.

12.3.6 Where an amendment to the SMS is identified, it shall be logged for implementation at the next update, unless the severity of the situation is such that an immediate update is required.

12.4 System Auditing

12.4.1 Monitoring of performance indicators provides a useful guideline as to how well the system is functioning, however an occasional in-depth analysis of the SMS is required.

12.4.2 The Designated Person will conduct annual internal audits of specific areas of the SMS, record the findings, and implement any action which arise as a result.

12.4.3 Every four years, the Authority will arrange for a full audit to be undertaken by an independent third party to gain an objective opinion of the effectiveness and suitability of the SMS to meet its objectives, and to verify continued compliance with the PMSC.

12.4.4 The following sequence is proposed for the conduct of full and internal audits.

Year	Subject
1	Conservancy and Management of Navigation and Marine Services
2	Hazard/Risk Assessments, Emergency Response and Pilotage
3	Full System Audit

Table 12-1: Proposed audit sequence

12.4.5 The Designated Person will have responsibility for conducting internal audits, reporting the outcomes of all audits to the Members of the Authority, and arranging for the results to be published.

12.4.6 Where audits identify areas for improvement or non-compliances, an Action Plan will be developed to rectify these issues.

12.4.7 The audits will be timed to feed into a statement that will be made in the Broads Authority Annual Report on the navigation safety performance of the Authority. It is a requirement of the PMSC (paragraph 3.19) that performance reports should be

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published by the Authority. The Guide to Good Practice cites three years as an appropriate interval for such reports. The Full Audit programme is timed to align with this.

13 Recommendations

13.1 Recommendations

The following list summarises the recommendations that have been made in the current issue of the SMS

Source	Recommendation
SMS Annex M	It is recommended that the Integrated Hazard log remains under continual review, and is subject to a review in October 2015 and then one year from the date of publication of the report.
SMS Annex M	It is recommended that the Integrated Hazard Review Action Plan (Appendix 1) is implemented.
External Audit Annex O	Designated Person: It is recommended that succession planning is considered for the position of 'Designated Person'. The current Head of Safety Management appears competent in all aspects of Safety Management and provides suitable advice and guidance to the 'Duty Holder'.
External Audit Annex O	Measuring Performance: It is recommended that the status of each indicator is clearly presented on a designated page on the Authority's website, detailing the target, current performance against the target and the historic trend.
External Audit Annex O	Measuring Performance: It is recommended that closer ties with Maritime and Coastguard Agency staff at Humber Coastguard is established and that a programme for team meetings and local knowledge briefings be implemented.
External Audit Annex O	Training Records: It is recommended that a process is introduced to ensure the capture and recording of training undertaken by all employees engaged in marine operations; this should also include the requirement to 'sign off' training on the day that it is verified. A central location, accessible by line managers, should be identified to store this

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	<p>information with a periodic review (3 monthly) process to ensure compliance.</p>
<p>External Audit Annex O</p>	<p>Training Records:</p> <p>A mechanism for reviewing the relevance and effectiveness of training received should be considered. For example, a follow up questionnaire, sent 6 months after the training has been completed, requesting feedback, in terms of applicability, usefulness etc. would allow the management team to monitor training and be better placed to meet the training requirements of the future.</p>
<p>External Audit Annex O</p>	<p>Competency standards:</p> <p>It is recommended that consideration of competency standards is given in order meet this particular aspect of the PMSC. Consideration should be given to specific marine safety competencies. Liaison with Port Skills and Safety (PSS), the port industry's organisation for health, safety, skills and standards, to identify potential competencies and training.</p>
<p>External Audit Annex O</p>	<p>Incident data :</p> <p>Incident data, collated over the last 20 years, indicates that fatalities, as a result of boating relating activities, are reducing on the Broads. It would be useful to understand how the fatality rate compares to that of other similar user groups and the national average.</p>

14 Abbreviations and Glossary

14 Abbreviations

14.1 Abbreviations

AINA	Association of Inland Waterways Authorities
ALARP	As Low As Reasonably Practicable
BA	Broads Authority
BESL	Broadland Environmental Services Ltd
BFAP	Broadland Flood Alleviation Project
BSS	Boat Safety Scheme
BWSF	British Water Ski and Wakeboard
CE	Chief Executive
Defra	Department for the Environment, Food and Rural Affairs
DfT	Department for Transport
ES	Environmental Stewardship
ESA	Environmentally Sensitive Area
FSA	Formal Safety Assessment
GIS	Geographic Information System
HAZOPS	Hazard and Operability Study
HFO	Heavy Fuel Oil
HSE	Health and Safety Executive
IRIS	Incident Reporting and Investigation System
MCA	Maritime and Coastguard Agency
NERC	Natural Environment and Rural Communities
PMSC	Port Marine Safety Code
SAC	Special Area for Conservation
SAR	Search and Rescue
SMS	Safety Management System
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
SWIFT	Structured What-If Technique
VTS	Vessel Traffic System
WDC	Waveney District Council

Table 14-1: List of abbreviations

14.2 Glossary

Competent Harbour Authority	Any harbour authority which has statutory powers in relation to the regulation of shipping movements and the safety of navigation within its harbour, and whose harbour falls wholly or partly within an active former pilotage district. (Source: Pilotage Act)
C-Risk	A simple to use Risk Management tool based on the systematic identification, assessment, control and management of risk. [Source: BMT Reliability Consultants Ltd]
Designated Person	Provides independent assurance to the Duty Holder that the SMS is working effectively, and to audit the Authority's compliance with the Code. (Source: PMSC)
Duty Holder	Each board member of a harbour authority must accept responsibility for ensuring that the Authority discharges its duties and powers to the standards laid down. The members are, severally and collectively, the Duty Holder. (Source: PMSC)
Harbour	The area or areas inside the limits of which the harbour authority's statutory powers are exercisable. (Source: Pilotage Act)
Impact	The severity (in terms of people, assets or the environment) of an incident or accident occurring as a result of a hazard.
Likelihood	The chances of an incident or accident occurring as a result of a hazard.
Marine Operations	Marine Operations means the moving, berthing un berthing of ships and other marine craft within the limits and approaches of the harbour Authority (Source: A Guide to good Practice on Marine Port Operations)
RAMSAR	The Convention on Wetlands, signed in Ramsar, Iran, in 1971, an intergovernmental treaty which provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.
Risk Class	The classification of a risk, in terms of tolerability, based upon its likelihood and impact
Statutory undertaker	Persons authorised by enactment to carry out any railway, light railway, tramway, road transport, water transport etc. undertaking. Any public gas supplier, water or sewerage undertaker, the Environment Agency, the Post Office and the Civil Aviation Authority are deemed to be Statutory Undertakers (Source: Town and Country Planning Act 1990, 262).

Table 14-2: Glossary of Terms

15 References

- 1 Norfolk and Suffolk Broads Act, 1988 (c. 4)
- 2 Port Marine Safety Code, DETR, , dated December 2012
- 3 A Guide to Good Practice on Port Marine Operations, DETR, amendment no 12/2012, dated February 2013
- 4 Great Yarmouth Port Company Ltd. Statement of Compliance, Revision 1, June 2011
- 5 Associated British Ports - Marine Policy, version 2 dated August 2012
- 6 The Norfolk and Suffolk Broads Act 1988 (Alteration of Constitution of the Broads Authority) Order 2005, Statutory Instrument 2005 No. 1067
- 7 Pilotage Act, 1987 (c. 21)
- 8 Broads Authority (Pilotage Powers) Order 1991, Statutory Instrument 1991 No. 1633
- 9 Broads Authority Act 2009 (c. i)
- 10 Natural Environment and Rural Communities Act 2006 (c. 16)
- 11 Health and Safety at Work Act, 1974
- 12 Management of Health and Safety at Work Regulations, 1999
- 13 The Rivers (Prevention of Pollution) Act 1951 (Continuation of Byelaws) Order 1989, Statutory Instrument 1989 No. 1378
- 14 The Norfolk and Suffolk Broads Act 1988 (Alteration of Constitution of the Broads Authority) Order 2005, Statutory Instrument 2005 No. 1067
- 15 National Occupational Standard, Marine Port Operations, http://www.portskillsandsafety.co.uk/skills_and_standards/standards_and_qualifications
- 16 The Broads Plan 2011: A strategic plan to manage the Norfolk and Suffolk Broads, dated May 2011
- 17 Statement of Community Involvement, Broads Local Development Framework, revised March 2008
- 18 Waterways Specification, Sediment Management Strategy
- 19 A Mooring Strategy for the Broads Authority, dated March 2006
- 20 Navigation Area Works Guidance, Version 2.3, dated September 2010

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- 21 Standing Orders for Broads Authority Mud Pilots, Draft 3, dated December 2000
- 22 Standing Orders for Broads Authority Launches on Coaster Escort Duty, dated 3 March 2001
- 23 Power Boat Racing at Oulton Broad Management Plan
- 24 Broads Authority Paddling Scheme Commercial Operator Conditions 2011
- 25 Powered Hire Boat Licensing Conditions 2010
- 26 Code for the Design, Construction and Operation of Hire Boats, published by the Maritime and Coastguard Agency Version 1.
- 27 Inland Waters Small Passenger Boat Code, Maritime & Coastguard Agency/Association of Inland Navigation Authorities, Ref MCA/IW/01, dated February 2004
- 28 Broads Authority (Pilotage Powers) Order 1991, Statutory Instrument 1991 No. 1633
- 29 Standing Orders for Broads Authority Mud Pilots, Draft 3, December 2000
- 30 A Mooring Strategy for the Broads Authority, dated March 2006
- 32 Management of Health and Safety at Work Regulations, 1999
- 33 Broads Authority Navigational Formal Safety Assessment, 328S116, Issue 1.2, dated May 2003
- 34 Reducing Risks, Protecting People - Health and Safety Executive, 2001. ISBN 0 7176 2151 0, <http://www.hse.gov.uk/risk/theory/r2p2.pdf>
- 35 Broads Authority Navigational Formal Safety Assessment, 328S116, Issue 1.2, dated May 2003
- 36 Boat Safety Scheme, 2002 and 2005, British Waterways and Environment Agency, <http://www.boatsafetyscheme.com>
- 37 Oil Spill Contingency Plan, Version 3, dated November 2011
- 38 Broads Authority/British Sugar Oil Spill Contingency Plan - Cantley Trade

ANNEX A
Boating Safety Management Group
Terms of Reference

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Boat Safety Management Group

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BOATING SAFETY MANAGEMENT GROUP

Terms of Reference

A1 PURPOSE

To promote and maintain high levels of boating safety within the Navigation Area and to reduce the risk to as low as reasonably practicable.

Terms of Reference

1. Provide advice on the on-going maintenance and delivery of the Marine Safety Management System in a timely fashion.
2. Provide advice and recommendations on boating and navigational safety.
3. Act as a consultative forum to facilitate two-way communications between the Broads Authority and other authorities and organisations with direct involvement in safety on the waterways.

A2 PRINCIPLES

1. The Group will only consider boating and navigational safety issues.
2. Members of the Group may propose items for discussion at future meetings.
3. The activities and advice of the Group will be reported to meetings of the Navigation Committee as a standing item.
4. The Group will meet twice yearly engaging with external groups as required. Additional meetings will be called by the Chairman as necessary.

A3 CHAIR AND LEAD MEMBER

The Chair, a member of the Broads Authority, will be appointed by the Authority and, in accordance with the provisions of the Port Marine Safety Code, will be the Lead Member for safety management.

Responsibility for safety ultimately rests with the Authority as a whole, and day-to-day operational decisions with the relevant officers. The Head of Safety Management (the designated person for the purposes of the Port Marine Safety Code) and Head of Ranger Services will have direct access to the Lead Member on safety matters. The Head of Safety Management will also have the opportunity to report to the Duty Holder (the Broads Authority) at each of its normal meetings. Regular meetings will be held with the Chairman, Chief Executive and Director of Operations to review boating safety and the workings of the Safety Management Group.

A4 MEMBERSHIP OF THE GROUP

1. The membership of the Safety Management Group will include representatives from the Broads Authority (1), the Navigation Committee (Vice Chairman), the Broads Hire Boat Federation (2), the Great Yarmouth Port Authority (Company) (1), the Norfolk and Suffolk Boating Association (2), Royal Yachting Association (1), British Marine Federation (1) and outside bodies with a particular interest and involvement in boating safety and Breydon issues.
2. The representatives from outside bodies will be entitled to appoint named substitutes in the event that their representative is unable to attend.
3. For particular issues the Group will find it useful to invite other persons or representatives of other organisations to attend meetings of the Group and participate in the discussions.

**ANNEX B
TRAINING AND DEVELOPMENT POLICY**

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Human Resources Policy Note No. 3

Learning and Development

B1 STATEMENT OF INTENT

- 1.1 The Broads Authority recognises the importance of learning and development and the benefits which it offers both to the Authority and the individuals concerned. It is committed to meeting learning and development needs in order to contribute to the achievement of its aims and objectives, and realising the vision of 'a dedicated staff with clear goals who enjoy working for the Authority.'⁽¹⁾
- 1.2 The Green Book (the National Agreement on Pay and Conditions of Service) states that "learning and development to meet both the individual needs of employees and the corporate needs of authorities should be placed firmly in the forefront of authorities' service delivery plans". It also recommends that "authorities should provide written learning and development policy statements which should be communicated to all employees".
- 1.3 The Authority's commitment to learning and development is demonstrated by its intention to maintain the Investors in People standard.

B2 PERSONS COVERED BY THIS POLICY

- 2.1 This policy applies to the following:
- permanent employees; and
 - temporary and seasonal employees.

B3 RESPONSIBILITIES OF THE AUTHORITY

- 3.1 The aims of the Authority's learning and development programme are as follows:
- to enable the aims and objectives of the Authority to be met, both now and in the future;
 - to ensure that all individuals covered by this policy statement have the knowledge and skills necessary to perform their current role within the Authority effectively and efficiently; and
 - to ensure that the Authority complies with statutory requirements and good practice in respect of the employment and training of its staff, including compliance with the Safety Management System.

(1) Extract from the Authority's Mission Statement.

3.2 To fulfil these aims the Authority will:

- provide all new employees with an induction programme designed to help them integrate into the Authority as quickly and effectively as possible;
- ensure that individual learning and development needs are identified and prioritised through the annual Individual Performance Review process;
- encourage and support individuals where appropriate in undertaking appropriate learning, including courses of study leading to recognised and relevant academic, professional and vocational qualifications;
- ensure that all individuals receive appropriate learning and guidance in health and safety at work matters;
- draw up an annual staff learning and development programme to prioritise the allocation of funds, based on identified needs and existing commitments, including a specific learning and development budget for each Directorate;
- ensure that individuals are made aware if their request for learning has not been authorised; and
- ensure that line managers are aware of their responsibility for the learning and professional development of their employees.

B4 THE GREEN BOOK

4.1 The Authority undertakes to comply with the provisions included in the Green Book in respect of learning and development.

4.2 In particular it will:

- liaise with recognised trade unions in respect of the establishment and implementation of local schemes on learning and development; and
- provide equality of access to learning and development opportunities and provisions to all individuals.

B5 TYPES OF LEARNING AND DEVELOPMENT

5.1 Learning and development is not restricted to professional qualifications or attendance at formal courses but can include open learning, project work, seminars, visits and on the job coaching.

5.2 Individuals are encouraged to undertake learning within the Authority which is appropriate to their needs and which will also assist them in furthering the aims of the Authority. All employees are encouraged to participate in at least 1½ days of internal learning, per annum.

- 5.3 The Authority will encourage professionally qualified officers who are required by their relevant institute to undertake continuous professional development, and will support them as far as it can.
- 5.4 The Authority supports staff exchanges as a valuable means of gaining experience in the methods and practices of other organisations, both in this country and abroad. Where these are of value to the recipient and the Authority they will be encouraged, and financial and/or other assistance will be provided as appropriate.

B6 SCHEME OF ADVANCEMENT FOR QUALIFICATIONS

- 6.1 Employees who are successful in attaining qualifications (including NVQs) or passing examinations will be entitled to receive one additional increment provided that the qualification is relevant to the duties of the post being undertaken and is of benefit to the work of the Authority.
- 6.2 This award shall be at the discretion of the Chief Executive and in all instances is subject to the maximum of the grade not being exceeded. The increment will be payable from the first day of the month following the month in which the qualification is obtained.

B7 PROFESSIONAL DEVELOPMENT

- 7.1 The Authority will support staff in undertaking training for professional or other qualifications which are, in the opinion of the Authority, relevant to their duties. This will include course fees, exam fees and, where the study is by distance learning or evening course, resource material such as books. In all cases the Authority will support such training to the value of 75% of the total eligible costs. The Authority will arrange for the member of staff to be invoiced for the remaining 25% of the course fees.
- 7.2 Where employees are studying for a relevant qualification in their own time (not by day release or similar arrangements) they will be entitled to have one full day study leave for each examination/assessment and will also receive paid time off to undertake the examination/assessment.
- 7.3 Should an employee leave the Authority voluntarily within a year of obtaining such funding, the Authority reserves the right to reclaim from the employee the total amount paid. This will reduce to 50% of the costs incurred if an employee leaves within two years and 25% within three years of achieving the qualification.
- 7.4 Prior to receiving financial support, recipients will be asked to confirm by signature that they understand and agree that funding may be repaid under these circumstances.
- 7.5 For the purposes of this policy 'professional development' is defined as specialist training which demonstrates professional competence through providing them with a recognised qualification. This may include a degree in a relevant subject, but is more likely to be linked to a professional body such as the Royal Town Planning Institute (RTPI) for example.

B8 PERFORMANCE MANAGEMENT FRAMEWORK

- 8.1 The Authority's approach to managing performance from setting its overall objectives through to recognising how individual members of staff contribute to the broader objectives is set out in the Performance Management Framework.
- 8.2 Performance management is important because it sets out the vision of what the Broads Authority is trying to achieve and a system for monitoring progress. It is important that resources are properly allocated to key priorities and that efforts are being focussed on those issues which are the most important. A key objective of the Authority's performance management system therefore is to assist staff in improving their performance through setting and reviewing performance on a regular basis and developing objectives in consultation with their line manager.
- 8.3 The Individual Performance Reviews will be held during February each year, after the draft budget for the following financial year has been drawn up. Key outputs for the Individual Performance Reviews will include:
- a list of key objectives for the following financial year, with target dates and outputs;
 - a list of agreed actions for the line manager, to assist and support the post holder in meeting these objectives or where necessary improving their performance;
 - identifying new skills and learning which is needed to enable the employee to carry their duties more effectively and efficiently, and draw up a Personal Development Plan for each individual; and
 - identifying those posts where there have been changes to the duties and responsibilities of the post which are sufficiently significant to justify a re-evaluation of the post under the Authority's Job Evaluation Policy.
- 8.4 In addition to the annual Individual Performance Reviews, 1:1 Discussions are held at least quarterly (i.e. there will be a minimum of three 1:1 Discussions during each year, as well as the Individual Performance Review), although line managers may choose to hold these more frequently where it is considered to be helpful and appropriate to do so.

B9 MONITORING AND EVALUATION

- 9.1 The Authority will regularly evaluate learning and development activities in line with the requirements of the Green Book and Investors in People.
- 9.2 As part of this process the Authority will endeavour to measure the impact of its learning and development activities on:
- the achievement of the Authority's aims and objectives;
 - the knowledge, skills and attitudes of individuals; and
 - the performance of individuals;
- and will make improvements to learning and development activities as a result of this monitoring process.
- 9.3 Within each Directorate an Administrative Officer (to be known as Training Link Officer for this purpose) will assist the process by:

- ensuring that authorisation and evaluation forms are completed for all training courses, and records kept;
- retaining records of training carried out and funded through the Directorate training budget; and
- keeping the skills audit details up to date.

9.4 The skills audit is an electronic record of relevant learning and development skills which have been attained by members of staff. It may include both details of relevant qualifications attained/courses attended, and also other potentially useful skills/qualifications (possibly obtained externally) which could be of benefit to the Authority. An example of the latter is fluency in a foreign language. The purposes of the skills audit are:

- to ensure that the Authority has an up to date record of key learning and development skills held by staff;
- to ensure that all members of staff comply with the minimum standards for health and safety training as set out in the Health and Safety at Work Policy;
- to ensure that the Authority complies with statutory requirements and good practice in respect of the employment and training of its staff, including compliance with the Safety Management System; and
- to identify gaps and learning needs.

B10 RESPONSIBILITY FOR LEARNING AND DEVELOPMENT

10.1 Overall responsibility for ensuring that the Policy Statement is implemented lies with the Chief Executive and Management Team.

10.2 The Director of Change Management and Resources is responsible to the Management Team for co-ordinating strategic learning and development activities. In particular he will:

- advise the Chief Executive and Management Team on all learning and development matters;
- in consultation with the Learning and Development Group devise procedures to ensure that learning and development needs are adequately identified, prioritised and met;
- in consultation with the Learning and Development Group draw up an annual learning and development programme which provides for the equitable allocation of funds according to priority and need;
- ensure that information on learning and development is disseminated to employees and other individuals as appropriate; and
- chair the Learning and Development Group.

10.3 The Learning and Development Group will comprise representatives from all sections of the Authority, and will assist the Director of Change Management and Resources in ensuring that strategic learning and development activities are identified and met. Members will have specific responsibility for ensuring that needs within their own section are properly met, and will communicate as appropriate with the section head and with other members of the section to ensure that this is achieved.

- 10.4 The concept of lifetime learning is encouraged by the Authority, and this may mean individuals also taking responsibility for their own learning and personal development. In such circumstances the Authority will endeavour to provide financial support or other support as appropriate.

Reviewed Oct 2011
Updated (Minor) Oct 2011

ANNEX C

Health and Safety at Work Policy

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Personnel Policy Note No. 4

Health and Safety at Work Policy

C1 PART 1 : STATEMENT OF INTENT

C1.1 The Broads Authority (“the Authority”) recognises and accepts its responsibility as an employer for providing a safe and healthy workplace and working environment for all its employees and volunteers and others affected by its undertakings.

C2.1 The Authority will take such steps as are reasonably practicable to meet this responsibility, including the provision of funds and resources, paying particular responsibility to the provision and maintenance of:

- (a) plant, equipment and systems of work that are safe and without risk to health;
- (b) safe arrangements for the use, handling, storage and transport of articles and substances;
- (c) sufficient information, instruction, training and supervision to ensure that all employees are aware of the hazards to their own health and safety at work, and of the necessary measures which should be taken to protect against these hazards and which would contribute positively to their own health and safety at work;
- (d) a safe place of work, and safe access to and egress from it;
- (e) a healthy working environment;
- (f) adequate welfare facilities and arrangements; and
- (g) a review and monitoring procedure to ensure the effective management of health and safety across the Authority.

John Packman
Chief Executive

C2 PART 2 : ORGANISATIONAL ARRANGEMENTS FOR IMPLEMENTING THE POLICY

C2.1 Codes of Practice

- 2.1.1 Without detracting from the primary responsibility of managers and supervisors for ensuring safe and healthy conditions of work, the Authority will endeavour to provide competent technical advice on safety and health matters where this is necessary.
- 2.1.2 As circumstances demand, codes of practice will be issued to ensure that safe practices are followed. All staff must familiarise themselves with the codes relevant to their work.
- 2.1.3 It is the responsibility of the Head of Safety Management, who is the Authority's health and safety co-ordinator, to ensure that the codes of practice are made available to relevant staff. These are circulated by managers to all members of staff as appropriate, and placed on the Authority's Intranet for easy access.
- 2.1.4 Health and safety inspections may be carried out by safety representatives (see Part 4 below) to check that the codes of practice are being followed and that the use of unsafe equipment or working practices does not take place.

C2.2 Management of Health and Safety at Work

- 2.2.1 The Management of Health and Safety at Work Regulations places general duties on employers and the self employed, designed to improve health and safety management. The main thrust of this legislation was to improve the identification and assessment of risk, together with the formulation of preventative and protective measures, and the dissemination of relevant information, instruction and training to all appropriate employees.
- 2.2.2 These regulations are accompanied by codes of practice which provide practical guidance on the application of the various requirements. Failure to comply with the provisions of these codes of practice is not in itself an offence, but any such failure may be viewed by a court in criminal proceedings as proof that the regulations or sections of the Health and Safety at Work etc. Act, to which these provisions relate, have been contravened.
- 2.2.3 The action to be taken to conform with the requirements of this legislation and associated codes of practice, together with the responsibility for action, is set out below.

C2.3 Risk Assessment

- 2.3.1 The Management of Health and Safety at Work Regulations require that every employer should carry out an assessment of the risks to the health and safety of his employees whilst they are at work, and of others who may be affected by the work activities. The concept of risk assessment is fundamental to the way in which health and safety at work is managed.
- 2.3.2 All employees and volunteers should ensure that appropriate risk assessments have been undertaken in respect of their immediate area of work. These risk assessments should be carried out by the staff concerned, where appropriate in consultation with their line manager.

2.3.3 An assessment of risk is a careful examination of what, in the working environment and in working practices, could cause harm to people, including employees themselves, so that they can evaluate if they have taken enough precautions or should do more to prevent harm. It can be summarised in the following simple steps:

- identify the hazard associated with the work place or work activity;
- evaluate the risks arising from the hazard;
- decide who might be harmed by the activity;
- decide whether existing precautions are adequate, or whether more needs to be done (having regard to the likelihood of the hazard occurring and the severity of harm);
- record any significant findings; and
- review the assessment from time to time, and on any occasions when new equipment or new working practices have been introduced, or when there is new/updated/revised legislation, Codes of Practice or industry guidance.

2.3.4 Further details are provided in Code of Practice No. 1.

C2.4 Control, Monitoring and Review

2.4.1 The Management Team and Head of Safety Management must ensure that line managers and supervisors regularly monitor the application of preventative and protective measures, applicable to the tasks under their control, and that a positive system is identified and followed to immediately correct any omissions in this respect.

2.4.2 Safety representatives will monitor and review the systems and working practice, including where appropriate a re-assessment of the risks and preventative and protective measures, and will advise on any amendments or improvements to these which are considered to be necessary. Where appropriate the matter will be brought to the attention of the Head of Safety Management and/or the Safety Committee.

2.4.3 The wilful neglect of health and safety requirements which leads to personal injury or avoidable damage to plant or equipment will be regarded as a serious matter, and may result in immediate dismissal or formal disciplinary action depending on the severity of the incident.

C2.5 Training

2.5.1 The Head of Safety Management and line managers are responsible for ensuring that all employees and volunteers receive adequate and appropriate training in health and safety matters relating to their job function.

2.5.2 All employees and volunteers will receive appropriate health and safety training as part of their induction, and this will be included in any corporate induction programmes organised by the Authority.

2.5.3 All field staff shall, as a minimum requirement, undertake health and safety awareness training, to ensure that they have an understanding of health and safety issues and to raise awareness of what is required of them whilst at work. This training will include the preparation of risk assessments.

2.5.4 This should be supplemented by specialist training for those members of staff who need it in order to be able to carry out their jobs safely.

2.5.5 The Authority has set the following minimum standards for health and safety at work training by its staff and volunteers:

- all induction training and induction courses will include reference to health and safety at work issues;
- all safety representatives and staff working in the field are required to undertake health and safety awareness training;
- all staff working in the field are required to undertake first aid at work training;
- all staff working in the field are required to undertake manual handling training;
- all staff who are required to operate vessels of less than 24m in length, including those whose duties involve operating one of the Authority's public boat trips, must hold an RYA Level 2 Power Boat qualification;
- all staff who are required to operate vessels in excess of 24m in length are required to hold a Boatmasters Licence;
- officers responsible for fire safety and emergency procedures must have undertaken fire safety awareness training;
- workshop machinery must be operated by staff or volunteers who have undertaken appropriate training and are authorised to use the equipment by the appropriate base manager;
- chainsaws must be operated by certificated chainsaw users;
- pesticide spraying must be carried out by staff or volunteers who have obtained PA1 and PA6 certificates;
- forklift trucks and teleporters must be operated by certificated users; and
- cranes and lifting equipment must be operated by certificated users.

C3 RESPONSIBILITIES FOR HEALTH AND SAFETY AT WORK

3.1 Ultimate responsibility for the health and safety arrangements of the Authority lies with the Chief Executive.

3.2 This does not however absolve other managers, supervisors, staff and volunteers from their own personal responsibility to ensure as far as reasonably practical:

- their own health and safety at work;
- the health and safety of those members of staff who work for or with them; and
- the health and safety of any members of the public who may be affected by their work or that of their staff.

3.3 The Head of Safety Management is the Authority's designated health and safety co-ordinator. As such he has direct and immediate access to the Chief Executive, Management Team and, should he consider it necessary, members of the Authority in order to raise any health and safety issues or concerns. The duties and responsibilities of the Head of Safety Management include the following:

- to advise on and co-ordinate all aspects of the Authority's health and safety policy;
- to implement adequate procedures to ensure that the Authority complies with all health and safety legislation;
- to implement adequate procedures to ensure that all staff are aware of their health and safety responsibilities, and that arrangements are in place to ensure that these are properly fulfilled;

- in conjunction with line managers to ensure that staff are provided with adequate health and safety information and training, particularly in undertaking risk assessments and in the identification of preventative, protective and control measures;
 - in conjunction with the Safety Committee to ensure that safe systems and working practices are in place to minimise the risk of personal injury, fire, property damage or health hazard, and as far as possible to monitor their effectiveness once installed;
 - to monitor the Authority's health and safety performance;
 - to ensure that adequate financial resources are provided to enable the Authority to meet its statutory requirements for health and safety;
 - to liaise where appropriate with the Health and Safety Executive and other appropriate bodies;
 - to ensure that the Authority's Health and Safety Policy is reviewed at regular intervals and amended as necessary; and
 - to chair the Authority's Safety Committee,
- 3.4 Line managers and supervisors will be responsible for the implementation of the Health and Safety Policy for all staff and volunteers under their control and must ensure that all work activities undertaken by or on their behalf are identified, and that risk assessments are conducted.
- 3.5 Line managers and supervisors are responsible for:
- ensuring that safe working methods are observed and adopted by staff and volunteers under their control;
 - ensuring that risk assessments are carried out and acted upon;
 - ensuring that staff and volunteers under their control are kept informed of health and safety issues, risks and dangers attached to their specific duties;
 - in conjunction with the Health and Safety Co-ordinator ensuring that staff and volunteers receive appropriate training in health and safety;
 - ensuring that staff and volunteers are reminded of safe systems of working at regular intervals or when changes in knowledge or circumstances occur which may affect the safe system of working;
 - ensuring that sufficient supplies of appropriate personal protective equipment and clothing are available for staff and volunteers under their control; and
 - ensuring that all contractors and sub-contractors comply with the Health and Safety at Work etc. Act 1974 and its subordinate regulations.
- 3.6 All staff and volunteers are required to co-operate with their line managers and/or supervisors to achieve a healthy and safe work place. It is also their personal responsibility to ensure as far as is reasonably practical:
- their own health and safety at work;
 - the health and safety of other members of staff and volunteers who work for or in co-operation with them; and
 - the health and safety of other people who may be affected by their work, including the general public.
- 3.7 All staff and volunteers must report, immediately, any health and safety problems which they are not able to rectify to their line manager. The line manager, where a solution is not immediately possible, must report the matter either to the Health and Safety Co-ordinator or to the appropriate safety representative

C4 THE SAFETY COMMITTEE

- 4.1 The purpose of the Safety Committee is to ensure that the Authority's safety policy is implemented effectively, that safety standards are maintained and to provide a forum whereby matters relating to health and safety at work can be discussed.
- 4.2 The objectives of the Committee are:
- to prevent accidents at work;
 - to ensure compliance with statutory requirements;
 - to maintain and develop measures to ensure the health and safety of employees and to check the effectiveness of such measures;
 - to arrange safety education and training to ensure effectiveness of the Authority's policies; and
 - to ensure that a consistent approach is adopted with regard to health and safety matters, in so far as this is possible and appropriate.
- 4.3 The Committee will be chaired by the Head of Safety Management. It will comprise management, employee and trade union representatives appointed in accordance with the Safety Representatives and Safety Committee Regulations. Where possible the membership will be drawn up in such a way to ensure that it is well balanced with adequate representation across all Directorates, particularly in operational (field) areas.
- 4.4 The role of safety representatives is as follows:
- to actively encourage staff and volunteer participation in developing safe working practices;
 - to act as a link between staff and volunteers and the Health and Safety Coordinator in respect of health and safety matters; and
 - to bring to the attention of the appropriate line manager or supervisor, and if necessary to the Head of Safety Management and/or Safety Committee, any working arrangements or practices which may not be safe or in accordance with the Authority's policies or codes of practice.

November 2011

ANNEX D
Enforcement Policy – Navigation Functions

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D1 ENFORCEMENT POLICY NAVIGATION FUNCTIONS

D1.1 Policy

D1.2 Introduction

1.2.1 Effective enforcement of the legislation relating to the Authority's navigation function is essential to protect the health and safety of users of the Broads waterways. The purpose of this policy is to provide guidance on the general principles that the Authority will apply when carrying out its enforcement responsibilities.

1.2.2 This policy has been agreed by the Authority following consultation with its Navigation Committee on 16 April 2009.

1.2.3 This policy incorporates the following principles of good enforcement for regulating bodies:-

- Setting clear standards.
- Providing information clearly and openly.
- Helping businesses and users of the navigation by advising and assisting with compliance.
- Having a clear complaints procedure.
- Ensuring that enforcement action is proportionate to the risks involved.
- Ensuring consistent enforcement practice.

1.2.4 If you have any question about this policy please contact Director of Operations.

D1.3 The Policy

1.3.1 Setting clear standards

- For 3rd Party complaints the Authority will:-
 - Respond within 10 days with a decision on whether or not to pursue.
 - Carry out a preliminary investigation within 28 days.
 - Fully investigate and forward case papers to the Authority's Solicitor within 4 months.
 - Keep complainants informed as to progress with the investigation and any decisions relating to the complaint.

1.3.2 Providing information clearly and openly

- The Authority will produce guidance (eg publication of byelaws/directions, signage etc) in an easy to understand format for users of the Broads navigation and ensure that it is kept up to date. This will be made available as widely as possible.

1.3.3 Helping businesses and users of the navigation by advising and assisting with compliance

- The Authority's officers will work closely with the Hire Boat industry, Sailing Clubs, user groups and landowners to ensure that they and their staff/members are fully

aware of the requirements of the legislation relating to the Broads navigation, eg Hire Boat Licensing Code.

- Where remedial action is required, the Authority will clearly explain (in writing, if requested) why the action is necessary and when it must be carried out; a distinction will be made between best practice advice and legal requirements.

1.3.4 Having a clear complaints procedure

- A well publicised complaints procedure for the Authority is already in place. This will be maintained.

1.3.5 Ensuring that enforcement action is proportionate to the risks involved

- Enforcement powers will be exercised only to achieve the legislative purpose for those powers. Generally, this purpose will be health and safety but in certain circumstances the purpose of the power is to protect the environment or avoid nuisance or to enforce the collection of tolls and the display of toll plaques.
- Reasonableness is also key, this to include avoidance of unnecessary expense and a consideration of the likely outcome of any enforcement action, together with an assessment of the risk.
- In deciding whether or not to prosecute, the Authority will take into account:-
 - The foreseeability of the offence or the circumstances leading to it.
 - The intention of the offender (including any clear disregard or contempt for the byelaws).
 - The flagrancy of the offence.
 - Any history of offending (including any previous warnings).
 - The attitude of the offender.
 - The deterrent effect of a prosecution on the offender and others.
 - Whether the offender has acted inconsiderately or in disregard for the safety or amenity of others.
 - Whether the offence is compounded by offensive, loud, aggressive or drunken behaviour.
 - The personal circumstances of the offender.

1.3.6 Ensuring consistent enforcement practice

- With a view to ensuring consistent enforcement practice, the Authority will:-
 - Maintain a procedure for ensuring (as at present) that decisions to enforce are taken by officers with responsibilities across the navigation system.
 - Provide full and effective training in the relevant procedures and requirements.
 - Hold regular meetings of Rangers.
 - Ensure the prompt cascading of information.

April 2009

ANNEX E

Sediment Management Strategy

Note:
The Sediment Management Strategy is retained in its own format

The Broads is a unique recreational and natural resource. Providing safe inland navigation over 125 miles of lock free waterways, it is home to approx 13,000 recreational vessels, both motor and sail, with up to 1000 vessel movements per day. Boats provide an excellent way to explore this internationally recognised wetland, with large areas of the waterways designated under the Birds and Habitats Directives for the ecology and wildlife it supports.

The Broads Authority, as the navigation authority, has adopted a strategic catchment approach to managing sediment. This approach provides long-term combined benefits to water quality, ecosystems and navigation, it also reduces the burden on toll payers for maintenance of the navigation. The Strategy, for the first time, provides an overview of the challenge of managing the Broads waterways and the opportunity to target resources effectively.

The overall goal for sediment management is to achieve a balance of inputs with outputs, whilst dealing with the backlog of sediment that has accumulated more rapidly over the last six decades. In addition to this build up, rising dredging costs since the early 1980s have resulted in a decrease in the volume of material routinely removed. Accumulated sediment can result in boats running aground in some areas and broads failing to achieve water quality improvements required to meet Government's public service agreement targets for SSSI condition. It is these areas that need priority dredging works in the short to medium term. However, to ensure that long-term sediment removal requirements are less, actions to minimise sediment inputs, particularly from banks, headwaters and algal input are required.

The backlog has been identified by comprehensive assessment of the sediment within the rivers and broads, using information from hydrographic survey, desk study of sediment inputs and sediment quality survey. These data combined with boating and lake restoration needs enable the Broads Authority to take a proactive and evidence-based approach to sediment management.

The analysis of hydrographic survey information alongside the waterway specifications and lake restoration requirements has identified:

- 1.7million cubic metres for removal
- 57% of this removal requirement is from the northern rivers
- 16% and 27% from the southern rivers and isolated water bodies respectively
- at current removal costs, £27.5 million would be required to achieve total compliance across the Broads, thus the Strategy and Action Plan sets out the short-term removal priorities alongside the long-term sustainable approach;
- the costs for disposal of this material will be in the region of a further £10 million.

The Strategy provides a combined assessment of dredging with flood management activities. This allows the cumulative impact of these schemes to be judged to ensure that there is no adverse impact on people, property and wildlife.

This Strategy recognises the long response time of waterways to changes in catchment management and anticipates the gradual delivery of a reduction in sediment inputs. The Action Plan, however, details the steps that can be taken over the next 5-10 years to remove sediment and put in place effective sediment management.

To address the historic build up of sediment in the Broads will be a considerable challenge. The Authority and stakeholders will need to continue to work together throughout the implementation of the Action Plan, to prioritise works within limited resources, and to find solutions where there might be conflicting needs.

Foreword

John Packman

Chief Executive

It is difficult to overestimate the importance of this document, and the evidence-based approach it encapsulates, for the long-term management of the Broads. The Broads are not natural waterbodies and they require intervention and management to enhance their value to people and wildlife. It is a complex system and this is the first time the Authority has gained, with the benefit of research from Cranfield University, an understanding of how much sediment comes into the system and where it comes from.

The preparation of the Strategy has included the first comprehensive hydrographic survey of the river and broads. The comparison of this information with a set of specifications developed with users has provided a complete picture of what would be required to reach an ideal state in terms of navigable water. Until now the Authority and its predecessors have had to take a reactive stance in their management. Now, with the benefit of this study the Authority can plan its management of mud, not just through a dredging and disposal plan but also actions to reduce sediment input.

Managing the Broads has always been a big challenge and the historical record shows that dredging has been an issue for the last 500 years. The impact of climate change will make this at least as big, if not a bigger challenge, for the next 500 years. Using science and evidence the Authority and those who come after us will be able to manage that rate of change for the benefit of people and nature.

I would like to thank Trudi Wakelin in particular who, as the Authority's Director of Waterways, has led the whole project from start to finish. Andrea Kelly's support has been crucial together with other members of the Waterways Team in what has been a hugely ambitious endeavour.

The Steering Group, ably chaired by David Adler, has been invaluable in guiding the project and their advice, time and support for our work is greatly appreciated.

Thanks also are due to Defra, and in particular Alun Michael MP, for providing the additional National Park Grant that made this research possible. ■

1 Introduction

‘The Sediment Management Strategy provides a new framework for local dredging operations to care for the navigation and improve the condition of the water bodies within the Broads. It makes us think both where this sediment has come from and how we can work in partnership for the long-term sustainable management of the Broads’

David Adler, Chairman, Sediment Management Strategy Steering Group.

The waterways in Broadland are home to some of the shallowest lakes in Europe, and are subject to filling in by vegetation (Moss, 2001). For centuries people have managed the waterbodies, with records going back to 1543 where there was ‘a gret comunicacion’ in the city court about the ‘ffeyeng’ of the river. Fying out is a dialect word meaning cleaning or ‘sorting out’ (Malster, 2003). Many waterbodies were lost to shallowing and land drainage practices in the late 1800s (George, 1992). There are also many records in the 1930s, 1950s and 1960s of the problems of going aground in the rivers and broads (Malster, 2003).

The Broads Authority and its contractors carry out maintenance dredging¹ on a routine basis with two main objectives: securing a reasonable navigation depth² for users, and restoring degraded or shallowing waterbodies to improve the aquatic habitat water quality.

The central aim of sediment management is to maintain and improve the waterways for nature and people alike. Over the last six decades there has been an increased rate of sedimentation as result of bank erosion, agricultural practice and nutrient enrichment. In addition, the rising cost of dredging and consequent decrease in sediment removed have resulted in an increasing need to minimise sediment entering watercourses, as well as removing that already accumulated.

Accumulated sediment has an obvious impact on navigation and recreation as well as the achievement of lake restoration goals, such as clear water and ecosystem recovery. Sediment removal needs prioritising in the short to medium term, whilst developing actions to minimise sediment inputs.

The aim of the Sediment Management Strategy is to provide, for the first time, an overview of the challenges of managing the Broads waterways to be able to target resources effectively. The Strategy achieves this by compiling a comprehensive assessment of the sediment within the rivers and broads (using information from a hydrographic survey, a desk based study of sediment inputs, sediment quality data and information from stakeholder consultations on user requirements) to enable the Broads Authority to take a proactive, rather than a reactive, approach to the sediment management. This work provides a synthesis of our knowledge of the sediment budget, and a new insight to managing Broadland for people and wildlife.

In taking this holistic approach it has also been necessary to work closely with partners and interested parties to ensure that all issues have been addressed. Broads users have had continuing input through the Steering Group and committees of the Broads Authority to discuss and agree the way forward, developing a consensus approach.

Whilst this strategy focuses on the Broads area, there is recognition that sediment management fits into a wider decision making process. Catchment-

¹ Maintenance dredging involves removal of soft accumulated sediments to restore the original water depth. Deepening (ie by the removal of the hard bed, such as peat or gravel) is not carried out in the Broads.

² Reasonable navigation depth has been defined through a process of consultation with users to derive the waterway specifications.

Why do we need a Sediment Management Strategy?

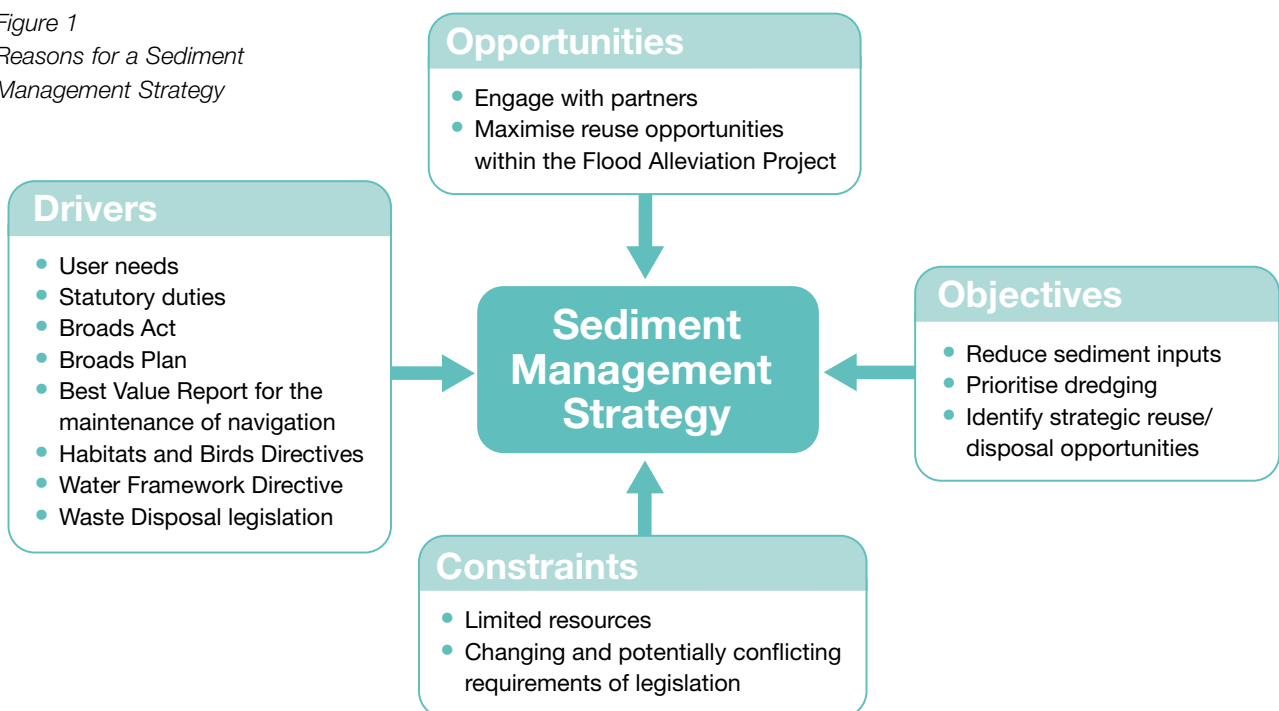
scale sediment issues provide a framework for integrated working to deliver goals for farming, conservation, recreation and economies. In addition, this strategic review will inform other catchment-scale initiatives, such as Water Framework Directive Programme of Measures, and Catchment Sensitive Farming. It also provides a clear remit and justification for the Authority's involvement in such schemes. This long-term and sustainable approach towards sediment management is similarly important for integration of waterway maintenance activities into developing legislation.

The Broads Plan 2004 (the statutory management plan for the Broads area as required by the 1988 Norfolk & Suffolk Broads Act) provides evidence of the need to work at a catchment scale to address some of the challenges facing the Broads, and to develop consensus for the future. This Sediment Management Strategy works at this catchment scale and builds on the Best Value Review of Navigation, (undertaken in the late 1990s as part of local government performance improvement requirement) which recommended that:

'the Authority continue working towards a Dredging Disposal Strategy to:

- i) Update and prioritise future dredging using joint survey data from the Broadland Flood Alleviation Project (BFAP)
- ii) Construct a sediment budget for the Broads with the Environment Agency (EA)
- iii) Identify alternative management strategies for reducing sediment inputs
- iv) Identify the volumes of silt requiring disposal to land sites versus reuse eg in flood bank strengthening, in order to produce a phased plan for network of disposal sites
- v) Engage with partners to develop opportunities for reuse and sustainable disposal options.'

Figure 1
Reasons for a Sediment Management Strategy



Adoption of a strategic approach, which considers issues from source to sink, both provides a framework for cost-effective resource targeting and facilitates the preparation of a clear proposal for increased resources. In addition, this strategic review of sediment issues creates an opportunity to inform catchment-scale initiatives, such as the Water Framework Directive River Basin Management Plan, and Catchment Sensitive Farming. It is also hoped that by adopting and promoting a long-term and sustainable approach towards sediment management, Government will enable easy integration of essential waterway maintenance activities into future developing legislation.

Ongoing dredging, particularly in combination with dredging by Great Yarmouth Port Authority, land drainage, flood management works across the Broads and water abstraction within the catchment, has the ability to affect both water levels and saline intrusion within the river system. Such changes could adversely impact Natura 2000³ protected sites. Potential impacts on these protected sites will be assessed as the Strategy and the Action Plan is evaluated through appropriate assessment.

In addition, during the last 20 years dredging disposal has become a regulated activity under new Waste Management legislation to provide enhanced environmental protection. This has led to increased cost and complexity for sediment disposal and the Sediment Management Strategy provides a framework to accommodate this developing legislation.

³ Natura 2000 network of sites aims to preserve biodiversity by maintaining or restoring natural habitats of European importance.

Sediment Management Strategy Steering Group

Development of the Strategy has been steered by a group of stakeholders, practitioners and academics, working together for a period of 2 years. This Group has prepared objectives, supervised research projects to fill knowledge gaps, and worked with officers of the Authority in the production of the Strategy document. (See Terms of Reference, Appendix 2)

The aims of the strategy

Aim

To provide a framework for the sustainable long-term management of sediment within the Broads to protect both inland navigation and the internationally important wetland.

Objectives

- Identify sources and volume of sediment entering the Broads
- Reduce sediment load to the waterways through partnership working
- Balance sediment inputs with future planned dredging (following removal of the current sediment backlog)
- Define waterway specifications, and hence the dredging requirement and having done so evaluate and minimise its environmental impact
- Maximise beneficial reuse of sediment
- Target and prioritise expenditure
- Adopt a risk-based approach to planning works
- Influence wider legislation and policy for sustainable and integrated management on a catchment scale.

2 Principles for sediment management

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

Whilst sediment obtained from dredging projects is a by-product of the activity, in many cases the material can be fully employed in reuse or recycling operations. This strategy provides the framework for considering all options before material is treated as waste.

By adopting current thoughts applied to general waste, sediment management practices are tested through a hierarchy of environmentally sound and sustainable principles, from reduction as a preferred option to disposal as a last resort. This leads to general principles that should be adopted as a baseline approach:

- **Reduce** – through both reducing sediment and nutrient input to waterways (and thus decreasing dredging need) and reducing removal volume by amending specifications where appropriate.
- **Reuse** – direct reuse options can be considered for dredged materials dependent upon the sediment properties. These options include habitat creation and restoration, flood protection works, combined schemes eg new riverbank creation as part of the Broadland Flood Alleviation Project, sediment replacement or movement into sediment-starved areas (the latter is not currently a reuse option within the Broads).
- **Recycle** – material can be used in wider construction schemes, but would usually require treatment/remediation. This could range from simple dewatering to complex industrial processes, eg the manufacture of novel materials such as lightweight aggregate volume concrete, and can therefore incur considerable extra costs. Recycling is also dependent upon the sediment properties.
- **Disposal** – disposal to landfill should only be considered as a last resort, and in any event minimised as much as is possible. Broads Authority-owned/managed sites should be considered before use of any commercial disposal options. From October 2007, no liquid wastes can go to landfill, and all wastes must be pre-treated.

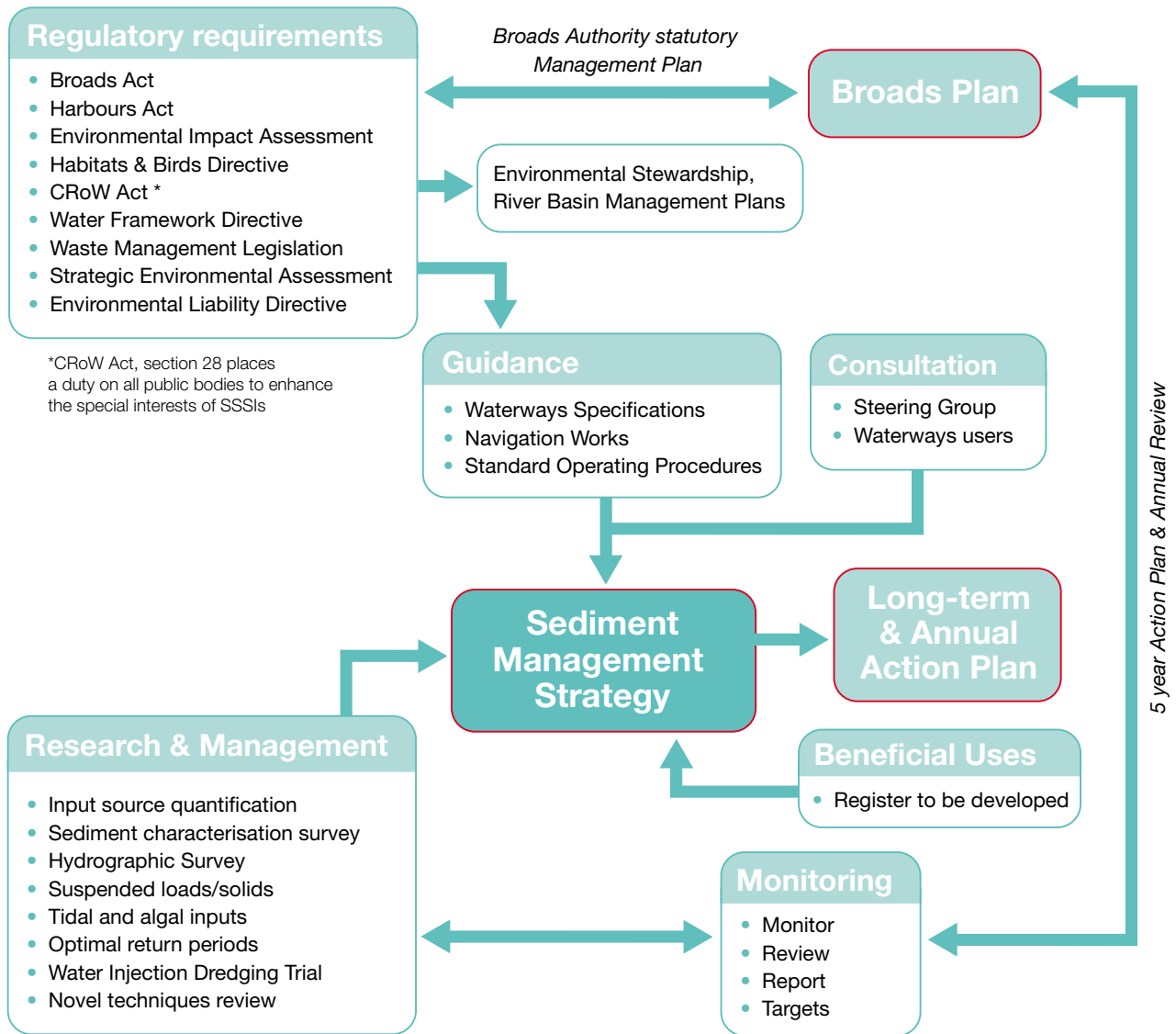
Beneficial sediment reuse within habitat creation project at Wroxham Island to restore eroded section at risk of breaching.



Broads Authority

Figure 2
 Framework for the
 Sediment Management
 Strategy

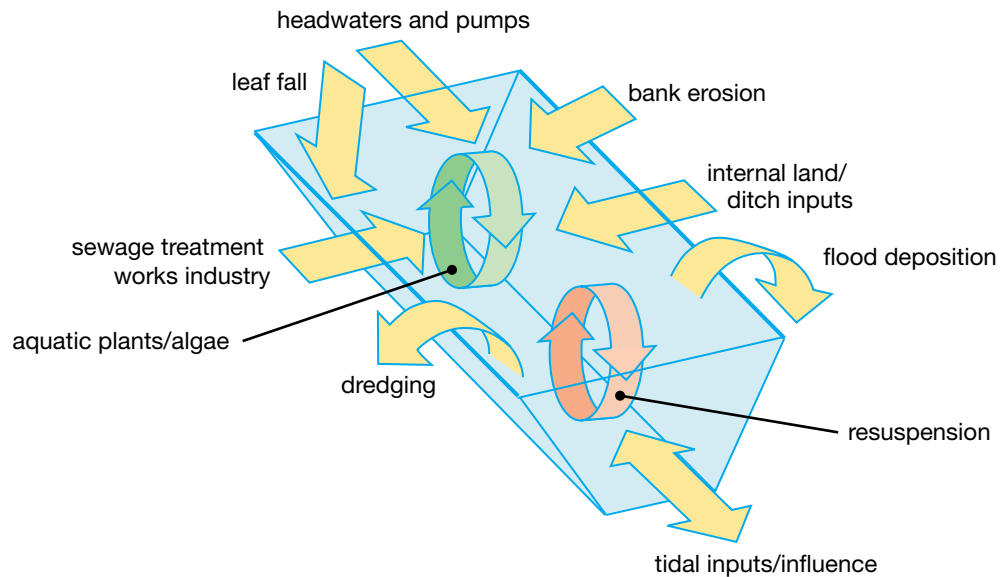
The following framework (Figure 2) has been developed to take account of the Broads requirements. In taking decisions on dredging, the Broads Authority needs to ensure a balance between meeting user expectations, discharging its responsibilities under environmental regulations, and ensuring cost-effective and efficient maintenance of the Broads.



This framework has been developed following consideration of all relevant factors relating to sediment issues. At an early stage a data-gap analysis was undertaken to identify the research needs to inform the strategy. Data subsequently gathered have provided an overview of the current situation regarding sediment inputs and management across the Broads. Other drivers such as legislation and catchment management links, along with appropriate responses, for example relevant environmental assessment, are also recognised. Sediment management decisions take these strategic issues into account, as well as considering site-specific factors.

A 'Desk based study of the Sediment Inputs to the Broads Catchment' has been completed by Cranfield University on behalf of the Broads Authority (Executive summary at Appendix 3). This work began by identifying a conceptual model of sediment inputs, processes and outputs (Figure 3).

Figure 3
Sediment inputs, outputs
and processes model
Cranfield University, SEA
Environmental Decisions Ltd



Main sediment inputs

For ease of assessment the Broads area was split into management units (Appendix 4). Sediment inputs vary between each unit dependent upon the processes operating across the river catchment. Across the catchment, the dominant sediment inputs are from headwaters (mainly from agricultural sources), highways, and bank erosion (Figure 4), with the balance varying across time and space.

In the case of the headwater inputs, the conclusions of the desk based study provide the Authority with a clear justification for its support of land management policies and initiatives, such as Catchment Sensitive Farming and Environmental Stewardship schemes. Through their aims to tackle diffuse pollution, these help to improve water quality and reduce the level of sediment entering the system.

Bank erosion is a key sediment source that was recognised following investigations in the 1980s (Hey et al) and, whilst many initiatives have been undertaken by the Authority in the past (for example the introduction of Speed Limit byelaws to reduce wash), further measures including enforcement patrols and speed limit compliance monitoring are identified. Erosion protection measures have also been installed over extensive areas, and scrub clearance and riverbank restoration programmes have been carried out with the support of landowners. All of these are important to prevent bank erosion and consequently reduce sediment inputs. Source control options are discussed further in Section 7.

Bank erosion



Broads Authority

Figure 4
A summary of estimated annual sediment sources and losses
Cranfield University, SEA
Environmental Decisions Ltd, Broads Authority, Great Yarmouth Port Authority

¹ Sediment deposition, measured from sediment cores, indicates sedimentation rates in broads. Deposition is similar to inputs providing further support for these estimated input rates.

	cubic metres
Inputs (maximum)	
Headwaters	12,000
Internal catchment	800
Ochre - Upper Thurne	640
Bank erosion	9,280
Tidal inputs	Unknown
Algae and plants	Unknown
STW	1,256
Industry	360
Total maximum inputs	24,300
Outputs (maximum)	
Dredging 2002-06	-42,500
Tidal output	Unknown
Deposition in the Broads¹ (indicator)	16,931

Figure 4 indicates the relative importance of the current estimated annual sediment inputs (White et al, 2006). Sediment derived from headwater areas and bank erosion appear to be the major sources, although the magnitude of tidal and algal inputs is currently unknown. Sediment deposition, measured from sediment cores, in broads connected to the river network indicates lower sedimentation than estimated total sediment input rates. This is expected as river channel sedimentation is not included in the deposition estimate. However, the comparable rates of sedimentation and inputs support the validity of these estimates.

Throughout the Broads system sediment has been accumulating at a rate far in excess of natural sedimentation for at least the past 100 years. Nutrient enrichment, changes in agricultural practices, intensive boating activity in the mid-late 20th century and the decline in traditional bankside management, have all resulted in a backlog of sediment to be removed.

Sediment outputs

The dredging output volume has been prepared from a review of the last 50 years of dredging records and current programmes. These show that current dredging (approximately 42,500 m³ for 2006, 1989-2006 average of 46,000 m³ per year) is exceeding maximum sediment annual inputs of 24,000 m³. However, the backlog of sediment still contained within the system means that enhanced levels of dredging will need to be continued until such time as the backlog is cleared (see Section 6) and a balance between inputs and outputs is restored.

Whereas dredging volumes are assessed, this study does not attempt to quantify tidal outputs. Sediment movement within estuaries is complex and there is no sediment transport model available for the Broads. In any event, sediment movement is likely to be episodic, relying on increased energy through storms or surge tides.

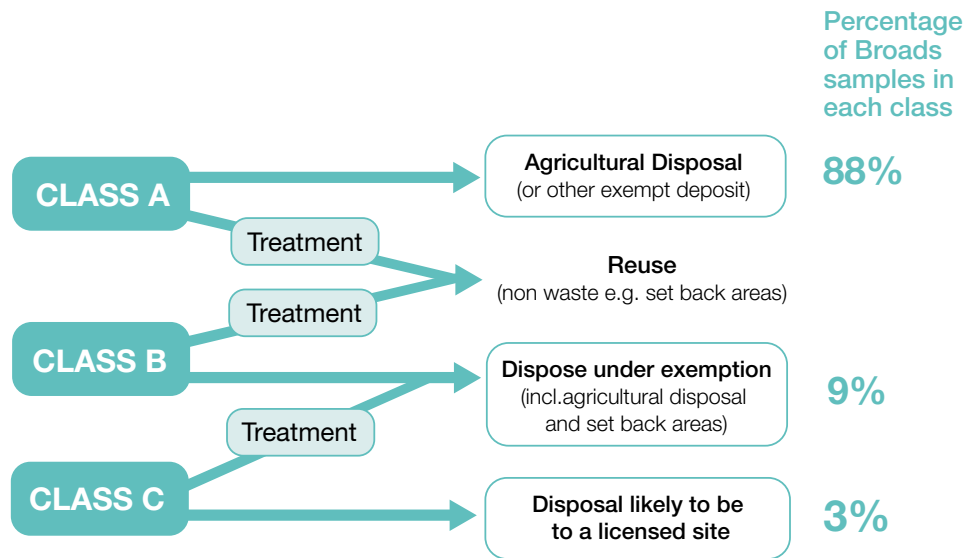
Conclusion

Overall, the range of semi-quantitative sediment inputs and outputs indicates that the objective to balance sediment inputs by outputs should be achievable and is currently exceeded. The major barrier to delivery of Waterway Specifications is the existing accumulated sediment already within the system.

The sediment characterisation survey was undertaken in 2004. A total of 66 samples were taken at approximately 2 km intervals throughout the Broads representing a wide range of bed materials (see Figure 6). The samples were analysed for contaminants, nutrients and physical characteristics. More recent survey information is routinely updated into the Sediment Characterisation database.

In the future, material may need to be resampled in order to accurately characterise it as inert, non-hazardous or hazardous waste. In addition, due to expected changes in the legislation, the A, B, C classification and the disposal routes shown in Figure 5 may no longer be appropriate (Beckwith 1998).

Figure 5
Percentages of Broads sediment within sediment quality classes, as developed by British Waterways, and likely disposal routes for these classes



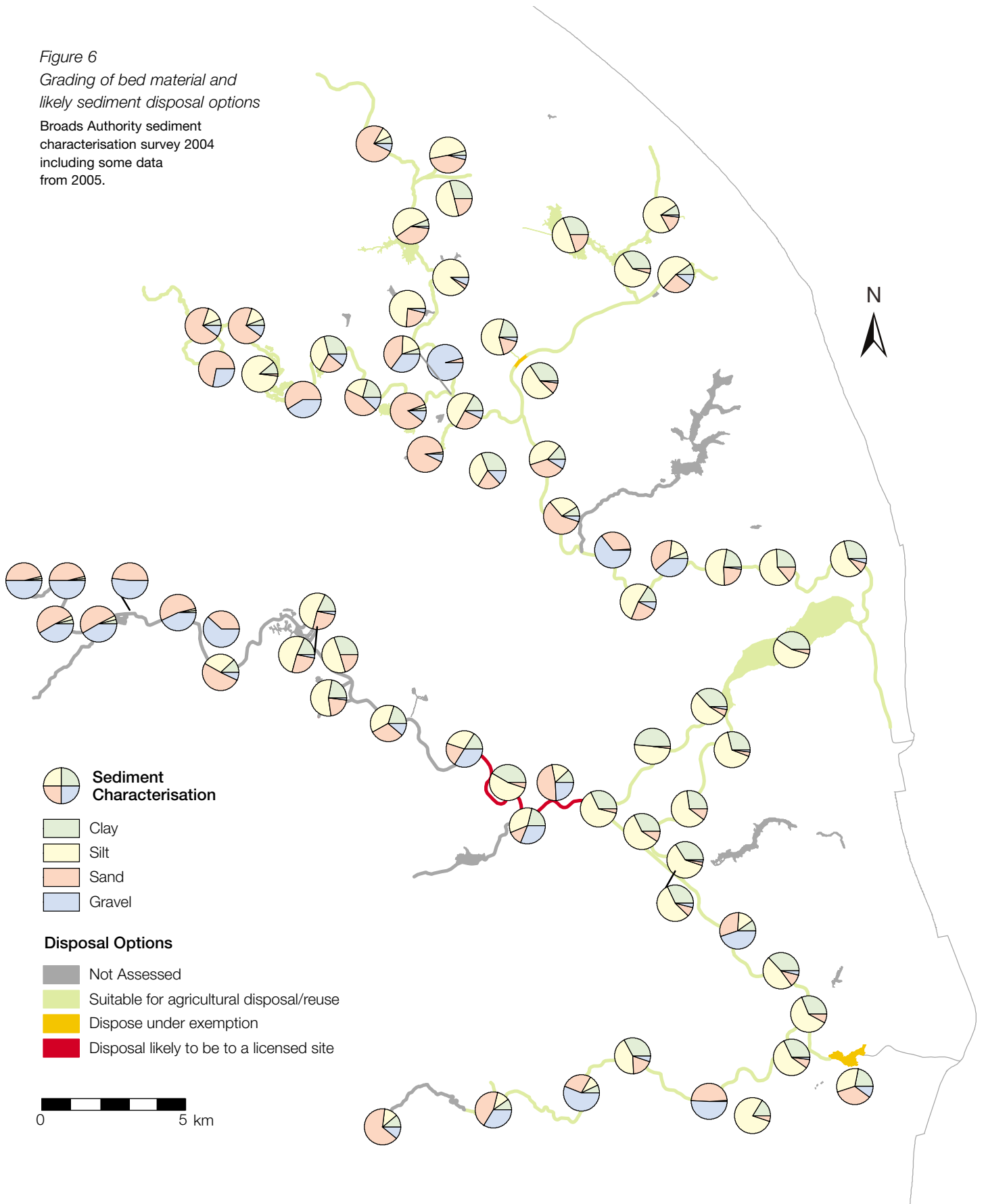
Spreading dredgings to agricultural land at Hickling



ADAS

Figure 6
Grading of bed material and likely sediment disposal options

Broads Authority sediment characterisation survey 2004 including some data from 2005.



¹ BESL - Broadland
Environmental Services Ltd

In order to assess the current condition of the rivers and broads, a complete hydrographic survey of the area was undertaken for the first time during 2005. The works were completed by BESL¹ using boat mounted transducers (Appendix 5) and have been used to provide a baseline condition for comparison with future monitoring surveys.

The depths of isolated waterbodies have been separately assessed using various techniques, including hydrographic survey (Trinity Broad and Fritton Lake undertaken by Northumbrian Water in 2006), lead line (Barnby, Little, Upton Little Broad commissioned by the Broadland Authority in 2005-06) and expert knowledge from site managers and owners. These data are not complete for all isolated waterbodies and will be updated as further surveys are undertaken.

Repeat surveys will be completed, with one river valley completed annually, programmed over a 5-year period to cover the entire system. The information will be used to update the Removal Tables (Action Plan), provide monitoring for waterway specification (Section 4) compliance and discharge the Broadland Authority obligations under the Broadland Safety Management System hydrographic surveying policy.



BESL

4 Waterway specifications

To understand the scale of and overall need for sediment management, waterway specifications have been developed. These have recently been used to set targets and to aid in prioritising expenditure. Targets include physical elements such as channel width and depth, as defined in consultation with users, and also cover environmental quality standards such as contaminant levels, nutrient content and sufficient depth for aquatic life.

Barton Broad Regatta



Simon Finlay

Waterway user specifications

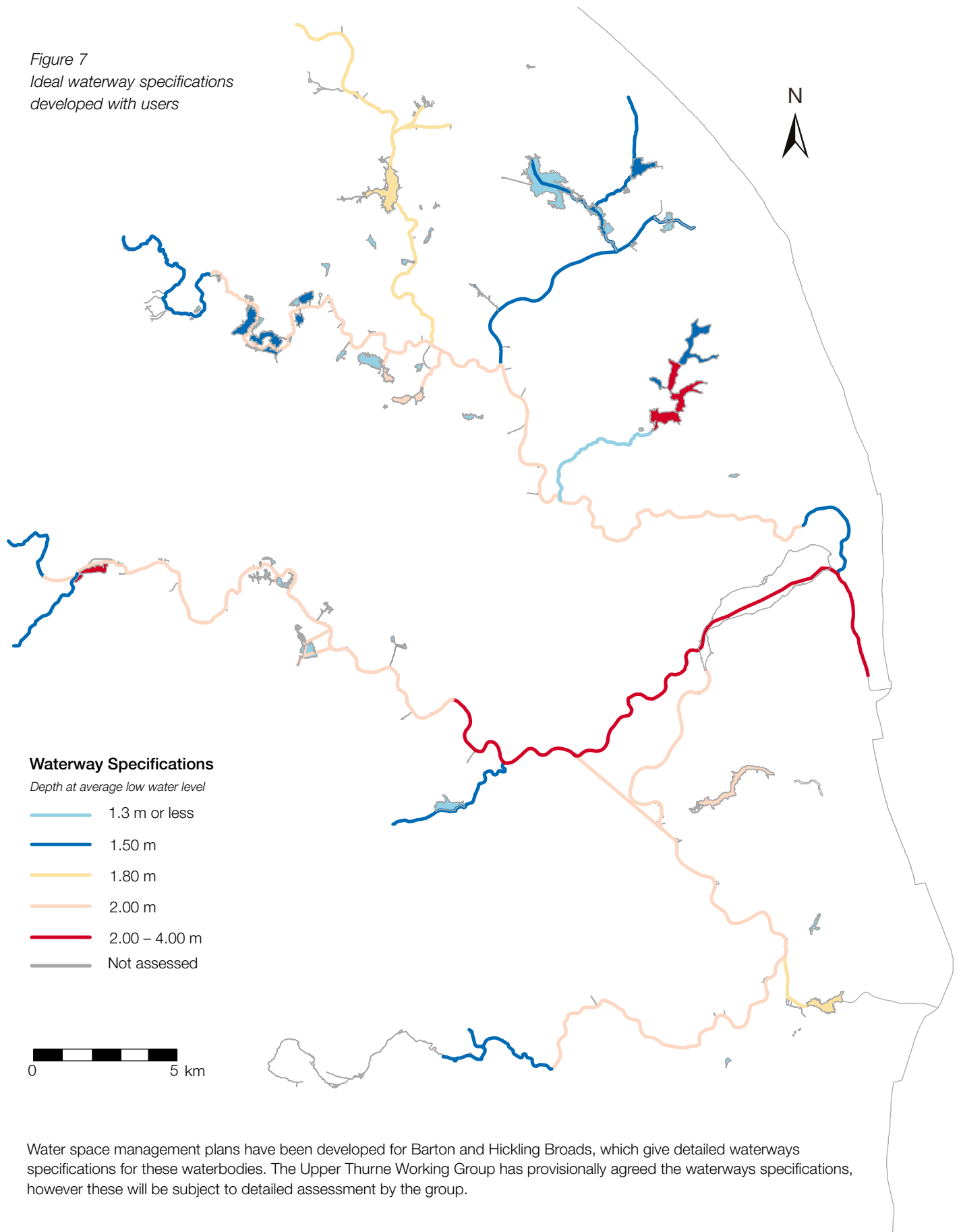
The user-defined waterway specifications, detailing standard water depth requirements to achieve current navigation and lake restoration objectives, were developed in partnership with user representatives to:

- Provide straightforward and transparent rationale for works
- Facilitate provision of information to the public
- Allow agreement of partners at a strategic level to simplify site specific discussions etc
- Help to quantify programmes of works; programmes for disposal; long-term financial budget plans.

The prioritisation of sediment removal in open water bodies to achieve recovery of the aquatic ecosystem, as well as meeting biodiversity and protected site targets, can be complex. The main reasons are to reduce nutrient input and increase water depth to promote aquatic plant recovery. With the loss of many open waterbodies over the last 50-100 years and the fact that high nutrient levels remain the most significant factor preventing ecological recovery of the Broads, there is a good case for continuing sediment removal. Other reasons for sediment removal to achieve nature conservation targets include decreasing sediment resuspension into the water and exposure of water plant seeds (particularly stoneworts) that may re-grow if water clarity allows.

However, sediment removal can also have potentially negative effects on ecosystems, for example, increasing the potential for saline incursion and higher tidal water levels further upstream of the sediment removal site, both of which

Figure 7
Ideal waterway specifications
developed with users



Water space management plans have been developed for Barton and Hickling Broads, which give detailed waterways specifications for these waterbodies. The Upper Thurne Working Group has provisionally agreed the waterways specifications, however these will be subject to detailed assessment by the group.

can have an impact on the condition of freshwater grazing marsh dykes or adjacent fens. Increasing the water volume of waterbodies also increases the time the water remains in the waterbody; this can have an impact on water quality. In addition the increased depth can result in aquatic plants having less light to re-grow. Dredging can also result in habitat removal such as spawning sites, or removal of sedentary species such as freshwater mussels. Careful consideration of all these factors is required at the initial prioritisation and detailed design stage.

A developing lake restoration strategy will include a review of sediment removal in the Broads; this review will collate existing evidence on the role of sediment removal in lake restoration on a case-by-case basis.

At a waterway user specifications workshop, held in January 2005, key user representatives addressed the results of a consultation questionnaire hosted on the Norfolk and Suffolk Boating Association website. This successful event enabled participants to discuss issues and concerns as well as gain an insight and understanding of the constraints that apply to management projects. The outputs included a list of criteria for use in prioritising works and produced a set of ideal waterway users specifications (Figure 7) with a broad consensus.

The waterway user specifications across the Broads will be subject to appropriate assessment under the Habitat Regulations. This is currently being undertaken.

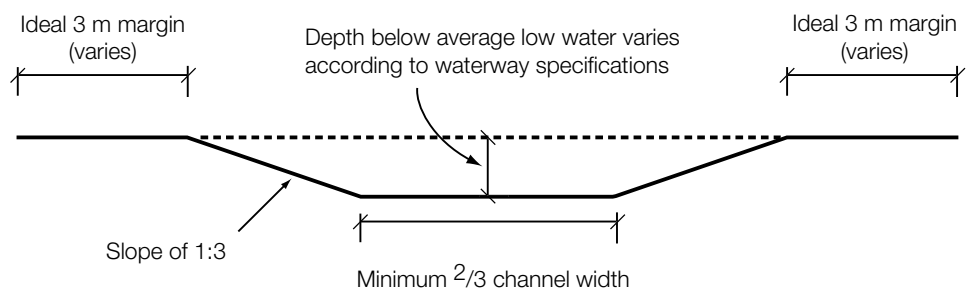
Navigable envelope

¹ Navigable envelope defines the area of water space used for all types of boating within the river channel.

The condition of the 'navigable envelope'¹ is one of the principal indicators of the Broads Authority's performance in providing service to our customers. The navigable envelope defines the width, depth, slope and non-intervention margin of navigation channels. Additionally, the definition of the navigable envelope allows for the development of a more dynamic river system, by ensuring that natural erosion/deposition processes can be tolerated without compromising enjoyment of the system for navigation ie where shoaling areas are naturally mitigated by complementary erosion.

The navigable envelope, example shown below, has been developed from the depth criteria established through the waterway specifications consultation. For further details and site specific profiles see Appendix 6.

Figure 8
Ideal navigable envelope
(not to scale)
Broads Authority



Whereas British Waterways have developed the 'Minimum Open Channel' box profile, suited to piled canals, the navigable envelope developed here reflects conditions in the Broads. In many areas of the Broadland rivers, the typical undisturbed cross-section profile follows a 'V' shape, with a central channel naturally scoured to depths exceeding those required by the waterway specifications. The majority of maintenance dredging is completed to re-establish navigable width following shoal formation at river edges.

By including a 'non-intervention margin' this ensures that the retention of the emergent vegetation, which provides erosion protection and hence habitat, is protected. In more urban areas it likewise ensures private frontages are not undermined or over-steepened.

Environmental Quality Standards

In addition to minimum depth requirements, the other elements of the waterway specifications are the environmental targets. Although currently Environmental Quality Standards for sediment are not developed, there are relationships between sediment and water quality. The sediment characterisation survey (Section 3) gives a general picture of the quality of Broads sediment, although further analysis is required for assessing any toxic effects or site-specific maintenance.

¹ Thresholds used were those developed by the Interdepartmental Committee for the Redevelopment of Contaminated Land (ICRCL).

The survey showed the majority (88%) of samples taken were suitable for agricultural disposal. Less than 10% have zinc or copper concentrations above thresholds¹, that could adversely affect growth of some plants at the disposal site (Figure 5).

The remaining 3% of samples had high levels of Polycyclic Aromatic Hydrocarbons (PAHs), which are generally released during combustion or release of substances such as diesel fuel, oil, or from historic industrial processes. This survey provides overall data for the Broads and was not designed to pick up particular, previously identified hotspots of contaminants. The majority of the sediment in the Yare from Norwich to upstream of Cantley is contaminated with mercury and copper discharged from the Whitlingham sewage treatment works, Norwich, from 1964 to 1973. An Environment Agency policy provides a clear framework for decision making relating to the treatment of dredgings in the Yare and concludes that the bulk of material needs to be disposed of to licensed landfills with site-specific risk assessment for all other disposal routes. For other contaminated hotspots, such as boatyards and urban areas, a risk-based, cost benefit, approach is required to assess the impact of removal and disposal or retention within the aquatic system. Defined targets for the Broads will evolve through new disposal criteria and research, informed by partnership working.

Removal of sediment to reduce the reservoir and release of stored nutrients has proved beneficial for lake restoration projects. Lower phosphorus release rates up to five years after the completion of mud pumping on Barton Broad have been documented, (Kelly, 2005) indicating that sediment removal may be a potentially useful tool to deliver SSSI and Water Framework Directive (WFD) targets. However, the benefit over the longer term needs further investigation.

5 Present condition

Navigation area

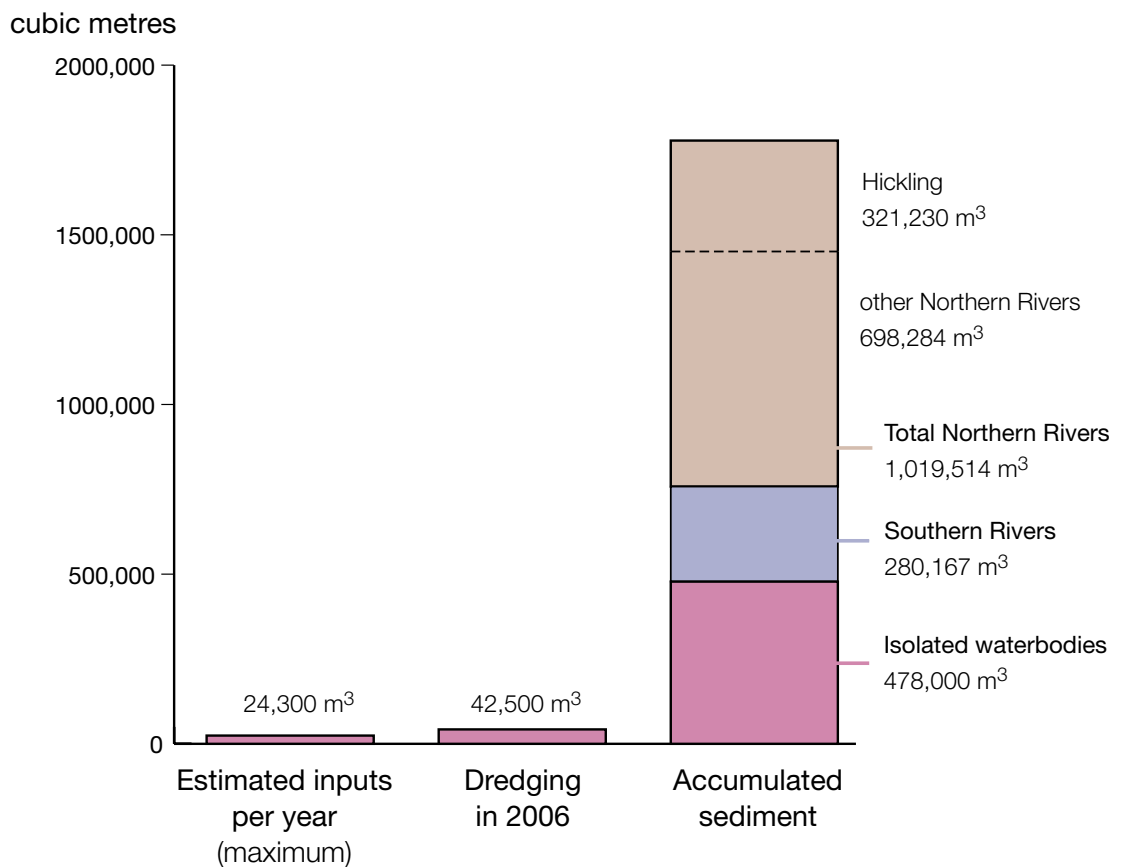
A comparison of the hydrographic survey data with the user defined waterway specifications for the navigation area has indicated that a large part of the system is currently non-compliant with user aspirations. Further analysis indicates the volume of sediment held as a backlog within the system, which can be represented by each management unit. A summary of this data is shown in Figure 9.

There is a clear distinction in levels of sediment present between northern and southern rivers, and this can be attributed to two factors. Firstly, there are a significant number of open waterbodies in the northern rivers which contribute a substantial proportion of the backlog. Secondly, tidal flow rates and volumes are lower in the northern rivers, which removes the potential for self scouring that exists in more dynamic water courses.

Isolated waterbodies

The hydrographic survey and expert information from the isolated waterbodies, combined with an assessment of the requirement to remove sediment to achieve targets for nature conservation and improved water quality for users, have been used to determine the requirement for sediment removal in those waterbodies not on the main navigation.

Figure 9
Accumulated sediment present within the Broads system
Broads Authority, BESL



Sediment removal outside the navigation area is required to minimise nutrient release from the sediment and increase water depth to allow aquatic plants to recover. However, sediment removal will not always lead to aquatic plant recovery or lower nutrient levels, the science is complicated and dependent on the existing water quality, flow rate and catchment inputs. Some isolated waterbodies, such as Ranworth Broad, may currently have poor water clarity and be vulnerable to surge salt water tides, thus it may not be desirable to invest in sediment removal. Some isolated broads have no survey data to assess if investment in sediment removal would be desirable (eg Snape's Water) and these will need to be added in the future as information is gathered.

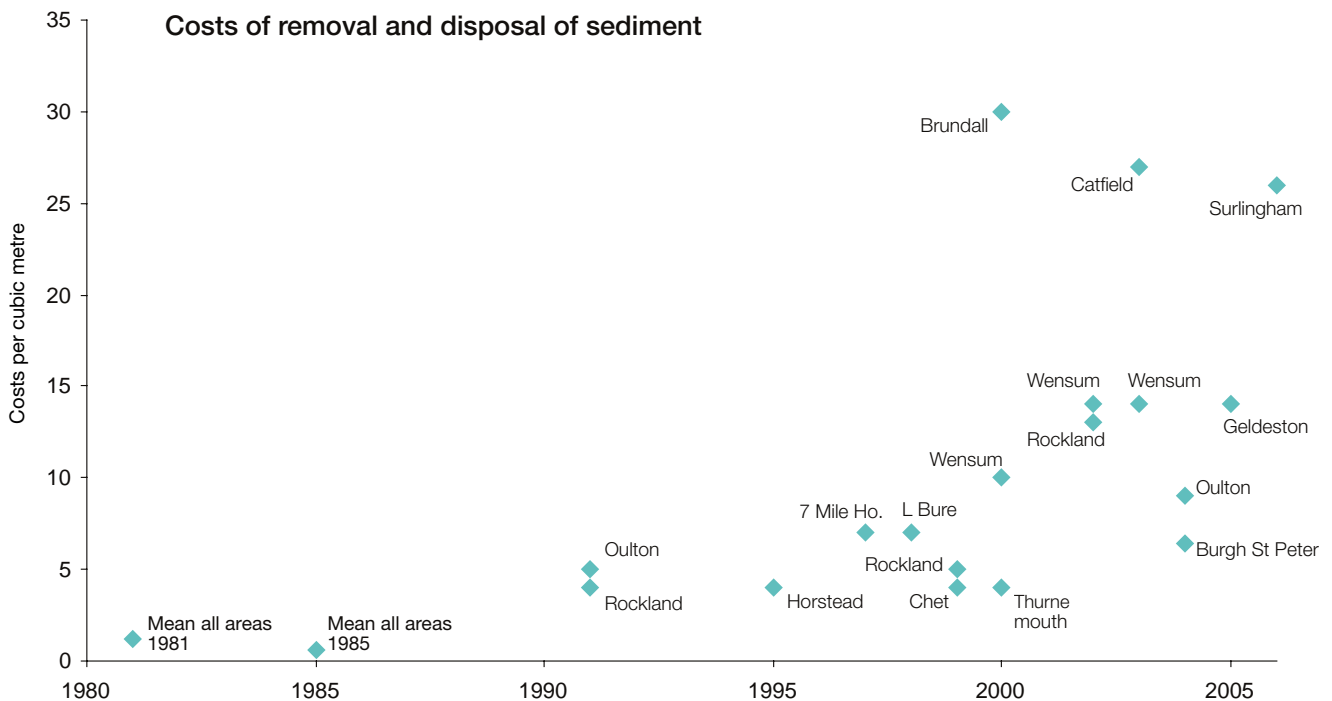
The majority of the sediment currently required to be removed from isolated waterbodies is from Hoveton Great Broad, Fritton Lake and the Trinity Broads, for the purpose of nutrient control and water quality improvement.

6 Investment scenarios

Looking back over dredging records for the last 50 years the pattern of dredging activity has been very variable and reflected a reactive approach to dredging need, as addressed through specific campaigns. Since 1982 the dredged volumes achieved annually have been consistently below 60,000 m³, which reflects the changing use of the navigation as well as the impact of rising costs.

Figure 10
Summary of dredging
project costs
Great Yarmouth Port Authority,
Broads Authority

The rising costs in removal and disposal of dredged material from 60p to £1 in the early 1980s to an average of £13.83 per cubic metre now has greatly reduced the volume that can be dredged at current budget levels. Figure 10 shows how costs have risen, with sediment management costs in the Yare sometimes reaching £30 per cubic metre.



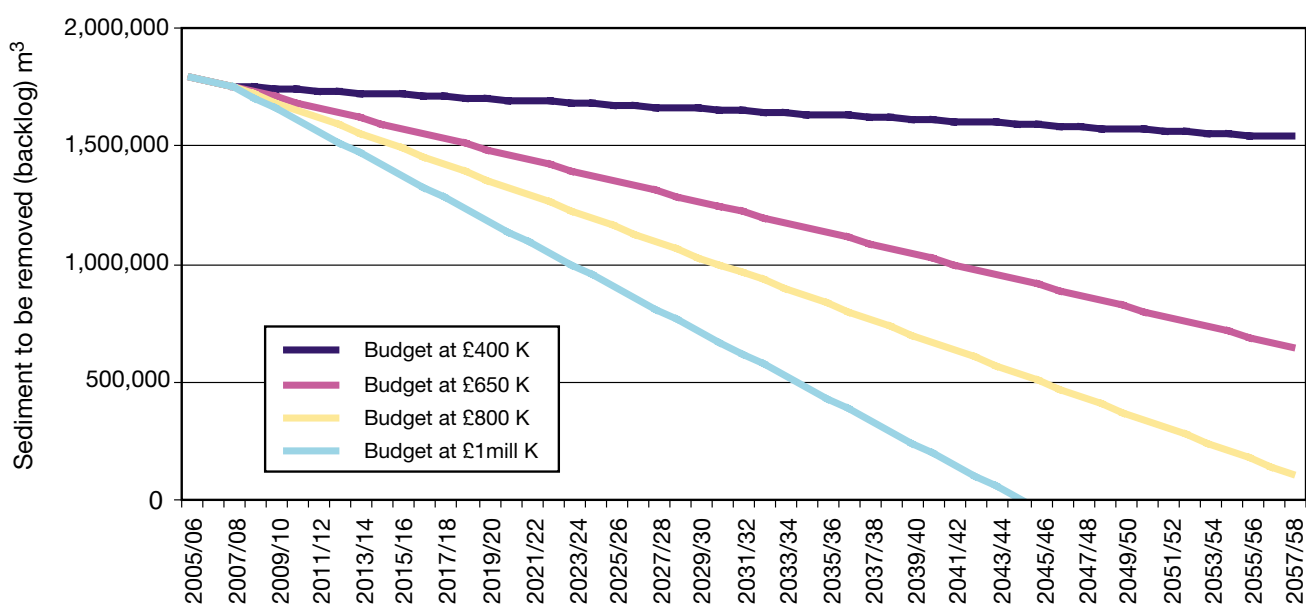
The relationship between dredging cost and time is complicated by a number of factors including inflation, location of works, disposal opportunities, dredging techniques, contamination issues and any required transportation. There is no clear trend which can be used to predict future costs. For example, the traditional practice of disposal to the adjacent bank side has only remained possible in a few locations following the introduction of regulations in the 1990s. This does indicate however, that for a static budget the achievable volumes dredged can be assumed to reduce as unit rates increase, and so inflationary rises need also be budgeted for over the long term.

Four investment scenarios have been considered, with the objective to remove the historic backlog held within the system, and create a balanced situation with annual outputs equalling the annual inputs.

For this purpose the following assumptions have been made:

- Annual budget figures are assumed to increase in line with cost increases, ie the budget will require inflationary increases annually to keep pace with increasing costs.
- Annual inputs will remain at current levels (despite the potential for reduction, further long term influences such as climate change are likely to increase potential for catchment run-off).
- The total backlog is calculated by a comparison of the ideal waterway specifications and 2005 hydrographic survey.
- Annual inputs have been added yearly at 24,300 m³, the maximum total inputs, or worse case, identified through the Cranfield Study (Sediment Management Strategy, Appendix 3) at an ongoing annual cost of £340,000.
- The total backlog held within the Broads waterways is considered, including navigation area and open waterbodies.
- Average removal cost at £14 m³/yr.

Figure 11
Scenarios of sediment removal based on annual budgets of £400,000, £650,000, £800,000 and £1 million



SCENARIO	Budget	Total volume removed m ³	*Net volume removed m ³	* after accounting for annual inputs
1	£400k	28,751	4,271	2006/07 Navigation budget
2	£650k	46,429	22,129	2006/07 Navigation budget plus £250k additional DEFRA grant
3	£800k	57,143	32,843	2006/07 Navigation budget increased by 100%
4	£1m	71,429	47,129	2006/07 Navigation budget increased by 25% and match funded by DEFRA

Figure 12
 Years by which sediment backlog is achieved based on annual budget scenarios

	£400,000	£650,000	£800,000	£1,000,000
Total Broads water space	2414	2085	2060	2043
Navigation Area only	2302	2063	2045	2033

From this analysis it can be seen that whilst at existing budget levels there is some progress being made towards achievement of the waterway specifications, and removal of the backlog, the timeframe is considerable, and inevitably waterbodies will be lost as a result of siltation in the intervening period.

The Authority had previously identified an optimum budget level of £1m through its Best Value review, and these figures confirm that investment at that level is the minimum necessary to secure the long-term future of the Broads.

7 Management control options

Options appraisal

In order to tackle the issues surrounding sediment management in a holistic way, a Driving Force – Pressure – State – Impact – Response (DPSIR) Framework (Appendix 7) has been developed which considers the wider aspects (Cranfield study, White et al). The DPSIR approach, used inter alia by the Organisation for Economic Co-operation and Development (OECD), provides a mechanism for analysing environmental problems. The approach defines the interactions between various parameters and how they inform decisions.

Responses derived from the DPSIR model can be taken as options for local action to reduce sediment loading and can be considered under the following headings:

- **Do nothing**
- **Source control**
catchment measures; headwater input reduction; bank erosion; tidal inputs; sewage treatment works; algae
- **Dredging**, (ie removal of material from the system)
- **In-channel management techniques** (eg water injection dredging, ploughing, etc)

Whilst these options are considered below, more details concerning the techniques involved are described in Appendix 8, Management Control Techniques.

Do nothing option



Silted up waterbody - Upton Little Broad

Mike Page

If 'no action' is the selected sediment management approach, the following consequences can be anticipated:

- Increased siltation leading to loss of safe navigation space, particularly in open waterbodies where siltation rates are higher due to flow conditions, and restrictions within channels.
- Increased siltation leading to loss of habitat.
- Impact on protected landscape, through loss of open water, particularly smaller isolated waterbodies, and the requirement for additional navigation marks to direct traffic through restricted channels.
- Loss of land drainage function/ flow capacity through siltation within channels, leading to increased risk of flooding.
- Serious impact on local economy through decline of boating activity and related tourism businesses.
- Loss of cultural heritage as sailing clubs, boatyards etc close.
- Reduction in boat numbers leading to reduced toll levels, resulting in reduced income for maintenance.
- Eventual equilibration of the system could result in a self-sustaining, although much reduced, channel system.
- Shallower water would limit craft to small, shallow-draughted vessels, such as motor boats or canoes.
- Change to habitats and the wildlife supported.

Conclusion

The Broads are a heavily modified waterway system, which require continued management, to protect people and their livelihoods and wildlife that has adapted to these managed conditions. The 'do nothing' option is therefore inappropriate not acceptable, however it might be for some isolated waterbodies.

Source control options

- Catchment measures** that will reduce sediment inputs to the water environment either through headwater or internal catchment sources are being developed and implemented on a prioritised basis, through programmes such as Catchment Sensitive Farming and Environmental Stewardship schemes. These programmes have arisen, inter alia through the identified need to reduce diffuse pollution, particularly in terms of nutrients and sediment in order to achieve Government Public Service Agreement and Water Framework Directive targets. Resource protection measures are targeted towards preventing soil loss and are likely to be most effective in decreasing inputs from the headwaters of the Broads. The Broads Authority is working with partners to promote uptake of the schemes both inside and outside the Broads Authority's executive boundary.
- Bank erosion** is currently tackled strategically, through enforcement of speed limit byelaws, encouragement of low wash hulls etc. However, it can also be dealt with as a point source issue through erosion protection works or rond restoration. These works can be targeted to the high-risk areas identified in the Cranfield desk study (ie where erosion risks are high due to boat numbers or soil type) as well as identified through surveys on the ground.



Site-specific works will have an immediate effect on inputs reduction, but the overall effect is likely to be limited due to the high cost of works, and the likely limited amounts that can be achieved at any given time. Both strategic and local measures to reduce boat wash may be successful in the longer term, but they will not be able to address weather conditions or tidally-induced wash and so, used alone, will be an incomplete solution.

- iii) **Tidal inputs** are currently unquantified, although believed to be of limited relevance except in the lower reaches of the river system. There is no mechanism to prevent or reduce these inputs that would be cost-effective.
- iv) **Sewage treatment works** and industrial discharges provide a source of input into the river system, which could be relatively simply managed. In overall terms however, this is a source of minor significance for sediments per se, but major where nutrient/contaminant inputs impact on water quality.
- v) **Point sources** provide a further source of sediment and nutrient inputs to the Broads system, one of the most significant of which is the input of ochre in the Upper Thurne. Implementation of a catchment project in this area would aim to reduce inputs of this material and have a significant local effect.
- vi) **Algae/plant material** inputs are currently unquantified, although an MSc research project is investigating this source. However, management works to restore riverbanks by removal of trees and scrub will also impact positively by reducing the quantity of leaf fall into the water. Water quality improvements will reduce algal production and eventually switch the system from an algal to an aquatic plant-dominated state and so reduce the amount of sediment resuspension and hopefully organic material collecting on the bed.

Conclusion

Whilst source control measures undoubtedly represent the most sustainable way to manage sediment, this is unlikely to be achieved in the short term. Further, source controls will neither resolve the current backlog issues nor achieve a nil input situation and so must be used in combination with other options.

Dredging options



R N Flowers

Grab dredging on the River Wensum

Future dredging will be undertaken according to a prioritised programme, following a risk-based assessment, and an agreed design process (see Section 8). Works will be carried out to an agreed waterway specification but will be undertaken on a site-specific basis, within a scenario limited by resources. Dredging specifications allow for a reasonable return period, but at previous siltation rates need to be repeated usually within a 20-year timeframe. Disturbance of the ecology can be an issue locally, and disposal options can also be limited leading to increased transportation or landfilling of material.

Dredging projects need assessment using BESL's hydraulic model. The model is used to test the impact of implementing the waterway specifications to understand possible impacts on salt water entering the freshwater rivers and broads or upstream flooding. Works can also be beneficial by removing contaminants and/or nutrients from the system. Increasing water depth can improve water quality by reducing boat or weather-induced turbidity.

Whilst each project undertaken is also removing part of the sediment backlog and increasing the flood flow capacity of the channel, an effective medium-term campaign is needed to deal with the backlog as a whole.

Conclusion

Whilst dredging is an effective technique for managing sediment, increasing challenges associated with disposal, (such as scarcity of appropriate sites, changing legislation, and landowner consents), are leading to rising costs. In addition, dredging is currently undertaken on a reactive basis. In combination with effective source control, however, the objective is to undertake dredging in a more sustainable, proactive manner, at sufficient levels to remove the backlog from the system. Thereafter, campaigns can be reduced to address annual inputs only.

In-channel management options

Siltation within the Broads does not occur uniformly across the riverbed. River channels scour sediment in areas of high flow and deposit it in areas of low flow, such as the insides of bends. Shoaling or areas of sediment deposition are natural phenomena, however they can have a major impact on navigation by a narrowing of the channel. If dealt with promptly, before shoals compromise the full channel width, then in situ management such as water injection dredging or ploughing could be adopted. These methods can remove material from areas



Water injection dredging

where it is causing difficulty and redeposit it in areas where the navigation is unaffected eg deep channels or non-navigable channel margins.

Such techniques are generally cost effective as there is no requirement for disposal, but they cannot be used effectively in very shallow areas, areas of low flow unable to redistribute disturbed sediment or where adjacent habitats may be at risk of smothering. In addition, these techniques would require regular reapplication and may also promote greater siltation in downstream sites as the sediment put into suspension gradually settles back on to the bed. As these techniques do not remove sediment, there are no benefits from nutrient removal, and their use would need to be limited to uncontaminated sediment to ensure contamination is not spread to wider areas. A recent trial has been carried out to look at the feasibility of water injection dredging within the Broads, which will enable more comprehensive appraisal of the suitability of this technique. (See Appendix 4)

Conclusion

The application of in-situ treatments in the Broads would provide a low cost option to treat shoaled areas, but the application of such treatment will be restricted to a very few appropriate sites. Water injection dredging as trialled in the Lower Bure has proved to be a very temporary solution, and requires higher flow rates than exist in the majority of the Broads.

Preferred option

From the above options appraisal it can be seen that a combined approach, which considers both short and long-term management will be required. To resolve the issue of the existing backlog within the system it is clear that a combination of dredging and in-channel techniques will be required and the objective should be to attain an achievable and sustainable long-term programme of de-silting. The level of inputs to the system should also be reduced via a combination of measures aimed at each recognised source.

Beneficial reuse

Beneficial reuse is a principle which will be adopted throughout all dredging options and possible options include: habitat creation/restoration; land spreading for agricultural benefit; flood defence works; land raising.

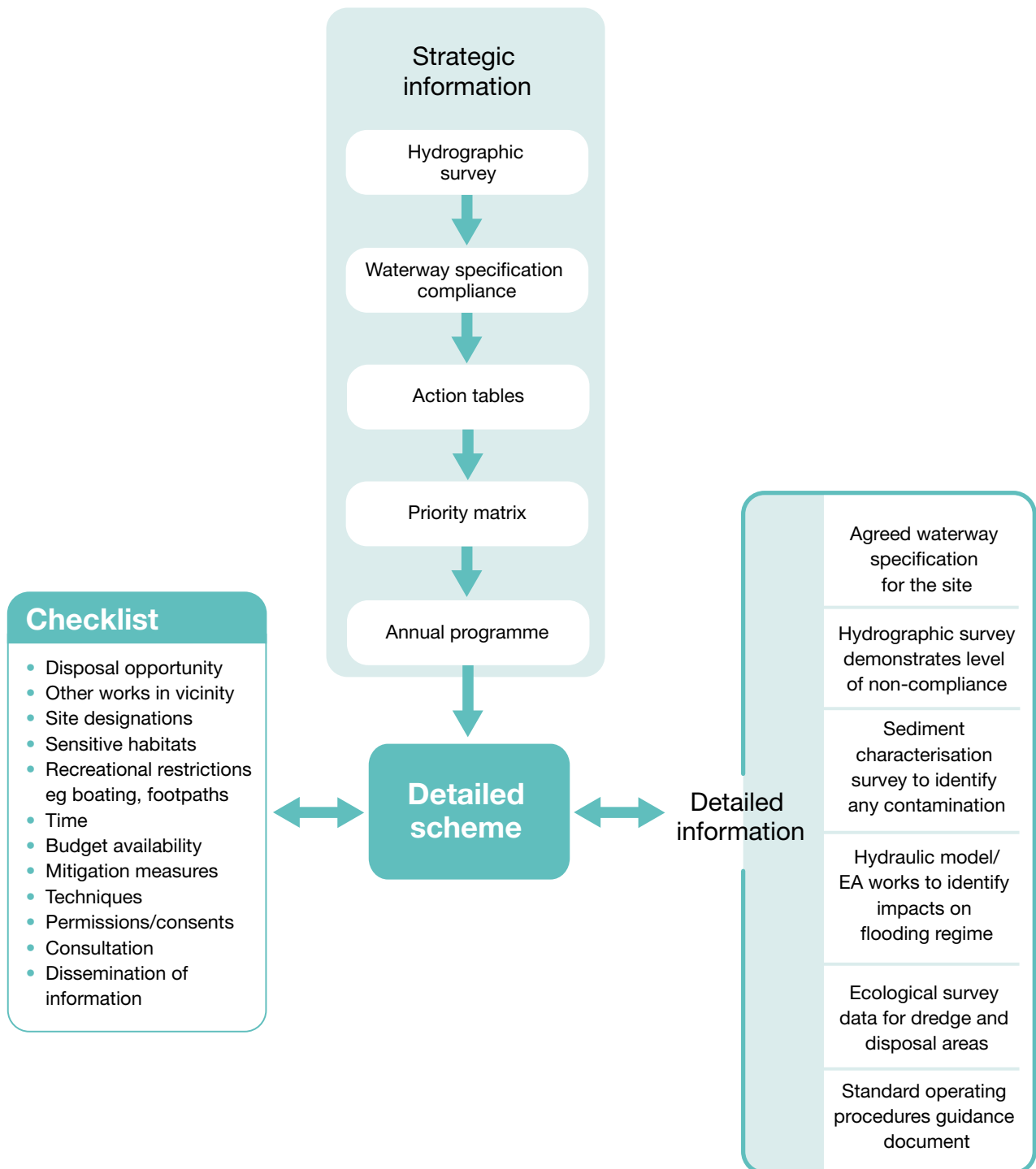
The best projects are those that deliver multiple benefits. Examples of such projects are: working with Hickling Broad Sailing Club to raise land around the club house, habitat creation in the Bure Loop and agricultural benefits at Barton Broad. Working with partners to ensure added value is achieved in all stages of the project and promoting all of the Broads Authority's statutory duties is an important objective of the strategy.

To deliver the aim of reusing material beneficially, a Register of Opportunities will be established. The Disposal/Reuse Action Tables (see Action Plan) are the basis for this register, which will be shared with partner organisations. This will seek to match projects that require materials with suitable dredging projects in the local area. Disposal of dredged material, whether beneficially or via landfilling is complicated and uncertain and the issues are reviewed in Appendix 8.

8 Dredging decision making framework

Figure 13
Dredging decision making framework

Management decisions for sediment removal are influenced by regional partnerships and catchment initiatives, and at a wider level national legislation such as Health and Safety, Port Marine Safety Code etc but are based on the needs of local users and the environment (Figure 13).



Whilst the level of non-compliance with the Waterway Specifications remains high, dredging works will need to be prioritised to aid project programming and management decisions on dredging works.

A priority matrix has been developed. The criteria used to rank projects includes factors relating to management units such as current physical condition, sediment contamination, level of boat traffic, type of use, as well as cost and safety. By individual assessment of each of these parameters, which are then scored and collated, a broad but objective ranking of the priorities can be achieved. This prioritisation process is explained in the Action Plan (Wakelin & Kelly 2006).

This process provides a coarse filter when considering site-specific issues but will nevertheless assist in determining the priority of schemes. Each site-specific project will then need to be put through a design process such as shown in Figure 13. It can be seen that such work is likely to be iterative, and will inform the process further by identifying appropriate techniques or mitigation measures in turn amending budgets, programmes or timing of works.

Action Plan

In order to bring together all the actions which have been identified, through the development of this strategy, into a coherent plan for guiding future work programmes an Action Plan has been developed.

This is available as a separate document, and will be updated annually to reflect monitoring results, work achieved, changing conditions etc.

The 1988 Norfolk and Suffolk Broads Act sets out the general functions of the Broads Authority in Section 2(i):

It shall be the general duty of the Authority to manage the Broads for the purpose 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 the interest of navigation.

In discharging its statutory duty to maintain a safe navigation, and a fundamental part of this provision is the securing of reasonable depth. Section 10 of the Act states that

The Authority shall

- a) maintain the navigation area for the purposes of navigation to such standard as appears to it to be reasonably required;
- b) take such steps to improve and develop it as it thinks fit

Under Section 2, Schedule 5 (1) The Authority may –

- a) deepen, dredge, scour or excavate any part of the navigation area; and
- b) sell, or otherwise dispose of as it thinks fit, any material removed from any part of the navigation area in exercise of its powers under this paragraph.

Additionally, under the Port Marine Safety Code the Authority has a duty as a harbour authority to develop a Safety Management System which identifies all hazards related to marine activity and is required to carry out a risk assessment and put in place measures to reduce these risks as far as is reasonably practicable. The risk of grounding due to shallow water has been included in this assessment.

These duties and powers have been exercised to date through the implementation of an annual dredging programme but a Best Value Review of Navigation identified the lack of a strategic approach, which if adopted could bring added value through working with partners towards shared objectives.

Terms of reference

1. The principal purposes of the Steering Group are:
 - to facilitate the development of a Sediment Management Strategy for the Broads;
 - to prioritise and steer the research and practical management elements of the Sediment Management Strategy;
 - to monitor and evaluate the development of the Sediment Management Strategy;
 - to coordinate and channel all relevant information and expertise from the catchment, national and organisational levels through the Steering Group; and
 - to informally discuss and debate sediment management issues in the Broads catchment.

2. The Partnership represents key partners (mostly public bodies) but is sufficiently small to be manageable and productive. The agreed Membership is listed below:

Broads Authority
British Waterways
Broadland Environmental Services Ltd
Natural England
Jan Brooke - Environmental Consultant
SEA Environmental Decisions Ltd/SedNet/SedcomUK (Consultant)
Environment Agency
National Farmers Union

3. The Steering Group was responsible for overseeing the strategy which should be relevant to the whole Broads catchment and its functioning. This involves using scientific rigour as well as practical achievability, and then subjecting management scenarios to strategic planning and economic assessment. The approach is designed to improve understanding about strategic options and their inherent uncertainties, thereby enabling informed choices to be made. The strategy should take into account navigation requirements, relevant directives, plans, policies and legislation.

4. The Steering Group will meet up to four times a year. Should sub-working groups, to deal with specific strategic issues, need to meet they will have clear terms of reference and meet as necessary.

5. Key recommendations from the steering group and overall progress of the strategy will be reported to the Broads Authority.

Desk based study of the sediment inputs to the Broads catchment, with the identification of key inputs and recommendations for further targeted research and management to minimise inputs, Cranfield University, Silsoe

This study has involved a review of available data relating to sediment sources in the Broads Authority management area. Where possible, sources have been evaluated in a semi-quantitative manner. It has been possible to make estimates of sediment input for headwater catchments, internal catchments, riverbank erosion, sewage treatment works and industrial sources, and for sediment outputs from dredging activity within the Broads area. The major gaps are in quantifying organic inputs from plants and phytoplankton, tidal inputs/outputs, the related dredging carried out by Great Yarmouth Port Authority, and the role of flooding in removing sediment from the river system.

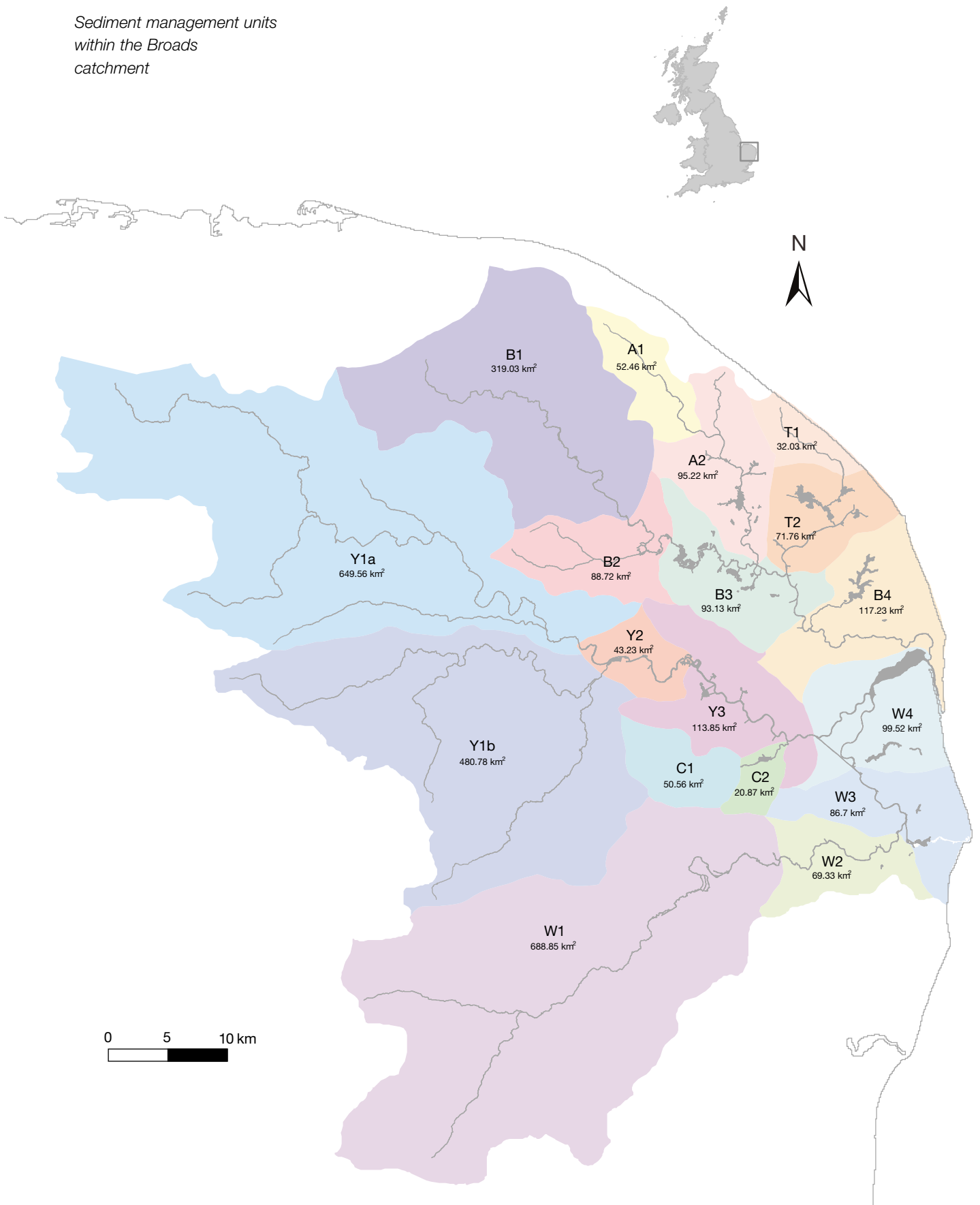
For those sources where it has been possible to make a semi-quantitative assessment, headwater catchments and riverbank erosion are dominant. However, the implications for the future are different for these two as headwater land use and management begins to focus on environmental protection (suggesting a potential reduction in sediment supply) whilst bank erosion is likely to increase over the short to mid-term as setback and pile removal is used as part of the BESL flood alleviation programme. Whilst BESL will be responsible for any additional dredging as a result of this programme it is useful to have quantification of the current system for comparison with future possible conditions, so that their dredging responsibilities can be assessed.

A number of actions have been recommended to allow gaps in data to be filled, thus allowing a complete sediment budget for the region to be made. Much of this data could be collected via short-term field exercises, possibly via student projects. However, it will be much more valuable if the sediment budget could be made spatially explicit, so that sources can be directly related to sedimentation and dredging requirements. This will need organisation of current data and collection of additional data to infill gaps. In support of this it is recommended that the Broads Authority develop a database of sediment related information and a sediment GIS to put information into a spatial context.

Whilst this report has focussed on identification and a preliminary quantification of sediment sources to the Broads management area, it must be remembered that sediment fits into a much wider decision making process. Catchment wide management proposals need to consider many aspects other than sediment, eg conservation, navigation, public enjoyment, costs, interactions with other authorities. The Broads Authority operates within a defined set of objectives – the duties to provide public enjoyment, navigation and conservation. Clearly any actions need to work within the law and within budgets. The Broads Authority has restricted control over some processes and therefore its actions in these cases will be limited to influence and persuasion. This is likely to be more powerful if backed up by at least semi-quantitative evidence. Furthermore it is unclear how the implementation of emerging European directives and national policy will affect the prioritisation of Broads objectives and management options in the future.

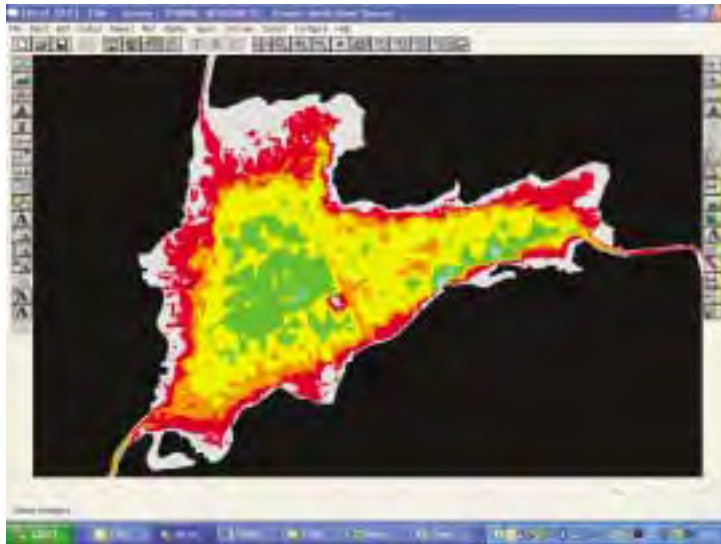
All recommended actions and sediment sources are evaluated within a management context in the report, in order that any programmes initiated as a result of this study support management decisions rather than purely scientific interest. It is of course to be recommended that where science funding is available this is also sought to enhance actions taken by the Broads Authority.

Sediment management units
within the Broads
catchment

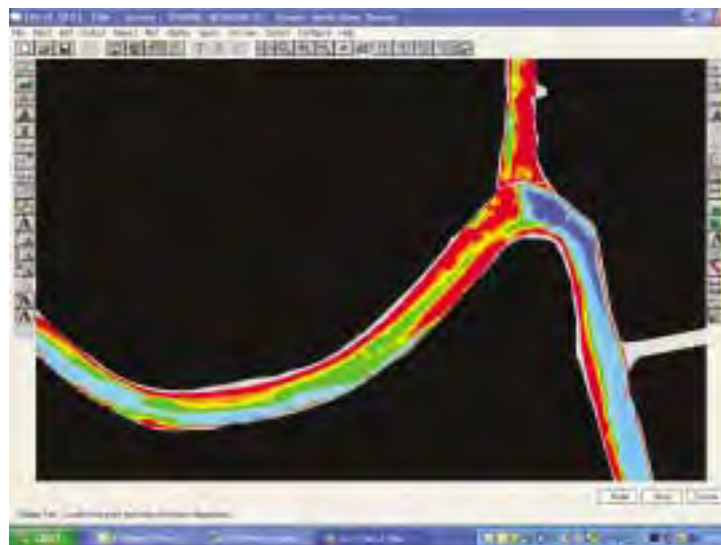


The hydrographic survey was undertaken from a vessel equipped with an Ohmex SonarLite echo sounder with Trimble DGPS/RTK positioning equipment, all logged by Trimble HydroPro Software. The SonarLite echo sounder operates with high frequency transducers at 235 KHz, which will take soundings to the top of soft silt. To define the hard bed, a 30 KHz transducer is required. The transducer has an accuracy of (+/-) 0.01 m, and a range of 0.3 m to 100 m. Real time positioning is achieved with the Trimble DGPS/RKT system, and will locate the position of the receiver in x, y, z coordinates. In combination with the depth soundings this data is then reduced to provide an x, y, z coordinate for each data point, corrected to Ordnance Datum, Newlyn. Data have been provided to the Broads Authority in LSS survey file format from which contour charts can be produced, and with hard copy cross sections at regular intervals.

Contour plan of Horsey Mere to identify depths. The red shaded area indicates non-compliance with the waterway specification.



Thurne Mouth



The development of the ideal navigable envelope cross section profile was achieved after considering the following points:

- Depth established by waterway specifications.
- The width of the channel at the agreed depth has been established at $\frac{2}{3}$ the overall width. This profile allows dredged volume to be minimised as well as recognising the need for a sufficient width for all types of boating activity.
- The 1:3 side slopes allow a stable profile for the further encouragement of littoral vegetation, and are appropriate for the nature of bed material, where a steeper slope is likely to result in slumping.

The adopted profile recognises the design of recent flood defence works, through the Broadland Flood Alleviation Project, and establishes a benchmark.

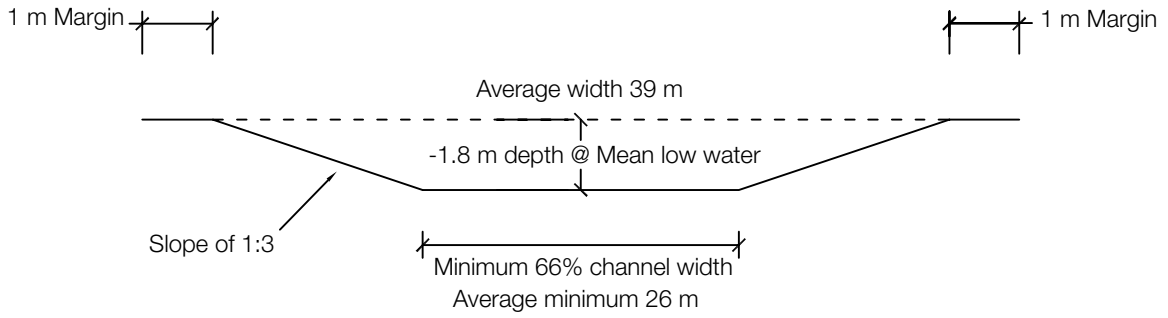
It is anticipated that through the removal of hard defences, the rivers will likely become mobile, and this approach will allow meanders to develop. Intervention will then only be required where the envelope is compromised and the Environment Agency or its contractors will carry out any required channel reinstatement.

Various site-specific profiles shown overleaf have also been developed for each management unit following analysis of the hydrographic survey data. However, it should be noted that for narrower piled river sections the adopted envelope reflects these existing conditions, to protect the navigable width from future developments. Likewise, specifications will be amended alongside Broads Authority moorings to ensure adequate depth alongside the quayheading.

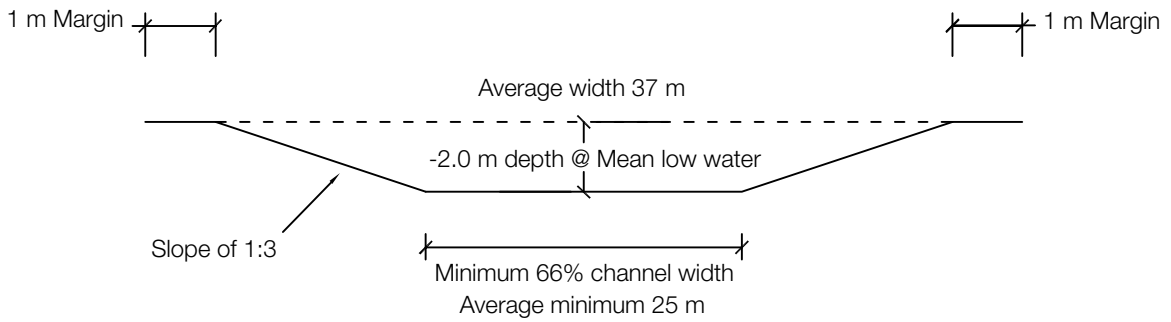
User waterway specifications (not to scale)

Depth below average water varies according to waterway specifications

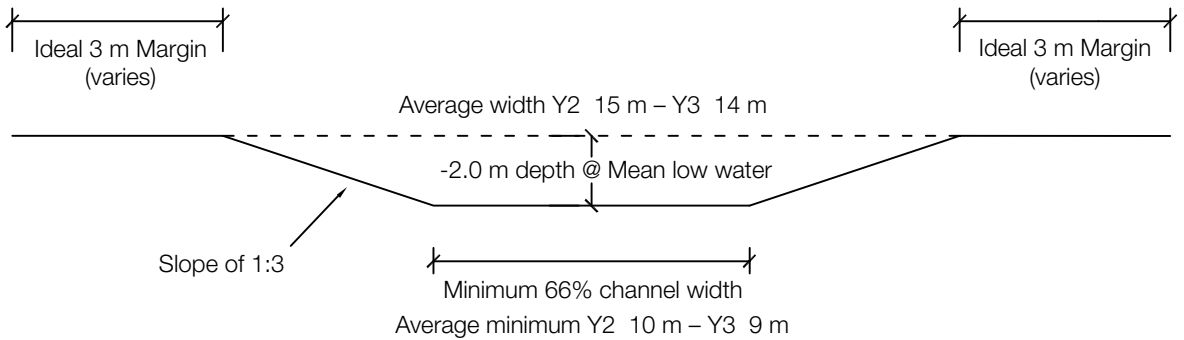
Burgh St Peter to St Olaves – Area W3



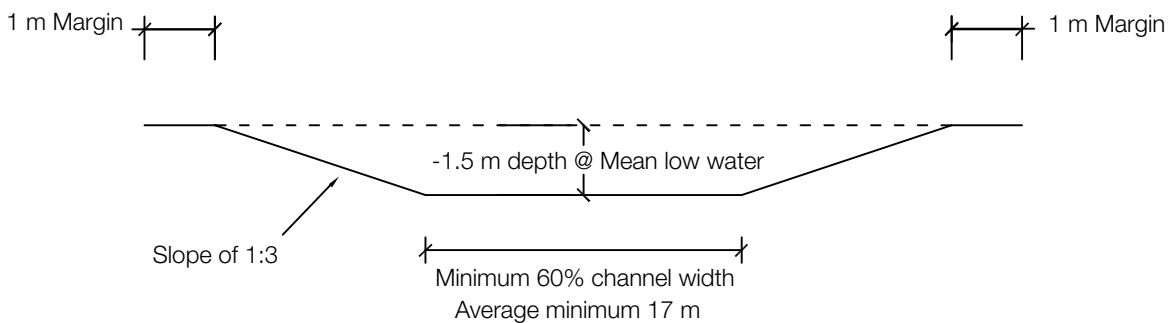
St Olaves to Breydon Water – Area W4



Bargate Dykes – Area Y2 Rockland Dykes – Area Y3

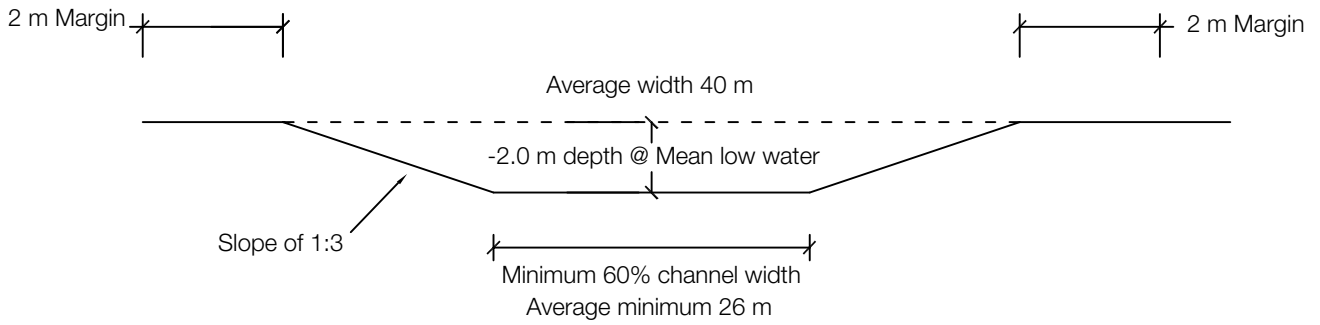


Horstead to Wroxham – Area B2

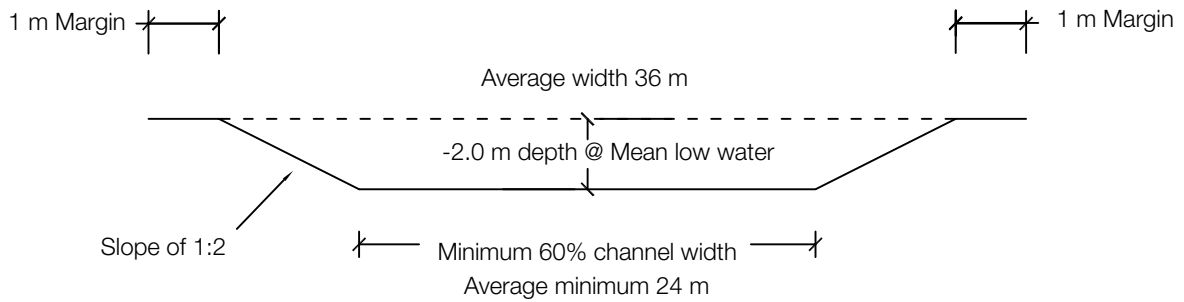


User waterway specifications (not to scale)

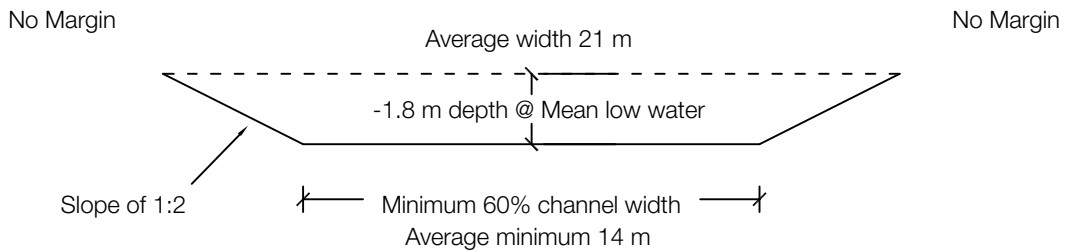
Wroxham to Acle – Area B3



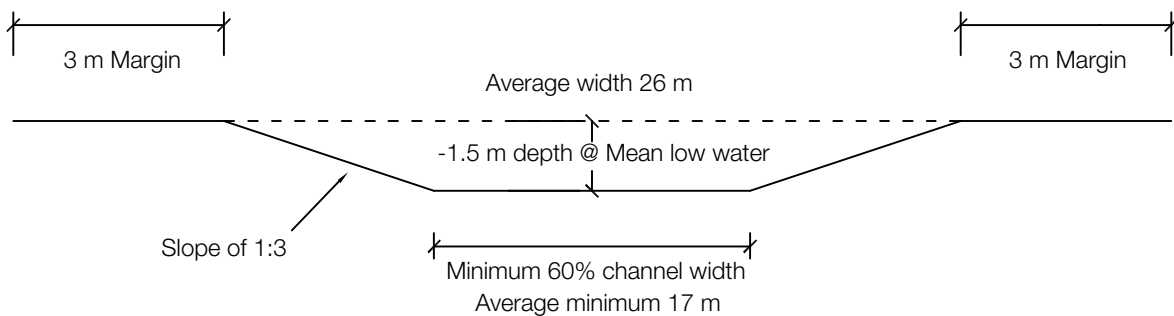
Downstream of Acle – Area B4



Downstream of Barton Broad to Ant Mouth – Area A2

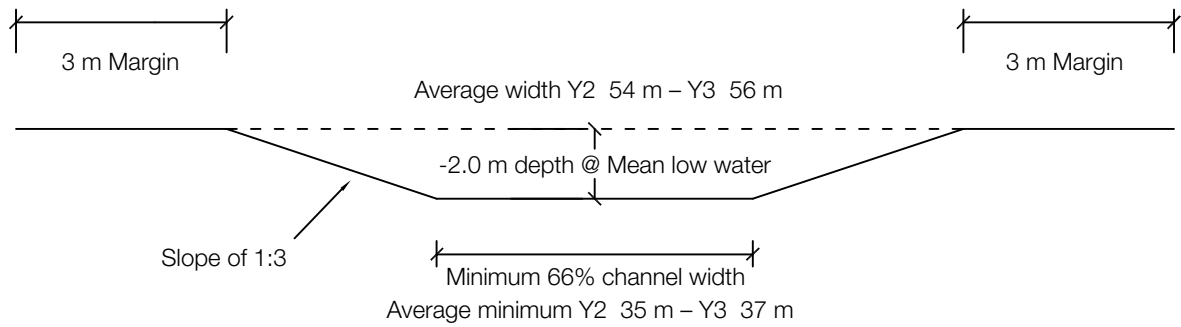


Brograve Mill to Thurne Mouth – Area T2

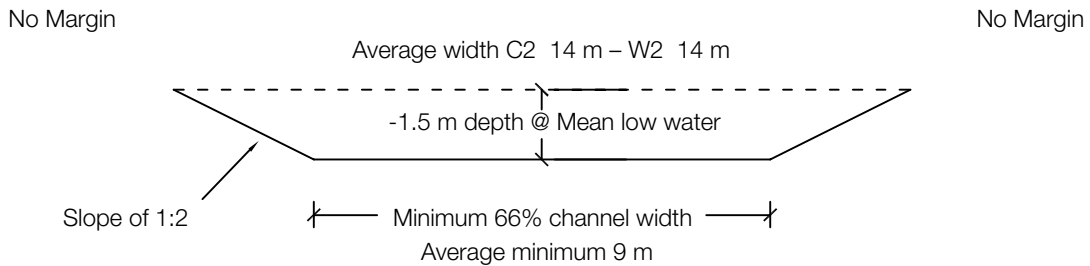


User waterway specifications (not to scale)

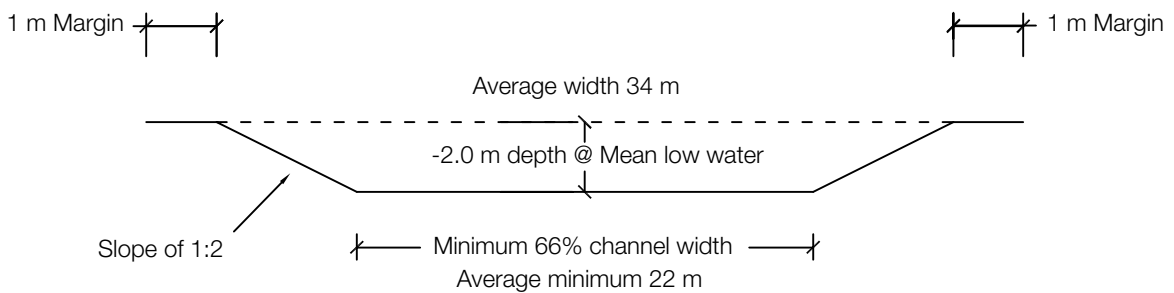
New Mills to Brundall – Area Y2
Brundall to Cantley – Area Y3



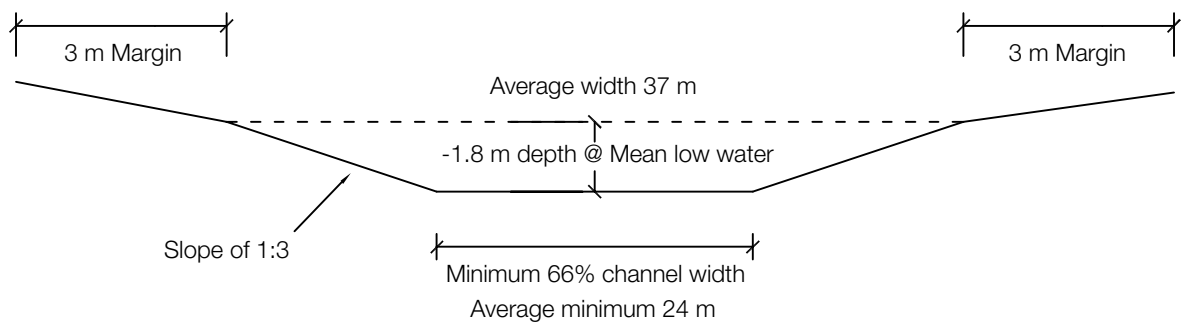
Loddon to River Yare – Area C2
Geldeston Boat Dyke – Area W2



Geldeston to Burgh St Peter – Area W2

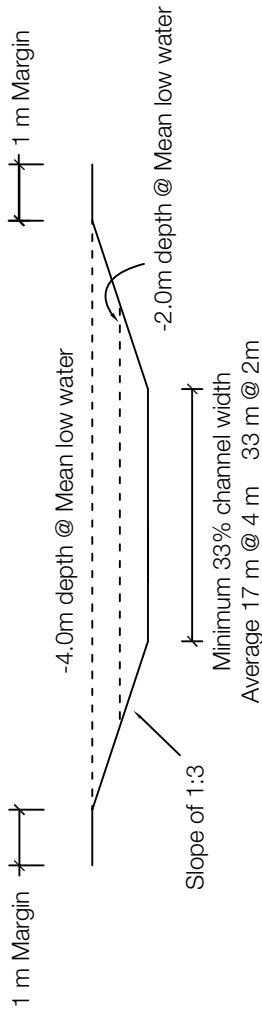


Oulton Dyke to Oulton Broad – Area W3

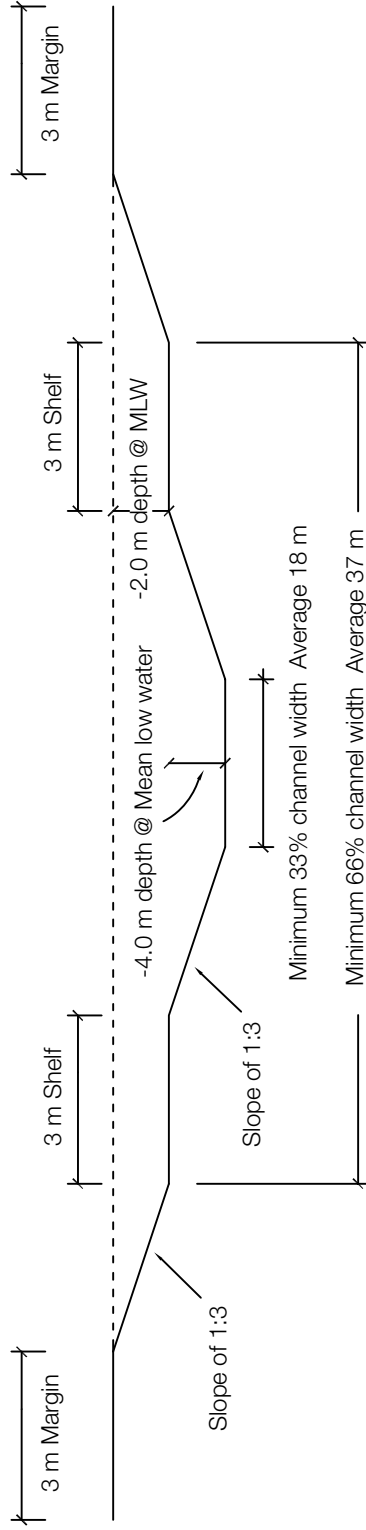


User waterway specifications (not to scale)

Reedham to Breydon Water and Breydon Main Channel – Area W4



Cantley to Reedham – Area Y3



Haddiscoe Cut – Area W4

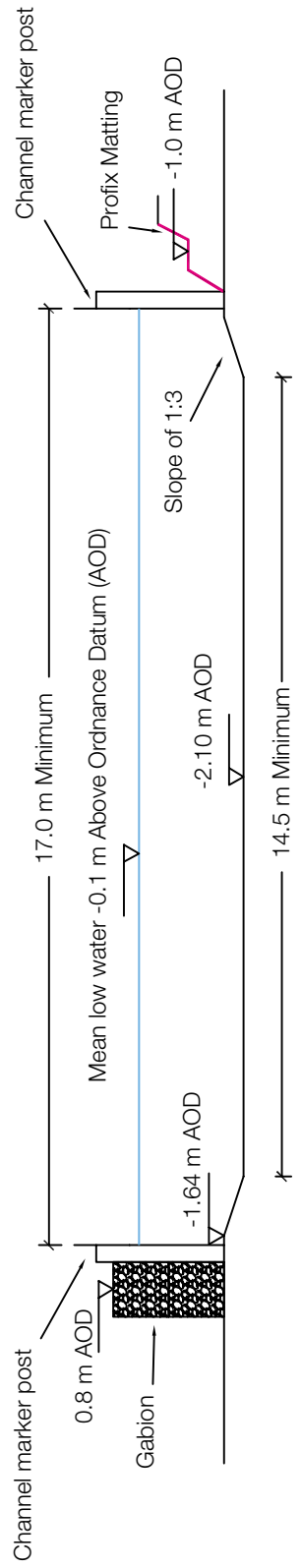
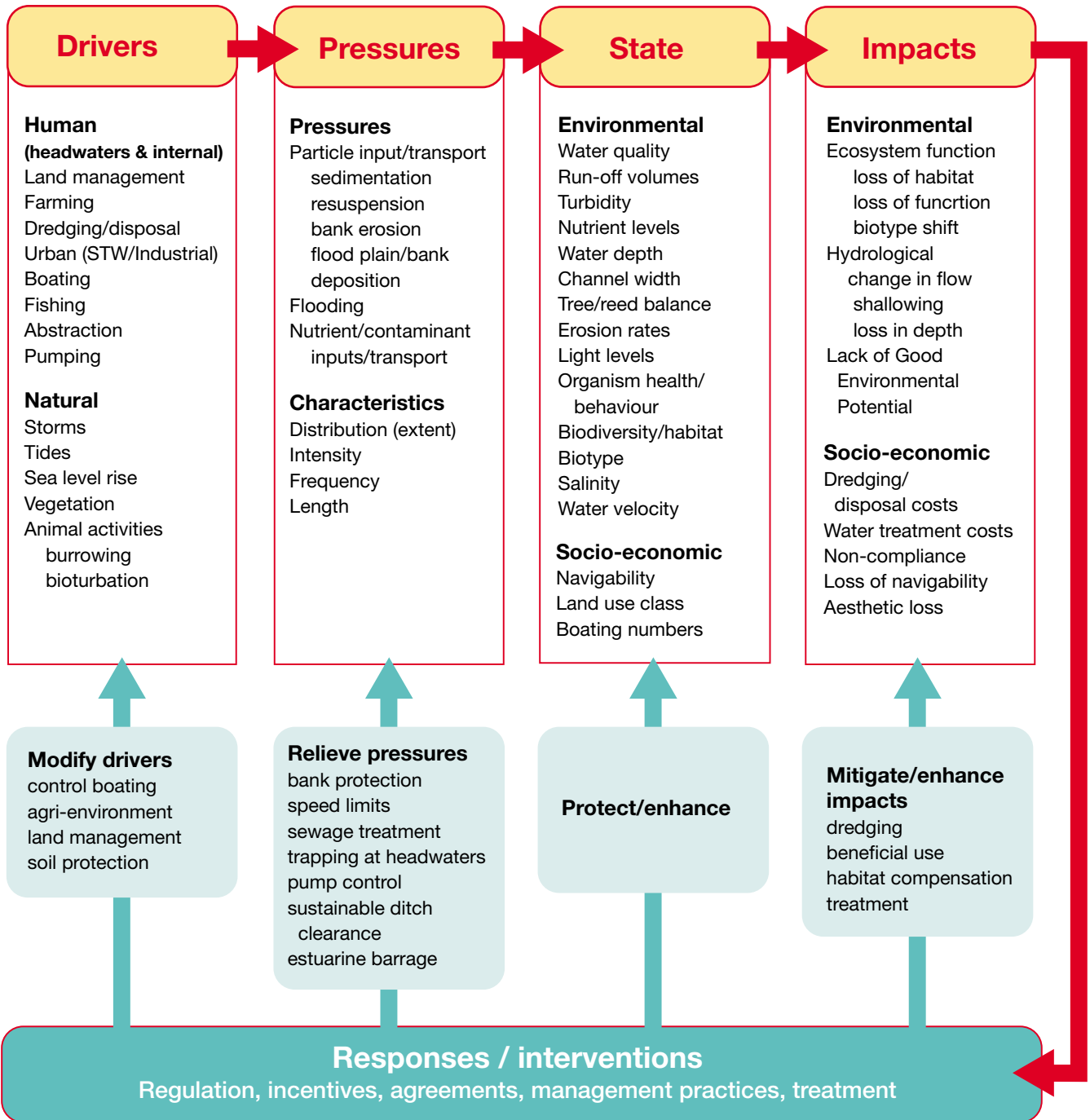


Figure 6
DPSIR framework for
Broads Sediment
Management



Source control techniques



Mike Page

New Mills sluice

Headwaters

Within the desk based study headwaters were considered as a separate management unit. In themselves, each upriver area is subject to diffuse pollution from agricultural sources, bank erosion and other inputs. However, at the boundary with the Broads area they enter the system as a point source and so could be tackled in alternative ways.

The Environment Agency with DEFRA and Natural England, is currently completing a Pilot Study in the Wensum Valley, working with farmers and agronomists to improve land management methods to reduce diffuse pollution within the sub catchment, and this should eventually result in a reduced input through the New Mills sluice at the head of navigation on the River Wensum as well as improving the water quality within the upriver SSSI. Higher Level Schemes promoted by Natural England also encourage better soil management to farmers within the Broads and wider catchment areas, although the take up cannot be targeted or guaranteed.

Alternatively, silt traps could be established upriver of the sluice, which, if regularly cleaned out could also reduce the amount of sediment coming through the sluice.

Bank erosion



Broads Authority

Martham bank restoration

There are a number of techniques to tackle bank erosion, both locally and strategically.

1. Erosion protection works

- a. These are set out in detail within the Waterway Bank Protection Reference Manual (Environment Agency 1999), along with a methodology for selecting the appropriate technique for any given situation.
- b. Flood defence works currently undertaken by Broadland Environmental Services Ltd on behalf of the Environment Agency involve removing hard defences to promote a more natural and sustainable riverbank edge. Works to agree the monitoring methodology and trigger levels for remedial works are currently in progress, and the risk of accelerated erosion in the short term has been recognised within a Memorandum of Understanding with the Broads Authority.

2. Vegetation management

Scrub clearance

Broads Authority



Scrub clearance and promotion of reed growth are effective in providing natural banks, which have the ability to absorb and dissipate wave energy thus reducing erosive forces.

3. Boat control measures

- a. Numbers – the Broads Authority currently has no power to limit the numbers of boats registered within the area. Using the Boat Census data it is possible to recognise that whilst numbers remain stable there is a change in the composition of the fleet which is reflected by the declining trend of boat movements since the 1980's, primarily due to the declining hire boat industry.
- b. Speed – Speed Limit byelaws were introduced in 1992 and the Authority employs Navigation Rangers to patrol the rivers to provide advice and assistance, as well as enforce all navigation byelaws. Speed Limit compliance monitoring recently

Navigation ranger using radar gun

Broads Authority



carried out showed a high incidence of vessels exceeding the speed limit although the majority was exceeding by less than 1 mph. Further measures could include requirements for speed indicators to be provided on board vessels to improve boaters' ability to

control the vessel, a greater level of patrolling, more speed limit signs, and well publicised enforcement action/prosecutions. Work is ongoing looking into the effectiveness of each of these techniques, to improve future management.

- c. Wash – boat wash could also be reduced through hull design and the Authority is working with the Anglia Boatbuilders Association through grant aid and technical support on the development of an Ecoboat, to be used in promotion of sustainable boating.

Boat travelling with minimal wash



Peter Howe

4. Wave action

It is not possible to reduce tide or weather generated waves/erosive forces, but by promoting reed growth as stated above this energy could be dissipated.

Point sources

There are a number of point sources identified within the Broads area, eg Internal Drainage Boards outfalls, Sewage Treatment Works (STWs) outfalls, highway drain outfalls. These could be tackled physically through silt traps. Imposing conditions regarding level of suspended solids within discharge consents given by the Environment Agency can only be applied to STWs.

Organic material

The amount of siltation within the Broads attributable to organic material is currently unquantified but could include:

1. **Algal deposit** – water quality improvements within the system will hopefully eventually lead to a reduction of algae within the water column.
2. **Leaf matter** – Tree and scrub clearance on riverbanks and ronds will reduce this input, although some areas of vegetation will be preserved as identified in the Tree and Scrub Guidance document, to maintain a mosaic of habitats. Overhanging trees that create a hazard to navigation will be managed.
3. **Aquatic plants** – Material produced through the die back of aquatic plants may be a local issue, but it is believed that where these exist there is a corresponding decrease in algae which have a very rapid turnover thus the comparative volume is lower.

Marine input

Again, this element of source is unquantified but is believed to be a limited issue, confined to lower reaches only. There are no control measures or techniques that could reduce marine inputs other than physical barriers but that would be a disproportionate response to a minor input.

Resuspension

Whilst there continues to be a high level of material already within the system resuspension can provide a recycling of sediment within the system. This could mean sediment moving from areas where it does not pose or create difficulties into more sensitive areas, possibly only moving under storm or flooding events where the energy within the channel is greater than usual. Control measures could include:

- Bed stabilisation by vegetation growth, where plant roots could assist to bind sediments. This can only be achieved where water quality is good, and the level of disturbance is likely to be low, eg within biomanipulation barriers or closed water bodies.
- Deepening to increase under keel clearance by dredging or in-channel techniques would reduce the likelihood of bed disturbance by prop wash in shallow reaches. However, if navigation passage is not impeded by water depth it could be considered that dispersion of the disturbed sediment by vessels may be more sustainable than dredging intervention.

In situ treatments

In-channel techniques exist which can be applied at sediment receptor sites (areas of accumulation) to relocate sediment within the water environment. These include:

- (i) **Water injection dredging** – low-pressure water is introduced to the surface sediments in order to create a density plume, which will flow under forces of gravity, tidal flow and differential pressure into low areas. The area of dispersion will depend upon particle size but has been widely used by ports and harbours where the disturbed sediments could not be subsequently identified.
- (ii) **Ploughing** – this is a more controlled technique where material is moved physically by dragging the plough from shallow to deeper areas, either for deposit or natural dispersion by tidal or scouring action.
- (iii) **Agitation dredging** – bed material is disturbed by blades/chains to put sediment into suspension throughout the water column and again dispersion is achieved by tidal flows.

These techniques have the additional benefit that they do not require disposal of material arising from the works, and so can be a cost effective means of delivering increased water depth.

Dredging techniques

Grab dredging at Five Mile bends River Yare



R N Flowers

Grab

The traditional dredging technique used within the Broads for the last 40 years, grab dredging uses a clam shell bucket suspended from a crane jib and is usually operated by wires to dig material from the bed of the waterbody eg River Yare, shown above.

Due to the difficulty of bank side access the dredger is usually water borne, and towed into position by a tug. This method is relatively controlled, works within a confined area and removes sediment from the water environment. The jib is usually sufficient length to place material ashore if allowed, but otherwise is used in combination with barges to transport the spoil to an agreed disposal site. Disturbance of the sediments can create an increase in suspended solids within the water column locally, although this is relatively low. A more significant source of sediment to the water column can arise from spillages from the bucket, either from over filling, poor seals or premature opening. The clam shell bucket can also result in an uneven bed profile, with 'bites' being seen when examined by divers.

Hydraulic excavator

Broads Authority



In order to try and reduce the risk of spillage of dredging spoil, works have been undertaken to trial hydraulic backacters which are used by other inland waterways and considered by the CIRIA document 'Inland Dredging - guidance on good practice' report 169, to produce low levels of suspended sediment.

Our experience demonstrated that the level of operator skill is a prime factor in the control of spillage, for example an open bucket slewing at an inappropriate speed could cause spillage. Additionally, a smoother channel profile could be achieved, eg Catfield Dyke approach channel. Unless using a long reach excavator, there is a reduced ability to place material directly to the bank side, so the plant must be supported by barges.

Suction dredging

Cutter suction dredging can be used within the Broads, and uses an auger to disturb the sediments, which is then sucked into a pump and can be transported significant distances. This technique is most controllable, does not produce suspended solids at the point of use and provides a very smooth bed profile.

However, to transport the sediments high volumes of water are also taken up through the pump, with a low percentage of solids (usually 10%). The resultant material requires dewatering and probably requires construction of lagoons to manage the process. The excess water can be returned to the waterbody, but suspended solids need to be settled out first to ensure no local pollution at the discharge point. The material may take significant time to dry sufficiently to be rehandled and the area reinstated.

Suction dredger - as used at Barton Broad



Sediment lagoons - constructed to receive pumped silt and clean the return water



Mike Page

Combined dig and pump

In order to increase the opportunities for beneficial reuse of dredged material trials have been undertaken using a concrete pump, which can transport materials without the need for adding water. This means that materials produced through traditional dredging techniques can be transported to an appropriate site and offloaded from the barge and placed over a greater area using a pipe. This decreases the disturbance otherwise incurred using dumpers or other heavy earth moving equipment, which may also be restricted due to the marshy ground conditions eg St Benet's.

Dredgings from Thurne Mouth offloaded from barge and pumped over St Benet's site



Land & Water Services

Disposal of dredgings

As discussed in the Sediment Management Strategy, before reviewing the following methods for disposal, subject to the sediment quality, any dredging project should first consider mechanisms to reduce or minimise material arising from the dredging by considering the specification for works.

Beneficial reuse

Where at all possible projects should aim for beneficial reuse of the dredged material. When designing the project initially sediment quality from the sediment characterisation survey database should be reviewed and a site specific sampling survey should be completed if required to help refine possible options, which will be limited by contamination levels, particle size, organic content etc.

Possible options include:

- Habitat creation eg Bure Loop salt marsh creation, where dredged material was used behind a rock toe to build up a sub tidal mud flat outside the navigation area to develop a salt marsh community.
- Land spreading for agricultural benefit eg Barton Broad lagoons.
- Flood defence works, eg marsh raising in set back areas to create new reeded ronds such as Seven Mile House. Dredgings can also be used to provide backfill to erosion protection measures such as alder pole piling, gabions, or within geobags. Additionally, direct crest raising has been carried out where treatment using mobile plant has been trialled to blend dredgings with other materials eg Land & Water trial at Cantley sugar beet factory, where the resulting material was used within the Langley marshes flood wall.
- Land raising, where low-lying land requires works to improve the amenity of the site. In the case of St Benet's Abbey shown above and below, the works were required to help stabilise the adjacent historic remains of a Scheduled Ancient Monument.

The best management projects are those which can deliver multiple benefits eg Bure Loop, St Benet's Abbey, working with partners to ensure added value is achieved in all stages of the project and promoting all of the Broads Authority's statutory duties.



Land & Water Services
Land raising at St Benet's Abbey

Exemptions from Waste Management Regulations

Traditional Broads dredging has been completed by placing material on adjacent river banks eg River Chet and this activity is still permitted via an exemption within the Waste Management Regulations 1994, Schedule 3, Paragraph 25.

A symbiotic relationship has existed between navigation maintenance and flood defence, with material being used over generations to build up adjacent river walls. However, within the Environment Agency's Broadland Flood Alleviation Project the principle of set back which has been adopted means that the new walls are a significant distance from the river edge, the specification for construction materials is much tighter and the timing of works do not necessarily coincide. Additionally, other consents and permissions are required which can include landowners, conservation agencies and local councils, and these factors combined with practical issues of reach, transportation distance etc can mean that this option is often not possible.

Paragraph 7a of the Waste Management Regulations 1994 allows for land spreading activity where benefit to agriculture or ecological benefit can be demonstrated eg Barton Broad as shown above and also complies with the Code of Good Agricultural Practice. The amounts of material are limited both in terms of volume via a restriction placed on the exemption, but more significantly is dependent upon the level of nitrate within the material. Current legislation does not recognise the benefit of recycling this nutrient following its removal from the waterbody, and is concerned at the possible release to groundwater.

Paragraph 19a of the Regulations allows for dredged material to be used within construction projects, although this is limited to drainage works. Projects such as the provision of material for building up flood walls would fall into this bracket, along with reuse of dredged material for marsh raising within Broadland Flood alleviation Project set back areas.

Paragraph 9a of the Regulations exempts the spreading of waste from dredging any inland waters on any land in connection with the reclamation or improvement of that land, provided that:

- By reason of industrial or other development the land is incapable of beneficial use without treatment
- The spreading is carried out in accordance with a planning permission for the reclamation or improvement of the land and results in benefit to agriculture or ecological improvement
- No more than 20,000 m³ per hectare of such waste is spread on the land.

Recycle

¹ The strength of a soil depends on its resistance to shearing stresses. Resistance to shear is provided by internal friction (interlocking of soil particles) and/or cohesion ("stickiness" tending to hold soil particles together).

Where immediate reuse of the material cannot be achieved due to its nature, treatment through dewatering, composting, or chemical stabilisation, could be used to create construction materials.

There are no examples in the Broads other than simple in situ dewatering through lagooning or mobile plant use, but it can be shown that these processes can advance the use of the material by improving its handling characteristics as well as improving other factors such as material shear strength¹.

Experiences reported from Belgium have identified that whilst there has been a big push for reuse and recycling of dredged material there are significant difficulties including low customer confidence, variable supply, limited market etc, therefore they have achieved a very limited success.

Landfill

The Broads Authority has a single licensed site, at Postwick Tip. This site had been in use for many years, to receive dredgings from the urban areas of Norwich and suburbs but subsequent to the Waste Management Regulations the licence was suspended pending a Regulation 15 risk assessment needed to determine risk to groundwater. The site was reopened in 2001 and is licensed to receive lightly mercury/copper contaminated materials which can be found within an 18 km stretch of the Rivers Wensum and Yare. Due to the limited capacity of the site disposal of uncontaminated waste is discouraged, to preserve the availability to deal with material which would otherwise have to go to commercial landfill.

There has previously been a network of historic sites around the Broads, usually adjacent to open waterbodies, which have been used to receive dredged material. Due to changes in waste legislation and site designations, all of these sites are now closed, and will require some level of restoration.

A strategic network of new sites will likely be required to be developed, which will have to have waste management licences, although it has been agreed that these sites will fall outside the scope of the Landfill Directive and as such will not require a Pollution Prevention Control permit.

Postwick Tip



Mike Page

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ANNEX F
Hazard Identification Sheet

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F1.1	Introduction	F-5
F1.2	Hazard Identification Sheet	F-5

F1 HAZARD IDENTIFICATION SHEET

F1.1 Introduction

F1.1.1 This Annex to the Broads Authority Safety Management System contains the Hazard Identification Sheet that was used for the Formal Safety Assessment undertaken in 2003.

F1.1.2 In the interests of consistency, it is suggested that the form may be used for future Hazard Identification Meetings. The sheet may also be used for the identification of individual hazards.

F1.2 Hazard Identification Sheet

F1.2.1 The sheet is overleaf.

HAZARD IDENTIFICATION WORKSHEET

Item	NODE / KEYWORD	HAZARD	CAUSES	CONSEQUENCES	SAFEGUARDS	RECOMMENDATIONS/ ACTIONS/ COMMENTS

ANNEX G

Risk Assessment Instructions and Form

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G1 RISK ASSESSMENT INSTRUCTIONS AND FORM

G1.1 Risk Assessment Instructions

The following instructions describe the Risk Assessment form and explain how to complete each part. It takes the form of a fragment of the Risk Assessment Form, followed by a description of data required to complete for form.

LOCATION	DATE	ASSESSMENT NO.
TASK	WHO IS INVOLVED	
DATE OF LAST ASSESSMENT		DATE OF NEXT ASSESSMENT

- LOCATION:** Location of risk
- DATE:** Date of completing form
- ASSESSMENT No:** These should be sequential and prefixed with the assessor's initials
- TASK:** A very brief description
- WHO IS INVOLVED:** Persons who risk effects
- DATE OF LAST ASSESSMENT:** Date assessment was first carried out
- DATE OF NEXT ASSESSMENT:** If the initial risk factor is 2 or less, this would be 2 years from the date of this assessment. If the initial risk factor is 3 or more, you may recommend a shorter period

MAIN HAZARDS OF THE TASK

Enter only the main hazards; all significant hazards are listed on the back of the form. no special precaution need not be recorded.

When attempting to identify a hazard, you should consider:

- *Is there a source of harm?*
- *Who (or what) could be harmed? Also consider what is in the hinterland e.g. schools or play areas and record this.*
- *How could harm occur?*
- *Risks to those carrying out the task*
- *What could go wrong?*

Hazards could be:

- *Mechanical*
- *Electrical*
- *Physical*
- *Radiation*
- *Substances (including toxic fumes)*
- *Fire*
- *Explosion*

CONSEQUENCE

	SLIGHTLY HARMFUL	HARMFUL	EXTREMELY HARMFUL
HIGHLY UNLIKELY	1	2	3
UNLIKELY	2	4	6
LIKELY	3	6	9

INITIAL RISK FACTOR FROM MATRIX = 6

THIS IS THE RISK FACTOR BEFORE ANY ACTION IS TAKEN BELOW

Select the expression for degree of harm (**consequence**) which most applies to the hazards of the task.

Slightly Harmful: Superficial injuries; nuisance and irritating or short term ill health; burn with no short-term disability.

Harmful: Lacerations; fractures other than skull and back; exposure to infectious diseases leading to minor

disability. Deafness; Asthma; ill health and burns leading to permanent minor disability.

Extremely Harmful: Amputations; fractures to skull and back; severe poisoning; fatal injuries; severe life shortening disease; acute fatal diseases; ill health and burns leading to permanent major disability.

In assessing the **likelihood**, the following should be considered:

- Number of personnel exposed
- Frequency and duration of exposure
- Effects of failure of power
- Effects of failure of machinery
- Exposure to the elements
- Protection given by PPE
- Any personal lack of knowledge by operator.

Having considered the above, select **Highly Unlikely, Unlikely** or **Likely** on the basis of:

- **Highly Unlikely: Once in 20 years**
- **Unlikely: Once in 10 years**
- **Likely: Once a year or more frequently**

CONTROLS AND PPE REQUIRED FOR THE TASK

List any controls or equipment in place that are there to minimize or reduce the risk (e.g. gloves, safety shoes, training).

COMMENTS AND ACTIONS REQUIRED TO CONTROL RISK	APPROVED BY MANAGEMENT		DATE ACTION COMPLETED
	SIGNED	DATE	

This section shows any additional precautions that are felt to be necessary:

- These must be approved by the appropriate manager who must sign and date the form.
- This manager is responsible for ensuring that the actions are taken and sent out the date on which they are completed.
- This should be completed in all cases; however, it is expected that in many cases the entry will be NIL.

RISK FACTOR WHEN ABOVE CONTROLS ARE IN PLACE

2

The Risk Factor in this section is the Reduced Risk Factor after all controls are in place.

If the risk factor is 3 or above, recommendations should be made to reduce the risk as low as reasonably practicable.

Signature of Assessor _____

Signature of Reviewer _____

This form should be signed by the assessor, e.g. yourself

The reviewer section is to be left blank, as it is completed by the manager responsible for reviewing the assessment and agreeing any action suggestion.

G1.2 Risk Assessment Form

The Risk Assessment Form overleaf should be used for all formal Risk Assessments undertaken.

RISK ASSESSMENT FORM

LOCATION		. WHO IS INVOLVED	
TASK/S			
ASSESSMENT No	DATE OF LAST ASSESSMENT	DATE OF NEXT ASSESSMENT	

	MAIN HAZARDS OF TASKS	INITIAL RISK FACTOR No.	REDUCED RISK No.
1			
2			
3			
4			
5			

CONSEQUENCE

	SLIGHTLY HARMFUL	HARMFUL	EXTREMELY HARMFUL
HIGHLY UNLIKELY	1	2	3
UNLIKELY	2	4	6
LIKELY	3	6	9

CONTROLS AND PPE REQUIRED FOR THE TASK	
1	
2	
3	
4	
5	

COMMENTS AND ACTIONS REQUIRED TO CONTROL RISK	APPROVED BY MANAGEMENT		DATE ACTION COMPLETED
	SIGNED	DATE	

Signature of Assessor _____

Signature of Reviewer _____

Date Review Carried Out _____

ANNEX H
Passenger Craft (Electric Eel)
Safety Inspection Sheets

NOTE

These documents are retained in their original native format.

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H1.4 Daily Inventory Check Sheet	H-6

H1 PASSENGER CRAFT SAFETY INSPECTIONS

H1.1 Introduction

H1.1.1 This Annex contains safety inspection check sheets for the Broads Authority passenger boat "Electric Eel".

H1.1.2 Similar check sheets exist for the Authority's other boats.

H1.1.3 The check sheets comprise:

- a. Daily Check Sheet
- b. Weekly Check Sheet
- c. Daily Equipment Inventory Check

ANNEX I

Workboat 7 Day Check List

NOTE

This document is retained in its original native format.

7 Day Check List

These checks are vital for the health and safety of inspectors
They help to keep up the standard of each launch and its equipment

SIGN 

DATE 

ENGINE COMPARTMENT

WATER FILTER

ENGINE OIL LEVEL

COOLING WATER LEVEL

FUEL LEVEL OK

CHECK FOR OIL / COOLANT LEAKS

GEAR BOX OIL LEVEL

VISUAL CHECKS CABLES / LINKAGES

SALVAGE PUMP HOSES - INCL NOZZLE & SUCTION ADAPTOR

SALVAGE PUMP – RUNWITH ALL HOSES CHECKED

ENGINE OIL

GEAR OIL

DISTILLED WATER

CLEAN BILGE

AFTER WELL

FENDERS 4

MUDWEIGHTS 2

BRUSHES 2

TOW ROPE

BOW ROPE

STERN ROPE

GRAPPLING ANCHOR 1

TILLER

GREASE PUMP FOR STEERING TURNED – REFILL IF EMPTY

LADDER

BOATHOOKS 2

ROTARY SEAL / STERN GLAND & WATER LOCK OK

CHECK COOLANT EXHAUST PIPE AFT WELL NOT LEAKING

CLEAN BILGE

CENTRE WELL

GAS BOTTLE SUFFICIENTLY FULL

BUBBLE TEST

CLIP ROPE

BREAST LINES

BATTERY FLUID LEVEL OK - IF NOT, TOP UP

BUCKET

MALLET

ROND ANCHORS 2

DUSTPAN AND BRUSH

BILGE PUMP HANDLE

BILGES PUMPED

CLEANING MATERIALS

LEATHER

CLOTH

LONG GLOVES

STEERING AND THROTTLE OK

FIRE EXTINGUISHER.....IN DATE.....IN GREEN

CABIN AND FOREPEAK

FIRE EXTINGUISHER.....IN DATE.....IN GREEN

LAUNCH DIARY

ENGINE HOURS BOOK

LAUNCH NOTEPAD

VHF RADIO

NAVIGATION LIGHTS

BLUE LIGHT

SEARCHLIGHT

INSTRUMENT LIGHTS

CABIN LIGHT

DECK LIGHT

HEATER

WINDSCREEN FANS

RADIO

WIPERS

CIGARETTE LIGHTER

ANNEX J

Lifebuoy Daily Check List

NOTE

This document is retained in its original native format.

DAILY LIFEBOUY SAFETY CHECK FORM

The purpose of this check is to ensure that lifebuoys are available and suitable for emergency use on a daily basis.

The check must comprise of the following

- Each lifebuoy is in place and appears usable
- The lifeline is attached, in good condition and coiled for emergency use.
- Any attached light is correctly positioned in its holder and the bulb and lens are in situ.

On discovering a defect **immediate action** must be taken to rectify the defect. Spare lifebuoys and lines will be issued to each venue to immediately replace defective or missing apparatus. Carrow Bridge **must** be informed of any delay and in order to replace items used.

Location **Norwich** Number of lifebuoys to check **6**

Date & Time	Tick if All correct	If not write defect Details below	Actions taken	Signature

Please return this form to Robin Allard at the Field Base at the end of each week (Sunday)

ANNEX K

Communication Strategy

NOTE

These documents are retained in their original native format

Communications Strategy

November 2012



Communication Strategy 2012

Contents

1. Introduction
2. Vision & Key Messages
3. Name and Status
4. Internal Communications
5. External Communications
6. Methods of Delivery to External Audiences
7. Emergency Communication Plan
8. Guiding Principles
9. Monitoring Effectiveness
10. Responsibility and Review

Appendices

Appendix 1: Communications Action Plan 2010

Appendix 2: Emergency Communication Plan & Contact Information

Appendix 3: Schedule of Updates/Repairs to Interpretation, Signage etc

1 INTRODUCTION

The purpose of this Communication Strategy is to set a framework to enable the Broads Authority to successfully raise awareness and promote understanding of the Authority – its duties, achievements and area – on a local, national and international stage. It will also enable effective and meaningful two-way communication between the Authority and its key audiences.

The Authority's core purposes are set out in the Norfolk and Suffolk Broads Act 1988, as amended by the Natural Environment and Rural Communities Act 2006. They are:

- to conserve and enhance the natural beauty, wildlife and cultural heritage of the Broads;
- to promote opportunities for the understanding and enjoyment of the Broads by the public; and
- to protect the interests of navigation.

None of these three purposes takes preference.

We must have regard to:

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

Our responsibilities are almost identical to those of a national park authority but with the additional third purpose for navigation. As well as being the local planning authority, the Authority is a navigation and harbour authority with responsibilities that include:

- maintaining the navigation area for the purposes of navigation to such standard as appears to the Authority to be reasonably required; and
- taking such steps to improve and develop it as it thinks fit.

Effective and efficient communication is essential to promote the Authority's work, to explain why the Broads is important in a national and international context and to help people value, understand and enjoy the Broads in ways which protect and enhance its special natural and cultural qualities as well as its sense of space and tranquillity. Every day the Broads Authority gives out

messages about the kind of organisation we are, our values, the work we do and how we use the responsibilities we have, as well as how we treat and value our staff and visitors to the area.

Communication is a shared responsibility for all staff and members of the Broads Authority because messages are given and received by:

- the experiences people have when they contact individual members or officers or visit any Broads Authority office, Tourist Information Centre, or event/attraction;
- the way people read and hear about us in the news and media or from others;
- how people see and experience the way we work in meetings and partnerships;
- the way we consult and use the results.

This strategy is for everyone and covers all forms of communication. It will be supported by guidelines for staff and members, and will include key messages and skills.

The objectives of this strategy are:

- to set a framework to ensure that the Authority's communications activities serve its organisational objectives;
- to ensure that staff and members feel well communicated with and have a common and clear understanding of, and commitment to, what the Authority wishes to achieve in both the short-term and the longer term, as well as how it proposes to achieve these ambitions;
- to ensure that staff and Members are aware of the key messages the Authority wishes to portray through its work and are proud to be ambassadors for the Authority;
- to ensure that managers are role models for effective internal communications;
- to ensure that the Broads Authority is seen as an organisation that celebrates success and shares learning and good practice;
- to ensure staff feel consulted and involved on key issues;

- to enable the development of clear, effective channels of communication with staff, members and stakeholders, including all those who live, work, visit or otherwise take an interest in the Broads;
- to outline a media strategy that positively promotes the Broads regionally, nationally and internationally in line with the vision and goals of the Broads Authority;
- to enable the promotion of the work of the Authority in a positive and appropriate manner to ensure that it is kept in the public eye and that the image of the Authority is one of an effective and forward looking organisation;
- to outline the Authority's approach to effective interpretation concepts, whether it be traditional methods such as leaflets and information boards or using new technology via websites, mobile phones etc; and
- to outline the concept of visitor centres as 'hubs' for promoting understanding of the Broads

By supporting and enabling the Broads Authority to communicate well with all its audiences, this strategy will also help the Authority to deliver its core purposes.

2. VISION AND KEY MESSAGES

The Authority's key external messages are based on its long term vision and priorities. They will be reiterated and retold using different techniques including narrative and imagery. Whilst remaining a consistent core, they may be developed and extended to fit changing objectives within the Authority.

VISION

The Broads Plan 2011 was developed through consultation and sets out the framework for managing the Broads until 2030 – jointly with our partner organisations – in order to deliver the aims and objectives set out in the plan.

This long term vision can be distilled into the following statement:

The Broads

'By 2030 the Broads will be an unrivalled wetland ecosystem of global, natural and cultural importance with a diverse and healthy environment supporting a wealth of wildlife. It will be managed through traditional and new approaches to respond effectively to change, particularly climate change and sea level rise. The thriving, living landscape will be known for its natural beauty and cultural heritage and as a wonderful place to live and work. It will be a model of a low carbon society with inspirational examples of sustainable living. The Broads will also be a place where everyone can discover the rich variety of the natural and historic environment and have the chance to value it as a place for escape, adventure, enjoyment and inspiration.'

In addition to the vision for the area outlined in the Broads Plan 2011, a branding exercise was carried out in 2010 on behalf of the Authority in conjunction with Broads Tourism – the forum for local tourism businesses. This resulted in a 'toolkit' for marketing purposes including the slogan: The Broads – Britain's Magical Waterland, a logo and guidelines for local businesses to use in order to promote themselves and the area.

It must be noted, however, that the brand extends far beyond this 'toolkit' and requires participating organisations to live up to the expectations of a 'magical waterland' in the quality of visitor experience offered.

KEY MESSAGES

The Broads is:

- (1) A member of the National Park family - an international family of protected places.
- (2) Rare and special - the UK's most extensive lowland wetland.
- (3) A great place for boating and the third largest inland waterway in the UK.
- (4) Home to a rich variety of wildlife including many rare species.
- (5) A welcoming place for everyone to discover and enjoy, both on land and water.

The Broads Authority:

- (6) Was set up to look after the Broads for the nation.
- (7) Is committed to managing the area in an integrated and sustainable way – socially, economically and environmentally.
- (8) Maintains the navigation area in the Broads.
- (9) Works to conserve and enhance the area's natural beauty.
- (10) Is committed to finding ways to mitigate the effects of climate change.
- (11) Works to ensure everybody can appreciate and enjoy the Broads.
- (12) Has expert staff and a renowned reputation.
- (13) Delivers high quality work and good value for money.
- (14) Consults stakeholders and local communities and listens to their views.

These can be distilled into a more concise message for members of the public who inquire about what we do along the following lines:

'The Broads is a member of the national park family. It is the UK's premier wetland and the 3rd largest inland waterway. The Authority's role is to look after the area and help people enjoy its special qualities. We strive to manage the Broads in a sustainable way, working with other organisations and local people. One of our key priorities is to help the Broads adapt to the effects of climate change and sea level rise.'

3 NAME AND STATUS

The Authority's name and status has been the subject of much debate but the Authority's position, confirmed by Defra, is that:

- the Broads has status equal to a national park
- the Authority is a member of the national park family.

According to the Broads Plan 2011 it is the stated intention of the Broads Authority to become 'a National Park where the public legal rights of navigation continue to be respected and embraced' by 2030. In the meantime when referring to the area, verbally or in writing, staff and members are encouraged to refer to the national park status of the Broads as much as possible and to use the term 'a member of the national park family'. The term 'The Broads National Park' is not to be used.

When using the name of the area and the organisation in formal written documents such as letter headings and bank account details always refer to 'the Broads' and 'the Broads Authority'. The only occasion on which Norfolk and Suffolk Broads are referred to jointly is in the title of the 1988 Act.

When referring collectively to the Norfolk and Suffolk Broads Act 1988 and the Broads Authority Act 2009 always refer to 'the Broads Authority Acts'.

4. INTERNAL COMMUNICATIONS

INTERNAL AUDIENCES

We want everyone working for and/or representing the Broads Authority to share the same organisational vision and priorities. Effective internal communications are vital to ensuring that our objectives – and how we go about attaining them – are not only understood but acted upon.

Staff and Volunteers

As at September 2012, the Authority employed approximately 110 permanent staff (plus a significant number of seasonal employees). Around 100 volunteers also actively contribute to the work of the Authority on a regular basis. All are a key asset both in

terms of communicating internally with each other, and representing the Authority and its work in a positive manner to external audiences.

Members

The Authority has 21 members, 19 appointed by local and national government and two appointed by the Navigation Committee. In addition there are six co-opted members appointed by the Authority to the Navigation Committee to represent different navigation interests. These members bring valuable local knowledge, understanding and experience of their communities and interests and the concerns that lie within them. They are ambassadors for the Authority and bear a key responsibility for its work and direction.

IMPORTANCE OF GOOD INTERNAL COMMUNICATION

Good internal communication is essential to ensure that staff and members:

- understand the Authority's plans, aspirations and priorities and how they contribute to achieving them;
- are well informed about the services the Broads Authority provides and how people can access them;
- are able to communicate effectively to external audiences what the Authority is doing and/or proposes to do and for what purposes;
- feel valued, well supported and motivated;
- feel able to contribute directly to organisational change and improvement;
- are proud to be ambassadors or advocates for the Authority;
- feel their successes are recognised and appreciated; and
- are consulted on and involved in key issues and feel able to influence and shape decisions.

METHODS OF DELIVERY

Staff

The following methods are currently used to facilitate effective internal communication for staff:

- a thorough induction programme for all new members of staff;

- a weekly staff briefing meeting at Dragonfly House (with minutes and notes from the Chief Executive emailed to all staff unable to attend);
- regular Directorate and Section meetings;
- regular 1:1 discussions between line managers and individual members of staff;
- an intranet facility which provides information on Authority policies, corporate strategies and staff benefits as well as news about events within the organisation, social occasions and colleagues' achievements;
- two Staff Development Days each year involving all members of staff;
- a monthly 'celebration event' at Dragonfly House to mark significant events and encourage inter-departmental communication;
- Broads Bulletin - a monthly newsletter;
- a library of all press cuttings accessible on the intranet;
- regular site visits by Management Team; and
- an annual Individual Performance Review.

Members

In order to perform their role effectively it is important that members are fully briefed on the work of the Authority and on all important developments. This is currently achieved through:

- an induction programme for all new members;
- reading committee papers and attendance at meetings;
- an annual Members' Development Programme comprising attendance on site visits and at training events; and
- the monthly newsletter Bulletin.

Volunteers

The Authority values the contribution volunteers make to the effective working of the organisation. In order to reflect this and to help volunteers feel informed and engaged with the work of the Authority much work has been done to improve communications.

Recent additional tools include:

- an online volunteer database and communication website
- the monthly newsletter Bulletin

- a Volunteer Handbook with guidelines and contact information
- an annual event bringing all volunteers together
- meet and greet sessions with staff and senior management at venues around the Broads.

CONTEXT FOR IMPROVEMENT

- **Evidence – good internal communications are key to strong performance**

Extensive MORI research has found that staff who are very satisfied with their jobs are five times more likely to be advocates for the company they work for. Critically, MORI research shows that being listened to contributes more significantly to staff satisfaction than other factors such as pay.

- **Organisational aims**

In the current economic climate and following the Government Spending Review of 2010 it is important that we consolidate our resources, are prudent in our spending and increasingly use partnerships as a vehicle for delivering essential services. This means that the effective communication of change and organisational development needs to be a priority in this strategy.

- **Results of consultation and research**

Employee Survey

In 2012 the Broads Authority carried out its third Employee Survey using an independent survey company to collect and analyse the results. The level of response was extremely high: 93% of staff compared with 88% in 2011. The results were generally favourable and remained broadly similar to those of 2011. They including that:

- 79% of staff understand the Authority's key priorities;
- 70% feel supported by their line manager if they have a problem; and
- 87% say they know what is expected of them in terms of doing their job

However the survey also identified:

- Only 65% attend regular team meetings compared with 85% in the 2009 Employee Survey (although this has increased from 61% in 2011);
- The number of staff who feel they are kept in touch with what is going on has dropped slightly from 62% in 2011 to 59%;
- Staff would like more communication of the rationale behind the 2011 restructure of the organisation, more involvement in decision making;
- There is a need for greater understanding of roles and responsibilities across the directorates and for better co-ordination and communications between them to improve inter-team working; and
- Staff believe updated IT facilities would assist with smarter ways of working.

As a result of the 2012 survey an action plan is being drawn up in consultation with the Staff Representative Group and Management Forum.

Investors in People Assessment 2009

The findings of an Investors in People review for the Broads Authority in December 2009 were very positive. They indicated that:

- staff felt able to introduce projects and develop initiatives within the Authority;
- the intranet was widely used and people felt well informed by it and confident they could access a wealth of information on it;
- staff felt Directors 'strive to inform...and update people as effectively as they can'; and
- all but a small group felt their achievements were recognised by management through means such as Directorate newsletters, in-house meetings and field visits although there was considered to be room for improvement in this area.

A further Investors in People review is about to be undertaken in autumn 2012.

Communications Surveys

A survey of communications methods used by Broads Authority staff was carried out in December 2009 and again in February 2012. An impressive 75% of permanent and permanent seasonal staff took part compared with 50.3% in 2009. The results of both surveys

showed the majority of people feel well informed but the higher number of respondents in 2012 obviously gives a better indication of people's overall satisfaction. A wide range of suggestions were also made which will inform the Communications Action plan.

Both surveys compared methods currently used to inform staff of information about the Authority with their preferred methods for receiving such information. Given that approximately 55% of staff are based outside Dragonfly House this is an important way of assessing their accessibility to information.

The 2012 survey continued to show that the three methods we use most commonly to communicate – emails, personal contact from senior management and the intranet – are also the most favoured. Encouragingly some new communications methods introduced as a result of the 2009 survey have proved popular including the monthly in-house newsletter Bulletin which was born out of the request for a newsletter covering the whole Authority rather than individual directorates, and the improved intranet facility incorporating more staff news. The latter will be further improved when the Corporate Website is reviewed in 2013.

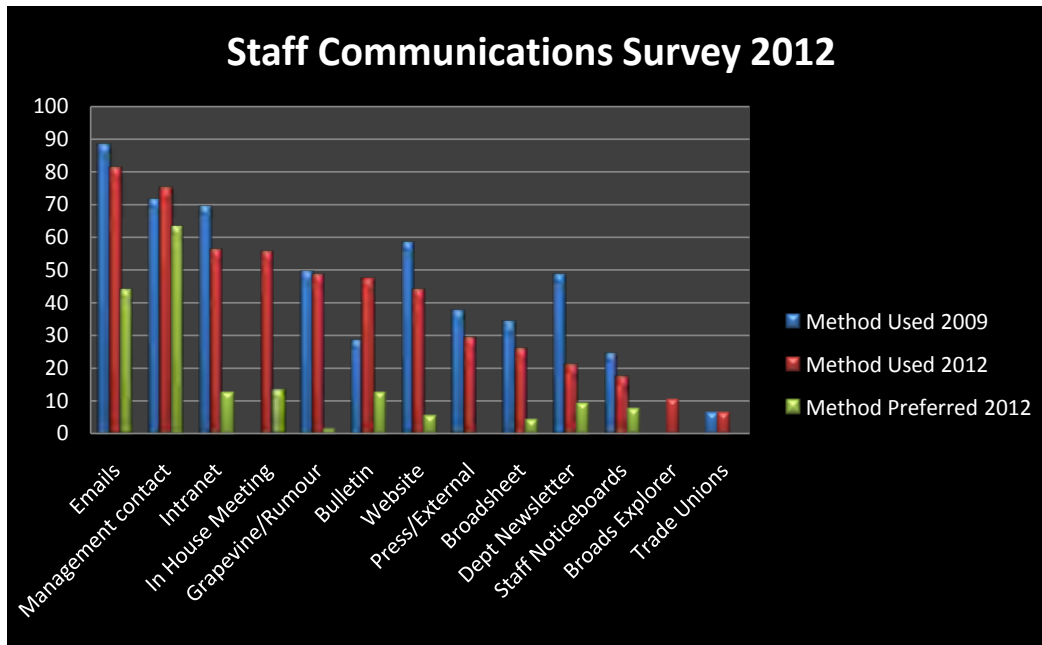
A pattern of comments gathered through the survey indicate that other improvements that would be welcomed by staff include:

- better communication between departments, especially when working on joint projects
- better cascading of information, particularly to field based staff
- a corporate electronic filing system used by all departments for common storage of operational information, accessible to all
- more site visits by staff at headquarters

A significant number of staff also commented that the increased use of newsletters issued electronically and the improved intranet were very effective at keeping them informed – if only there was enough time to read them. The emphasis was definitely on the need for people to talk more, and also to email less.

It is also clear that a large number of staff continue to rely on 'the grapevine' or rumour to get information about the work of the Authority (48% in 2012 compared to 49% in 2009). Internal communications methods therefore clearly need to be improved further to address this imbalance.

The following table shows the methods most used by staff to receive information about the Authority and how these have altered since 2009. It also shows their current preferred methods when asked for a choice of three.

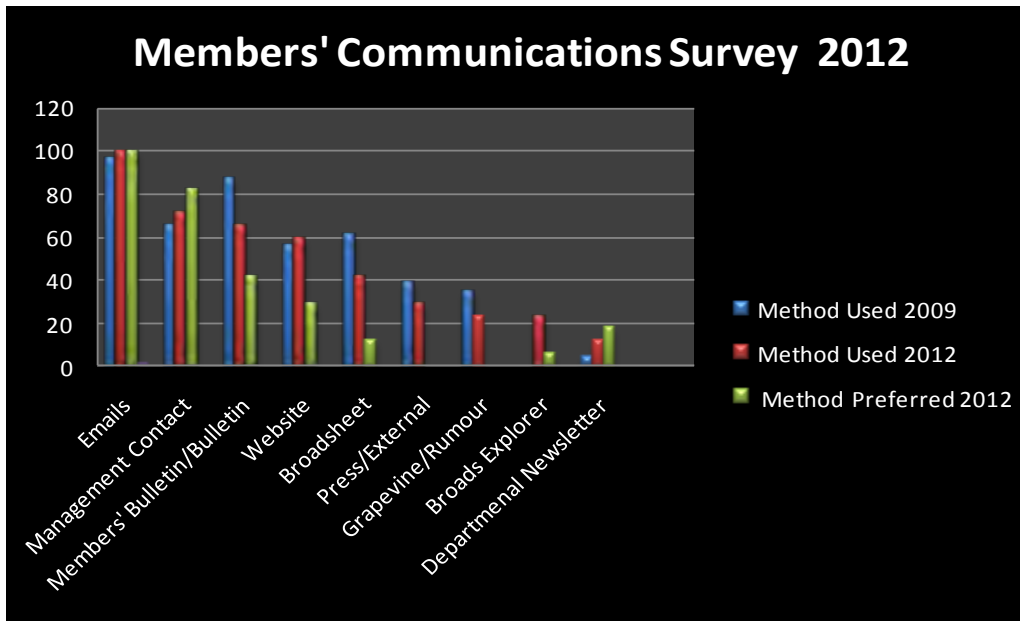


Survey of Members

A similar communications survey was carried out involving the Broads Authority’s members and co-opted members. This elicited a 63% response rate compared to 69.6% in 2009. It showed that in 2012 two of the three main methods used for providing information about the Authority remain as emails and personal contact with senior management with the third most popular method being the new internal newsletter Bulletin, which has replaced the Members’ Bulletin. The desire for a dedicated members’ intranet section had diminished to just one respondent indicating this would be useful to them, perhaps reflecting that members now feel better served through other means of internal communication. Encouragingly, the number of members who initially obtain BA information via the press and ‘grapevine’ has decreased significantly since 2009.

Feedback from Members received as part of the consultation on the Communications Strategy was extremely positive with most saying they felt well informed. However one issue that recurred was a request for emailed notes from the Chairman ahead of meetings indicating noteworthy agenda items and news of his recent activities.

The following table shows the actual and preferred routes used by members for accessing information about the Authority.

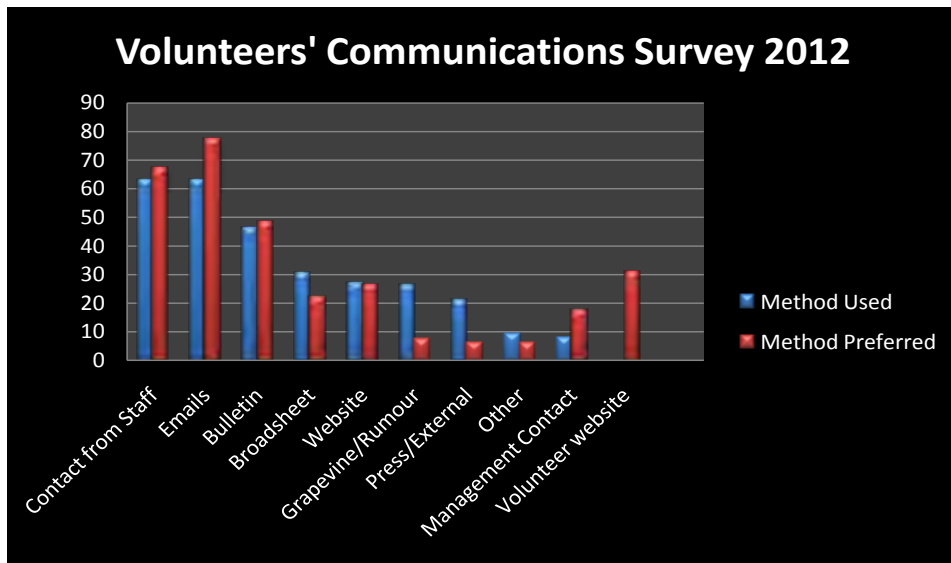


Volunteer Survey

A survey of how volunteers felt about communications was carried out for the first time in 2011. Again the response was very high: 73%. At the time approximately 50% of volunteers were receiving information from the Authority through the post. This figure is now less than 20% with an increase in electronic communication – texts, emails etc. A dedicated website for volunteers was not in operation at the time of the communications survey but there was considerable appetite for one – 31%. It has since been introduced

and is proving very popular with those volunteers who currently access it. Long term, the website will act as a communication hub with the facility for volunteers to contact each other and staff through email and a messaging system.

When asked to specify what other methods of communication they would prefer, a small number of respondents stated they would like more direct contact with staff. The internal newsletter Bulletin is also now being sent to volunteers with a section dedicated to their news and contributions. 46% of respondents said they read the Bulletin and a similar number (48%) said it was one of their top three preferred methods.



Operational issues to be considered when delivering internal communications:

- **Diverse range of our workforce and location of the jobs they do.**

Of the Broads Authority's 109 permanent staff 46% are based outside head office. This rises to 55% with the addition of seasonal staff. Regular access to computers/laptops is therefore limited for many. Meeting these diverse communication needs so that everyone can feel well informed and supported, including volunteers, continues to be an area for focused activity.

- **The impact of new communication technologies and changing patterns of work.**

In recent years the Authority has worked hard to understand and embrace the ways in which greater use of mobile and digital communication can help deliver the objectives in this strategy and to ensure that we use them. Although many of our staff and volunteers do not have regular or direct access to the internet/intranet, most have mobile phones and some, especially seasonal staff, have expressed a wish to have some information directed to their home email addresses. This strategy aims to ensure our methods of internal communications recognise such developments and respond accordingly. We are also planning to extend the use of the text system currently used by Broads Control in order to get information such as HR Vacancies and policy changes to field-based staff.

HOW WE PLAN TO DELIVER GOOD INTERNAL COMMUNICATIONS

1. Ensure that all communications methods are accessible and meet the diverse communications needs of employees and members;
2. Keep communication methods relevant and effective through regular review and evaluation;
3. Support major change and development projects with clear and consistent communication plans;
4. Support the Authority in its responsibilities for handling emergency situations with well understood and rapid communication routes, procedures and techniques;
5. Recognise and record the successes of individual staff, teams and departments;
6. Create channels for two-way communication – requesting and using feedback to drive improvement;
7. Provide information promptly and as widely as possible so that staff/members do not hear important news externally first;
8. Investigate providing a members' facility on the intranet where members can access relevant information and communicate with each other easily.

5 EXTERNAL COMMUNICATIONS

AUDIENCES

Media and Public Relations

Communication is most effective when it is targeted. The Broads Authority has a range of audiences with differing communications needs, and will consider and use the most appropriate method for each. A summary of these audiences is set out below (not in order of importance).

People who live and work in and adjacent to the Broads

This includes both those with 'doorstep access' to the Broads, who are directly related to the economy and the culture of the area, and those who live just outside the Authority's Executive Area, including landowners and residents of the large communities that are not within the Authority's Executive Area but which surround it (Norwich, Great Yarmouth, Lowestoft, Wroxham/Hoveton, Stalham, Beccles and Bungay). These audiences have varying degrees of awareness and understanding, which it is the Authority's responsibility to promote.

'Hard to Reach' Groups

Since the last strategy was written in 2006 the Authority has targeted efforts at reaching groups including the socially excluded, elderly, ethnic communities and young people. Advances in accessible interpretation have been made; the Forest Schools project has enabled excluded youngsters in Norwich to take part in outdoor activities at Whitlingham Country Park; the Sustainable Development Fund has sponsored projects for the elderly and disabled; and the Mosaic Project has encouraged ethnic groups to enjoy the Broads on organised 'taster days'.

However more targeted research and evaluation still needs to be done into how these groups can be enabled to benefit further from access to the Broads. In recent years Norfolk has seen a number of changes in the profiles of its communities, particularly through the seasonal and permanent migration of workers from Europe. Across Norfolk alone more than 80 different languages are spoken and 35,000 people are registered deaf or significantly hard of hearing. Many more have special communication needs because of learning difficulties.

In recognition of the diverse profile of potential Broads users, the Authority must continue to build upon and develop its efforts to make its interpretation facilities and communications inclusive and accessible to as many people as possible.

Businesses

The environment of the Broads is a key economic asset locally, regionally and nationally. Landowners and businesses, including those involved in tourism, boating and farming, are key communicators in their own right. They can, and do, work with the Authority, as well as being recipients of information.

In 2010 the Authority worked with Broads Tourism on an exercise to develop a 'brand' for the Broads to raise its profile as a destination. This resulted in the adoption of the strapline 'The Broads – Britain's Magical Waterland'. The Authority produced branding guidelines including text and photographs for businesses to use free of charge in their marketing material. These are published on our corporate website and updated every season. The principles should also be used by staff in any tourism related press releases and interpretation.

Toll Payers

Around 10,000 people pay tolls annually to use the Broads system in their boats. Many feel passionately about the waterways and have the interests of the area close at heart. The Authority has a responsibility to communicate important safety messages to them as well as gaining their support by explaining the way it spends their money to manage the area.

Visitors

Approximately 7 million people visit the Broads each year, ranging from local day trippers to national and international tourists. Successful communication will enable them to appreciate and understand the area and access it appropriately and sustainably.

The form of communication this takes falls into two categories: interpretation through publications, leaflets, sign boards, smart phone apps etc used by those who have already made the decision to visit. They also experience face to face contact with our staff, by using our visitor hubs, yacht stations and boat trips, attending events and coming into contact with rangers. The second category is the potential visitors in the UK and abroad who need to be attracted through positive media coverage and our websites.

Media

This is a key communications tool for the Authority, with a good working relationship existing both locally and nationally across a wide range of electronic, broadcast, and print media, including specialist publications for boating, tourism, ecology etc.

Local Authorities

Collaboration with county and district councils, health authorities and Norfolk Constabulary is important on many levels – sharing joint initiatives, handling issues such as public health and safety, dealing jointly with major incidents etc.

Our local government appointed members have an important role to play in feeding back Broads Authority decisions to their full councils.

In addition our liaison with parish councils is a vital communication resource for disseminating information and gaining feedback at 'grass roots' level. Parish Forum and Parish drop-in sessions introduced in 2009 proved a great success in fostering good relations with local communities. In 2012 the Authority is carrying out a public engagement consultation exercise to determine what other ways can be harnessed to help local communities and stakeholders feel more involved in the work and decision-making processes of the organisation.

Schools

Each year the Education Officer, rangers and volunteers help hundreds of youngsters learn about the Broads through the annual School Week programme, through events, walks and projects such as Forest Schools. The Authority also invites a small group of students to take up work experience placements which have, in the past, led to jobs within the Authority and partner organisations.

Partner Organisations

These include other protected areas and key stakeholders such as Natural England, the Environment Agency, Norfolk and Suffolk Wildlife Trust, the Norfolk and Suffolk Boating Association, the RYA and the Broads Hire Boat Federation. Interest groups, amenity societies and other similar organisations also play key linking communication roles.

National Opinion Formers

These include civil servants, Ministers, MPs, think tanks, academics and national organisations such as the Improvement and Development Agency (IDeA), Association of Inland Navigation Authorities (AINA), Association of National Park Authorities (ANPA) and Europarc (European Federation of Nature and National Parks).

Planning Applicants

The Broads Authority's in-house planning department communicates regularly with residents submitting plans for approval and interested parties responding to those plans. Planning Committee members are also frequently approached before and after committee meetings. Guidelines are in place to ensure that we are always open and transparent in handling these communications. The planning section of the corporate website has also been upgraded to enable people to submit and follow planning applications online.

IMPORTANCE OF GOOD COMMUNICATIONS WITH EXTERNAL AUDIENCES

- To be recognised locally, nationally and internationally as an effective, efficient and caring organisation that produces positive results, delivers on promises and offers good value for money.
- To be seen in a positive light for our efforts to protect and care for this valuable wetland.
- To be seen by external audiences to value their views and consider them when making key decisions.
- For staff to be proud to work for the Broads Authority and for others to see us as a great organisation to work for and learn from.
- To be seen as an Authority that is in touch with the needs and priorities of all the communities with interests in the Broads.
- To ensure all communications activities support and promote equal opportunities and that all information is accessible to as many people as possible.
- To provide regular Broads users and visitors with the information they need about the area, what the Authority's role is and the opportunities they have to influence our plans and priorities.
- To promote the Broads as an excellent place to live, work and do business in order to help improve the local economy.

6 METHODS OF DELIVERY

A key element of communications success is based on the right 'fit' between medium, message and audience. The Broads Authority will refine and strengthen its existing media, detailed below, and explore new methods of delivery, always seeking to tailor these to their defined audiences and messages. Where possible, evaluation will be built into communication methods to enable assessment and improvement.

The Authority has developed a good working relationship with local media which it will continue to be facilitated proactively (by staging press events and sending out press releases) as well as reactively (by responding promptly to requests for information). We will seek to work collaboratively with the media wherever possible, using it to convey key messages. Guidelines for staff and members for working with the media are set out later in this section.

Since the Communication Plan 2010 was published and the branding exercise completed, the Broads Authority has been more proactive in harnessing potential coverage from national and international press although the amount that can be achieved has been limited by resources. The aim is to build on the success to date in future promotions.

In order to enable the Authority to deal more strategically with press and PR issues a forward planning process has been developed which includes a rolling 12 month **Communication Workplan** including provision for tackling potentially sensitive/newsworthy items such as toll increases/sensitive planning applications. This will be developed by the Head of Communications (having regard to the Forward Plan for committee items) to aid the Authority in dealing with these matters in a proactive manner. This Plan will be discussed with the Management Team on a regular basis.

All members of the Management Team will work regularly with staff in their teams to identify the key communications issues (both positive and negative) that are likely to arise within their department. In all instances the Head of Communications should be informed at the first opportunity.

The Authority recognises that communications are reactive as well as proactive and will ensure that it has sufficient flexibility and resources to be able to respond to situations when it is necessary to do so. It should be recognised that on occasions this may present unplanned communications opportunities.

All contacts from the media should in the first instance be channelled through the Head of Communications or, in her absence, the Press Officer and Chief Executive/appropriate Director. Press releases will be used only where there is a newsworthy story which is likely to result in a high take-up of interest. All press releases should be approved by the Chief Executive and appropriate Director.

In consultation with the Head of Communications, the Chief Executive and Management Team will decide whether to respond to critical letters in the press. As a general rule the Authority will reply to such letters only where it can clearly refute the criticism or correct the information in a straightforward and factual manner which is unlikely to prolong or perpetuate the debate in the press. If this cannot be guaranteed then a response will not be sent.

Staff will not engage with Website Forums, however critical, unless there is a defamatory or libellous statement made against an individual in which case legal advice will be sought and action taken to remove the statement from the site. The Head of Communications may on occasion contribute to a web forum in order to refute criticism or correct information concerning the work of the Authority.

All requests for a member of staff to give a live or recorded interview must be approved by the Head of Communications and Chief Executive or appropriate Director. The Authority may on occasion decline to respond to such requests where it is not considered to be in the Authority's interest to participate.

Members have an important role as ambassadors for the Authority, promoting its work and ensuring that its decisions are correctly represented. The Chair of the Authority and Chief Executive should normally speak on behalf of the Authority in media communications. Committee chairs or lead members may also be asked by the Authority to speak to the media on specific issues. Members should discuss all media contacts with the Head of Communications in the first instance, to ensure that the Authority is correctly represented. This principle will also apply to any letters or other types of correspondence written for publication, including on websites, though this does not cover matters unrelated to the work of the Authority; neither does it preclude local authority members from speaking on behalf of their constituent local authority.

Publications

All published documents will be readily available in electronic format. The Authority actively looks to reduce the amount of 'hard copy' publications it produces, for environmental and cost reasons. To this end, some publications such as the internal newsletter Bulletin and external visitor/residents' newsletter Broads Explorer are distributed electronically and an electronic system for distributing committee papers has been introduced. However, 'hard copy' publications will also continue to be produced because:

- audiences often do not wish to download or read from the screen information which is more than a few pages in length;
- a significant number of holidaymakers/visitors to the area do not have access to electronic communications; and
- online networks on the Broads are poor making wi-fi and smart phone access difficult when visiting.

The Authority's key external publications are currently as follows:

- (1) **Annual Report.** This is a statutory requirement. The Annual Report details the activities of the Authority over the previous 12 months. It is distributed to a wide audience including all staff and members, a range of stakeholders and other public authorities and national opinion formers. Copies are also placed in local libraries and are available from Broads visitor centres.
- (2) **Broads Plan.** This is a management plan which sets out a vision and long-term (20-year) aims for the future of the Broads, as well as short-term (5-7 year) objectives. The Broads Authority is required to review and update it once every five years. The current Broads Plan was published in 2011.
- (3) **Business Plan.** The Business Plan sets out how the Authority proposes to allocate its resources and work programme over a three yearly basis. It provides a link between the Broads Plan, and the day to day activities of staff and partner organisations.
- (4) **Broadcaster.** This annual magazine is aimed primarily at visitors – although many local residents also enjoy it. It is widely distributed free of charge from Broads information centres, tourist information centres, boatyards and accommodation outlets. Some boatyards put a copy on all hire boats. It includes news about the Broads and the Broads Authority, topical features, the annual events programme and accommodation guide. 130,000 copies are produced and it is mainly financed by advertising.
- (5) **Broad Sheet.** The Broad Sheet is produced for toll payers and is sent out free of charge with the annual toll reminders in February/March each year, and again in September. The February edition is an eight page, full colour publication providing news about the Broads and the Broads Authority. Approximately 11,000 copies are produced.
- (6) **Broads Explorer**
This is a newsletter for local residents and visitors to the Broads. It was originally distributed as a paper copy to every house in the Broads Executive area and has switched to an electronic version for subsequent editions. The Explorer now has approximately 1,500 subscribers.
- (7) **Other Leaflets & Brochures.** A range of other leaflets and publications are produced as appropriate, usually on specialist topics from boating safety to events guides, after advance approval by the appropriate Director.

After approval by the Management Team and appropriate Director all requests for new publications must be discussed in the first instance with the Head of Communications. No publications should be outsourced or produced by other departments without prior discussion with the Head of Communications to ensure quality and consistency of information and style, and to avoid duplication. All publications must be appropriate to the purpose and market audience. They should in all cases be professionally presented and reflect the Authority's house style. The Authority will avoid producing materials which might be perceived to be unduly expensive.

All documents which contain significant amounts of text should be professionally proof-read prior to their publication.

Personal Contact

Personal contact is a highly effective communication tool. Although all types of live events are demanding in terms of time resources, the benefits of face to face communication are substantial. The Authority carries out various activities of this nature, including:

- a lively and varied events programme;
- an annual Public Meeting;
- an annual Schools Week; and
- a range of educational talks and presentations by staff including on boat trips.

In addition a number of members of staff deal with members of the public as part of their normal daily activities, including:

- reception staff;
- tolls staff;
- information centre and yacht station staff;
- rangers; and
- development control staff.

Visitor Hubs

Following the Government Spending Review of 2010/11 visitor services including Information Centres and Yacht Stations have been moved to the Communications Team. This reflects the outward facing nature of these roles. The number of visitor centres was reduced from six to three - at Whitlingham, Hoveton and How Hill. Each of these locations gives a distinctly different flavour of what the Broads has to offer and was chosen to reach the widest audience possible. A guided boat trip has been assigned to each creating a 'hub' for focussing information resources for the visitor.

The Broads Authority information centres seek to provide a high quality service. This includes the provision of a wide range of information including accommodation, recreational activities, navigation and safety and access to the range of Broads Authority services.

To maximise the potential of the yacht stations as additional channels for promoting understanding, improvements are being undertaken to adapt the interiors of the buildings to allow better access by the public and to expand the floor space given over to stock and publications. Interpretation in the form of signage and touchscreens with information about the local area and wildlife will also be added. Training in communications and visitor services is being rolled out to quay assistants.

As well as being a vital means of promoting understanding and enjoyment for Broads visitors, the information centres and yacht stations act as a focal hub for Broads Authority staff working in the field, providing an access point for rangers and field staff to link into the Broads Authority computer network thereby ensuring better internal communication.

Interpretation

The Authority sees interpretation as an integral part of many of its projects from the more traditional uses in information centres to content on websites and use of new technology.

The Broads Authority provides interpretation through a selection of tools including:

- displays at the Authority's Visitor Information Centres and Yacht Stations
- banners and displays for exhibitions and events
- presentations including those on Authority boat trips or through education
- events including guided walks, children's hands-on events and demonstrations
- interpretation panels, leaflets and signage throughout the Broads
- content in printed publications for visitors such as the Broadcaster and Broads Explorer.

Good interpretation helps people understand and appreciate the environment and heritage that surrounds them. It differs from 'information' in that it aims to evoke feelings and passion for the area, to inspire a visitor rather than simply provide straight facts. It can be tailored to individual sites, can engage a variety of audiences with varied learning styles and needs and can provide visitors and local residents with access to learning experiences. Interpretation significantly helps the Authority to deliver its second statutory purpose to 'promote opportunities for the understanding and enjoyment of the special qualities of the area by the public'.

Unlike most of the other national parks, the special qualities of the Broads are not immediately apparent to visitors entering the area along any of the main road routes. In upland national parks the dramatic nature of the landscape is obvious to anybody that drives through it. The Broads, by comparison, is a hidden land/waterscape, the beauty of which is only apparent if you know the right places to go – and this is the advice and guidance that the interpretation in the Broads information centres can so importantly provide.

Effective interpretation can also help communities and visitors develop a feeling of ownership and stewardship of their environment, and thus encourages them to act in a more sustainable manner. In this way, interpretation assists projects whose main purpose is to conserve and enhance the area such as the Barton Restoration Project. In adding to the visitor experience it also assists the tourism industry and helps the local economy.

The Broads Authority prides itself on providing a consistently high quality of innovative interpretation including recent electronic communication tools (see below).

The Information and Design Supervisor, in consultation with the Head of Communications, provides guidance for all internal interpretation proposals and also for any Authority interpretation contracted to external suppliers. The Information and Design Supervisor will also promote the use of alternative methods of interpretation. These must be appropriate to a project's location, the Authority's key messages and the audience. The audience for each project should be clearly identified.

Selection criteria

Interpretive planning will be done on a park-wide or area basis, dependent on the scale of project. The following criteria will be used for the assessment of new interpretation projects and ongoing work priorities:

- contribution to the Authority's purposes and priorities
- resources available
- style, content and tools appropriate to audience, theme and location
- type of target audience and accessibility of outputs
- timescale and achievability
- sustainability and environmental impact
- creativity and innovation
- baseline information available and ease of evaluation of the project outputs

Good practice dictates that all interpretation should be easily accessible and have a readability level appropriate to the audience. It should be made up of short, simple sentences written in a personal language, avoiding jargon. Effective use should be made of pictures and graphics that are visually stimulating and have a clear relationship to the text.

Interpretation in visitor centres and yacht stations should not seek to instruct a visitor about everything in the Broads but to provide a basis to inspire visitors to explore for themselves and appreciate its special qualities first hand. Each visitor centre will reflect its local area, wildlife and cultural heritage as well as the special qualities of the wider Broads and the work of the Authority.

The life span of interpretation should ideally be the industry standard 5-7 years. A wide range of outdoor interpretation is in situ in the Broads including: trails using either leaflets or sign boards; large village map boards; plaques; site or area panels. A schedule has been devised for reviewing, updating and maintaining Broads Authority interpretation. See Appendix 3.

Electronic Communication

The internet is now an integral part of most people's daily lives and the Authority's corporate website has grown in use and importance accordingly. It enables us to make up-to-date information instantly available as well as enabling us to make all committee minutes and agendas available to the public.

The Authority's new 'Enjoy the Broads' tourism website came online in spring 2010 enabling a better service for visitors to the Broads and information tailored to their needs as holidaymakers. It includes interactive maps and a range of video information guides to the Broads and features about its history, wildlife and special qualities. It has doubled its 'hit rate' in its first two years achieving 90,382 visitors between July 2011 and July 2012.

A Twitter account was activated in October 2011 to support the Enjoy the Broads site and draw more visitors to it, as well as to advertise events and the work of the Authority. It has attracted more than 1,000 followers in its first year and continues to grow rapidly.

Touchscreens were introduced to visitor centres in June 2011 and the Broads became the first member of the National Parks family to have mobile phone interpretation at How Hill nature reserve. A mobile phone app is also in development for Whitlingham Country Park. The aim of each of these measures is to reach and engage younger audiences as well as providing the opportunity for immediate feedback and engagement with site users.

The Authority's corporate website will also be upgraded in 2013 making it easier to navigate. It will focus primarily on the work of the Authority, its policies and procedures.

Discussion Forum Websites

The Authority has taken the view that it is counter-productive to enter into on-line debates or conversations on Discussion Forum websites. However, such websites will be monitored and, if necessary, the contents of any contributions will be brought to the attention of the Chief Executive or appropriate Director and action taken where appropriate.

Corporate Identity/Signage, Displays etc

The Authority's corporate identity is key to all its communications: written and electronic, in publications, displays and exhibitions, on signs, panels, vehicles and staff uniforms.

The Authority has developed a strapline: 'The Broads – a member of the National Park family'. This is to be used with its logo on all marketing materials and other corporate information in order to get across a common, simple message to as wide an audience as possible.

Consultation

Two-way communication should be fostered and supported by effective consultation-based working with stakeholders, partner organisations and the wider public. In this regard, the Authority has a number of important Forums which play a particularly valuable roll.

The Broads Forum acts as a reference group to offer advice and comment on the Authority's strategic aims and objectives. It promotes closer liaison and understanding between the various bodies and organisations which have an interest in the Broads and its wider catchment area.

The Broads Local Access Forum is an independent advisory body that provides guidance on the improvement of public access in the Broads area. In addition, Broads Tourism brings together approximately 50 members from different sectors of the area's tourism industry to work together and with the Authority to raise the profile of the Broads in today's highly competitive global tourism market.

Written Communication

Despite the increase of electronic communication, it is still appropriate in some instances to correspond by letter.

Guidelines for written communication are set out below.

GENERAL COMMUNICATIONS GUIDELINES

Dealing with the Media

Media are key allies. They are interested in getting a story but also in getting the story right. It is in the Authority's interest to work with them but to ensure that this is done in a controlled, structured way as well as working to the tighter timeframe required by the media. These guidelines apply equally to emergency and routine requests.

- (1) Remain polite and helpful, but do not give information on or off the record.
- (2) Get the full details of the information sought, and if possible some details of the story being worked on including the deadline. Write this down.
- (3) Take a careful note of the journalist's contact details (full name, post, publication/programme, mobile and land line numbers and email address).
- (4) Explain that you will pass these details on to the relevant person and that they will respond. Assure them that you will call them back to let them know the situation if an answer is going to take some time.
- (5) Contact the Head of Communications or Press Officer and relay the above information. If they are not available, contact the Head of Information and Design or your line manager. Aim to provide as much information about the situation to your colleagues as you can if it is your area of work.
- (6) A decision will be taken by the Head of Communications/Chief Executive/appropriate Director as to who will provide the information, depending on the nature of the request.
- (7) Make sure that the call is followed up. Aim for the Authority's response to be prompt and accurate.

These guidelines apply equally to members as to officers. Details should be passed on to the Head of Communications, or in her absence the Press Officer.

Email Communication

Email is an impersonal and, in some respects, imperfect form of communication and there are therefore some messages which it is not appropriate to send via email. This applies in particular to matters of a sensitive or contentious nature, especially where some criticism of the recipient is intended or where the recipient is likely to be disappointed or upset by the outcome. In such cases it is advised that face to face communication be used if at all possible.

It is worth bearing the following in mind when sending emails:

- only send a message you would be happy to say face to face
- assume anything you write in an email is for public consumption as it may well be forwarded to recipients you had not intended it for
- if possible never send confidential information by email
- never send an email in the heat of the moment – it is better to wait, reflect and check the tone and content before you press 'send'
- important decisions should be communicated or confirmed by letter;
- choose your words carefully – emails (internal or external) can be libellous
- avoid using block capitals – they are the email equivalent of shouting
- always delete email 'histories' from the bottom of emails to protect the privacy of conversations – and avoid potential embarrassment

Written Communication

Despite the increase in the use of electronic communication, it is still appropriate in some instances to correspond by letter. This applies when:

- the correspondent has written in by letter and clearly expects a reply through the same medium;
- the letter appends bulky attachments which it would be unreasonable to expect the recipient to download; or
- the letter is one of a formal nature, for example incorporating details of a contractual nature or relating to a formal complaint or dispute.

All letters should be drawn up in accordance with the standard template which is available on the intranet. They should be signed at the appropriate level by the officer dealing with the issue, and should at all times be courteous, professional and not unnecessarily lengthy.

All letters to Government Ministers or MPs (unless they are of a very routine nature) must be cleared in advance with the Chief Executive or appropriate Director.

Telephone Communication

Many people make their first contact with the Authority by telephone, and officers spend significant amounts of time talking on the phone, whether to clients, colleagues, suppliers or partners. It is vital to the Authority's success therefore that its staff use the phone effectively.

First impressions are particularly important as 90% of people form 90% of their lasting impression in the first 90 seconds! Give a friendly greeting and introduce yourself. Find out the caller's name. In order to avoid misunderstandings, speak clearly and at a measured pace and avoid jargon.

In dealing with difficult callers it is good practice to:

- allow them to 'let off steam' if necessary before attempting to deal with their problem;
- don't take things personally and try not to become defensive;
- sympathise – even if the problem is not your own fault you may be able to calm a situation by telling the caller you understand and sympathise;
- work through a system process:
 - build rapport;
 - get the facts;
 - discuss solutions; and
 - if possible agree an action;
- stay in control – if the caller strays gently bring them back to the point;
- be assertive; and
- wrap up the call firmly but politely. Always say goodbye.
-

CONTEXT FOR IMPROVEMENT

- **The need to have a positive public image.**

Members of the public - be they visitors, toll payers etc - should always receive a high standard of customer care, however they choose to contact us, in order that they have a positive image of their Broads experience or their dealings with the Authority.

Research shows that people who are well informed about the work of an organisation tend to feel more satisfied with it, rather than feeling 'kept in the dark' about its operations. This is gratifyingly reflected through the Authority's toll payers' surveys. In a 2012 survey of 10,000 toll payers on the Broads 79% of those who responded said the Authority let them know what it was doing compared to 78% in 2009 and 65% in 2005. Correspondingly, 65% of those who responded in 2012 said the Authority did a good job compared to 63% in 2009 and 55% in 2005. This shows that overall satisfaction with the Authority is improving and is a trend we need to build on.

We also want the Broads to be perceived in a positive light on the national stage to attract more visitors, boost the economy and potentially attract more funding to the Authority for important projects. We want to be seen as a forward-thinking authority, promoting sustainable and quality tourism experiences in a beautiful habitat.

The branding exercise which established the Broads as Britain's Magical Waterland has been a success with local businesses keen to work together to promote themselves with a unified message. Their marketing material for the past two seasons has carried the branding and messages prominently and the Authority must continue to encourage this, supplying additional photography and guidance in future years to ensure continued momentum. The branding exercise elicited considerable press response, both locally and nationally, which is seen as a positive step by all parties in getting wider recognition for the Broads.

- **Organisational aims and aspirations**

In the current economic climate we need to be in step with other organisations and the thinking of the general public in everything we do and the messages we convey. Visibly prudent spending by the Authority and an aim to consistently offer value for money needs to be a key message.

- **The results of research and consultation.**

Communications Survey 2012

The Communications Survey highlighted a number of factors which staff and members feel could be improved in our external communications. A recurrent theme was the need to engage more with stakeholders, user groups, locals and visitors and importantly to be seen to be listening to their views. Another repeated view was that we need to be clear about why we have reduced or changed certain activities in the light of cuts to our National Park Grant and we need to emphasise the amount of quality work we continue to achieve. It is generally felt that we should continue to focus on presenting a positive image, both through publicity and signage highlighting individual projects.

The 2009 survey highlighted the need for the Authority to communicate better with young people. The tourism website has made considerable strides in helping us achieve this through interactive elements such as Flickr, Your Stories pages and Videos. However, there is further scope, particularly through the planned review of the corporate website. This will give us more functionality to add elements such as video to this site also – and will enable us to revise the Education pages with more interactive projects and activities for children and young people.

In general, we know that, with the growth of electronic communication, people's reading/viewing habits are changing - they want bite-sized chunks of information and lots of visual imagery. Many only scan large tracts of text. This informs the way we need to present the Authority's news and information.

Norfolk Tourism Survey 2009

Norfolk Tourism carried out a survey through their Visit Norfolk website to better understand what attracts people to the area and the image they have of it. The research showed that Norfolk destination websites were very influential for 31% of respondents seeking information about the area. This highlights the importance of our new tourism website, although the research also showed brochure-based marketing continues to play a strong role.

The survey results revealed that people's knowledge of what was on offer in the county was good and that the Broads were a well known attraction. The appeal of the area centred on its beautiful coastline and countryside and there being plenty of attractions to visit.

One of the themes that emerged strongly was a sense that Norfolk was slightly 'out of time' and somewhat unspoilt by modernity. It was seen as a positive attribute that Norfolk has an 'unchanged' quality and a slower pace of life which gave it a distinctive position in the tourism marketplace.

Many of the perceptions respondents had were linked to the friendliness of Norfolk people. This should be a central tenet of our communication about the Broads ie with profiles of our staff and their roles on the website and images of people at work and play around the Broads.

Norfolk Citizens' Panel Survey

The Authority took part in an IPSOS/MORI survey of Norfolk County Council's Citizens' Panel in 2006 to obtain information about the public's understanding, expectations and image of both the Authority and the Broads. Of the 3,790 people who responded, 84% had visited the Broads and four in five (81%) said they were aware of the Broads Authority. At the time local newspapers were the most favoured source for information on the Broads Authority, followed by television and local radio. The tourist information centre was also seen to play an important role.

The Association of National Park Authorities is carrying out a visitor survey in autumn 2012 to gather similar information and this will provide vital information for progressing this strategy.

Broadcaster Survey

A survey in the 2009 edition of Broadcaster included a question asking readers whether they preferred a printed or electronic/web format for the magazine. Only a small number of people responded, presumably because they were required to post their reply slips back to the Authority. However, of those who took part, 79% said they preferred a paper version, only 2.3% said they preferred a web/electronic format and 19% said they would like both. We have included a similar survey in the 2012 edition of Broadcaster and will assess the results at the end of the holiday season.

Toll Payers' Survey 2012

The Broads Authority carried out its latest survey of its 10,000 toll payers in 2012 to find out how they felt about the Authority and to help shape its future workplans. As previously mentioned, 79% of those who responded said the Authority let them know what it was doing, an improvement on previous surveys. Furthermore, when asked whether the Authority listened to toll payers' concerns, 38% agreed compared to 28.7% in 2005. This indicates that our communications strategy has been working and contact methods have improved.

HOW WE PLAN TO DELIVER GOOD EXTERNAL COMMUNICATIONS

1. Keep people well informed by making good use of broadcast, print and electronic media channels to give out information and news about the Broads Authority and its work.
2. Continue to look for new ways to improve our websites and investigate new means of disseminating information through electronic communication, including text alerts for key issues, social networking and smart phone technology.
3. Provide more opportunities for people to give us feedback through our website so we can learn from their experiences and they can share their views with others.
4. Continue to look for ways to improve website provision for younger audiences to educate and inspire them about the Broads.
5. Offer improved web information about members and their role with the Authority.
6. Demonstrate efficiency and value for money by greater use of the internet for delivering Broads Authority publications to people who choose this option.
7. Explore with other public sector partners opportunities for shared communication activities.
8. Continue to offer good customer service in face-to-face meetings with the public ie tourist information centres, reception staff, toll officers, information officers, rangers and events officers.
9. Maintain a presence at key local events which can promote the Authority and the Broads, for example the Green Boat Show and the Outdoors Festival.
10. Hold an annual media event to help establish good contacts with local and national media.

7 EMERGENCY COMMUNICATION PLAN

An Emergency Communication Plan for the Communications Team to follow in the event of a major incident is set out in Appendix 2.

A separate Emergency and Major Incident Procedure has been drawn up for all staff to follow in such a situation.

8 GUIDING PRINCIPLES

The Authority will endeavour to comply with the following principles in all its communications and interpretation:

Clear and Effective Presentation

The Authority's messages are often complex and technical and therefore excellent graphic design and clear language are essential aids to good communication.

The Authority will not use jargon except where it is unavoidable. In such cases it will endeavour to explain the meaning. The standard of presentation should reflect the Authority's duty to protect the area's high quality as well as its status as a professional and competent organisation. It should be both appropriate and sustainable.

Accessibility and Social Inclusion

Published information will be accessible to all, and available in formats which are suitable for people with disabilities in line with the Disability Discrimination Act 1995. All key publications can be produced in large print on request and Broadcaster is available on CD. The Authority will actively promote diversity in its communications.

Corporate Identity

All communications will be in a style which is consistent with and where appropriate portrays the Authority's overall corporate identity. This promotes a unified and consistent image of the Authority. Having been in use for more than 20 years, the Authority's dragonfly logo has become a well-recognised symbol locally and this sense of identity should be maximised. The Authority's communications should be engaging and, where appropriate, fun.

Openness, Honesty and Consistency

People respond best to communication that is honest and genuine. Inconsistency calls this into question and so messages should also be open, accurate and consistent.

Partnership Working

The Authority has long experience of working in partnership with stakeholders and others. Partnership working provides opportunities to jointly develop our communications. This is particularly relevant as we assess the on-going results of the branding project which the Authority carried out in conjunction with Broads Tourism and which is now in its third year.

9 MONITORING EFFECTIVENESS

A number of methods will be employed to assess the communication requirements of the Authority's audiences and gauge the effectiveness of its communication. These are set out below. It is important that this research is carried out in a strategic and consistent manner to allow annual evaluation and comparison with other similar organisations. The Employee Surveys of 2012 and 2011 and the Communications Surveys of staff, members and volunteers informed the development of this strategy. An annual evaluation will now be carried out to review its effectiveness.

Communication Action Plan

The Authority has a **Communication Action Plan**, which sets out how it proposes to implement this Strategy. The Action Plan for 2012/13 is set out at Appendix 1. This will be reviewed and updated on an annual basis.

Websites

The Authority monitors the number of hits on its websites. This shows that the corporate site had 221,571 visits from August 2011 to July 2012, a drop of just 7,000 since the introduction of the tourism website, which had 90,382 over the same period. We had anticipated losing far more visitors from the corporate site as a result of the tourism site's introduction which indicates that we have two distinctly different audiences and there is a clear need for a site dedicated to tourism. The most popular pages on the corporate site are the Homepage with its regularly updated news, the main Boating page and the Tidetables. The most popular pages on the tourism site are Boating, Things to Do and Day Boat Hire. We will continue to monitor both the corporate site and the new tourism website and adapt them accordingly.

Public Surveys

See above.

Media

The Authority will monitor media coverage, including the amount of take-up of press releases, the number of 'positive', 'neutral' and 'negative' stories, and whether key messages are being accurately portrayed. It is also possible to financially assess the success of our coverage. For instance, our media partnership with the Eastern Daily Press for the Outdoors Festival brought in the equivalent of £175,000 worth of positive publicity. This is calculated according to the cost of buying equivalent pages of advertising in the newspaper.

Events

Success will be gauged by staff observation, verbal and written feedback (including through National Parks Performance Indicators) and the number of people attending - including attendance figures from the Annual Public Meeting.

Visitor Hubs & Boat Trips

Again success will be gauged by staff observation and feedback as well as visitor numbers and the Performance Indicator survey cards handed out in centres/on boat trips. In 2011 219,058 people visited our three hubs. More than 80% rated Toad Hole Cottage excellent. Hoveton received the same rating from 77% of visitors and Whitlingham from 74%.

Staff Feedback

This is obtained through telephone and face to face contact with individuals and businesses, particularly from field staff. In addition to the feedback received from staff, we regularly receive 'thank you' letters from visitors who have been helped by rangers, yacht station staff and staff in our visitor centres.

10 RESPONSIBILITY AND REVIEW

Overall responsibility for this Communication Strategy rests with the Head of Communications, supported by the Chief Executive, Management Team and Communications Team. It will be reviewed and updated annually, having regard to feedback from interest groups and the results of any surveys which have been carried out.

Communication Action Plan 2012/13

Area	Action	Responsible Officer(s)
A. METHODS OF DELIVERY		
Staff: Internal Communications	Focus on staff, members and volunteers as ambassadors for the Authority and make sure they understand and espouse key messages.	Head of Communications
	Hold 4 Members' Development Days a year	Management Team
	Breakdown perception of 'top down' management by improving Staff Development Days for team building. Also management visiting/working with staff at their jobs and at field bases. Regular constructive feedback given to staff and recognition of achievements wherever possible.	Management Team/Section Heads
	Make Committee papers available to staff in Dragonfly House break-out area	Head of Governance and Executive Assistant

	<p>Improve inter-departmental understanding and communication by encouraging site visits for Dragonfly House staff</p>	<p>Management Team/HR</p>
<p>Media and Public Relations</p>	<p>Promote the continued use of the Broads brand identity by tourism businesses by updating 'toolkit' annually for access via the corporate website</p> <p>Attend Broads Tourism meeting in November 2012 and give presentation on new branding material and importance of continuing to use it</p>	<p>Head of Communications Information & Design Supervisor</p>
	<p>Hold annual media event to cultivate good relationships with press locally and nationally</p>	<p>Head of Communications /Press Officer</p>
	<p>Identify potential visitor markets nationally and internationally and target publications which can attract them, including specialist magazines for boaters/birdwatchers etc</p>	<p>Head of Communications</p>
	<p>Continue to improve engagement opportunities with stakeholders, parish councils, local community groups etc</p>	<p>Chief Executive/ Management Team</p>
	<p>Publications</p>	<p>Boost promotion of southern broads in Broadcaster by changing tone of safety messages re: Breydon and adding positive features</p>

	Maintain rolling Communications Department workflow chart to enable all departments to timetable production of publications	Head of Communications
Electronic Communication:	Carry out complete review of corporate website and explore options for joining ANPA portal	Head of Communications/ICT Project Officer/Interpretation and Design Supervisor
	Continue to evaluate and add material to the tourism website including photographic and video material.	Head of Communications /Website Officer
	Create Whitlingham Country Park App for smart phones to engage all ages visiting the park.	STEP Project Officer/Head of Communications
	Investigate internet forum on corporate website as means of disseminating information	Head of Communications/ICT Project Officer
Electronic Communication: Intranet	Continue to build capacity and functionality of intranet facility including more staff news and photographs	Head of Communications
Corporate Identity	Improve awareness of the Authority by promoting projects which are in progress/completed or otherwise where the Authority has spent money to carry out works on the ground including through improved signage	Management Team/ Information and Design Supervisor

	Standardise backgrounds and signature messages for Broads Authority emails and letters	Head of Communications/Information and Design Supervisor
	Produce a style guide to assist in maintaining a house style for text and graphic content on uniforms, vehicles, signage, publications and documents.	Information and Design Supervisor
Interpretation	Complete Appendix 3: Schedule of Repairs/Maintenance of Interpretation/Signage	Design and Information Supervisor
Visitor Hubs and Yacht Stations	Improve information and signage in TICs and yacht stations to make them more accessible for visitors. Focus on each hub in context of its surrounding area plus incentives to explore further afield Review and Update Information Centre Review 2007	Visitor Services Supervisor/ Information and Design Supervisor Visitor Services Supervisor/Head of Communications
Events	Continue to add to and improve events 'kit' for staff to take to shows and events we participate in	Head of Communications/Information and Design Supervisor/Education Officer

B. MONITORING EFFECTIVENESS

Internal Monitoring: Press Cuttings	Continue to upload press articles to new intranet cuttings library for access by all staff	Press Officer
External Monitoring: Surveys	Assess findings of ANPA survey of visitors to National Parks (autumn 2012) including specifics concerning the Broads	Head of Communications
Website	Regularly monitor the number of hits on the website and which pages are visited most frequently, and disseminate the information.	Website Officer

Emergency Communication Plan

Introduction

In the event of an emergency or major incident in the Broads there may be an immediate and sustained need to provide timely, accurate and consistent information to the public.

This plan is designed to outline the likely roles and responsibilities of the Communications Team, whether or not we are the lead agency, and to give help and guidance on handling the situation. Such incidents could include:

- serious flooding
- a pollution incident
- a fatality or serious injury to a member/members of staff/the public
- Avian flu/Foot and Mouth outbreak

Obviously all incidents differ in their nature and our response would need to be adapted accordingly.

In most cases the Authority will not be acting alone in responding to such incidents, and will be working alongside other agencies in a supporting rather than a leading role. Such agencies could include the following:

- County Council Emergency Units;
- Fire and/or Police Service;
- Coastguard and/or Maritime Accident Investigation Bureau;
- Environment Agency;
- Health and Safety Executive.

Activation, Roles and Responsibilities

The most likely way the Communications Team will be alerted is by Broads Control at Dragonfly House (during working hours) or, at all other times, the Duty Manager or the Chief Executive (who will have been alerted by the Duty Manager) or a member of the press. The first member of the Communications Team to be contacted should be the Head of Communications and, if unavailable, the Press Officer.

The Head of Communications will then establish a suitable and proportionate Communications Team to respond to the incident, either in a lead or support capacity.

The Head of Communications will also decide whether to activate the Norfolk Major Emergency Media Plan, which will automatically bring in assistance from partners and set the framework for a response on a wider scale. The plan can be activated by any of the response agencies or local authorities including us.

In a major incident we are likely to do two things:

1. Offer the appropriate Communications support to the lead agency (in line with the Norfolk Major Emergency Media Plan)
2. Establish our own media response plan to deal with Broads Authority issues (if appropriate).

The Chief Executive is ultimately responsible for authorising the release of information and advice to the public, on behalf of the Authority.

Follow-Up Action

The Head of Communications will deploy a Communications Team member at the scene to attend to media inquiries, if necessary.

A holding press statement will be prepared based on one of the following two forms of words:

1. If the incident is one for which the Authority has responsibility ie oil spills:

'The Broads Authority confirms that an incident has occurred (*state where and give brief description if appropriate*) at approximately (*give time*) hours today.

Emergency response procedures have been initiated and relevant authorities (*have been/are being*) advised. All support services are being co-ordinated through the Authority's incident response team and every possible effort is being made both to minimise risk to personnel at the scene and to contain and mitigate any effects.

Further information will be released (*as it becomes available/at a press conference scheduled fortime*) today.'

2. If the incident is primarily the responsibility of another organisation ie Norfolk Police, Norfolk County Council etc

'The Broads Authority confirms that an incident has occurred (*state where and give brief description if appropriate*) at approximately (*give time*) hours today.

Emergency response procedures have been initiated and the Authority is working with (*name of relevant organisation*) to minimise risk to the public and personnel at the scene and to contain and mitigate any effects.

Further information will be released (*as it becomes available/at a press conference scheduled fortime*) today.'

The Website Officer will be responsible for issuing this on the corporate website and updating it as the situation develops under the instruction of the Head of Communications. It is important to ensure we have web capacity and capability to support the dissemination of information to the public, the media and Authority staff.

All staff, including the Communications Team, should refer all requests for press statements to the Head of Communications and be fully briefed as to agreed key messages. Staff at the scene of the incident must be robust in insisting any media present direct their inquiries to the Communications Team and be aware that unguarded comments made to members of the media may be reported. Staff at the scene should also be aware that members of the public may be recording material on mobile phones etc and this material is often handed over to the press.

The Head of Communications will then:

- consult with Authority colleagues to agree key messages and ensure consistency in the collection and dissemination of information to the media;
- brief the Chief Executive, Chairman and relevant Directors who may need to give interviews to the press, radio or TV;
- deliver press updates and statements to the media, if required;

- liaise with the appropriate Directors and staff involved in the incident to keep abreast of any ongoing situation;
- maintain an ongoing liaison with any other agencies involved;
- monitor press footage in order to correct any inaccurate or potentially damaging information;
- ensure Communications Team members are available and adequately briefed to deal with the flow of press enquiries. It is important that the Authority projects a positive and balanced view throughout the process and gives appropriate reassurances that matters are under control and appropriate actions are being taken. Unhelpful or vague statements can only increase rumour and fuel unnecessary speculation.

In addition:

- The Chief Executive and Head of Communications should ensure that the Chairman and Broads Authority members are fully briefed about the incident at the earliest opportunity, since it is important, if possible, that they do not learn about it first from the press. Regular updates should be provided to members as and when appropriate;
- The Chief Executive will assign a director to contact relatives of any staff members who may be injured/at risk as a result of an incident and to keep them up to date with any unfolding situations.
- The Chief Executive should brief other members of staff about the incident as early as possible, and provide them with regular updates, and should instruct them not to respond to any questions from the press but to refer them to the nominated contact person(s);
- Management Team should also ensure reception staff and Information Officers are fully updated on messages for the public. They may have to answer questions such as: Do I have access to my home, Is it safe to go home, Which roads are closed?

Control Centre

For very serious incidents it may be necessary for the Authority and other agencies involved to set up a Control Centre to hold press conferences and deal with the steady flow of callers. Where the Authority is the lead body this should ideally be established at head office, to take advantage of the Radio Room (Broads Control) and other facilities which are available on site. However if it is deemed necessary to set up a Control Centre near to the site of the incident, a village hall or similar facility can be used.

In such circumstances the Authority should ensure that the following facilities are available:

- adequate telecommunications equipment (mobile phones will normally suffice, but the reception will need to be checked);
- tables and chairs;
- flip charts and pens;
- laptops, printers and paper;
- toilets;
- refreshments, especially teas and coffees; and
- possibly suitable facilities in the vicinity for visiting journalists.

Anything said at a news conference should be regarded as being on the record and for publication. In law, news conferences are regarded as public meetings with the media representing the public. This confers qualified privilege upon reports or coverage of the conference. It does not mean that news conferences have to be open to the public.

Media Access at the Scene

Representatives of the media will wish to have access to locations involved with the incident. For reasons of operational efficiency, and providing safety is not compromised, an area should be designated to give an overview of the incident.

Photos/Video

Still photos and video may be in great demand by the media, outside of that gathered by them. If appropriate, edit and release suitable material without favouritism. Ensure that such material is also available to colleagues in other agencies, who may wish to use it for their own debriefs and internal communication media.

Review

Once the incident has died down or been dealt with it is important that the Authority should review its processes to determine how well these worked, and to decide what lessons could be learnt or changes made to deal with similar incidents in the future.

It is important to involve any front-line staff in this review and also, at the earliest opportunity, to identify whether any staff may have been traumatised as a result of the incident and if so provide appropriate support, which might include independent counselling.

Broads Authority Communications Emergency Contact List

In the event of an emergency the Communications Team would take on the following roles:

BA Communications Team	Position	Home	Mobile
Clare Weller	Head of Communications		
Hilary Franzen	Press Officer		
Rachel Killington	Website Officer		
Karen Sayer	Media Responder		
Jess Tunstall	Media Responder		
Sam Bates	Media Responder		
Tom Barrett	Media Responder		

Internal Emergency Contact Numbers:

Position	Name	Home Telephone	Mobile	Email
Chief Executive	John Packman			
Director of Operations	Trudi Wakelin			
Director of Change Mgt & Resources	Rob Holman			

Director of Planning & Strategy	Andrea Long			
Head of Safety Management	Steve Birtles			
Broads Control	Steve Hess			
Head of Ranger Services	Adrian Vernon			
Head of HR (Designated Safeguarding Children Officer)	Sarah Endersby			
Assistant Designated Safeguarding Children Officers	John Organ Andrea Long			

External Emergency Contact Numbers:

Organisation	Position	Name	Telephone	Mobile	Email
Norfolk Police	Director of Communications	Ann Campbell			
Norfolk County Council	Head of Communications	Joanna Hannam			
Norfolk County Council	Media & PR Manager	Mark Langlands			
Norfolk Fire & Rescue	Communications Officer	Martin Barsby			
Environment Agency	Media Manager	Catherine Burbage			
Maritime & Coastguard Agency	District Officer	Colin Tomlinson			

Press Contacts

Organisation	Position	Name	Telephone	Mobile	Email
BBC Look East	Editor	Nikki O'Donnell			
ITV Anglia	News Editor	Andy Thomson			
BBC Radio Norfolk	News Editor	Nicky Barnes			
Radio Norwich	News Editor	Jen Dale			
Heart FM	News Editor	Neil Perry			
Future Radio	News Editor				
Nrth Norfolk Radio	News Editor				
The Beach	News Editor	Ross Hutchinson			
EDP	News Editor				
EADT	News Editor	Brad Jones			
Yarmouth Mercury	News Editor	Anne Edwards			
Lynn News	News Editor	Ted Malkin			
Norwich Advertiser	News Editor	Sarah Wade			

Schedule of Updates/Repairs to Interpretation Media

Form of Interpretation	Location	When Installed	Materials Used	Date for review/maintenance
3 X Wildlife interpretation panels	Filby car park and boardwalk	Summer 2012	???	Summer 2017
2 X large site maps	Whitlingham flint barn and car park	Summer 2011	???	Summer 2016
3X large signs indicating opening times & mooring info	Gt Yarmouth yacht station quay	Spring 2012	???	Spring 2017
Water usage signs (multiple)	All yacht stations	Summer 2012	???	Pre-season 2017
Boat trip A-boards	Visitor hubs	Summer 2012	???	Pre-season 2017

Consultation

This Strategy has been developed with the help of the Management Team & HR department. It has been informed by staff workshops, discussions with individual staff, members and forum members and by the results of the Broads Authority Employee Surveys, Communications Strategy Surveys and the Investors in People Report 2009.

ANNEX L
Port Marine Operations Training Policy

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Port Marine Operations Training Policy

L1 PART 1 : STATEMENT OF INTENT

- L1.1 The Broads Authority (“the Authority”) recognises and accepts its responsibility under the Port Marine Safety Code as an employer for both recognising and providing appropriate training to National Occupational Standards. These principles will be used for recruitment, training and authorisation of: -
- L1.2 Members of the Authority: -
- L1.3 Personnel whom contribute to the Harbour Master role
- L1.4 Pilots
- L1.5 Hydrographic Surveyors
- L1.6 Marine operations Personnel

L2 PART 2 : SAFETY MANAGEMENT TRAINING

- L2.1 All Senior Managers, Line Managers and members of the Authority shall attend a Safety Management Induction Briefing to ensure that they are fully aware of their specific responsibilities of their specific roles with respect to the provisions of the Safety Management System

L3 PART 2 : COMPETENCY AND EQUIVALENCE ASSESMENT.

- L3.1 The Authority has reviewed the National Occupational standards for Marine Operations (Ports) Level 2, for operational personnel training requirements.
- L3.2 The Harbour Masters National Occupational Standards have been reviewed and a responsibility matrix has been produced which details those posts within the Authority where certain harbour master functions reside. See Appendix 1
- L3.3 The Harbour Master responsibility matrix has therefore input into the identification of competencies for the various posts within the authority.
- L3.4 The Authority will review these competency requirements in the development of post specific training programs. See Appendix 2.

L4 PART 3 : REFRESHER TRAINING

L4.1 The Authority will maintain a programme of refresher training to ensure that all appropriate staff remain abreast of developments and to prevent any decline in the level of competence

L5 PART 4 : TRAINING RECORDS

L5.1 Records will be kept of all training and instruction given.

**Broads Authority Review of Harbour Masters, National Occupational Standards
Responsibility Matrix**

Element	Duties	Director of Operations	Head of Safety Management	Head of Ranger Services	Head of Construction and Maintenance	Project Design Supervisor	Senior Waterways and Recreation Officer	Collector of Tolls	Chief Executive
1.0	Discharging Statutory Duties	x	x	x	x				
1.1	Facilitating the safe and efficient use of the harbour	x	x	x	x				
	1 Appropriate policies that facilitate the safe use of the harbour must be developed and implemented.	x	x						
	2 Appropriate risk assessments of harbour activities must be carried out to ensure that risks to harbour users are reduced to a level as low as reasonably practical.		x	x					
	3 Appropriate action should be taken where harbour users fail to comply with harbour regulations, directions or guidance.			x					
	4 The requirements for establishing, marking and maintaining navigational channels, wrecks and obstructions should be clearly identified.	x		x	x				
	5 Arrangements for monitoring and regulating marine traffic in the harbour should be clearly identified and procedures adopted to fulfil the authority's statutory obligations.			x	x				
	6 If and where available, safe berths should be provided for all vessels and unsafe berths should be properly marked.		x	x	x				
	7 Hydrographic and navigational information, including details of wrecks, obstructions and other hazards, should be promulgated regularly and effectively to harbour users and other interested parties.		x	x	x				
	8 The handling and movement of hazardous or polluting cargoes should be strictly controlled.			x					
	9 Where appropriate, the issuing of licences should be considered for harbour operations and works, in accordance with local legislation.				x				
1.2	Review of Statute, Directions and Byelaws	x	x	x	x				
	1 A close awareness should be maintained of the timing, including expiry dates, of relevant local legislation.	x							
	2 Procedures for periodically reviewing powers should be established, to ensure that they remain appropriate and fit for purpose.	x							
	3 Appropriate systems should be put in place for relevant internal and external consultation.		x						
	4 Any recommended changes to powers conferred by bye-laws or other local legislation should be approved by the appropriate authority and processed according to legislative requirements.	x							
1.3	Compliance with Health and Safety and Employment Legislation		x	x	x				
	1 Clear and written health and safety responsibilities should be established for all marine staff.			x	x				
	2 Staff, including contract workers, should be informed of their health and safety responsibilities and appropriate training and equipment provided.			x	x				
	3 Procedures should be established to ensure that marine staff comply with their health and safety responsibilities and agreement obtained that their responsibilities are clearly appreciated and understood.			x	x				
	4 Clear arrangements should be in place for reporting any deficiencies that may affect the health and safety of others.			x	x				
	5 Appropriate disciplinary action must be taken when marine staff fail to comply with health and safety procedures.			x	x				
	6 Advice on health and safety matters should be promulgated to harbour users, as necessary.		x						
1.4	Regulating the movement and handling of dangerous and polluting substances.			x					

Element	Duties	Director of Operations	Head of Safety Management	Head of Ranger Services	Head of Construction and Maintenance	Project Design Supervisor	Senior Waterways and Recreation Officer	Collector of Tolls	Chief Executive
	1 Clear reporting systems should be put in place to track and monitor dangerous and polluting substances.			x					
	2 Appropriate systems of inspection and enforcement should be put in place.			x					
	3 The handling and transporting of dangerous and/or polluting substances should be monitored carefully, liaising closely with the operations department.			x					
	4 Appropriate segregation of dangerous and/or polluting substances should be ensured.			x					
	5 Appropriate emergency plans must be implemented.			x					
	6 In the event of any incident, any response must be prompt and appropriate.			x					
	7 Bunkering operations should be monitored to ensure that they are undertaken in a safe manner and with due regard to the environment.			x					
1.5	Managing port marine security requirements.	x	x						
	1 The marine security requirements of the port must be ascertained.	x							
	2 Risks to port personnel and the general public should be assessed.		x						
	3 Appropriate security arrangements should be implemented, having regard to current threat assessment levels.	x							
	4 Security personnel should be managed so as to provide an effective service.	x							
	5 A close awareness of relevant port security legislation should be maintained, including current threat assessment levels.	x							
	6 Close liaison should be maintained with the local police force.								
2.0	Managing port marine operations	x	x	x	x	x	x		
2.1	Assessing marine operational risks		x	x	x				
	1 A formal risk assessment should be undertaken to identify risk and measures necessary to provide a safe environment for marine operations.		x						
	2 An appropriate and effective safety management system must be implemented and maintained.		x						
	3 Marine operations should be conducted in line with the requirements of the Port Marine Safety Code.		x	x	x				
	4 Safety procedures and controls should be reviewed and updated regularly, in line with operational needs and in any instances where the degree of risk has changed and when any changes occur.		x						
	5 A continuous improvement in safety performance should be targeted.		x						
	6 Port facilities and marine equipment should be inspected frequently and systematically within a preventative maintenance plan.			x	x				
	7 Reports and timescales for rectifying defects should be provided for any deficiencies found during inspections.			x	x				
2.2	Regulating and monitoring vessel movements			x					
	1 Procedures for regulating vessel movements should be clearly laid down and advised to members of staff and others involved in such operations.			x					
	2 All vessel movements should be properly planned to facilitate safe and efficient operations.			x					
	3 Responsibilities for monitoring vessel movements should be clearly established and relevant members of staff made aware of the authority's obligations.			x					
	4 A system should be implemented to facilitate the recording of vessel movements in the harbour.			x					
	5 Relevant details of vessel movements should be disseminated to those who require this information.			x					
	6 Close liaison should be established and maintained with other marine service providers.			x					

Element	Duties	Director of Operations	Head of Safety Management	Head of Ranger Services	Head of Construction and Maintenance	Project Design Supervisor	Senior Waterways and Recreation Officer	Collector of Tolls	Chief Executive
	7 Procedures for regulating vessel movements should be reviewed following any incident or near-miss and also as part of a normal process.			x					
2.3	Facilitating safe and efficient management of all marine activities	x		x	x	x	x		
	1 The management of all staff involved with marine activities should be undertaken effectively so as to facilitate safe and efficient operations at all times.	x							
	2 An effective system for managing marine staff should be implemented, based on an appraisal of every aspect of the authority's marine operation.	x							
	3 Action should be taken to ensure that all craft for which the authority has operational control are manned and operated in accordance with relevant regulations, codes of practice and guidelines.			x					
	4 Marine equipment, vessels and infrastructure should be managed effectively to ensure, so far as is reasonably practicable, a safe working environment for all marine staff.			x					
	5 Regular liaison should be maintained with fishing and leisure interests.	x	x	x	x	x	x		
2.4	Investigating marine incidents	x	x	x					
	1 Clear systems for investigating marine incidents should be laid down, covering both marine safety and regulations.		x						
	2 Investigation procedures should be periodically reviewed.		x						
	3 In the event of a marine incident, appropriate corrective action should be taken.			x					
	4 Where appropriate, disciplinary action may need to be taken.	x							
	5 Assistance and co-operation should be provided to external bodies investigating a marine accident.		x	x					
	6 Accurate records of all accidents and incidents should be maintained and reports provided as necessary to the MAIB and/or MCA.		x	x					
	7 Where an accident investigation reveals breach of regulations, consideration should be given to the appropriateness of enforcement action or prosecution.	x		x					
	8 Where appropriate, a well-prepared case for prosecution should be made.			x					
3.0	Managing harbour staff, finances and marine assets	x		x	x				
3.1	Assessing required manning levels and directing recruitment, training and staff development	x							
	1 Appropriate policies for the selection and appointment of suitable marine personnel should be developed and implemented.	x							
	2 An audit trail should be established to ensure that appropriate members of staff are carrying out established policies effectively.	x							
	3 Manning levels for marine functions should be determined, having due regard to the need for efficient and effective marine operations.	x							
	4 Consultation with other port departments and users should be undertaken as necessary to establish required manning and skills levels.	x							
	5 Adequate levels of skill should be maintained so as to ensure effective marine operations.	x							
	6 The training and development needs of marine personnel should be established by recognised means, including appraisals where appropriate.	x							
	7 Appropriate training and personal development of all marine staff should be ensured.	x							
	8 Procedures should be adopted to facilitate the co-ordination, review and validation of requests for training and personal development	x							
3.2	Managing staff effectively	x							
	1 Marine staff should be made aware of the existence of relevant policies, procedures and guidance.	x							

Element	Duties	Director of Operations	Head of Safety Management	Head of Ranger Services	Head of Construction and Maintenance	Project Design Supervisor	Senior Waterways and Recreation Officer	Collector of Tolls	Chief Executive
	2 Terms and conditions of employment should be developed and made clear to all marine staff.	x							
	3 Job descriptions should be developed for all marine staff and kept under review.	x							
	4 All marine staff should be made aware of their individual and collective responsibilities.	x							
	5 Staff performance should be reviewed at reasonable intervals and appropriate feedback provided.	x							
	6 Appropriate levels of delegated authority and responsibility should be made clear.	x							
	7 Performance indicators and objectives should be set for all staff to whom authority is delegated.	x							
	8 Every effort should be made to promote harmonious working relationships between all members of marine staff.	x							
3.3	Managing financial resources	x							
	1 Appropriate input should be made to the preparation of revenue and expenditure budgets, in line with organisational requirements.	x							
	2 When producing budgets, priority consideration must be given to ensuring sufficient resources to enable safe and efficient marine operations.	x							
	3 Agreed resources should be utilised sensibly with due consideration to the operational needs of the organisation, the demands of customers and to maintaining navigational and personal safety.	x							
	4 A plant replacement programme should be drawn up, justifying costs where appropriate.	x							
	5 Where appropriate, relevant advice should be provided to the Board regarding contracts, leases and licences, and capital works.	x							
	6 Where appropriate, the authority's insurance arrangements must be kept under regular review. Measures for notifying insurers of changes in the authority's requirements should be put in place	x							
3.4	Managing port marine assets	x		x	x				
	1 The marine infrastructure should be inspected frequently and repairs or replacements arranged as appropriate, within available resources.			x	x				
	2 Adequate resources should be allocated to port marine assets, including required manning and/or funding.	x							
	3 Arrangements for insuring port marine assets should be reviewed regularly to ensure they are up-to-date.	x							
	4 The timing of both internal and external maintenance activities should be integrated with marine operations to ensure continuation of essential activities.			x	x				
4.0	Managing emergencies	x	x	x					
4.1	Preparing and maintaining emergency plans	x	x	x					
	1 The type and extent of potential emergency situations should be established, especially those with the risk of injury or loss of life, harmful impact to the natural environment, or major damage to property.		x	x					
	2 Compliance with appropriate legislation should be ensured.	x							
	3 Strong links should be established with the emergency services and others whose help may be required to best respond to an emergency.			x					
	4 Areas of jurisdiction, chains of command and priorities should be agreed.	x							
	5 'Worst-case' scenarios should be considered, together with the level of response appropriate to each.		x	x					
	6 Emergency plans, based on advice received, personnel and equipment available should be developed and circulated, following consultation with all relevant parties.		x	x					
	7 An oil spill contingency plan should be maintained and exercised.		x	x					
	8 A system for periodically reviewing emergency plans should be set up, involving all contributors.		x						

Element	Duties	Director of Operations	Head of Safety Management	Head of Ranger Services	Head of Construction and Maintenance	Project Design Supervisor	Senior Waterways and Recreation Officer	Collector of Tolls	Chief Executive
	9 Any changes to the emergency plans should be promulgated to all interested parties, ensuring that only up-to-date information is available and that obsolete data is erased.		x						
	10 Realistic and appropriate exercises should be undertaken to test the effectiveness of the emergency plans.		x	x					
	11 Opportunities for regular training with the emergency services should be explored		x	x					
4.2	Assessing and responding to an emergency			x					
	1 Upon receipt of information concerning an emergency, arrangements to establish and manage a response centre should be put in hand immediately.			x					
	2 An emergency response plan should be implemented that takes account of methods of controlling the emergency and links with relevant bodies.			x					
	3 The expertise needed to meet the requirements of the plan should be considered and any shortcomings addressed.			x					
	4 Adequate training for port personnel involved in emergency response should be provided at the earliest opportunity.			x					
	5 A call-out system should be established to ensure that sufficient suitable personnel are always available to respond to an emergency.			x					
	6 The type of plant and equipment needed to deal with potential emergencies should be ascertained and their short-notice availability confirmed.			x					
	7 Instructions issued during an emergency must be clear and concise.			x					
	8 Protection of the authority's legal liabilities must be ensured in managing emergency operational response and in dealings with other agencies.			x					
	9 Appropriate records of the management of the response should be maintained.			x					
	10 Appropriate methods of controlling the release of information should be considered.			x					
5.0	Managing the marine environment	x	x		x	x			
5.1	Identifying and reviewing the status of the port's physical and ecological marine environmental and conservation features, taking into account relevant issues and regulations	x				x			
	1 Environmental survey and monitoring programmes should be implemented and/or assisted that establish the status of the port's physical and ecological features, such as coastal processes, sediment characteristics and quality, plant, animal and bird communities.	x				x			
	2 A system should be implemented to ensure that full information is available to the port concerning the classification by national conservation bodies of the habitats, flora, fauna, physical features and coastal processes in and adjacent to its area of jurisdiction.					x			
	3 Appropriate procedures should be established to identify operations and activities that may potentially be harmful to the marine environment.	x							
	4 Means of communication should be implemented to enable stakeholders to bring environmental issues to the attention of the Authority.	x							
	5 A reference system of environmental legislation that is relevant to the port and its operations should be maintained, together with related environmental guidelines and codes of practice.					x			
	6 Where appropriate, resources for analysing environmental information and trends should be made available to enable informed decisions to be taken.	x							
5.2	Advising on, implementing and reviewing port marine environmental policy	x	x			x			
	1 All marine staff should be made aware of the port's environmental management policy and any related codes of practice.	x							
	2 Marine staff should be instructed to report any situations, which may detract from the policy.	x							

Element	Duties	Director of Operations	Head of Safety Management	Head of Ranger Services	Head of Construction and Maintenance	Project Design Supervisor	Senior Waterways and Recreation Officer	Collector of Tolls	Chief Executive
	3 Close liaison with local authorities and environmental/conservation agencies should be established in order to facilitate early identification of conflicts and to promote mutual understanding.	x							
	4 An effective means of implementing environmental policy should be put in place. This should include means of monitoring, measuring and reviewing policy objectives and of effecting change where appropriate.	x							
	5 Sufficient data should be made available to enable the Harbour Master to provide advice on general aspects of environmental policy, including advice on prevailing opinion, planning requirements, mitigation and national policies affecting the marine environment.					x			
	6 A collaborative approach to monitoring and data sharing should be encouraged amongst relevant authorities.	x							
	7 The port's environmental policy should be periodically reviewed to ensure that it is sustainable and reflects current operations and activities.	x				x			
	8 Good environmental practice should be encouraged and harbour users advised accordingly.		x						
	9 The appropriateness of the port's statutory powers to influence environmental management should be kept under regular review.	x							
5.3	Assessing and monitoring the environmental impact of port operations and activities	x			x	x			
	1 A systematic means of evaluating the port's operations and activities should be implemented for the purpose of identifying environmental issues and impacts requiring management action. Operations and activities may include vessel, cargo and maintenance operations that release marine pollutants, noise or dust, dredging and disposal activities and the management of ship-generated waste.	x							
	2 Any changes in operational methods should be assessed to ascertain the risk to the environment.				x	x			
	3 Action should be taken to minimise any potentially adverse effects of operations and activities on the environment, having regard to guidance on environmental good practice and codes of conduct.				x	x			
	4 Consideration should be given to the zoning of activities with the aim of reducing conflict between harbour users and the environment.	x							
	5 Consultation with relevant agencies should take place at regular intervals to ensure that all views are taken into consideration.	x							
	6 Environmental considerations should be taken into account when reviewing vessel traffic management procedures and techniques.	x							
5.4	Advising on the impact of port plans or projects on the marine environment, ensuring sustainable development	x				x			
	1 An environmental policy should be developed and implemented which commits the port to manage its development in an economically and environmentally sustainable manner.	x				x			
	2 A reference system of relevant environmental legislation and planning policy relevant to port development should be maintained and regularly updated, together with a register of nature conservation designations near the port and their objectives.	x				x			
	3 A system should be implemented to ensure compliance with environmental legislation, controls and conditions relating to proposed port developments, including thorough environment impact assessments where appropriate.	x							
	4 Procedures should be adopted that identify port developmental projects and plans that may be harmful to the marine environment, ensuring steps are taken to evaluate, avoid, minimise and monitor any potentially adverse effects.	x				x			

Element	Duties	Director of Operations	Head of Safety Management	Head of Ranger Services	Head of Construction and Maintenance	Project Design Supervisor	Senior Waterways and Recreation Officer	Collector of Tolls	Chief Executive
	5 Procedures should be adopted to maintain records of marine environmental control measures relating to port development, including mitigation and monitoring measures.					x			
	6 A consultation procedure should be implemented to ensure that the port is able to demonstrate necessary involvement of relevant stakeholders in the consultation process, preferably at an early stage in the planning process.	x							
5.5	Ensuring compliance with the port's statutory obligations related to the marine environment, including compliance with statutory and non- statutory management schemes	x							
	1 Full information should be made available from a reference system in order that the legislative requirements relevant to the port, its operations and the environment can be identified and reviewed.	x							
	2 Clear responsibilities should be established to ensure that the processes for complying with environmental legislation are followed correctly, including statutory conditions and consents required for port operations and developmental projects.	x							
	3 Training procedures should be established to ensure that appropriate staff are aware of the port's statutory obligations relating to the environment.	x							
	4 Procedures should be established to ensure compliance with the implementation, operation and review of statutory management plans, such as Port Waste Management and Oil Spill Response plans.	x							
	5 A system should be implemented to identify statutory and non-statutory environmental management schemes that are relevant to the port, ensuring appropriate compliance with their objectives.	x							
	6 Consideration should be given to documenting and reviewing the environmental benefits that arise from complying with safety legislation and implementing general byelaws that regulate port operations and activities	x							
6.0	Managing the provision of the pilotage service		x	x					
6.1	Managing the safe and efficient operation of the pilotage service		x	x					
	1 An appropriate policy on the provision and management of pilotage services must be developed and maintained.		x						
	2 The need for pilotage services should be determined by risk assessment, taking into consideration the number and types of vessel, as well as the demands of the pilotage area.		x						
	3 The personnel required to meet this demand should be determined, having regard to the average length of time required to execute an act of pilotage and the number of rostered hours of duty available.			x					
	4 Pilotage Directions should be enforced and reviewed as necessary.			x					
	5 The level and nature of training and experience required for each pilot should be assessed.		x	x					
	6 Suitable pilot transfer areas should be established.		x						
	7 Satisfactory means of communication with pilots should be established.		x						
	8 Records of pilotage acts should be maintained.			x					
	9 Investigatory and disciplinary procedures in respect of incidents involving vessels under pilotage should be agreed and implemented.		x	x					
	10 The efficiency, effectiveness and safety of the pilotage service should be reviewed regularly.		x						
	11 Duly certificated pilot boats should be provided, taking into account the location of pilot transfer areas, anticipated weather and sea conditions and the safety of pilots and boat crew.		x						
	12 Where appropriate, a programme of pilot boat maintenance should be implemented and appropriate records kept.		x						

Element	Duties	Director of Operations	Head of Safety Management	Head of Ranger Services	Head of Construction and Maintenance	Project Design Supervisor	Senior Waterways and Recreation Officer	Collector of Tolls	Chief Executive
6.2	Assessing and recommending the authorisation of pilots and the continuing assessment and reauthorisation of pilots		x	x					
	1 Procedures should be established for verifying the competence of pilots.		x	x					
	2 In assessing the competence of a pilot, medical fitness should be ascertained.			x					
	3 A pilot's local knowledge should be determined through tripping and/or examination.			x					
	4 Piloting and ship-handling skills should be ascertained by practical assessment.			x					
	5 Recommendation for authorisation of a pilot should only be made when all required conditions have been met.			x					
	6 The re-validation of pilot authorisation should be undertaken in accordance with the Port Marine Safety Code.			x					
	7 Agreed incident and disciplinary procedures, including the means of withdrawal of authorisations, should be established.		x						
	8 Where necessary, a grading structure for pilots should be established, with appropriate interim examinations.		x	x					
6.3	Administering and regulating the granting and renewal of pilotage exemption certificates		x	x					
	1 A system should be implemented to ensure that the conditions required by the Pilotage Act and the Port Marine Safety Code are complied with. This will ensure that the experience and local knowledge of an applicant for a pilotage exemption certificate (PEC) are sufficient to enable that person to pilot the vessel(s) specified in the certificate.		x	x					
	2 The piloting and appropriate ship-handling skills of the applicant should be ascertained by practical assessment.			x					
	3 The relevant experience of the applicant should be calculated on the basis of an agreed number of qualifying trips.			x					
	4 Where appropriate, the local knowledge of the applicant should be determined by examination.			x					
	5 In assessing the competence of an applicant, medical fitness should be ascertained.			x					
	6 The pilotage exemption certificate should be confirmed as being legally correct and signed by an approved person.		x						
	7 Formal agreements should be established with the PEC holder, the holder's employer and the CHA.		x						
	8 Accurate and up-to-date records of pilotage exemption certificates issued and/or revoked should be maintained.		x						
	9 Arrangements for suspension or revocation should be clearly set out and clarified to each PEC holder.		x						
	10 A reporting system must be operated to facilitate notification to the harbour authority of acts of pilotage conducted under exemption.		x						
7.0	Communicating with external interests	x	x	x	x	x	x	x	x
7.1	Maintaining effective relations with relevant parties	x	x	x	x	x	x	x	
	1 Regular meetings should be arranged with port users, stakeholders and other interested parties to convey accurate information about the port and its plans and to consider their views.	x	x	x	x	x			
	2 Contacts with the media, including local and national newspapers, radio and television should be developed as a means of imparting factual information about the port.	x							
	3 Following meetings with stakeholders and others, consideration should be given to alternative means of communication which may be more effective and time-saving.	x							
	4 Other means of providing information about the port, its operations and evolving issues, should be developed, including the provision of printed documents and use of the internet.		x						

Element	Duties	Director of Operations	Head of Safety Management	Head of Ranger Services	Head of Construction and Maintenance	Project Design Supervisor	Senior Waterways and Recreation Officer	Collector of Tolls	Chief Executive
	5 Good relationships should be developed with local community groups, local authorities and organisations, politicians and other ports.	x	x	x	x	x	x	x	
	6 Knowledge of local media working practices and deadlines should be gained.	x							
7.2	Representing the port and providing relevant advice	x							x
	1 Good communication skills and a full understanding of the matters at hand must be demonstrated when representing the port or acting as a spokesperson.	x							
	2 Early and effective contact with the media should be achieved during emergency situations, taking care to ensure that the media are not handled in a manner which may cause adverse publicity for the authority.	x							x
	3 Responses to media enquiries should be speedy and factual.	x							
	4 Follow-up statements or briefings should be made regularly and contain accurate and relevant information.	x							
	5 Informed and relevant advice should be provided readily when required.	x							
8.0	Managing the leisure use of the port	x	x	x	x	x		x	
8.1	Managing and regulating recreational facilities and activities	x	x	x	x			x	
	1 A policy for small craft moorings should be established whereby procedures are identified for the provision, location, allocation, specification and maintenance of moorings within the authority's area of jurisdiction.	x							
	2 A database of moorings and small craft should be established which is capable of providing information on accounts, licences, waiting lists and other functions related to the management and identification of small craft.	x						x	
	3 Where appropriate, leases or licences should be drawn up between owners of the seabed and the harbour authority.	x							
	4 Harbour bye-laws covering the management of leisure and recreational craft should be enforced and, where necessary, updated.	x		x					
	5 To minimise potential conflict between different interests, zoning of the harbour should be considered for certain waterborne leisure activities.								
	6 Port craft used to support recreational facilities should be properly maintained.	x							
	7 Where appropriate, events such as regattas and displays should be risk-assessed in order to create a safe environment for both participants and onlookers.				x				
	8 The authority's standards of safety and discipline should be made known to all users.		x	x					
8.2	Licensing commercial and passenger craft and their operators		x	x					
	1 Where appropriate, boat equipment should be carefully examined to ensure that levels are commensurate with the vessel's limits of range.		x						
	2 Confirmation should be obtained that up-to-date hull and engine surveys have been carried out to a required standard and that any deficiencies found have been rectified.		x						
	3 Where appropriate, crews should be examined to ascertain competence in local knowledge, seamanship skills, emergency situations and other skills as required by the conditions of the licence. Alternatively, evidence of existing levels of competency should be determined.		x						
	4 Regular checks should be made to ensure that craft and their operators have appropriate current licences.			x					
	5 Where appropriate, authorisation should be obtained from the MCA to issue licences under the appropriate Codes of Practice.		x						
8.3	Managing relationships with leisure users	x	x	x	x	x			

Element	Duties	Director of Operations	Head of Safety Management	Head of Ranger Services	Head of Construction and Maintenance	Project Design Supervisor	Senior Waterways and Recreation Officer	Collector of Tolls	Chief Executive
	1 A policy for the provision of recreational moorings should be formulated in consultation with user groups and other interested parties.	x							
	2 Educational and promotional material should be made available in order to encourage safe and sustainable use of the harbour by leisure users.		x						
	3 In order to promote events and other marine activities, joint arrangements with clubs, associations and other bodies should be considered.		x						
	4 Good working relationships should be maintained with leisure users.	x	x	x	x	x			
	5 Marine staff involved with the general public should be given appropriate training in customer services			x	x				
9.0	Contributing to the strategic planning process	x							
9.1	Advising on the development and implementation of port strategic and business plans	x							
	1 Relevant and accurate advice should be provided to the Board on issues that impact on marine operations.	x							
	2 Guidance should be provided as required to support the development of the port's strategic and business plans.	x							
	3 Strengths and weaknesses within the marine operations department should be identified.	x							
	4 Deficiencies within the marine operations department should be addressed and remedial action proposed.	x							
9.2	Contributing to project feasibility, development and implementation	x							
	1 The relationship between individual projects and the port's overall strategy should be taken into account.	x							
	2 The feasibility of a project should be considered fully before embarking on any work.	x							
	3 Written conclusions should be provided and project approval received before development commences.	x							
	4 Approved projects should be directed in accordance with the agreed methodology.	x							

Source	ID	Title	Description	Consequences	Safeguards and mitigations in place	Current Assessment			New			ALARP? Y/N	ALARP Statement	Further Actions	Comments		
						Prob	Severity			Prob	Severity						
							Pers	Env	Ass		Pers					Env	Ass
M	001a	Passage of Commercial Craft	Commercial vessels negotiating the confined waterways are restricted in their ability to manoeuvre and take up most of the available space. Recently the only commercial usage is the tanker to Cantley. Large vessel relating to flood alleviation works and Dredging plant and equipment.	Collision with moored boats resulting in sinking. Collisions with other river users who cannot get out of the way due to the narrow channel. Environmental pollution from fuel spill in the event on a collision.	Standing Orders for Mud Pilot in place. Guidance provided to Mud Pilot Training developed. Experience and competence of mud pilot Commercial pilots MCA qualified. Signage on bends (no commercial vessels). Broads Authority Hire Boat licensing conditions require operators to brief hirers on commercial traffic.	Rem	Med	Mod	Mod	B					There remains a possibility of commercial craft transit to Cantley. In addition the new Byefield energy plant may increase number of commercial craft. However the commercial berth is now gone. The mud pilot remains employed in other areas (e.g. recently moved the NELSON), and is trained in line with national standards, made specific to the Broads. A second person is being trained but insufficient number of vessels to gain experience. A number of commercial craft operate in the Broads, which are covered by MCA licence. Passenger craft not piloted as their captains are MCA qualified. The byelaws do not specify a classification or size above which a pilot is to be used. There is no history of collision of commercial vessels on the Broads, however it is noted that the risk increases at night. Pilotage is considered on a case by case basis following a risk assessment process, consideration may be given to the possibility of requiring vessels over a certain size to be piloted.		
M	001b	Passage of Passenger Craft	Large passenger vessels negotiating the confined waterways are often restricted in their ability to manoeuvre.	Collision with moored boats resulting in sinking. Collisions with other river users who cannot get out of the way due to a narrow channel for example. Environmental pollution from fuel spill in the event on a collision.	Skippers are properly trained and licensed through the MCA. Emergency procedures are in place and inspected by the MCA. Boat are surveyed by the MCA. Safety briefs are provided to passengers. Broads Authority Hire Boat licensing conditions require operators to brief hirers on commercial traffic.	Rem	Med	Mod	Mod	B					Passenger craft not piloted as their captains are MCA qualified. The byelaws do not specify a classification or size above which a pilot is to be used. There is no history of collision with commercial vessels on the Broads, however it is noted that the risk increases at night. Pilotage is considered on a case by case basis following a risk assessment process, consideration may be given to the possibility of requiring vessels over a certain size to be piloted.		
M	001c	Passage of commercial Craft: Ferries	Small Passenger Vessels, transiting the navigation, typically Ferries	Collision with other vessels using the navigation	Navigation Byelaws, Small Passenger Boat licensing scheme requiring minimum safety standards. Regular audits by enforcement officers	Prob	Mod	Min	Min	B							
M	002	Powered craft speeding	Powered craft navigating with excess speed creating excessive wash. Boat builders, brokers and boatyards can test or demonstrate at speeds in excess of the speed limits in certain areas of the Broads	Swamping of small craft. Risk of damage or injury of river users. Collisions. Erosion of the river banks and disturbance of wildlife. Collision of two boats towed alongside. Damage to boat craft. Poor maintenance of banks where moderate speeding frequent.	Speed limits are marked, and enforcement is undertaken. Leaflet updated 'Mind Your Wash'. To include effects of wash on towing two vessels. Hire boat helmsmen. Leaflet to be placed in cabins. Completed Hire Boat licensing requires adequate show out to customers which will be audited to ensure reference to speed and wash is included. Super safety days held in 2010, education of users regarding speed and wash, offers of calibration of vessels given to both hire yards and private boat owners. A safety video has been produced and included (amongst other safety information) effects of wash on other users. Most Hire boat yards include a copy of the DVD on board. Signage has been erected at rowing venues regarding the effects of wash. A code of conduct leaflet has been produced for rowers. Offences relating to speeding including fines incurred have received additional coverage in the Authority's Broadsheet	Vfreq	min	Min	Min	B				Engage with Day Boat operators and the BHBFB relating to speed indicators and additional measures which may be available.	Personnel taking out big vessels should be qualified. Need to register for speed exemption. Company applies (not individuals). Commercial craft operating boat testing would fall under the requirements of license. New log books have been developed and conditions relating to the use of trade plates have been strengthened, a full review of boat test areas will occur in 2013 following the collection of data. Signage will then be reviewed at this point.		

Source	ID	Title	Description	Consequences	Safeguards and mitigations in place	Current Assessment			New			ALARP? Y/N	ALARP Statement	Further Actions	Comments		
						Prob	Severity			Prob	Severity						
							Pers	Env	Ass		Pers					Env	Ass
M	003	Inexperienced Helmsmen	There are a large number of (first-time) Hirers and other boat users who do have limited knowledge and expertise in boat handling and boating protocol	Collisions. Groundings. Mooring: tide and wind.	Hire Boat Licensing introduced in 2010 which requires an adequate briefing that can be audited by the Authority. Mind your wash leaflet reprinted and distributed. DVD produced and distributed to boatyards and hire agents, to show to new customers hopefully before they start their holiday. Type specific leaflet developed giving basis safety information to both private and hire helmsmen. Type specific leaflet developed for sailing vessels and attention is drawn to staying right of channel not extreme right of river. Additional signage has been installed on Barton Broad. New registration pack users are asked if they want specific information via a checklist. Markings on the lower Bure have been improved 2012, breydon channel markers improved and additional lay by moorings installed in the Breydon bridge area.	V	Fre	Min	None	Min	B					Experienced helmsmen tend to sail very closely to the bank (on right) causing problems to anglers in recovery of lines.	
M	004	Yacht racing and Regattas	Yacht Racing and regattas involve a large number of boats in a confined area, reducing available space for other users of the waterway.	Collisions between racers and other users Wash	Rangers try to show a presence at regattas when possible. Brief mention in skippers handbook about dealing with yachts. Link placed on Broads Authority website to NSBA green book in order that river users can obtain information where and when regattas are being held. Clubs are advised to deploy signage or additional committee vessels to warn other boaters of the hazard.	Pro		Min	None	Min	B					Green book website lists schedule of events. Consider placing marks upstream and downstream - major regatta ahead. To be put in position by regatta organizers. Consensus that no need to specifically mention regattas. Accidents likely on average 5-6 years each regatta but only one reported incident last year.	
M	005	Rowing skiffs and competitive rowing	Rowers take up a lot of the river and go deceptively quickly.	Collisions, Sinking of skiffs, capsizes, worst case is drowning of rowers.	Rowing is limited to particular areas of the Broads. Warning Signs erected both upstream and downstream of Rowing areas to inform other river users to reduce their wash. Leaflet has been produced with safety information relating to rowing.	Rem		Mod	None	Min	B			None		Hazard 017 (Powered craft and rowers) absorbed into this hazard Rowers can very rarely wear a buoyancy aid. Tend to be quite central on the river. New rowers rarely receive instruction when new toll received. Vessels should alert rowers coming towards them of potential collision. Several near misses reported, no accidents reported.	
M	006	Angling	Anglers obstruct the navigation with their rods and lines, commandeering moorings and moor their boats in the fairway.	Conflicts between fishermen and other users Equipment damage due to contact. Lines wrap around propellers - unlikely to result in loss of control of vessel - Collisions - especially at night if lights not shown. Discarded tackle can cause harm such as hooks in mooring ropes etc.	Angling/fishing matches and regattas are coordinated to not coincide. Boats have priority over anglers until October in season. Anglers require Environment Agency license but no license from Broads. Angling season applies. Advice to anglers in code of conduct leaflet (anglers to move rods and to not obstruct passage of vessels) - included in suite of leaflets. Identify minimum night lighting and advise anglers and others to not moor in the centre of the channel. Included in leaflets. Angling leaflets have been distributed to local tackle shops. Angling code of conduct leaflet published and includes additional safety instructions. Safety DVD published to emphasise no fishing from boats whilst underway.	Fre		Min	None	Min	B			None		Some moorings have been signed 'no angling' but only where alternative angling arrangements are available locally. Modern fishing rods can be up to 18m and are less likely to snap. Inexperienced may not use the correct equipment e.g. sea lines and may not be familiar with local bye-laws Issues can be reported to the Rangers who can investigate and caution anglers. There is an Issue with Eel nets Fishing matches are signed. Consultation of the Green Book will co-ordinate angling/fishing matches and regattas to not coincide. Discussion of mooring at night and use of lights. Anglers are not very visible to sailors. Discussion over anglers displaying visible flags however this was not thought to be viable as the most inexperienced anglers who are the greatest risk, are unlikely to buy them. Trailing of lines behind cruisers/day boats not liked by anglers. No fishing whilst vessels are underway. (trolling) is in current byelaws.	
M	007	Potter Heigham Bridge	Navigation through, and in the vicinity of, Potter Heigham Bridge.	Collision with the bridge. Damage to boats, injury to passengers and crew	Use of pilot obligatory to boat hirers. Those owning boats have the choice whether or not to use a pilot. Authority publishes bridge heights. Safety DVD now published with particular section on Bridges, further advice given on BA website and annually published free visitor publication "Broadcaster"	Prob		Mod	None	Min	B			None		The action to move signage further back from the bridge has been completed. Additional draft gauges have been placed in advance. Use of draft gauges has been included in the Safety DVD. Tidal patterns and actual water levels are measured in approx. 50 ports around the country. Pilots have their own level gauge and can prevent passage through the bridge (thereby removing the hazard). Will enable people to know in advance whether they can get through the bridge but will not mitigate this risk.	
M	008	Wroxham Bridge	Navigation through the road and pedestrian at Wroxham	Contact with the bridge.	Hirers are encouraged to use pilots. Warnings are given in the Skippers handbook - Wroxham specifically mentioned. Safety DVD now published with particular section on Bridges, further advice given on BA website and annually published free visitor publication "Broadcaster"	Prob		Mod	None	Min	B			None		No clearance guide upstream - not practical to place one here, no structure to hang from and visibility upstream in much better. Pilot not compulsory. Compulsory use of pilots likely to increase congestion and raise level of risk.	

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M	009	Swimming	Swimming in unsuitable locations and around the area of bridges (including leaping from bridges)	Injury or drowning	Wardens have gone into schools, safety care leaflet, Broadcaster visitor publication and safety DVD - all discourage swimming from boats and around the area of bridges. Guidance on swimming now published on Broads Authority Website	Rem	Sev	None	None	B				Y	Hazard is ALARP	None	Caen Meadow - Swimming cannot be regulated, however swimmers who climb onto boats are committing an offence. Warnings given under public order law. Discourage unsafe behaviour. Two drownings occurred (dry drowning) as the water was unexpectedly cold. Consideration was given to buoying off a special area just for swimmers but the people most likely to be problematic would not stay within this area. Broadland Community Safety Partnership - access to money to employ a community warden. Caen Meadow is leased parish land but felt that warning signs would help. Agreement from the parish. will be required. Stickers on hire boats were not believed to be needed.
M	009a	Open Water Swimming	Swimming generally through organised events sometimes resulting in large number of swimmers affecting the navigation	Injury from collisions with boats drowning	Organisers of large events need to get BA permission, risk assessment identifies suitable control measures including safety boats and segregation from other users. Individuals and small parties are particularly at risk due to potentially poor consideration of conditions and hazards. National Guidance now available for organisers of events	Rem	Sev	None	None	B				Y	Hazard is ALARP	Publish Guidance for open water swimming when national guidance is available	Recent organised events have liaised with the Authority and suitable control measures have been identified, one event recently cancelled by the Authority due to concern over the competency of the organisers.
M	010	Bridges	General bridge navigation and layby moorings	Collisions with the bridges and other boats.	Signage and clearance gauges have been reviewed. A water gauge has been fitted at Great Yarmouth. A bridge guide is available showing which are arched, and what the clearances are. Bridge height information is published in Tide tables, Broadcaster, NSBA green book, BA website, etc., advance gauge boards fitted approaching a number of bridges. Signs cleaned regularly, Great Yarmouth yacht station turn back boats that they know will not get safe passage under the nearby bridges, also advice given by Breydon Launch to boats approaching Great Yarmouth bridges	Fre	Mod	None	Min	B				Y	Hazard is ALARP		Rail Swing Bridges Sliding board displayed when bridge will next be open. St. Olaves is a flat curved bridge and sailors tend to navigate at the edge of the bridge rather than in the middle. Guidance states stick to the centre going under bridges when no other vessels coming. Consider implementing signage at St Olaves bridge to encourage sailors to pass through the centre of the bridge (not the edges) After discussion it was concluded that no action was required regarding St Olaves bridge. Policy relating to the siting of gauge boards has been developed and new gauge boards have been trialled for easier cleaning.
M	011	Grounding	Breydon Water											N/A	N/A	N/A	Not included as outside of the area of the Broads Authority No harbour master authority. Hazard declared closed at original Formal Safety Assessment
M	012	Mutford Lock	Slippery waiting pontoon	Slips and falls	Procedure now in place for the routine inspection, maintenance and cleaning of Mutford Lock pontoon.	Rem	Min	Min	Min	C				Y	Hazard is ALARP	None	Plans show Broads Authority have responsibility for the pontoon despite it being located within AB Ports area. Operated by Waveney District Council on behalf of the BA.
M	013	Powerboat Racing	Powerboat racing on Oulton Broad	Collision with third parties	Broads Authority been working closely with powerboat club for 3 years. Management plan in place to manage activity. Broads review risk assessments annually. Patrol boats are provided (at least one). Advanced signage displayed - officials will direct them on how to cross the broads.	Rem	Sev	Min	Mod	B				Y	Hazard is ALARP	None	Authority can restrict passage Oulton Broad when power boat events are taking place. Both actions completed on an as needed basis. Broads Authority are very tight on the mitigations put in place in the risk assessment and are reviewed annually. No incidents/collisions have been reported.
M	014	Water-skiing and wakeboarding - Collision	Water-skiing and Wakeboards in proximity of other skiers and boats	Boat running over skier or collisions between ski boats, or ski boat and other vessel, resulting in injury or fatality.	Be introduced Waters ski permits from 2010 under the Broads Authority Bill, permits require regular inspection of vessels, insurance, qualification for helmsman, noise and wash test to be completed, mandatory membership of ERSC and British Water Ski Qualified instructors provided. New signs have been developed and implemented on both sides of the river. Log book now state whether activity was Wakeboarding or Water-Skiing Implemented a voluntary (more stringent) inspection regime on boats, particularly steering. Assessment of each boat on an annual basis. British Water Ski have developed a code of practice and a specific risk assessment relating to the (No Suggestions) which ERSC have adopted which states certain good practice such as not operating when boats towing are in operation and other good practice requirements. Following Water ski Review 2010 final mitigations measures will be implemented over the winter for the 2011 season.	Rem	Sev	Min	Mod	B				Y	Hazard is ALARP		Over 130 courses delivered for boat drivers (ski boat driver award). Proof of course is required prior to boat driving. Observer sits in the boat providing information to the boat driver on ski position and condition. Potential collision/congestion is avoided by stopping. Wash education given as normal business. Fallen skiers are identified by yellow flags risen by observer warning other users. Section in Safety DVD on powerboat racing and water-skiing and what to do if you see a yellow flag. Stringent self-policing. Log books are completed after every run and are inspected annually. Risk assessments have been completed on all 10 zones and mitigations have been identified for 3 zones which have yet to be implemented. SBDA - Lists what boat drivers should and shouldn't do. Skier also has a list. Cause: Multiple boats in the proximity. How mitigated? Experienced personnel at the helm. Observers. Boats are staggered so that fallen skiers can be recovered. 2011 review concluded that there was no significant changes in safety following the trial of wakeboarding in the 2 areas and the review concluded that the trial should be run for another year and to include a zone on the River Waveney. The 2011/12 season would be reviewed in the autumn of 2012. Breydon water is currently being considered for an additional water ski zone the Authority will decide early in 2013.

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M	015	Water-skiing & wakeboarding - wash	High speed manoeuvres creating significant adverse wash	Erosion of the bank and flooding of the footpaths Discomfort or injury to passengers of moored or passing boats nearby	BA introduced Waterski permits from 2010 under the Broads Authority Bill, permits require regular inspection of vessels, insurance, qualification for helmsman, noise and wash test to be completed, mandatory membership of ERSC and British Water Ski Qualified instructors provided. New signs have been developed and implemented on both sides of the river. Log book now state whether activity was Wakeboarding or Water-Skiing Implemented a voluntary (more stringent) inspection regime on boats, particularly steering. Assessment of each boat on an annual basis. British Water Ski have developed a code of practice and a specific risk assessment relating to the Broads which ERSC have adopted which states certain good practice such as not operating when boats towing are in operation and other good practice requirements. Following Water ski Review 2010 final mitigations measures will be implemented over the winter for the 2011 season.	Fre	Min	Min	Min	B					Wakeboarding is not illegal. Wakeboards and skiers comply with Broads Authority regulations 6E and 12 now replaced with conditions under new permit regime. A test was conducted comparing the wash of skiers and wake boarders. 2011 review concluded that there was no significant changes in safety following the trial of wakeboarding in the 2 areas and the review concluded that the trial should be run for another year and to include a zone on the River Waveney. the 2011/12 season would be reviewed in the autumn of 2012. Beyond water is currently being considered for an additional water ski zone the Authority will decide early in 2013.		
M	016	Embarkation and disembarkation with a consequence of entering the water.	Embarking and disembarking between the craft and the shore and other vessels/tenders.	Drowning	Safety information is detailed both on the BA website and in the annual Broadcaster newspaper produced by the authority. Users are encouraged to wear lifejackets. Quay Rangers are available at some major moorings. The issue of the Safety DVD during the summer of 2008, included content advising users to avoid alcohol and take care when returning to moorings and boarding their vessels. Safety Chains and Ladders installation in the final year of implementation, additional Throw lines, and life rings have been installed at all BA managed moorings, which aid the recovery of people from the water. Safety Campaign developed for 2011 which will be promulgated in public houses and at BA moorings. Booking agents are reluctant to take up the offer regarding distribution of the Safety DVD to all new customers, however some boatyards now have links to the BA website where the DVD can be seen of the internet.	Rem	Sev	None	None	B					Considered ALARP after discussion that concluded that little more could be done other than to advise boaters that a boarding method should be fitted to allow persons to re-board such as a ladder.		
M	017	Motor cruisers and rowers	Contact between motor cruisers and rowers	Sinking of rowing boat and subsequent injury or drowning of crew								N/A	N/A	N/A	Incorporated into Hazard 005 (Rowing Skiffs) at previous hazard review		
M	018	Sailing yachts	Human error and weather conditions possible effect on other river users	Collisions and Damage	Navigation Byelaws detail actions to be taken to avoid collision, the fact that some Broads sailing vessels have bowsprits, does not remove or reduce the requirement to comply with the byelaws. A sailing code of conduct leaflet has been developed with the sailing clubs and published giving basic safety advice and conduct with other river users.	Fre	Min	None	Min	B							
M	019	Dinghy Sailing	Sailing in the rivers and Broads	Injury or drowning of the dinghy crew.	A sailing code of conduct leaflet has been developed with the sailing clubs. Promote training to RYA level, promulgates information on life jackets, and basic safety messages.	Pro	Mod	None	Min	B							
M	020	Navigating Small Craft in Isolation	Individual dinghies (sailing, rowing or canoes or paddle boarding etc.) navigating in isolation	Capsize. Injury Hypothermia Drowning.	Smaller boats are still licensed (toll). Daily hired boats are covered by best practice code. Specific safety information has been developed and included in relevant safety leaflets. (Tell someone where you are going, when you will be back, take spare clothing, mobile phone, food - emphasise not going in isolation)	Pro	Mod	None	Min	B					Human error a cause, also engine failure, run out of fuel. Emphasis of wearing a life jacket key, secondary method of buoyancy/bailer/buoy. River debris unlikely as cause of capsizing. Sailing in isolation is particularly hazardous. Previous accident history - one drowning, alcohol involvement, no evidence of wearing a lifejacket. More canoes on the Broads more recently		
M	021	Flood alleviation scheme	The river banks change of profile due to being piled and having new, set-back flood walls made for flood alleviation.	Stranding, Grounding, Holing of boats, sinking.	Regular meetings are held with BFAP contractors to review current and future works, the contractors voluntarily comply with the BA navigation works guidance, navigation rangers regularly patrol works areas to ensure that hazards are appropriately marked. Where necessary the Authority can issue Special directions to BFAP contractors to comply to certain conditions. Formal Hazard notification procedure now in place in order that BA can alert BESL of hazardous area / structures. Methodology now in place which requires a full survey to be completed prior to opening of the navigation following pile removal. EA have marked all hazards on the system and are maintaining these markers.	Prob	Min	Min	Mod	B					Following an increase in incidents relating to debris after piling removal changes were made to the ratings.		
M	022	Swamping	Flooding									N/A	N/A	Consultation required to identify any possible time and space zoning if deemed appropriate.	Closed at Formal Safety Assessment, not considered credible.		

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M	023	Medical Emergencies	Medical emergencies on boats requiring rescue by the emergency services	Delays could make the condition of the injured/ill person worse	All BA 24 hour moorings are signed with the name of the mooring and grid references. Formal procedures are now in place to provide standby cover outside of normal hours for assistance of emergency services. Coastguard has detail and grid references of all BA moorings	Pro	Min	None	None	B				Y	Hazard is ALARP	Review required for Yacht Stations and the provision of AED's		
M	024	Water borne diseases	Occasional Algal bloom due to weather conditions. Also Weils Disease. Pollution due to discharge into watercourse	Health damage to people in contact with the water (skiers, rowers, sailors, swimmers, etc.)	Procedure exists for the notification on presence of blue/green algae. The Environment Agency test water quality all over the Broads, but do not formally notify Broads Authority if there are any problems. Be have developed common signage which is available to land owners to erect when blooms are present. All relevant safety leaflets have references to weils disease and basic cleanliness advice is given. Anglian Water and the Environment Agency contacted regarding Whittingham water treatment works, there is no legal standard regarding the output at such sites.	Rem	Mod	Min	None	B				Y	Hazard is ALARP		The Environment Agency test water quality all over the Broads, but do not formally notify Broads Authority if there are any problems. There is no legal requirement regarding water quality from water treatment works outfalls.	
M	025	Boat Testing	Boat builders have exemption from the speed limit bylaws in order to test new boats. Boat builders and Brokers test and demonstrate vessels new and used occasionally at speed	Collisions and damage to river banks from high speed and large wash created	Test areas are defined in the Broads Authority Seed limit Byelaws. Geographic and time restrictions apply. Voluntary code of conduct in place for users of boat test areas.									N/A	N/A	N/A	This now been incorporated into hazard 002 (Powered Craft Speeding).	
M	026	Obstructions to Navigation	Fallen trees, roots below the water surface and other natural obstructions	Collisions of boats with the obstruction	Members of the Public are encouraged to report any obstructions to navigation, our navigation rangers patrol and one of their duties is to check for obstructions and remove or mark as appropriate. The BA river works team carry out regular scheduled tree clearance at overgrown areas and also respond to reports of fallen and dangerous trees as they become aware. The BA liaise regularly with the Environment Agency who inform the BA of areas where bank erosion or collapse has occurred. Navigation Works guidance is available to inform contractors / land owners of their responsibility to not create a hazard, also planning approvals process also includes liaison with waterways depart to asses impact on waterways. Navigation works Guidance now updated to include references to navigation hazards which may remain after completion of works. Tree clearance program carried out annually, additional powers in place to ensure hazards to navigation from vegetation can be dealt with by the Authority.	Fre	Min	Min	Mod	B					Y	Hazard is ALARP		Broads Authority Act gave additional powers for the Authority to remove hazards to navigation posed by vegetation. Navigation Works Guidance updated.
M	027	Passage Through Great Yarmouth	The passage from the northern rivers to Breydon Water and the southern rivers, or in the opposite direction, must be done at slack low water or just afterwards. The tides can be very strong and at high water boats cannot pass under the Bure Road Bridge. Commercial shipping uses the area.	Danger of being swept down into Gt. Yarmouth Harbour on the ebb tide. Risk of getting in the way of commercial traffic. Possibly getting stuck under the Bure Road Bridge and Vauxhall Bridge at high water. Loss of situational awareness leading to grounding. Severe weather. Wind versus tide, wave height, fog.	Audit carried out on markings and a number have been upgraded (some still outstanding). Large section on this subject in Broadcaster every year. Specific leaflet has been developed and published to advise boaters on crossing Breydon. BA patrol Breydon all year round to assist casualty vessels and offer advice on tides and bridge heights. BA has recently upgraded some of the channel marks including the installation additional signage. Port Authority attend BSMG meetings. Broads Authority have reviewed the Port Authority Risk Assessments.	Fre	Mod	Min	Mod	B					Y	Hazard is not presently ALARP	Channel marker Top marks to be replaced	Included in Safety DVD, how and when to approach and where not to go. Cargo wharf gone. The consequences here are more severe than other bridges due to such fast flowing water. Also captured in Green Book and other manuals. Since 2012 now falls into the jurisdiction of the Broads Authority. Upgrade to navigation markers programmed for 2012/13 winter. Temporary moorings for bridges being explored by the Authority. Hydrology analysis to be undertaken and user group set up.
M	028	Dredging and River Maintenance Works	Dredging operations and river maintenance works requiring a working vessel to impede the navigation	People who do not understand the shapes and lights conventions pass dredger/work boat on the wrong side and collide with the machinery, or run aground.	The Broads authority has published a Navigation Works Guidance document to advise anyone wishing to carry out works within the Broads of legislation requirements, practical Health and Safety advice and to highlight possible considerations. Included within this guidance is reference to the requirement for signage. Examples of suitable signage are given within the guidance. The safety DVD refers to navigating around plant items and specific reference is drawn to signage and lighting.	Rem	Min	Min	Min	B					Y	Hazard is ALARP		The navigation works guidance document has been reviewed. Sections have been expanded to cover shortfalls. The section on signage has been expanded to include examples and refers to signage needing to comply with AINA recommendations. Guidance on lights for vessels at night has also been included.

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M	029	Power Lines	Power Lines crossing the navigation and adjacent to the navigation, and near access points to the navigation	Anglers and yachts with tall masts may come into contact with power lines, also anchoring and dredging	Signs in place where cables cross navigation, information included in Broadsheet Particular signage installed warning/prohibiting angling near certain power lines on the broads. Angling and Sailing leaflets draw attention to o/h electric cables.	Rem	Sev	None	Min	B					On-going review of under grounding of cables as part of the landscape project, however the ultimate decision is by others.		
M	030	Ice	Ice forming at moorings and on boat decks	Slip hazard for decks, possible hull damage to vessels if moved when ice is present. Ice on Broads and Dykes used for recreation.	Regular patrols to establish if ice is forming. Winter Safety Leaflet developed and available detailing particular hazards that may be encountered during the winter including ice on decks. Information publicised through TV outlets as opportunity arises.	Pro	Mod	none	Min	B					Legal implications have been explored an no further action is considered necessary.		
M	031	Embarkation and disembarkation (falling)	Embarking and disembarking between the craft, shore and other vessels/tenders.	Injury through falling	Safety information is detailed both on the BA website and in the annual Broadcaster newspaper produced by the authority. Users are encourage to wear lifejackets. Quay Rangers are available at some major moorings. The issue of the Safety DVD during the summer of 2008, included content advising users to avoid alcohol and take care when returning to moorings and boarding their vessels. Safety Chains and Ladders, additional Throw lines, and life rings as appropriate have been installed at all BA managed moorings to aid the recovery of people from the water. Safety notices developed and included in the Broads sheet which goes to all toll payers. Glow in the dark discs feedback positive additional discs now purchased and are being installed at priority locations.	Fre	Mod	None	None	B					"Wear It" Safety Campaign launched spring 2012 jointly with Blakes and Hoseasons, the Broads Hire Boat federation and the NSBA to highlight the need to wear lifejackets at key danger activities.		
M	032	Channel Markers		Collision, Yachts getting caught up, grounding		Freq	Min	Min	Min	B					Hazard removed 2012 hazard review. Hazard amalgamated into 033		
M	033	Man made obstructions to navigation	On going deterioration of private piling and other navigational structures. Compromised quay heading, mooring stations and landing stages. Hazard posed both by temporary and permanent Channel Markers	Collision of boats, holing, sinking and grounding.	Assessing and prioritising the existing hazards. Members of the Public are encouraged to report any obstructions to navigation, our navigation rangers patrol and one of their duties is to check for obstructions and remove or mark as appropriate. The BA liaise regularly with the Environment Agency who inform the BA of areas where bank erosion or collapse has occurred. Navigation Works guidance is available to inform contractors / land owners of their responsibility to not create a hazard, also planning approvals process also includes liaison with waterways depart to asses impact on waterways. How to interpret channel markers is included in Broadcaster, all channel markers are routinely inspected and have a maintenance schedule. Sittling of BESL Channel markers is agreed with local navigation ranger and navigation officer. Navigation Works Guidance document includes guidance.	Pro	Min	Min	Mod	B				Action. Consider more detailed comprehensive guidance to users on navigating using the channel markers.	Hazard added at 2009 review.		
M	034	Extreme Weather Conditions	Unusually high/low water levels. Wind strength, wave heights and poor visibility. Electric storms.	Grounding, sinking, capsizes, holing, falling trees.	Notification and warnings, links from BA website to local weather reports and flood line warnings. More frequent patrols and staff alerted. Relevant guidance and warnings given to navigation users in these circumstances by rangers where possible. BA policy to notify public in Draft. Hire Boat Licensing condition requires operators not to let out boats in severe weather conditions. Breydon Water patrolled all year round.	Pro	Mod	Min	Mod	B				Consider methods of alerting users of predictions of extreme low waters and extreme high waters	New Hazard added at 2009 review. Distribution list exists for the dissemination of information and warnings relating to extreme weather conditions		
M	035	Kite Surfing and Parascending	Pending further clarification this activity would appear to be impractical in the confined space of the Broads.	Collision, entanglement, electrocution.										After consultation it was agreed that this activity did not require a vessel and therefore should be dropped from the list of hazards. Oct 2010	Dropped from hazard list, see further actions.		

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M	036	Stand Up Paddle Boarding	Users stand upright on paddleboard approximately 12ft in length	Collision with third parties, hypothermia, drowning, visibility to other river users	Paddle Boards which are hired will have compulsory issue of buoyancy aids which are brightly coloured, guidance is given on rules of the river, user is tethered to the board which gives further buoyancy	Rem	Severe	None	Minor	B					After consultation it was agreed that this activity did not require any specific additional measures and the hazard could be combined with "navigating small craft in isolation"	Hazard combined with Hazard no. 20	
M	037	Kite Surfing	Users stand on a board which is propelled by a wing or Kite attached to the person via a harness with long control lines. Sport requires a significant amount of room required to manoeuvres and to launch and recover. Room also required due to the potential unpredictability of direction associated with novice kite surfers. Broads rivers are generally though not wide enough to make the activity viable however some larger water bodies may be acceptable to participants. Generally a beach type area is required to launch and recover the kite.	Collision with third parties and fixed hazards, hypothermia, drowning, visibility to other river users, entanglement with control lines both boats and persons	British Kite Surfing Association publish safety considerations for users, also recommend a minimum qualification for users also not a sport for people to self teach.	Very Frequent	Severe	Moderate	Minor	A			No			Considered by the BSMG and by the Stakeholder 2012 to be an activity which could not be supported on the Broads due to safety reasons.	
M	038	Ringos and inflatable equipment capable of carrying persons towed at speed	Users sit or stand in or on water sport inflatable equipment. The device is towed behind a high speed vessel	Collision with third parties and fixed hazards, hypothermia, drowning, visibility to other river users, Injury or death from users being thrown from the equipment into the path of other vessels.	The Legal Agreement relating to water skiing on the Broads does not allow for the use of inflatables in any way. Speed limits exist on the Broads except Breydon	Very Frequent	Severe	Minor	Minor	A			No			Considered by the BSMG and by the Stakeholder 2012 to be an activity which could not be supported on the Broads due to safety reasons.	
M	039	Punting (Skipped)	Large flat bottomed punts used for carrying up to 12 passengers operating in sheltered waters. Vessels are propelled by poles (unpowered)	Collision with third parties and fixed hazards primarily due to the limited ability to manoeuvre these vessels, visibility to other river users, Safety of passengers due to swamping.	Operation of these punts is confined to area of low traffic and sheltered waters. Punts are Licensed and conditions apply from the Authority's Small Passenger Boat licensing. Skippers are trained	Remote	Moderate	None	Minor	B			Y	Hazard is ALARP			
M	040	Wild Fowling (Gun Punting)	Individuals sit or lie in small flat bottomed boats capable of operating in shallow water to discharge their firearms in pursuit of wildfowl.	Collision with third parties and fixed hazards, hypothermia, drowning, visibility to other river users, Injury or death from gunshot wounds	Firearm users are licensed by the police, Byelaws exist which prevents the activity occurring within the navigation area except with the Authority's consent. Wildfowling are generally members of local associations which sets standards to comply with appropriate legislation. The nature of the activity is around quiet periods when other vessels will be less likely to be present.	Ex Remote	Severe	Minor	Minor	B			Y	Hazard is ALARP			
M	41	Rowing coaching Vessels		Collision, Swamping of low freeboard craft, damage to moored boats from wash, Bank erosion,	Byelaws relating to the use of coaching vessels, Defined area for Rowing and therefore coaching, signed areas where formal rowing is allowed.	Vfreq	Min	Min	Mod	A			N		Establish a code of conduct with the Rowing clubs, consider limitations on boat types to be used, implement large registration numbers.	Code of conduct should include: recommendations on hull type, wash and noise, minimum qualifications for helmsmen, temporal zoning, min of two people in boat. Use of kill cords, lifejacket requirement. Proximity of coaching vessel.	
M	42	Trawling on Breydon Water	Use of nets for catching fish from a moving boat.	Other boats may become entangled in nets. Collision due to the fishing boat having limited ability to manoeuvre, High Speed Vessels use this area and visibility can be an issue	Byelaws relating to Fishing exist, Navigation Byelaw 29	Rem	Min	Min	Min	C			Y	Existing Byelaws in place			

Source	ID	Title	Description	Consequences	Safeguards and mitigations in place	Current Assessment			New			ALARP? Y/N	ALARP Statement	Further Actions	Comments		
						Prob	Severity			Prob	Severity						
							Pers	Env	Ass		Pers					Env	Ass
L	1	Livestock	Livestock, Cattle, Horses etc. on land where public or permissive access is allowed. Including Dangerous Dogs	Cattle may charge resulting in injury / death. Livestock may crowd walkers resulting in crushing injuries. Livestock may be distressed or more inquisitive if dogs are present with walkers	Guidance available from HSE regarding Cattle and public footpaths. Countryside code information available and the Countryside agency leaflet "you and your dog in the countryside" advising of precautions to take when walking dogs. Fences erected and maintained to segregate livestock and people where landowner feels necessary.	Em	Maj	Non	Min	B				Y	ALARP	BA website to have link to advice	
L	2	Adverse Weather	Users affected by extremes of weather, effects of flooding, snow and ice	Heat exhaustion, Sunburn, Cold, Hypothermia and Hyperthermia	Weather forecasts available on the Broads Authority website.	Pro	Mod	Non	Non	B				Y	ALARP		
L	3	Ground Conditions	Surface of footpaths and access areas being impassable through high water levels, rain, snow and ice, animal interaction forming deep ruts and holes, slips from mud, trips from parched earth ruts.	Slips and Trips resulting in injuries from minor sprains through to broken limbs.	Footpaths are regularly inspected however users are to judge conditions and wear appropriate footwear. There is a recognised acceptance of risk by the user associated with the activity. Footpaths are closed when conditions dictate.	Freq	Mod	Non	Non	B				Y	ALARP		
L	4	Fall from Height	Users falling from footpaths and access areas into soke dyke or water	Possible broken bones, strains and sprains	Edge protection in place where appropriate to prevent / guide users away from hazard although generally natural features of the landscape require user reliance on hazard identification and appropriate user action.	Rem	Mod	Non	Non	B				Y	ALARP		
L	5	Furniture	Stiles, fences, benches gates	User being injured through faulty furniture, minor injuries	All furniture is condition checked regularly and maintained when required.	Em	Min	Non	Min	C				Y	ALARP	Broads Authority design standards.	Designs vary and it is recommended that design standards are developed for all new structures and when maintenance is carried out structures are
L	6	Structures	Bridges, Boardwalks	Degradation of structures resulting in failure or collapse, injury resulting in	All structures are inspected to an agreed standard and frequency, maintained as appropriate. New design are to	Erem	Mod	Non	Min	C				N	Hazard is not presently ALARP	Broads Authority design stands need to	Designs vary and it is recommended that design standards are developed for all new structures and when maintenance is carried out structures are brought up to new
L	7	Trees	Trees adjacent to footpaths, trees present on land accessed by the public	Trees are known to shed limbs even fall completely particularly after periods of	Trees are inspected in accordance with site management plans and maintenance is carried out where issues are	Erem	Maj	Min	Min	B				N	Hazard is not presently ALARP	Reporting mechanism for member of the	The Broads Authority has developed a policy for the management of trees in the area, this policy will sets out standards for the inspection and management of trees on Broads
L	8	Vegetation	Overgrown vegetation can encroach onto footpaths and public	Encroaching vegetation can change routes which can divert	Footpaths are regularly inspected and where vegetation is impacting the site remedial action	Pro	Min	Non	Min	B				Y	ALARP		
L	9	Motorised vehicles and bicycles	Cars, Motorcycles and bicycles using public access sites and footpaths	Collision between pedestrians and motorised vehicles using public access areas resulting in major injuries /death. Collision between pedestrians and cyclists resulting in minor injuries / broken bones.	Vehicular access to public access areas is restricted to BA vehicles only for maintenance and patrolling. Pinch Points where cyclists and pedestrians may collide are controlled by staggered gates and or signs requesting cyclists to dismount.	Rem	Sev	Non	Non	B				Y	ALARP	Specific Risk Assessment to be developed for permissive footpaths managed by the BA.	
L	10	Giant Hogweed	Areas of giant hogweed adjacent to or in areas accessed by the public	When touched can cause burns and blisters and general discomfort, affected areas become sensitised by light	Regular site checks are undertaken when found in areas which may come into contact with users the Hogweed is removed	Pro	Mod	Min	Non	B				Y	ALARP		
L	11	Litter	General Litter and fly tipping can include needles and other sharps, dog faeces and general litter including discard fishing equipment and hooks	Sharps injuries may result in transmission of diseases such as hepatitis, dog faeces may transmit bacteria and spread toxocariasis which can result in loss of sight	Sites are regularly inspected and litter picked when required. Dog litter bins and free dog waste bags are provided at key sites. Information is included with annual rod licences by the Environment agency. Poster in tackle shops etc.	Erem	Maj	Min	Non	B				Y	ALARP		
L	12	Angling	Anglers obstruct the footpaths with long rods and poles	Trips resulting in minor injuries	None at present	Rem	Min	Non	Min	B				Y	ALARP	Raise awareness of issue through BASG	
L	13	Power Lines	Power lines crossing footpaths or areas used by the public	Anglers with long rods or poles coming into contact with power lines may result in death	All access points where power lines are present are signed advising of the warning.	Erem	Maj	non	Min	B				Y	ALARP		
L	14	Fire	Controlled burning, discarded Barbeques, impact from adjacent land	Fire and smoke adversely impact users of land and adjacent land	BA Sites are controlled by Rangers, all BA fires are risk assessed and subject to procedures to minimise effect on others	Erem	Maj	Min	Min	B				Y	ALARP		

Key :

	Hazards Declared As Low as Reasonably Practical
	Classification which have changed from the last Hazard Review
	New Hazards
	Hazards dropped or combined with other hazards
	Marine Hazards
	Land Based Hazards

**Tree Risk Identification
and Management**

Policy and Procedure



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1.0 Introduction

1.1 The Broads Authority both own and leases land which may be accessible by the general public and upon which trees of varying ages of maturity grow. All owners and managers of tree assets have a duty of care to ensure their assets are safe and that risk is managed. The Broads Authority has produced this Tree Risk Identification and Management Policy which will drive the management of potential risks posed by the tree assets that are the responsibility of the Broads Authority to maintain or where there may be some duty of care to monitor. Actions taken by a tree owner should be reasonable, consistent and recorded for future reference.

1.2 The Tree Risk Policy Statement encompasses:-

- The responsibilities of the Broads Authority
- The existing and proposed risk assessment method
- The environmental issues arising
- The process of implementation of risk assessments, prioritisation and regulating inspection regime and recording

1.3 Trees form a valuable element of landscape character within the Broads and provide a vital contribution to amenity and biodiversity. People enjoy what they perceive to be natural or unmanaged countryside. They value trees that have been subject to minimal or no intervention, and are prepared to accept a degree of risk because of the pleasure they derive from visiting or participating in leisure activities in these environments. Tree management or the lack of it should not expose people to significant likelihood of death, permanent disability or life-threatening injuries. Accidents are on occasions unavoidable. Such risk is tolerable only in the following conditions:

- the likelihood is extremely low
- the hazards are clear to users
- there are obvious benefits
- further reducing the risks would remove the benefits
- there are no reasonably practicable ways to manage the risks.

1.4 Within the Broads area trees can exist in isolation and within a wet or dry woodland setting. Management prescriptions should be sensitive to habitat management and take into account the value trees provide to local wildlife. Recommended work must always be to the highest possible arboriculture standards. Guidance has already been produced on appropriate river corridor tree and scrub management - the Broads Authority guide to *“River Corridor Tree and Scrub Management Guidance – A guide for managers in the Broads” July 2005.*

1.5 The Health and Safety Executive (HSE) document SIM 01/2007/05 “Management of the risk from falling trees.” which, although not intended as guidance for duty holders, it does provide useful background information. This document has identified that each year between 5 and 6 people in the UK are killed when trees fall on them. This means that the risk of being struck and killed by a tree falling is extremely low. They state that around 3 people are killed each year by trees in public spaces; but as almost the entire population of the UK is exposed, the risk per person is about one in 20 million. The risk, per tree, of causing fatality is of the order of one in 150 million for all trees in Britain or one in 10 million for those trees in, or adjacent to areas of high public use.

- 1.6 The document adds that the average risk is firmly in the “broadly acceptable” region of the tolerability of risk triangle published in HSE’s “Reducing Risks Protecting People”. However, in this publication it explicitly states that “broadly acceptable” is a general guide and not a definitive statement of what is reasonably practicable in law.
- 1.7 The National Tree Safety Group in its publication “Common sense risk management of trees” state:

“research to date supports the position that the risk from trees in most instances is no more than a routine and recognised risk of life, which most people accept without question. In other words, planning decisions about the management of trees in general should proceed on a rational, cost-effective basis as trees do not invoke additional concerns about perceived risk. Public safety is not the only concern when deciding how to manage trees. Other broader concerns, such as ecological, landscape and aesthetic value, should also be taken into account.”

In this context it is important that management options consider these wider benefits.

2.0 Legislation

2.1 Occupiers liability

- 2.1.1 The Broads Authority is, in law, the occupier of the land it manages. In England and Wales, responsibilities are set out in the Occupiers’ Liability Act of 1957 and 1984. The 1957 Act deals with liability relating to visitors who enter our land or premises either by invitation or by permission. The 1984 Act deals with liability relating to others, including trespassers.
- 2.1.2 Where a tree is hazardous because of decay or structural weakness and shows external signs of this, the occupier of the land on which it stands is normally responsible for any personal injury or other damage it causes by breaking or falling. This liability arises from the common duty of care that the occupier owes to those people who enter his land or are near it.
- 2.1.3 Occupiers should therefore make regular inspections of trees that, due to their type and position, could put people or property at risk. It is reasonable to obtain specialist advice on interpreting symptoms and assessing tree safety and to take reasonable steps to reduce risk where needed. If you seek specialist advice, you must follow it or have justifiable reasons for using alternative management options. If you do not, it might be seen as negligence if anything were to go wrong later.
- 2.1.4 The dedication of land under the CRoW Act 2000 in England and Wales has had no impact on our policies relating to tree safety management as trees are regarded as natural features and therefore no additional duty of care placed on the Authority.

2.2 Health and Safety

2.2.1 The Health and Safety at Work Act 1974 (HASAWA) is the primary piece of health and safety legislation. The HASAWA places a duty on employers (including us in the Broads Authority) to operate (*'our undertaking'*) in such a way to make sure, so far as is reasonably practicable, that even those not in our employment, such as the public, are not exposed to risks to their health and safety.

2.2.2 Around half of the fatalities due to falling trees or branches occur in public spaces, such as a park or beside roads, so Section 3 of the Health and Safety at Work Act may be applicable. Whilst the HSE may regard the average risk as extremely low, the law requires that where reasonably practicable measures are available, in individual cases, they should be taken. Additionally, the Management of Health and Safety at Work Regulations state,

'That every employer shall make a suitable and sufficient assessment of:

the risks to the health and safety of his employees to which they are exposed whilst they are at work; and;

the risks to the health and safety of persons not in his employment arising out of, or in connection with, the conduct by him of his undertaking'

2.2.3 The Broads Authority *'undertaking'* includes managing the navigation and encouraging recreation on both land and water through the provision of facilities and therefore the Broads Authority has a duty to protect people from hazardous trees so far as is reasonably practicable.

2.2.4 In order for a tree manager to be able to provide evidence of their reasonableness, recent court cases have held that Local Authorities must have adequate records and systems in place for their tree stock. Birmingham City Council was fined £150,000 and paid £56,000 in costs for defective Ash tree. The Judge commented that *'the council had failed to put into place a proactive system to deal with tree maintenance and did not have staff trained in such matters'*

2.2.5 Under the Health and Safety at Work act employers, persons carrying out undertakings or in control of premises all have duties under this act. In particular, there is a duty to do all that is reasonably practicable to ensure that people are not exposed to risk to their health and safety. Doing all that is reasonably practicable does **not** mean that all trees have to be individually examined on a regular basis. However, they would anticipate that a decision is made by the duty holder on what is reasonable in the circumstances and this will include consideration of the risks to which people may be exposed.

2.3 **Broads Authority Act 2009**

2.3.1 Section 39 of the Act "Removal of Vegetation" - gives the Authority powers to manage vegetation which impacts the navigation. Through these powers the Authority can in certain circumstances enter private land to deal with trees that may pose a threat to navigators. As these powers are discretionary, The Authority cannot be held liable should they not choose to use these powers. However, if these discretionary powers are used to enter private land to complete tree work The Broads Authority could be liable to someone who suffers injury and /or loss as a consequence of its actions.

2.3.2 Furthermore the **Norfolk and Suffolk Broads Act 1988** requires works licences for any works that may affect the navigation area. The Act also requires that the Authority shall maintain the navigation area for the purpose of navigation to such a standard as appears to be reasonably required and develop as it thinks fit.

2.4 **Other**

2.4.1 **The Highways Act 1980** gives the Highway Authority its powers to manage the highway verges and also places a statutory obligation on adjacent landowners to the highway to ensure that their trees/hedges do not obstruct/obscure highway users. The Broads Authority is not a highways authority for this purpose however the Authority has powers as if it were a local authority for the purposes of section 25 to 29 of the Highways Act 1980 (public path creation agreements); sections 72(2)(widening of footpaths etc.) and sections 118 to 121 (stopping up of footpaths etc.) of that Act as if it were a county council.

2.4.2 Other legislation relating to the management of trees includes the **Wildlife and Countryside Act 1981** as well as legislation for **Sites of Special Scientific Interest** and the **Conservation of Habitats and Species Regulations 2010**, all of which require that before any tree safety management corrective measures are implemented that an assessment is completed regarding European protected species. See Appendix 5 for further details.

2.4.3 Additionally any corrective measures need to have regard to designated conservation areas and local planning authority Tree Preservation Orders.

2.4.4 The Local Government (Miscellaneous Provisions) Act 1976 provides district councils with powers to carry out tree management works on dangerous trees and to claim costs from the landowner/occupier. Whilst the Broads Authority does not have this power circumstances may arise in which partnership working with adjacent district councils could deliver the desired outcome when the Authority has exhausted all avenues with regards to safe management of trees on adjacent land.

3 Responsibilities

3.1 Broads Authority as land owners or leaseholders.

3.1.1 The Broads Authority is both a landowners and lease holder of sites where trees are present. Landowners have a responsibility to take reasonable steps to ensure their trees and other assets are safe and that they have met the requirements of their 'duty of care'.

Leasehold responsibilities differ from site to site, however the Authority would always have certain duties to ensure that the tree stock is managed in an appropriate manner.

3.2 Rights of Way and permissive footpaths

3.2.1 The Broads Authority no longer assists Norfolk and Suffolk County Councils in the management of their rights of way through helping to manage the vegetation (grass cutting) and field furniture. However if through the course of our business potentially hazardous trees are recognised the landowners should be informed as the ultimate responsibility for these path side trees rests firstly with the landowners and also the County Council as the relevant highways agents (as with roads).

3.2.2 The Broads Authority has also negotiated a number of permissive footpath routes with landowners to facilitate access to areas or to provide circular walks. The responsibility for the management of trees on these routes may be specified in the legal agreements. However where it is not, both the landowner and the Authority will have an element of joint responsibility for trees. In negotiating the permissive route for public access the Broads Authority will accept that it has a duty of care to manage the accessibility of the path. Tree inspections should therefore be programmed to become part of the management plan for such sites.

3.3 Navigation

3.3.1 The responsibility for management of river corridor trees and scrub falls to landowners and/or their tenants.

However the Broads Authority has the power to

- a) maintain the navigation area for the purposes of navigation to a standard as it appears to be reasonably required; and
- b) take such steps to improve and develop it as it thinks fit.”

3.3.2 The Authority through reports from the general public and regular patrolling of the waterways by its Rangers identifies trees at the edge of waterways which have either fallen into the water and/or may be obstructing the navigation. Despite landowners having responsibility for tree management, the Authority can also act as agent for the landowner and undertake necessary management to ensure that access is maintained and risks to vessels and the public are minimised.

3.4 Whitlingham Country Park

The Whitlingham Charitable Trust has responsibility for management of trees within the Whitlingham Country Park boundary. This is identified through the lease agreement with the landowner and as such the Trust must comply with similar legislation as the Authority

3.5 How Hill

How Hill site is owned by two landowners the Broads Authority and the How Hill Trust, both organisations have responsibility for management of trees within their boundary and the Trust must comply with similar legislation as the Authority.

3.6 General

Broads Authority personnel have a duty of care to notify the adjacent landowner should any problems associated with their trees become apparent.

4.0 Inspection system

- 4.1 Negligence by a tree owner is where there is an omission by the owner to take reasonable care of a tree and foresee its potential harm. The main thrust of recent tree failure cases is that reasonable steps must be taken to minimise risk that would include inspection regimes, records and actions. It should also be noted that reasonableness could be applied to where risks are tolerated in exchange for benefit. Reasonable tree management systems would include the following essential factors: they should be pro-active, prioritised, actioned and recorded.
- 4.2 Although for the majority of Broads Authority managed sites regular inspections are undertaken there is no standard approach applied and the recording mechanisms that have been adopted vary, are not easy to access or to monitor. The responsibility for the frequency and identification of the competent person has fallen to the individual site manager.
- 4.3 The Broads Authority has additional responsibilities in managing their tree stock in relation to nature conservation. Therefore any inspection regime should include an assessment of the existing /potential habitat importance. The main issues in relation to this are outlined in section 11 and Appendix 5.
- 4.4 The proposed methodology for the initial tree risk assessment for sites that are Broads Authority owned or are the responsibility for the organisation to manage is outlined below. There will be a staged prioritised approach to implementation and inspection regimes based on the existing knowledge of the sites by officers of the Broads Authority. Consideration into the behaviour of visitors must be factored into the assessment of the site.
- 4.5 The abiding principal to which this methodology adheres is one of concentrating resources on areas of greatest risk - i.e. producing a formula which gives appropriate weighting to the levels of recreation uses in conjunction with the level of risk associated with the age, condition and species of trees.

5.0 **Tree Safety Management**

5.1 Tree safety management is taking reasonable steps to identify trees that represent a significant risk to people or property and dealing with them accordingly. The Authority will do this in a way that minimises the loss of value to people or wildlife.

5.1.1 The objectives for tree safety are:

- to control risks to people who work with trees or who may be close to them;
- to avoid the unnecessary removal, or disfigurement, of amenity trees, or of trees with high wildlife value; and
- to conserve the habitats that trees provide, including those that are old and decaying.

5.2 Accepted industry practice in balancing these objectives is through risk assessment. In tree safety, risk assessment is now well established. The system we describe here follows best practice.

5.3 Risk Assessment

5.3.1 The critical questions that you need to answer when deciding whether to inspect trees and whether remedial action is needed.

Can you foresee a problem?
How likely is it to happen?
What will happen if it does?
Is it reasonable to protect against it?

5.3.2 No tree is entirely safe, given that even a mechanically 'perfect' specimen could be damaged or uprooted by an exceptionally strong wind. It is therefore usually accepted that hazards are only recognisable from distinct defects or other failure-prone characteristics of the tree or site.

The level of risk can be assessed by considering the following:

- Who or what could be harmed or damaged, such as, the public, neighbours, workers, vehicles, boats and buildings, the target.
- The hazard severity – the worst likely outcome
- The likelihood of it happening assuming that there are no controls in place. This should take into account the probability of failure, based on the type, position and severity of the defect, the species or cultivar of the tree and the nature of the site.

5.4 Control measures

5.4.1 The control measures to reduce the risk from hazardous trees will be regular inspections of trees. The Authority will inspect trees that, because of their position and type, could place people or property at risk.

5.4.2 Deciding which trees to inspect

You will need to inspect a tree or group of trees depending on the use of the area they are in. You will inspect areas where people, vehicles or other properties are continuously or frequently close to potentially hazardous trees.

5.4.3 Zones

It has been recognised that it will be necessary to designate areas of Broads Authority maintained trees into Zones. The category of zone that a site, or part of a site, falls into will then determine the frequency and level of detail required for the inspection. It is proposed that three zones of inspection are relevant to trees owned or managed by the Broads Authority. It is proposed that these would be inspected at the following frequencies:

- (i) Zone 1 – (high risk) Every 18 months (and after storm and extreme high water events or at frequency suggested by arboriculture consultant)
- (ii) Zone 2 – (medium risk) Every 30 months
- (iii) Zone 3 – (low Risk) Every 5 years.

5.4.4 Sites will be allocated a zone by one of the appropriately trained “competent” officers within the Authority. The allocation of this zone type must include careful consideration of the following items:

No. of visitors to site (i.e. intensity of use)

Proximity of neighbouring property

Tree type (broadleaf/conifer)

Species

Tree age (younger trees generally more secure)

Tree height (i.e. distance from paths & roads etc)

Availability of access (number & location of paths etc.)

Purpose of area (recreation, wildlife conservation)

5.4.5 Generic guidance on zoning categories of use are given in table 1 however this is a base standard for inspection of trees on Broads Authority sites and within these identified zones there may be reasons why certain sites or trees may need to be inspected on a more frequent basis. Examples include car parks or areas where

many people congregate which are surrounded by mature trees, or trees that due to their species, size, condition or location may pose a higher risk.

- 5.4.6 The purpose of the inspection process will be two fold - to identify routine maintenance requirements, and to attempt to maintain the trees in as safe a condition as is practicable, bearing in mind the usage, proximity and purpose of the site.

Table 1

Risk Zones	Broads Authority Sites	Inspection frequency
Zone 1 High Risk	Moorings (high use areas) Car Parks Visitor centres Viewing areas Field study areas Footpaths (High use = > 36 people per hour) Sites or trees identified by Level 2 inspector as high risk	Level 1 inspection every 18 months
Zone 2 Medium risk	Moorings (moderate use) Works Depots and billets Woodlands (moderate use) Footpaths (moderate use= 1 to 36 people per hour) Boardwalks Permissive footpaths	Level 1 inspection every 30 months
Zone 3 Low Risk	Other woodland and open spaces Surplus land	Level 1 inspection every 5 years

Non Broads Authority Land

Trees on the river corridor or adjacent land do not require a formal inspection however if obvious defects are observed this must be recorded and reported by the observer to the Maintenance Supervisor for assessment and subsequent contact with land owners.

The timing of high and moderate risk inspections is designed to ensure that trees are seen at different times of the year, both in winter and when in leaf, This will give a better overall indication of the tree's physiological and structural condition. It would be an advantage if the low risk inspections are also carried out at different times of the year for the same reasons.

Zone 1 and 2 sites should be checked for hazardous trees or branches after strong winds following Amber "Be Prepared" weather warnings issued by the UK Meteorological Office. Zone 1 sites must be checked within 1 week after strong winds and Zone 2 sites within 2 weeks. Zone 3 sites will be checked during the scheduled annual site inspection.

5.4.7 The methodology of inspection is as follows:

- (i) Inspect each tree or tree groups at the required frequency. It will not be necessary to record details of every tree, other than those which require actionable works, and those which are identified as requiring additional monitoring (see below). For all trees that show no external indicators of significant faults, a signed sheet from the inspector is acceptable to confirm that the inspection has been completed.
- (ii) Where a tree with actionable work is identified (defects), the details of the tree should be recorded, the work specified, and the time period calculated using the risk assessment scoring sheet. Additionally an assessment of the tree is to be completed to determine likelihood potential of the tree supporting protected species. (see section 5 and Appendix 5)
- (iii) Where a tree is identified as requiring additional monitoring, the details of the tree should be recorded, including specific information justifying its need for more frequent inspection. The principal to be applied as to whether a tree requires additional monitoring is to ask the question "Is it reasonable to assume that the condition of this tree may significantly deteriorate within the next eighteen months?"
- (iv) Within all Zones the status of all trees is fluid. Those that are not identified as needing additional monitoring at the first inspection may subsequently require monitoring. Trees that require works will be monitored to ensure that the work has been completed. If this fully removes a fault then additional monitoring may not be necessary in the foreseeable future. On certain sites it may be prudent to tag each tree to provide it with a unique identification number in order that it can be referred to in reports.

6.0 Inventory

- 6.1 Initially it is proposed that there is a desk based study to establish all those sites which are owned or managed by the Broads Authority where there is currently a presence of mature trees actually on or adjacent to the site which has the potential to cause damage or harm should they fall or loose limbs.

Those sites where trees are present will then be given zones relating to the use of the site this will determine the inspection frequency, it may be necessary to have different zones on complex sites with varying usage. This Zoning will be completed either by or in consultation with the site manager to ensure visitor behaviour is fully understood to inform the assessment of the targets.

As new sites are added to the inventory a full assessment of the tree stock will be completed at the time of acquisition.

7.0 **Competent person list**

7.1 The methodology proposed represents a regular programme of routine inspection that must be undertaken by a person competent to examine trees. It is proposed that other than qualified arboriculturist, a person who has received the appropriate training, which has been identified by the Broads Authority to be the Lantra Level 1 Basic Tree Survey and Inspection, could undertake the regular checking regime. A list of qualified people in the Authority will be held and kept up to date.

8.0 **Specialist assistance**

8.1 As part of the initial review of tree assets and potentially for on going tree inspections and work, the services of qualified tree surgeons may have to be used.

8.2 Making sure the contractors you select are competent is essential and you should only use Arboricultural Association approved contractors as these will have been checked regularly for compliance with recognised standards. Contractors should be selected from the Authority's approved tree surgery contractor list.

9.0 **Reporting procedure for the Public**

9.1 The Health and Safety Executive have identified that a reporting system for the public is a component part of an inspection system. Members of the public can report their concerns regarding tree management to Broads Control via telephone or online by via the Authority's website user feedback facility.

9.2 Trees on private land within falling distance of a highway can also present a hazard to the public. Under the Local Government (Miscellaneous Provisions) Act 1976, if a tree poses a danger not only to the public highway, but also to a neighbouring property, this may be dealt with accordingly at the discretion of the local authority pursuant to Section 23 of the Act.

9.3 Trees on private land within falling distance of Broads Authority managed property can also present a hazard to the public and officers have a duty to report any hazardous trees as they become apparent. Any inspections made by the Authority of hazardous trees on adjacent land not managed by the Authority will be carried out from outside of the private property and defects noted will therefore be limited to what can be seen from this vantage point.

9.4 The Head of Construction and maintenance must be informed where reports of hazardous trees on neighbouring property exist.

10.0 **Recording System**

10.1 As the survey is being regularly updated it will be necessary for three fundamental administrative functions to be achieved:

- (i) It is vital that updates can be easily recorded by the inspector and /or arboriculturist and easily accessed by all with an interest in the individual sites.
- (ii) It will be necessary for the inspector to specifically inform the person responsible for the site, of actionable work requirements. Due to seasonal or other factors the Broads Authority may not immediately undertake the works however all responses to the recommendations must be recorded on either a log of actions or a database.
- (iii) The named person responsible for the site must maintain the site log/database by recording when works are completed.

Ideally a central database would provide the repository for all the data generated by the surveys and log of remedial work. However, in the absence of technical resources to set this up it is proposed to have a central location where the documentation for the individual sites is held. These are likely to be scanned survey sheets and maps, perhaps with digital photographs. The Y: Drive should be used as a repository under the relevant site asset file.

11.0 **Environmental issues**

- 11.1 Trees are valuable habitat therefore survey work should be thorough and remedial work to trees should be balanced to ensure that risks to the public and workforce are minimised and the nature conservation value is not compromised. It will be important therefore to ensure that any assessment procedure includes a survey of wildlife habitat potential. See Appendix 5 for further details of the decision
- 11.2 The environmental issues concerned with tree management are covered comprehensively in the Broads Authority “ River Corridor Tree and Scrub management guidance A guide for managers in the Broads July 2005”.
- 11.3 Wildlife Habitat Potential Assessment – Before any tree work is carried out, an assessment of whether a tree is likely to support a species protected under British law or a European protected species (EPS) will be carried out. The assessment to check for signs of protected species will be made by suitably trained personnel.
- 11.4 Environmental standard operating procedures have been developed which help to guide mitigation measures for a variety of situations where wildlife or the potential for wildlife is present.
- 11.5 The Tree Work Assessment form is set out in Appendix 2. The form has been developed to encompass the findings of initial assessments for protected species potential and will identify sites with particular designations.

- 11.6 Should trees with high potential for bats require an 'Aerial Inspection' to further assess potential bat habitat this should be completed by licensed bat workers.

12 Licenses, Permissions and Consents

- 12.1 Many areas of the Broads are internationally and nationally designated sites, SSSI, SPA, SAC NNR etc. Tree work that is required either within these sites or within 100m of the designated site will require consent from the appropriate authority, primarily Natural England
- 12.2 Additionally consents will be required from the relevant planning authority for works to trees within designated conservation areas or to trees which have tree preservation orders.
- 12.3 A European Protected Species licence may be required in circumstances where works are required on trees which are known to support a European Protected Species, or where works are likely to result in an offence under the Conservation Regulations summarised in Appendix 5. .

13 Training

- 13.1 It is important to make sure that relevant staff can recognise signs of possible weakness in trees and initiate remedial works as needed.
- 13.2 No staff should undertake any responsibilities for tree safety management before attending recognised qualification through LANTRA Awards Certification or one which we have verified as achieving the same, or a higher, standard. Some work will require the use of specialist (arboriculture) contractors and managers will need additional training in the supervision and management of this type of operation.

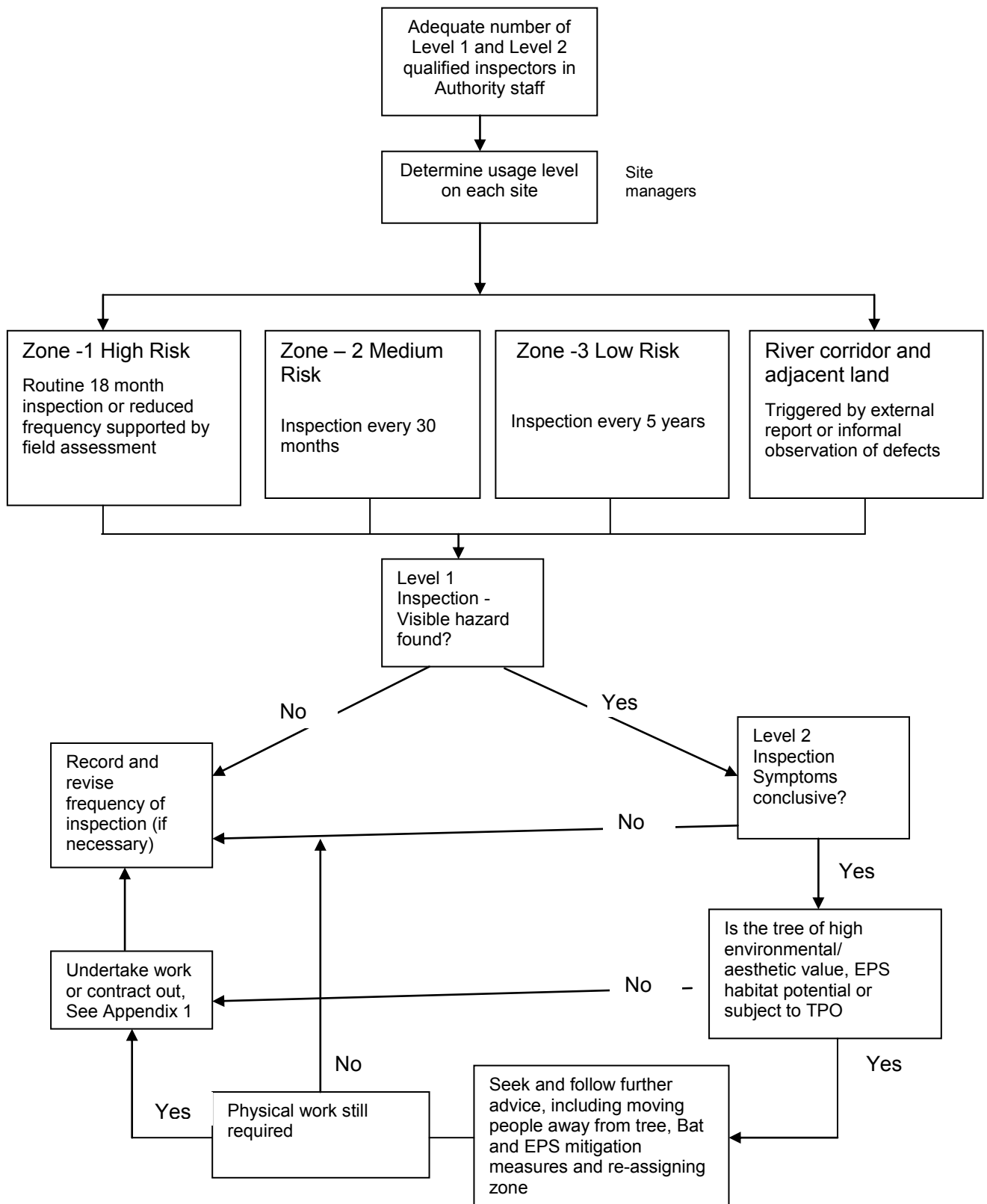
Level 1 inspections will be carried out by staff that have successfully completed the Lantra Level1 Basic tree survey and inspection course.

Level 2 inspections will be carried out by staff that have successfully completed the Lantra Professional Tree Inspection – ITA Course

14.0 Arrangements with External Contractors

- 14.1 All external contractors employed to undertake the initial assessment and the subsequent works to the trees will be required to have regard to the information and principles sent out in the document.
They will also be required to discuss long-term management objectives with the managers of the individual site.

Tree safety decision chart




Broads Authority Policy for Tree Risk Identification and Management

The Broads Authority aims to provide a safe as is reasonable environment for users and neighbours of their land and will undertake to follow the procedures detailed within this document. Furthermore the Authority sets out its aims below to drive the tree risk management process:

The Broads Authority:

1. Understands and accepts that all trees have the potential to cause damage.
2. Will identify those areas at risk of potential damage from trees.
3. Will make arrangements for the inspection of trees to assess risk and mitigation measures.
4. Ensure that the tree risk inspections are undertaken by a competent person who is experienced and knowledgeable in such matters.
5. Will act upon the recommendations of the inspection to mitigate the identified risk.
6. Will monitor and review the risk survey process and where appropriate undertake regular inspections to update the survey data.
7. Will employ / use suitably qualified and experienced persons to undertake remedial arboriculture works.
8. Will record all works carried out on trees.
9. Will take into account amenity biodiversity and habitat value when considering risk management works.
10. Will aim to have assessment work integrated into GIS and document management systems.

 Broads Authority The Broads - a member of the National Park family		Level 1 Tree inspection report		
Site		Location		
Inspection type:		Planned <input type="checkbox"/>	After Strong Winds <input type="checkbox"/>	Reactive <input type="checkbox"/>
If the inspection only covers part of the site, state which areas are included including zones:				
Date	Time	Inspector		
Findings :				
If defects are found please give grid reference of specific tree location				
No significant defects		<input type="checkbox"/>		



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

Tree Defect Report form

Site		Grid Reference	
Location		Map, Photo, email or sketch attached Yes / No	
Date	Time	Tree Management responsibility BA <input type="checkbox"/> Adjacent Landowner <input type="checkbox"/>	
Inspector			
Species (if known)		Age Young / Semi Mature / Mature / Veteran	
Condition / Defects			
Hazard Rating		Total Hazard Rating (Target + Hazard + Likelihood)	
Target	3 = High 2 = Medium 1 = Low	Score	Rating
Hazard	3 = High 2 = Medium 1 = Low		8+ = High
Likelihood	3 = High 2 = Medium 1 = Low		5-7 = Medium
			1-4 = Low
Total Hazard Rating Required Actions			
High = Level 2 tree inspection required within 7 days / action required within 7 days			
Medium = Level 2 tree inspection required within 28 days / action required within 3 months			
Low = Level 2 tree inspection required within 48 days / action required within 6 months			
Emergency Works required? Yes / No If yes contact Maintenance Supervisor			
Date of Level 2 inspection:		Inspected by	
Date of Preliminary Assessment of Bat potential:		Completed by	
Date works carried out :		Name of Contractor or BA	
Pass this form to the site manager for filing			

Tree Work Assessment Form



Tree / Trees Description

Grid reference:	Survey Date:
Describe location:	
Landowner details (name/address/contact number):	
Landowner permission: Y / N	
Tree Characteristics (Species/height/age class/diameter/chest height):	
Scope of tree work (trimming/limbs/pollarding/felling):	

Stage 1 - Assessment of Bat Potential (tick as appropriate) (Use advice from Bats/Tree Officers)

Presence of features used by bats? Tick as appropriate			
Natural holes	<input type="checkbox"/>	Loose bark	<input type="checkbox"/>
Woodpecker holes	<input type="checkbox"/>	Dense ivy cover	<input type="checkbox"/>
Cracks/splits in major limbs	<input type="checkbox"/>	Hollows/cavities	<input type="checkbox"/>
Other features?			
Presence of signs indicating bat presence? Tick as appropriate			
Staining at entry points	<input type="checkbox"/>	Droppings in/around entry points	<input type="checkbox"/>
Flies around entry points	<input type="checkbox"/>	Audible squeaking	<input type="checkbox"/>
Other signs?			
Preliminary assessment of bat potential? (tick as appropriate)			Action
Trees with no features used by bats & no potential to support bats	<input type="checkbox"/>	No bat potential (NE Category 3)	No mitigation required, Continue with works.
Trees with no obvious potential, but size/age suitable, or tree with some features of limited potential for bats.	<input type="checkbox"/>	Low bat potential (NE Category 2)	Notify Environment Officer. Works may continue taking avoidance measures. Stop works immediately if bats found.
Trees with definite potential but fewer suitable features than High potential, or trees with potential use by single bats.	<input type="checkbox"/>	Moderate Bat Potential (NE Category 1)	Notify Environment Officer. Further survey/mitigation may be required if works impact on potential roost features.
Trees with multiple/highly suitable features with potential for larger roosts.	<input type="checkbox"/>	High Bat Potential (NE Category 1')	Notify Environment Officer. Further survey will be required & EPS licence may be required. Consultation with licensed bat worker.
Known / Confirmed Roost	<input type="checkbox"/>		Further survey required & EPS licence likely.

Other Checks – To be completed by Environment Officer

Tree Preservation Orders

		Action		
Tree/s designated with TPO?	No		No further action	
	Yes		Application for Tree Works to be sent to Planning Department	Date Application Sent:
Results of Application for Tree Works:				
TPO Check by:			Date:	

Tree Work in Conservation Areas

		Action		
Tree/s in a Conservation Area	No		No further action	
	Yes		Application for Tree Works to be sent to Planning Department	Date Application Sent:
Results of Application for Tree Works in CA:				
Conservation Area Check by:			Date:	

Tree Work on Designated Sites

		Action		
Tree work on or within 100m of statutory designated site? (NNR, SSSI, SPA, SAC, Ramsar)	No		No further action	
	Yes		Application to Natural England for consent.	Date Application Sent:
Results of Application for Tree Work on or in vicinity of Designated Site:				
Designated Site Check by:			Date:	

Requirement for Forestry Commissions Felling Licence

		Action		
Is proposed work exempt of felling licence requirement? http://www.forestry.gov.uk/forestry/inf-6d10e6	No		Complete felling licence application	Date Application Sent:
	Yes		No further action. Proceed with works.	

Title**Dealing with Vegetation (Navigation Area)****1. Introduction**

This procedure has been developed to formalise the reporting and mechanisms for dealing with hazards posed by vegetation on the navigation area.

2. Scope

- 2.1 One of the Broads Authority's duties is to provide for safe recreation and navigation on the Broads waterways.
- 2.2. The Broads Authority has powers to remove vegetation which is a hazard to navigation or vegetation on adjacent land which due to the nature of its condition has potential to endanger others when falling on the waters of the navigation.
- 2.3. Landowners must be given the opportunity to remove or carry out works to remove the hazard, but in an emergency the Authority has powers to deal with the hazard but all attempts must be made to contact and liaise with the landowner.
- 2.4. Any action taken by the Authority in dealing with vegetation must be for the purpose of promoting or securing conditions conducive to the ease, convenience or safety of the navigation and the safety of persons or property in the navigation area.
- 2.5. This procedure does not extend to Adjacent Waters.

3. Hazard Identification and Assessment

- 3.1. Upon finding a suspected hazard, it shall be reported to the Broads Control.
- 3.2. The Broads Control will then coordinate a response and will then notify:
 - Head of Construction and Maintenance
 - Head of Ranger Services
- 3.4. Broads Control will liaise with the informer and arrange for the local ranger or the Head or Construction and Maintenance to assess the hazard. If necessary the Hazard shall be marked with Hazard markers.
- 3.5. If the hazard poses grave and imminent danger the area affected may be closed to navigation, permission to close any section of the navigation must be granted by the Navigation Officer (Head of Ranger Services). Steps must be taken to prohibit entrance to the area by members of the public

Where the hazard does not pose grave and imminent danger, assessment of the hazard may include Level 2 inspection by appropriate personnel.

4. Emergency Procedure

- 4.1. Where a hazard poses grave and imminent danger, the hazard must be removed at the earliest opportunity.
- 4.2. The Head of Construction and Maintenance and Maintenance Supervisor will try to contact the landowner and request the landowner to remove the hazard immediately or in a timescale which is acceptable under the circumstances.
- 4.3 In the event the landowner cannot be identified or the landowner cannot carry out the necessary works in a suitable timescale, the Head of Construction and Maintenance and Maintenance Supervisor will coordinate the removal of the hazard if necessary using Broads Authority resources taking into account all aspects of the obstruction which may include vegetation that is being cultivated for conservation or agricultural purposes.
- 4.4. All vegetation debris shall be left at the site on the landowner's property.
- 4.5 The Head of Construction and Maintenance and Maintenance Supervisor shall inform the landowner of the works which have been carried out.

5. Routine Procedure

- 5.1. Where a hazard does not pose grave and imminent danger, the following procedure shall apply.
- 5.2. The Head of Construction and Maintenance contact the landowner in writing requesting the landowner to remove the hazard and to contact the Authority within 28 days to detail the proposed works and timescale for completion.
- 5.3 The Head of Construction and Maintenance will assess the timescale proposed by the landowner and determine if this is acceptable. In the event the timescale is not acceptable, in the first instance the Head of Construction and Maintenance will discuss with and endeavour to agree a practical timescale with the owner. The assessment of the timescale must take into consideration seasonal access and other environmental factors such as nesting birds etc, however consideration must be given to the nature and severity of the hazard.
- 5.4. If the timescale and proposed works are acceptable the Head of Construction and Maintenance will confirm acceptance wherever possible verbally and to the landowner in writing.
- 5.5 If the timescale and proposed works continues to be unacceptable the Head of Construction and Maintenance shall inform the landowner of the works which need to be carried out and the expected timescale for completion.
- 5.6 In the event that the landowner does not reply to the initial correspondence within 28 days or the works are not completed within the timescale proposed by the landowner and/or the Authority, a notice shall be issued to the landowner detailing the works to be completed within 14 days.

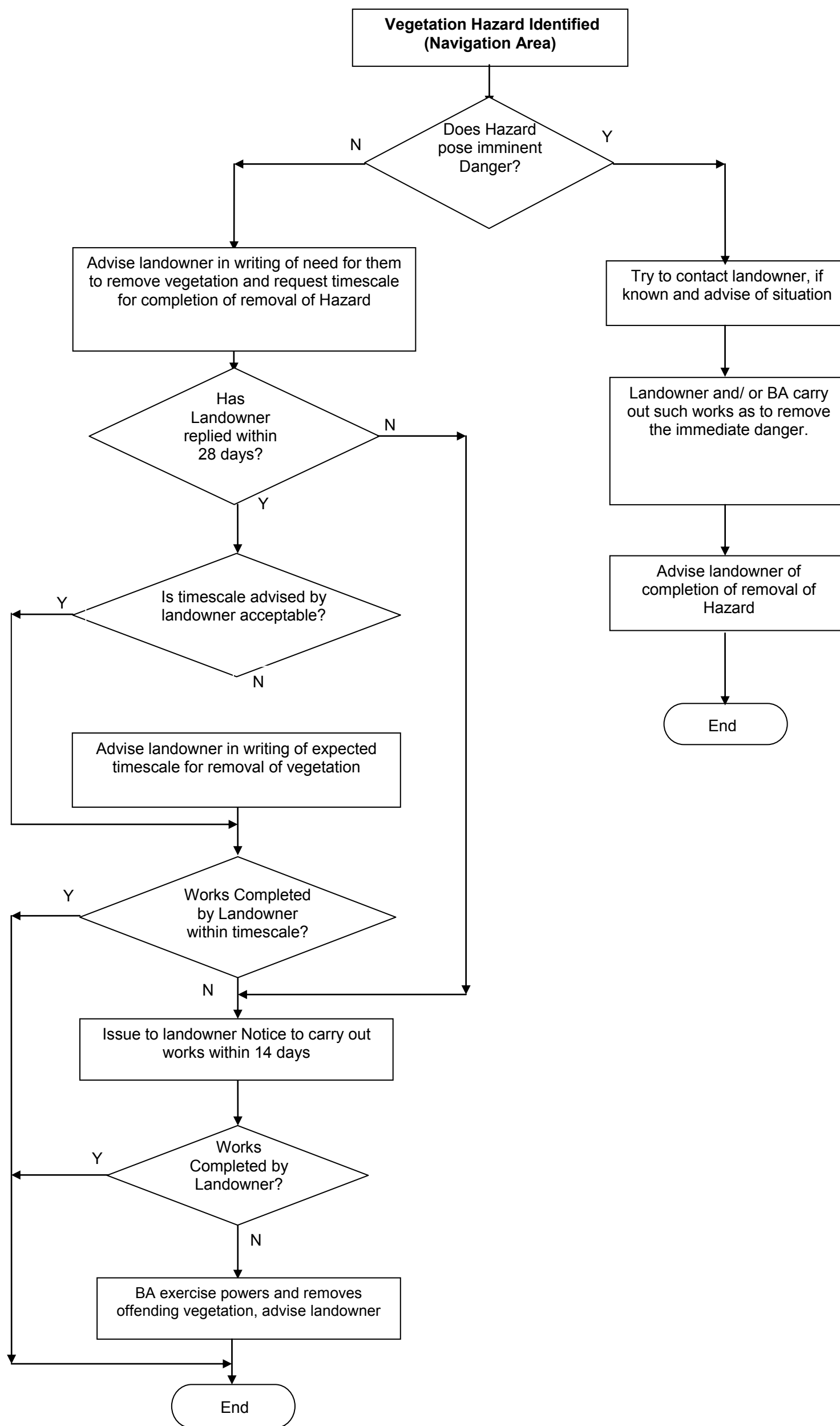
- 5.7 In the event that the landowner does not complete the works detailed in the notice, the Authority may exercise its powers under Section 39 (1) and (2) which enables the Authority to enter land and deal with the hazard as defined in the notice.
- 5.8 The Head of Construction and Maintenance shall advise the landowner when the Authority is to exercise its powers however during this period of communication an informal joint approach to achieve the objective between the Landowner and the Authority should be encouraged.
- 5.9 The Authority must take every care when entering land so as not to cause damage when exercising powers, all debris from the removal of the vegetation hazard must be left at the site.
- 5.10 If these powers are exercised the Head of Construction and Maintenance shall inform the landowner in writing when works are completed.

6. Reporting

- 6.1. All instances where the Authority exercises powers under Section 39 of the Broads Authority Act 2009 shall be reported to the Navigation committee. The Head of Construction and Maintenance has the responsibility for compiling this report.

7. Review

- 7.1. This procedure is to be kept under constant review by all users and all changes or amendments must be forwarded to the Broads Authority Safety team for amendment of the procedure. This procedure is to be annually reviewed Head of Safety Management and this formal review must be recorded on the review log. Ref OP-12-4-1



BROADS AUTHORITY ACT 2009

SECTION 39

To:

1. This Notice is given under Section 39 of the Broads Authority Act 2009.
2. It is given because it appears to the Broads Authority ("the Authority") that there is/are hedge(s), tree(s) or shrub(s) on land at
..... in the location marked on the attached plan which:-
 - (a) overhang(s) or project(s) into, over or beneath the adjoining waters so as to endanger or cause significant obstruction to the passage of vessels, or
 - (b) is/are dead, diseased or insecurely rooted, and that by reason of its/their condition it/they, or part of it/them, is/are likely to cause danger by falling on the adjoining waters.
3. The Authority requires you to carry out the works specified in the Schedule to the Notice in order:-
 - (a) to remove the cause of the danger or obstruction; and
 - (b) ensure that the Authority does not exercise its powers referred to in paragraph 4 of the Notice.
4. If the works specified in the Schedule are not carried out by then the Authority may carry out the works itself so as to remove the cause of the danger or obstruction and for this purpose may enter the land where the hedge(s), tree(s) or shrub(s) is/are situated if it is not reasonably practicable to carry out the works so as to remove the cause of the danger or obstruction without such entry.

The Schedule

Signed:

Dated:.....

Environmental Standard Operating Procedure 4

Tree & Scrub Clearance

Trees and scrub provide important habitats for a wide range of species. Sympathetic management of these areas has a positive effect on **European Protected Species** including bats and within river corridors, otters. Breeding birds, amphibians and reptiles are also commonly associated with trees and scrub and are at risk from unsympathetic management. As such many species associated with trees/scrub are protected by law under **The Wildlife and Countryside Act 1981**.

Aim

To manage scrub &/or tree clearance to avoid killing, injuring or disturbing a species protected by law, and the destruction of its habitat.

Environmental Risk

Impact	Likelihood	Mitigation
Disturbance, killing & injury of Protected Species including bat, otter, water vole & breeding birds.	High	See ESOPs 10-14

Delivery Method

- Identify clearance area & specification of works.
- Site visit with Environment Officer to assess potential impacts on protected species.
- Environment Officer to provide method statement/map taking account of any necessary mitigation or constraints.
- **Stumps** – stumps must be cut as close to ground level as possible to allow future cutting of cleared areas & where beneficial treated with Roundup Pro-biactive to prevent regrowth.

Tree & Scrub Habitats

Trees (particularly mature trees) support a wide variety of wildlife including nesting habitat for birds, roosting sites for bats and shelter for otters e.g root systems used as otter holts.

Scrub (open & closed) provides excellent habitat for birds. Scrub close to sunny basking areas are important for amphibians and reptiles. Areas of scrub can also provide cover for otter holts.

Wet Woodland is a BAP habitat and important for invertebrates and plants.

Trees and scrub overhanging water provide refuges for fish. Overhanging branches are also used as feeding perches by birds like Kingfishers, which can use root plates of upturned trees as nesting areas.

Veteran Trees/Ancient trees A sustainable population of ancient trees in the landscape is vital for the wildlife dependent on them.

Hedgerows

Hedgerows are a BAP habitat, important for birds and invertebrates. Under the Hedgerows Regulations 1997, it is against the law to remove or destroy certain hedgerows without permission from the local planning authority.

Standard Procedure

- **Environment Officer** Complete consultation with Natural England if clearance area is on or within 100m of a statutory designated site e.g. SSSI, SAC, SPA, NNR.
- **Environment Officer / Rangers.** Complete consultation with Forestry Commission for license requirements e.g felling license may be required if felling more than 5m³ per quarter.

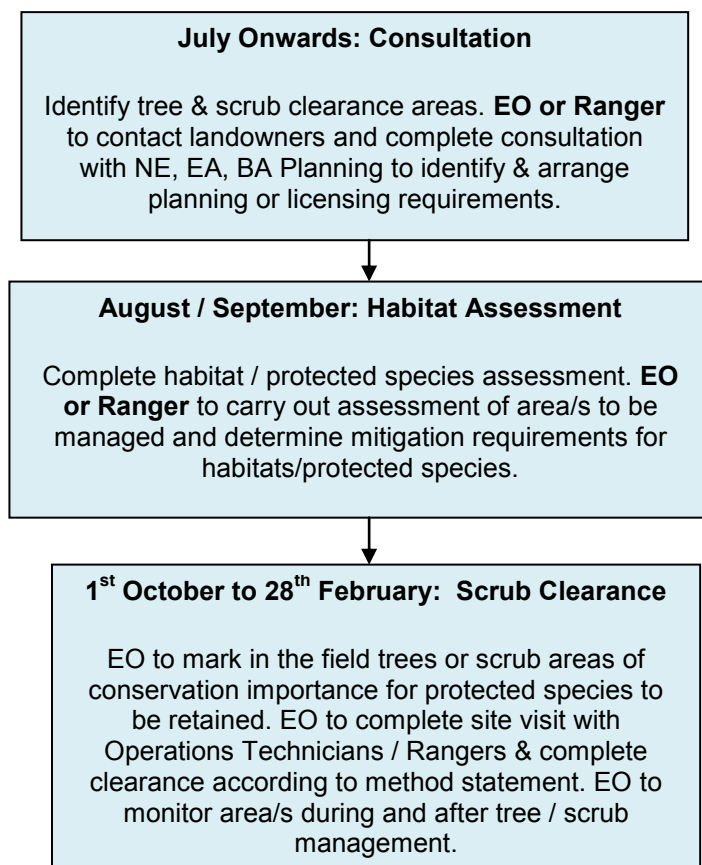
Environmental Standard Operating Procedure 4

Tree & Scrub Clearance

Delivery Method (cont:)

- **Burning** – If burning permitted on site keep fire sites to a minimum and locate fire so no risk of ash washing to water course. Spread ash evenly where possible.
- **Stacking** – if stacking scrub is preferred, stack neatly within existing wooded or shaded areas. Do not stack in open areas of fen or grassland.
- Retain standing & fallen dead wood and stack cut wood to provide additional rotting wood habitat.
- Tree and scrub management to be monitored by Environment Officer during and after work.

Maintenance Programme Consultation Procedure



Standard Procedure (cont:)

- **Environment Officers.** Complete consultation / AqHerb01 License application with Environment Agency if treating stumps within 1m of water's edge.
- **Environment Officers / Rangers.** Identify potential impacts on species and habitats in surrounding area & advise on mitigation
- **Environment Officer** Identify planning consent constraints e.g tree within Planning Conservation Area / Tree Preservation Orders. Contact planning department for advice.
- **TIMING** – Tree and scrub removal to be completed between 1st October to 28th February. Breeding bird check must be completed if clearance works undertaken outside this window.

Consultation Required

- Internal BA consultation with Rangers, Environment Officers & Planning
- External consultation/s with Natural England, Forestry Commission, Landowners and Environment Agency.

FURTHER INFORMATION:

- Natural England - *The Scrub Management Handbook*
- Natural England - *Veteran Trees Management Handbook*
- Broads Authority - *River Corridor Tree and Scrub Management Guidance*
- Broads Authority- *Fen Audit – Supplement to the Fen Management Strategy*

Environmental Standard Operating Procedure 14

Bat Mitigation for Tree Removal Works

Mature trees with scars, deadwood and ivy are potential roost sites for bats. All British bats protected under European and national legislation. Working practices aim to comply with the legislation which protects all bats against disturbance, killing and injury and also protects bat roost sites even when unoccupied.



Aim

To avoid killing and injury to bats and damage and destruction of roosts during tree removal or trimming.

Environmental Risk

Impact	Likelihood	Mitigation
Killing and injury of bats during active summer & winter hibernation periods	High	Retain trees with roost potential. Standard procedure if bats found in felled tree.
Destruction or damage to summer and winter roost sites	High	Retain trees with roost potential. Replace roosts if roost found in felled tree.

Delivery Method

- **Rangers / Operations Technicians / Environment Officers** – Assess the trees for age and potential bat features. The following features are likely to attract bats: old trees, old woodpecker/rot holes, splits, loose bark, snags, dead/dying wood, epicormic growth and dense ivy cover – fill in Tree Work Assessment Form

Standard Procedure

- Appendix 2 of the BA 'River Corridor and Scrub Management Guidance' outlines the protocol for determining the importance of individual trees for bats and should be referred to for more detail
- Trees marked with a white 'X' may be felled at any time but avoiding breeding birds (April–August).
- Trees marked with a red 'R' may require further detailed inspection for bats. If no signs of bat usage, felling may occur in October/November following good practice guidelines in Appendix 2.
- Trees marked with two red 'R's should be retained, or trimmed under supervision of a licensed bat worker, but if it is necessary to remove the tree a European Protected Species (EPS) licence will be required
- Training should be provided to those carrying out tree work

What to do if bats are found

- If bats or signs of bats are found at any stage during felling and disposal of the tree, the work should stop and a licensed bat worker / Environment Officer should be contacted immediately.

Environmental Standard Operating Procedure 14

Bat Mitigation for Tree Removal Works

Delivery Method (cont:)

- If in doubt of the potential of a tree to be a roost site, seek advice from an Environment Officer
- If trees are identified as having potential, an Environment Officer should be called to arrange further survey
- Mark trees as identified in the Standard Procedures above
- Carry out felling as set out in Appendix 2 of the BA 'River Corridor and Scrub Management Guidance'
- Where trees with potential are felled, follow mitigation advised by licensed bat worker

Further Information

Natural England- European Protected Species
<http://www.naturalengland.org.uk/ourwork/regulation/wildlife/species/europeanprotectedspecies.aspx>

Bat Conservation Trust www.bats.org.uk

BA 'River Corridor and Scrub Management Guidance'

Consultation Required

Natural England to be informed of presence of maternity or hibernation roosts

Bat Mitigation for Tree Works – Timeline

Stage	Task / <i>Responsible Persons</i>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Identify individual trees / tree blocks for felling next winter <i>Rangers & Maintenance Team</i>												
2	Assess trees for bat potential. Fill out survey form for records. If no bat potential - Mark tree with white 'X' <i>Suitably Trained Rangers, Operations Technicians & Environment Officers</i>												
3	Report trees assessed as having bat potential to Environment Officer. <i>Rangers & Maintenance Team</i>												
4	Arrange further survey of trees with bat potential by licensed bat worker. <i>Environment Officer</i>												
5	Trees with bat potential but no signs of usage (following further survey by licensed bat worker) - Mark with red 'R' <i>Rangers, Operations Technicians, Environment Officers</i>												
6	Trees with bat potential and confirmed usage by bats (following further survey by licensed bat worker) - Mark with double red 'RR' <i>Rangers, Operations Technicians, Environment Officers</i>												
7	Arrange for : Appropriate mitigation programme (Trees marked 'R') or EPS License for works if required (Trees marked 'RR'). <i>Environment Officer taking advice from Licensed Bat Worker.</i>												
FELLING													
Responsible Persons : <i>Rangers, Operations Technicians, Contractors</i>													
8	Trees marked with white 'X' - subject to absence of breeding birds or other protected species.												
9	Trees marked with single red 'R' - subject to mitigation advised by licensed bat worker.												
10	Trees marked with double red 'RR' - subject to EPS License requirements												

Environmental Standard Operating Procedure 13

Breeding Bird Mitigation for Management Works

River corridors in the Broads support breeding birds including waterfowl, raptors and songbirds. All birds, their nests and eggs are protected under the **Wildlife and Countryside Act 1981**. This includes nests that are in the process of construction. Rare (Schedule 1) species are afforded additional protection and cannot be intentionally or recklessly disturbed when nesting.



Aim

During any works operation to avoid killing, injury or disturbance of wild birds and damage and destruction of nests while being built or in use, or eggs.

Riverbanks, reedbeds and ronds, broads, soke and other dykes and watercourses, fens, grazing marshes, meadows, and scrub and woodlands, all provide nesting opportunities for various bird species.

Environmental Risk

Impact	Likelihood	Mitigation
Damage or destruction of nests while being built, with eggs or chicks	High	Deter birds from nesting in works area
Disturbance to wild birds while nest building, or at a nest containing eggs or young	High	Deter birds from nesting in works area

Delivery Method

- Initial habitat assessment of works area to be carried out by Environment Officer or Ranger Team in February.

Nesting habitats.

Riverbanks, reedbeds and ronds, broads, soke and other dykes and watercourses, fens, grazing marshes, meadows, and scrub and woodlands, all provide nesting opportunities for various bird species

Standard Procedure

- avoid carrying out management works during the main period of breeding from April to June.
- For works in March, an Environment Officer is to assess the works area to see if breeding has started, or if displacement mitigation is possible
- For works starting in July or August, an Environment Officer is to assess the works area to see if works can start
- Continually monitor bird activity that may indicate nest construction or bird nesting.
- For pre-breeding season mitigation, clear vegetation within the works area with hand-operated cutters by early March. Include all accessible reed and sedge at the water's edge;
- Carry out successive cuts to ground level, rake off arisings and remove from works area;

Environmental Standard Operating Procedure 13

Breeding Bird Mitigation for Management Works

Delivery Method (cont:)

- If area approved for works, vegetation to be cut back in proposed work area in early March by BA.
- Environment Officer or Ranger to monitor vegetation re-growth and advise repeat cutting if necessary.

Consultation Required

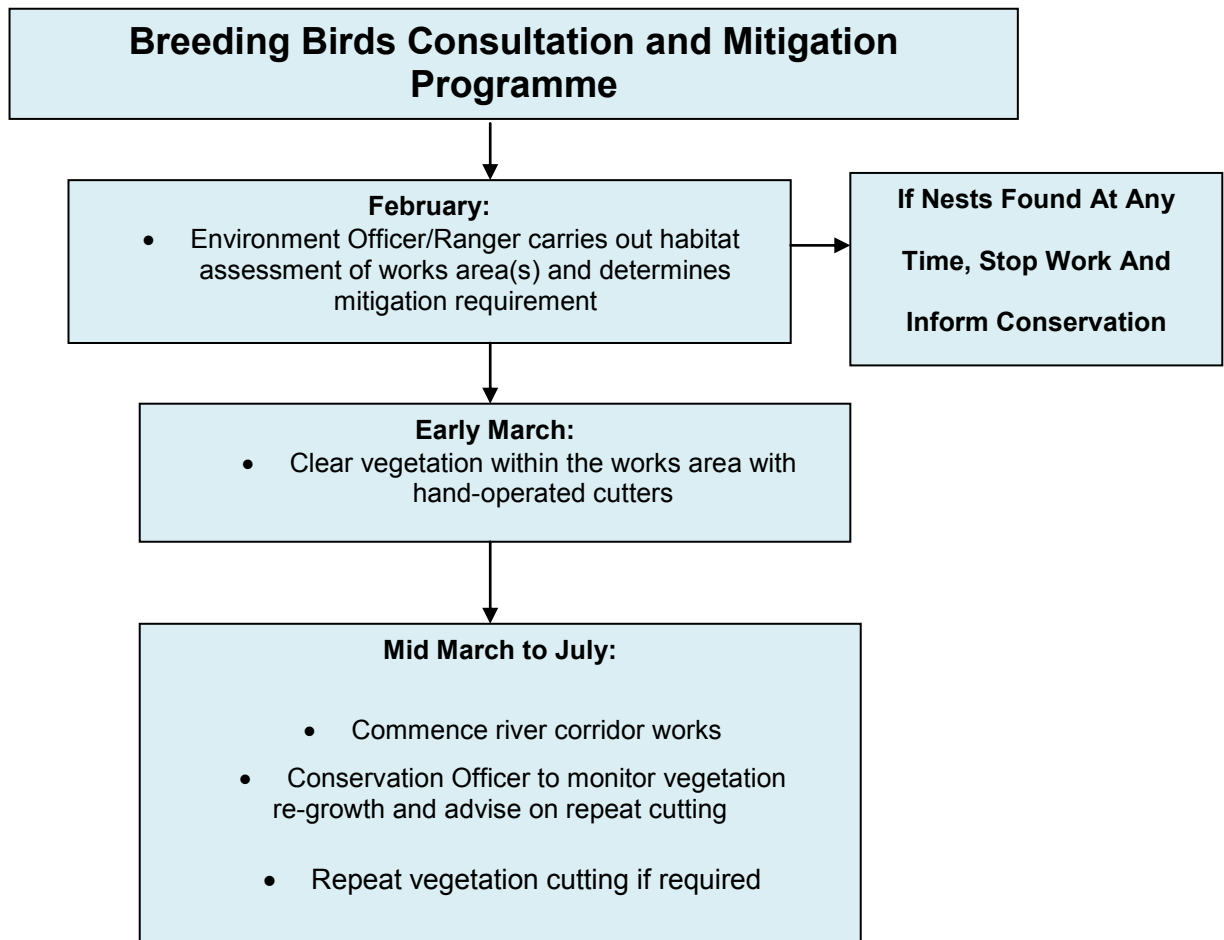
- External consultation with Natural England if works likely to damage a SSSI (or other designated area). Applies whether the operations are to take place within a SSSI boundary or within 100m.

Standard Procedure (cont:)

- Carry out further cutting of re-growth if necessary.
- **If nests found at any time, stop work and inform Environment Officer.**

Further Information:

- RSPB: Wild birds and the law – guide to bird protection in England and Wales
- www.naturalengland.org.uk/ourwork/conservation/designatedareas



European Protected Species and Trees

1. Trees and woodlands provide important habitat for European Protected Species (EPS). In the Broads, the EPS of primary concern in relation to tree work are bats. All of Britain's 17 bat species can be found in and around woodlands, including coniferous, deciduous and mixed woods. Trees, particularly older trees over 80 years provide resting places or roosting sites. Different bat species tend to be associated with particular types of woodland, and sometimes particular tree species.
2. Bats are highly sensitive to changes in climatic factors such as humidity and temperature; and, depending on the time of year, the weather, whether male or female, and if breeding or non-breeding, individual bats will then have different requirements for suitable roosting locations. As a consequence bats will often use a range of different roost sites throughout the year depending on their needs at the time. Individual bats will return to use the same roosts each year, and the knowledge of roost locations is passed on to their young.
3. The populations of all the 17 UK bat species are known to be in decline. Loss of suitable roosting and feeding habitat is known to be a significant contributing factor and in response, bats and their roosts have received strict protection under UK and international laws.
4. In England and Wales, the relevant legislation when considering tree management and the presence of protected species is:
 - The Conservation of Habitats and Species Regulations (2010).
 - The Wildlife and Countryside Act (1981) (as amended);
 - The Countryside and Rights of Way Act, 2000;
 - The Natural Environment and Rural Communities Act (NERC, 2006);
5. In summary, under the Conservation Regulations listed above, it is an offence to:
 - Deliberately capture, injure or kill a bat.
 - Deliberately disturb a bat, including in particular any disturbance which is likely to impair bats' ability to survive, breed, rear or nurture their young, hibernate or migrate, or to (significantly) affect the local distribution or abundance of the species.
 - Damage or destroy a roost (absolute offence – even if bats not present in roost at the time).
 - Possess, control, transport, exchange or sell a bat or parts of a bat, alive or dead.
 - Intentionally or recklessly disturb a bat at a roost.
 - Intentionally or recklessly obstruct access to a bat roost.

6. The addition of the word “**reckless**” to the legislation is important in relation to tree management because now there is an **obligation to inspect trees for bats before doing tree work** to ensure that trees are not being used by bats.
7. The Broads Authority has designed a decision tree for undertaking further survey based on the best practice guidance produced by the Bat Conservation Trust (2012). When undertaking work on trees with EPS potential, the aim should be to reduce risks to public safety or property to acceptable levels, whilst retaining the features that provide the potential for EPS presence.

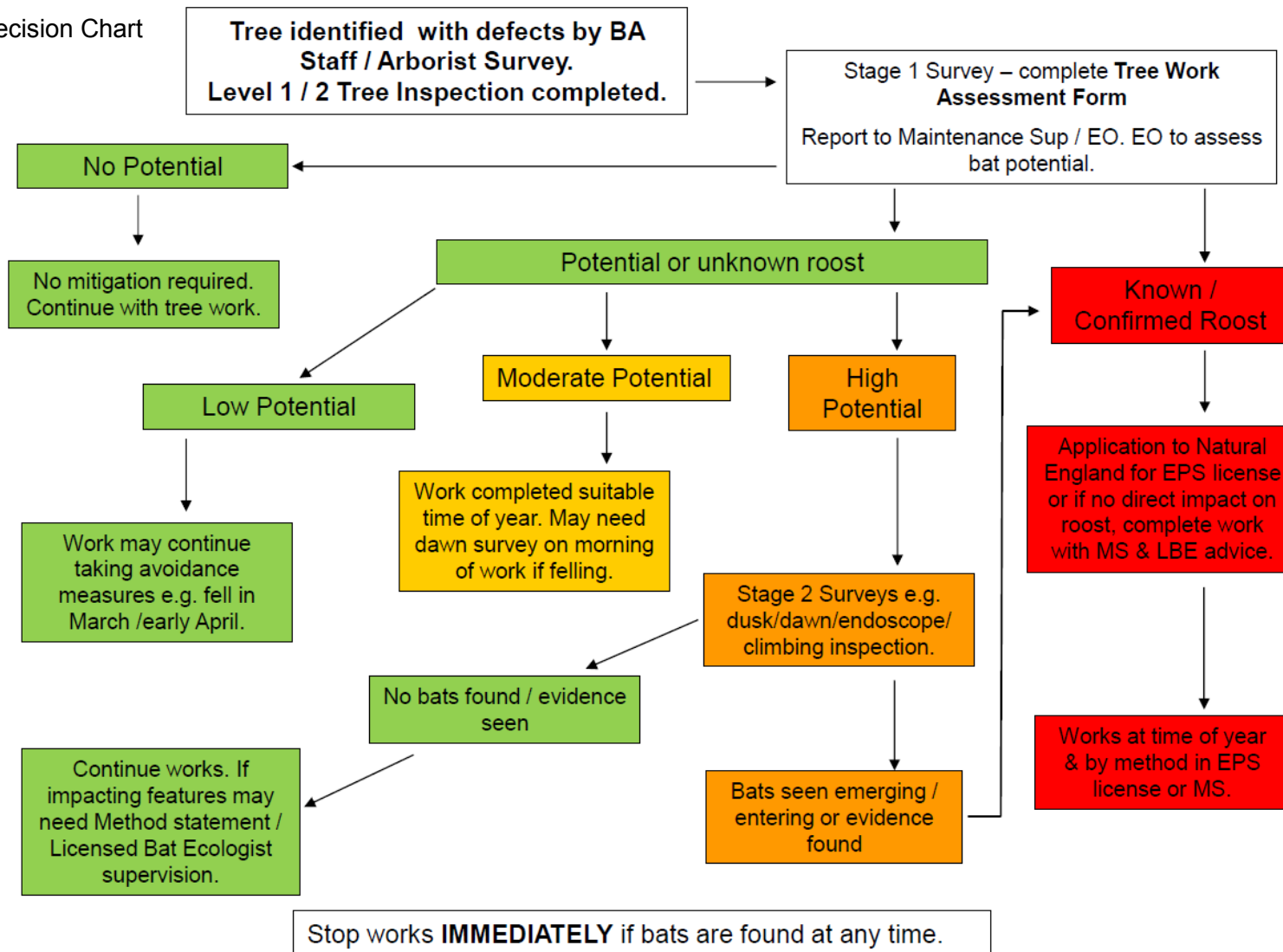
Table 1 : Table 8.4 from Hundt L (2012) Bat Surveys: Good Practice Guidelines, 2nd Edition

Tree category and description	Stage 1 Initial survey requirements	Stage 2 Further measures to inform proposed mitigation	Stage 3 Likely mitigation
Known or confirmed roost	Follow SNCO guidance and these guidelines wherever possible, to establish the extent to which bats use the site. This is particularly important for roosts of high risk species and/or roosts of district or higher importance and above		The tree can be felled only under EPS licence following the installation of equivalent habitats as a replacement.
Category 1* Trees with multiple, highly suitable features capable of supporting larger roosts	Tree identified on a map and on the ground. Further assessment to provide a best expert judgement on the likely use of the roost, numbers and species of bat, by analysis of droppings or other field evidence. <i>A consultant ecologist is required</i>	Avoid disturbance to trees, where possible. Further dusk and pre-dawn survey to establish more accurately the presence, species, numbers of bats present and the type of roost, and to inform the requirements for mitigation if felling is required.	Felling would be undertaken taking reasonable avoidance measures' such as 'soft felling' to minimise the risk of harm to individual bats.
Category 1 Trees with definite bat potential, supporting fewer suitable features that category 1* trees or with potential for use by single bats	Tree identified on a map and on the ground. Further assessed to provide a best expert judgement on the potential use of suitable cavities, based on the habitat preferences of bats. <i>A consultant ecologist required</i>	Avoid disturbance to trees, where possible. More detailed, off the ground visual assessment. Further dusk and pre-dawn survey to establish the presence of bats, and if present, the species and numbers of bats and type of roost, to inform the requirements for mitigation if felling is required.	Trees with confirmed roosts following further survey are upgraded to Category 1* and felled under licence as above. Trees with no confirmed roosts may be downgraded to Category 2 dependent on survey findings
Category 2 Trees with no obvious potential, although the tree is of a size and age that elevated surveys may result in cracks or crevices being found; or the tree supports some features which may have limited potential to support bats.	None. <i>A consultant ecologist is unlikely to be required</i>	Avoid disturbance to trees, where possible. No further surveys.	Trees may be felled taking reasonable avoidance measures. Stop works and seek advice in the event bats are found, in order to comply with relevant legislation.
Category 3 Trees with no potential to support bats	None. <i>A consultant ecologist is not required unless new evidence is found</i>	None.	No mitigation for bats required.

References

Hundt, L. (2012) *Bat Surveys : Good Practice Guidelines, 2nd Edition, Bat Conservation Trust.*

8. Bat Survey Decision Chart



Low Potential – Trees with no obvious potential, but size/age suitable, or tree with some features of limited potential for bats.

Moderate Potential – Trees with definite potential but fewer suitable features than High Potential / or trees with potential use by single bats .

High Potential – Trees with multiple / highly suitable features with potential for larger roosts or trees where it has not been possible to confidently assess potential e.g. ivy cover hampering assessment.

Broads Authority Safety Management System External Audit
Report by Head of Safety Management

Summary: This report sets out findings from the recent external audit of the Authority's Safety Management System.

Recommendation: That the Audit report as set out in Appendix 1 be noted, and that the Draft Audit Action Plan set out in Appendix 2 is adopted.

1 Background

- 1.1 The Broads Authority, as a Competent Harbour Authority under the Pilotage Act 1987, is required to comply with the duties and responsibilities set out in the Port Marine Safety Code (PMSC)¹.
- 1.2 The Code requires that all harbour authorities base their powers, policies, plans and procedures on a Formal Safety Assessment (FSA) and that they maintain a Safety Management System to ensure that risks are reduced to a level which is as low as reasonably practicable (ALARP).
- 1.3 In 2014, the Authority published a Safety Management System (SMS)² to meet the needs of the updated PMSC.
- 1.4 The PMSC requires that the SMS is monitored and audited to ensure that it continues to meet the requirements of the code.
- 1.5 The SMS sets out an audit schedule which culminates in a requirement for a full audit which is to be undertaken by an independent third party to gain an objective opinion of the effectiveness and suitability of the SMS to meet its objectives and to verify continued compliance with the PMSC.

2 Audit

- 2.1 BMT Isis, a consultancy specialising in marine safety, were selected to carry out the independent audit which took place at the Broads Authority offices on 17 September 2014.

¹ Port Marine Safety Code, dated December 2012

² Broads Authority Port Marine Safety Code Safety Management System, Issue 4, dated March 2014

2.2 The Audit reviewed version 4 of the Safety Management System which was issued in March 2014.

3 Audit Report

3.1 The BMT Audit report which sets out the audit findings and recommendations is set out in Appendix 1

3.2 The executive summary set out in Appendix 1 for member's reference, and the key points identified are:

- (a) The Broads Authority complies with the PMSC and has adequate systems in place to manage safety. The Safety Management System (SMS) confirms the policies and procedures in place to allow the effective management of safety within the Broads Authority remit.
- (b) The Broads Authority continues to discharge its statutory functions effectively and efficiently and to high standards. A strong element of professionalism, pride and attention to detail was witnessed during the audit process.
- (c) A number of areas have been highlighted for further development
 - 1. Competency standards;
 - 2. Training records;
 - 3. Incident data analysis / measuring performance.

4 Consultation

4.1 The Boating Safety Management Group and the Navigation Committee both supported the findings of the Audit report and the Action Plan.

Background papers: None

Author: Steve Birtles
Date of report: 4 March 2015

Appendices: APPENDIX 1- Broads Authority Port Marine Safety Code (PMSC)
Audit 2014 report

APPENDIX 2- Draft Audit Action Plan

Broads Authority Port Marine Safety Code Audit September 2014

Reference: 31255/D0902/Issue 2

Date: December 2014

Commercial-In-Confidence



Administration Record

Issue	Modification	Approved
Draft A	Draft Deliverable For Comment	LR
Issue 1	Final Deliverable	LR
Issue 2	Change in Terminology - Conclusion Section	LR

No. Of Pages

Copy No.

Collated By:

23

1

LR

Report Authorisation

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Checked

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Certified

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Executive Summary

A strong element of professionalism, pride and attention to detail was witnessed during the audit process

At the request of the Head of Safety Management for the Broads Authority, Steve Birtles, BMT Isis Ltd (BMT Isis) has undertaken an independent audit of the **Authority's** Safety Management System, in line with the requirement of the Port Marine Safety Code (PMSC).

This report provides members of the Broads Authority (the executive body) with full details of the audit activities undertaken and provides assurance that the activities of the Duty Holder and Designated Person comply with the PMSC and as such, the Broads Authority complies with the Code.

Overall the Broads Authority complies with the PMSC and has adequate systems in place to manage safety. The Safety Management System (SMS) confirms the policies and procedures in place to allow the effective management of safety within the Broads Authority remit.

A wide range of topics relating to the PMSC and the Broads Authority SMS were discussed during the audit process, providing the auditor with background information on activities, processes and operation of the Broads Authority.

We are able to report that the Broads Authority continues to discharge its statutory functions effectively and efficiently and to high standards. A strong element of professionalism, pride and attention to detail was witnessed during the audit process.

A number of areas have been highlighted for further development and are **included in the 'Recommendations'** section of this report. They refer to:

1. Competency standards;
2. Training records;
3. Incident data analysis / measuring performance.

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1. Introduction

The Port Marine Safety Code (PMSC) and Guide to Good Practice on Port Marine Operations were updated in December 2012 and July 2013 respectively.

The PMSC establishes the principle of a national standard for every aspect of port marine safety and aims to enhance safety for those who use or work in ports, their ships, passengers and the environment.

The Broads covers 303 square kilometres in the eastern most part of England and is the UK's largest protected wetland.

This report has been produced by BMT Isis Ltd for the Broads Authority following a request for an independent audit of their Safety Management System (SMS) and **as described in BMT Isis's letter proposal 31255/Isis-F-O-300**, dated 21st May 2014 (Reference 1).

The Port Marine Safety Code (PMSC) (Reference 2) requires that Harbour Authorities should include provision for systematic review of performance based on information from monitoring and from independent audits of the whole system. In addition, the PMSC also guides ports to publish a safety plan for marine operations at least once every three years. The plan should commit the authority to undertake and regulate marine operations in a way that safeguards the harbour, its users, the public and the environment.

A significant element of any SMS is the adequacy and effectiveness of its auditing and review functions. Based on best practice within the industry, the PMSC and associated Guide to Good Practice on Port Marine Operations (Reference 3) **guide Duty Holders to conduct 'independent audits of the whole system'**.

The Broads Authority is a Harbour Authority under the Pilotage Act 1987 and **is designated a "Special Statutory Authority", affording the same level of protection as National Park status**, but with tailor-made legislation relating to navigation.

An external audit and review of the marine SMS should take place every three years, informing the three-yearly publication of the marine safety plan **and the Authority's performance against the previous plan, as required by the PMSC**. In order for The Broads Authority to comply with this requirement, they have sought total independence from any commercial or operational interest as part of their SMS audit activity.

2. The Broads Authority

The Norfolk and Suffolk Broads are Britain's largest nationally protected wetlands, comprising rivers, broads, marshes, fens and carr woodland. There are over 200 km of navigable waterways linking many National and Local Nature Reserves and Sites of Special Scientific Interest. The Broads are listed under the Ramsar Convention on Wetlands of International Importance, and are home to a diverse variety of rare birds, animals and plants.

The Broads Authority was established as a non-statutory body in 1978 following a report by the Nature Conservancy Council regarding degradation of the Broads.

The Broads Authority was formalised as a statutory authority by the Norfolk and Suffolk Broads Act 1988 (Reference 4), **("The Broads Act")**, and began operating as such in 1989, for the purpose 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.

In 2006 the Broads Authority promoted a second Act (the Broads Authority Act 2009), the primary purpose of which was to introduce greater safety controls on the broads and rivers. This Act received Royal Assent on 2nd July 2009 and is now an Act of Parliament. The Act gives the Authority various new powers and combines the Navigation and General Accounts into one fund.

The Broads Authority is a statutory body and its general duty is to manage the Broads for the purposes of:

- Conserving and enhancing the natural beauty, wildlife and cultural heritage of the Broads;
- Promoting opportunities for the understanding and enjoyment of the special qualities of the Broads by the public; and
- Protecting the interests of navigation.

It must also consider the needs of agriculture and forestry, and the economic and social interests of those who live or work in the Broads.

The Authority is funded by central government as well as by tolls paid by users of the Broads.

In May 2011, the Broads Authority undertook organisational restructuring, which included combining the Navigation and Countryside Ranger Services into an Integrated Ranger Service.

As a result of this re-structure, **there has been a requirement to 'up-skill',** via training, members of the existing team. A comprehensive training plan was presented during the audit, highlighting the requirement for both water and land based training i.e. boat handling, tree surveying.

The effects of this merger and restructuring have been investigated, from a Port Safety perspective, as part of this audit.

In 2013 the Broads Authority launched a brand new patrol vessel, 'The Spirit of Breydon'. This vessel has been introduced following the transfer of responsibility for navigation of Breydon Water from Great Yarmouth Port Company to the Broads Authority.

3. Port Marine Safety Code

The PMSC comprises a Policy document, together with a Guide to Good Practice. The Code allows some degree of interpretation in application, in order to allow Port Authorities a degree of latitude in ensuring that the systems that are implemented are those that suit their particular operational challenges and environment.

A fundamental aspect of the Code is the requirement for harbour authorities to develop and maintain an effective marine safety management system. This system should be in place to ensure that all risks are controlled, with the more severe ones either being eliminated or kept **"As Low As Reasonably Practicable"**.

THE PMSC states that "Each harbour authority must appoint an individual as the **Designated Person** to provide independent assurance directly to the Duty Holder" and "A '**Designated Person**' is required to provide independent assurance directly to the 'duty holder' that the safety management system is working effectively."

Ultimate responsibility for appointing the Designated Person rests with the Duty Holder. The Duty Holder is to be satisfied that the Designated Person provides the level assurance necessary to comply with the Code.

4. Audit Methodology

The Audit comprised the following activities:

- A desktop review of the existing Broads Authority SMS;
- A one-day audit visit to the Broads Authority offices;
- Sampling of documents, records and publications in order to gauge compliance of the Broads Authority SMS;
- A prepared question bank, structured to give sample coverage to areas of the PMSC applicable to the Broads Authority.

Using a combination of the four techniques, the auditor undertook a review of the following:

- The scope of operations within the Broads Authority jurisdiction and the ways in which safety-related decisions are made and implemented;
- The documented SMS and records produced in support of the SMS;
- Emergency planning, resources and responsibilities;
- Current and future compliance with the PMSC.

The audit visit was undertaken on Wednesday 18th September with Lee Rhodes (BMT Isis Ltd) **meeting with the Broads Authority's Director of Operations**, Trudi Wakelin and Head of Safety Management, Steve Birtles.

The auditor considered the following documentation:

- Safety Management System Documentation;
 - Report Number 31006/E0018, Issue 4.0, March 2014 (Reference 5)
- Hazard Management documentation;
 - SMS - Annex 1
- Navigation Committee Minutes, including;
 - Meeting 12th December 2013;
 - Meeting 27th February 2014;
 - Meeting 5th June 2014.
- Risk assessments (supporting method statements for work);
 - Use of General Purpose Small Workboats
 - Remote / Lone Working
 - Work Related Safety Risk Assessment
 - Boat Transport of Goods and Materials
 - Stokesby Mooring Risk Assessment
 - St Benets Abbey Risk Assessment
 - Construction and Use of Jet Float Structures
- Generic Guidance;
 - Navigational Safety Policy

Observations and recommendations made at the previous audit (2011) have been addressed.

- The Broads Authority website;
 - <http://www.broads-authority.gov.uk/boating/navigating-the-broads/safety>
- Marine Accident Investigation Branch (MAIB) reports:
 - Grab 10 - 24/09/13

Observations and recommendations made at the previous audit (2011) have been addressed.

	Observation / Recommendation	Current Status
1	References to sections of the PMSC within the existing Broads Authority SMS are outdated with respect to the PMSC and the 2009 Act, and require review and update. It is recommended that the Broads Authority SMS be updated.	SMS Updated March 2014
2	It is recommended that the Introduction chapter of the SMS is updated to include reference to the commitment of the Broads Authority to comply with the standards laid down within the Code.	Chapter 1.7 (Navigation Safety Policy) gives reference to the Broads Authority's Navigation Safety Policy.
3	It is recommended that the Authority considers including a statement regarding the Authority's performance with respect to the PMSC within the Annual Report, supported by metrics as appropriate.	A statement has now been included in the 2012/13 annual report, however it is considered to be a very broad statement and is not supported by any kind of metric for measuring performance.
4	It is recommended that the Broads Authority delegated 'Designated Person' identify ways in which to remain informed of all changes to the PMSC and Guide to Good Practice.	The Head of Safety Management has joined the UK Harbour Masters' Association (UKHMA) and the Operations Director has successfully completed an International Diploma for Harbour Masters (via the IBC Academy). The Head of Safety Management attended the most recent UKHMA conference. Regular meeting with the Maritime and Coastguard Agency (at local level) occur.
5	It is recommended that a strategy be considered and implemented for dealing with a potential short notice requirement for a Mud Pilot.	A replacement 'Mud Pilot' has been appointed. The previous pilot has assisted with training and assessment of the new pilot. Due to the nature of the Broads, the types of commercial vessel likely to require a pilot and reporting procedures in place there is not likely to be a short notice requirement for these services.

6	It is recommended that the Broads Authority develops a schedule for planned updates of the SMS, including a timeline of updates related to major organisational or other changes.	A timetable for SMS updates has now been produced. The SMS will be submitted to the Authority following the Hazard Log process (early part of each year).
7	It is recommended that the Broads Authority introduces a document control procedure to ensure that all safety related documentation is maintained up to date at the correct issue status.	Software has been purchased however its introduction has stalled and therefore further work on this is required.
8	It is recommended that the Broads Authority SMS and Website are updated to reflect the change in the number of Byelaws currently in force.	4 Byelaws are listed on the website: <ul style="list-style-type: none"> • Navigation Byelaws 1995 • Speed Limit Byelaws 1992 • Vessel Dimension Byelaws 1995 • Vessel Registration Byelaws 1997
9	It is recommended that the Broads Authority investigate and consider how the provisions within the Act might be implemented in the event that Breydon Water is not transferred Broads Authority control.	No longer applicable as the transfer of Breydon Water was successfully completed.

5. Audit Findings - Accountability of the Duty Holder

Audit Question	PMSC / GtGP Ref	Findings	Recommendations
Has a Duty Holder been formally appointed and is this appointment formally identified?		Yes - The Safety Management System clearly states that the Board has responsibility as Duty Holder.	
Have executive and operational responsibility for marine safety been clearly assigned? Has this been documented?	2.1 and 2.1.1 D	The Broads Authority is composed of 21 appointed Members. One Member is appointed as the Chair and is supported by a Vice-Chair. The Board, has responsibility, both individually and collectively, as 'Duty Holder' . Section 2 of the Broads SMS contains a comprehensive description of the Roles and Responsibilities of those accountable, under the PMSC, for marine safety.	
Designated Person - independent, with direct access to the board? Does the DP formally present his/her findings with respect to the PMSC to the Duty Holder?	2.8 2.2.36	The Head of Safety Management has been appointed to act as the 'Designated Person' (Section 2.3.2). The Designated Person has a standing agenda item on the Broads Authority committee meeting, giving a direct reporting mechanism. In addition, he has direct access to the lead member for safety (the chairman of the Boating Safety Management Group BSMG), the agenda for which is agreed in advance. A report (Reference 6) on the suitability and adequacy of the Designated Person to fulfil the independence requirement stated within the PMSC was produced in March 2013.	This audit concurs with the findings presented to the Board in March 2013 relating to the level of independent assurance the Designated Person provides. Due to the current Designated Person's involvement with the SMS consideration could be given to the use of a reciprocal arrangement with another harbour authority (2.2.43) for external audit purposes.

6. Audit Findings - Consultation

Audit Question	PMSC / GtGP Ref	Findings	Recommendations
Is there evidence of consultation with port users (both commercial and leisure) and local interests and communities?	Section 3	<p>Yes - There are a number of forums, committees and mechanisms which allow for consultation with a variety of stakeholder communities.</p> <p>Meeting dates, agendas, reports, minutes from previous meetings, background papers and committee membership lists are readily available via the Broads Authority website.</p>	
Are stakeholders having a continued input to the Safety Management process through a regular or ad-hoc forum?	3.1.3	<p>Yes - The main mechanism for this is via the Navigation Committee. Members of this committee are drawn from relevant stakeholder communities i.e. hire boat owners, passenger boat owners and private owners. This committee meets every 2 months.</p>	
Have users been consulted on existing or new risk assessments?	3.2.8	<p>A number of new activities were identified that required consultation and risk assessment.</p> <p>The increase in the popularity of 'paddle boarding' and an operator wishing to provide guided paddle boat tours resulted in the Boat Safety Management Group meeting to discuss and assess the risk of this activity.</p>	

7. Audit Findings - Risk Assessment

Audit Question	PMSC / GtGP Ref	Findings	Recommendations
Has formal risk assessment been used to eliminate risk or reduce it to As Low As Reasonably Practicable (ALARP)?	3.5 4.1.1 D 4.2.29	<p>Section 9 (Hazards) and Section 10 (Risk Assessment) of the Broads SMS contain details of the Formal Risk Assessment process and the Authority's approach to the identification, assessment, control and management of risk.</p> <p>The Broads Authority uses a structured approach to the identification and analysis of hazards, following the IMO's Formal Safety Assessment (FSA) methodology.</p> <p>In 2012, two new, Cat A hazards, were identified and included in the Hazard Log. In the latest version (Pre Review Hazard Log, September 2013) these two hazards were declared as being non-ALARP and therefore those particular activities are not supported by the Broads Authority. There remains a recommendation within the Hazard Log that these two hazards require urgent mitigation.</p>	
Was the risk assessment undertaken by people who are qualified or appropriately skilled to do so?	3.6	The Navigation Committee, supported by the Boating Safety Management Group (BSMG) and Broads Forum provide safety advice and input into the risk assessment process. It is considered that this representation of members satisfies the Code's requirement for qualified and appropriately skilled personnel.	
Has the entire risk register been reviewed at least annually?	4.1.1 F	Yes - the Hazard Log is reviewed annually, alternated between the Boating Safety Management Group and full stakeholder group. The Hazard Log is then re-issued at the start of each year.	
Has the Authority considered publication of its risk assessments, where appropriate?	4.1.1 G	<p>Risk assessments are stored electronically on the corporate server and on the Broads Authority Intranet, a system that is available to all Broads Authority employees. Additionally the SMS including the hazard log are published on the Authority's website after issue each year.</p> <p>Prior to the audit, BMT Isis was provided with example Risk Assessment forms, these focused predominantly on occupational health and safety (manual handling, use of non-powered hand tools etc.) however a number included navigational/maritime related activities.</p>	

Audit Question	PMSC / GtGP Ref	Findings	Recommendations
Does the SMS contain a procedure for measuring performance?	4.4.12	<p>The Broads Authority's Navigational Safety Policy states <i>"We will: Evaluate the safety performance of the Broads Authority through reporting systems contained within the Safety Management System"</i></p> <p>Section 12 (Monitoring and Auditing) provides procedures for proactive and reactionary monitoring. Performance indicators have been detailed and are to be monitored on a monthly basis.</p> <p><i>"The status of each indicator, in relation to its defined target, will be recorded on the Authority's website"</i> - This is not intuitive to find on the website and appears to be not readily available.</p>	It is recommended that the status of each indicator is to be clearly presented on a designated page on the Authority's website , detailing the target, current performance against the target and the historic trend.
Does the SMS include processes for effective (annual) internal audit, review of procedures and external audit?	4.4.13	Yes - Section 12.4 (System Auditing) details the auditing plan, responsibility for conducting the audit and requirements for an Action Plan in the event that areas for improvement or non-compliances are identified.	

8. Audit Findings - Emergency Response

Audit Question	PMSC / GtGP Ref	Findings	Recommendations
Are emergency response procedures in place?	3.9	<p>Section 11 of the Broads Authority SMS clearly defines the responsibility of the Broads Authority to deal with and respond to emergency situations.</p> <p>The Authority is not a designated Emergency Service and is not declared a Search and Rescue resource by H.M Coastguard.</p>	
Is the emergency response plan readily available?	5.1.1	<p>An Emergency Communication Plan is contained at Appendix 2 of the Broads Authority SMS. This plan outlines the likely roles and responsibilities of the Communications Team in the event of an emergency or major incident.</p>	
Has the Authority been involved in or carried out its own exercises?	5.7.11	<p>The Oil Spill Contingency Plan is exercised every 3 years, with the next exercise scheduled in 2015. The exercise scenario is reviewed on an annual basis.</p> <p>Lessons learned from these exercises are gathered and post-exercise debriefings conducted. The general consensus from these exercises is that communications is the biggest challenge the Authority faces.</p> <p>In the past the Authority has conducted joint exercises with Great Yarmouth Port Authority, however these have now stopped and there appears little interest from the Port to reinstate this requirement.</p> <p>With the closure, in May 2013, of Great Yarmouth's Coastguard centre and full operational responsibility transferring to Humber Coastguard there is a concern that valuable local knowledge of the Broads will be lost.</p>	<p>It is recommended that closer ties with Maritime and Coastguard Agency staff at Humber Coastguard is established and that a programme for team meetings and local knowledge briefings be implemented.</p>

9. Audit Findings - Management of Navigation

Audit Question	PMSC / GtGP Ref	Findings	Recommendations
Are surveys conducted and aids to navigation maintained?	Section 6 6.1.2 a - e	<p>The SMS contains the Broads Authority Hydrographic Policy with additional information contained on the Broads Authority website.</p> <p>Hydrographic surveys of the lower river reaches are conducted every two years and other areas no less than every five years.</p> <p>As part of their role, the Broads Authority Rangers inspect and monitor navigation marks and signage, reporting (by exception) any defects found. An ongoing signage replacement program is currently in place.</p> <p>The Authority has introduced an Asset Management Plan, detailing: what, where, owned/leased, countryside / navigation, cost, life span, number of units etc. to allow continued management of the Authority's assets.</p>	
Are navigation marks maintained in positions to be of best advantage, with appropriate markings? When was this last reviewed?	Section 6 6.2.15	<p>Trinity House is updated on the current status of the Authority's aids to navigation on an annual basis however currently there is no requirement for this notification to continue.</p> <p>It was stated that it is an 'aspiration' of the Authority to implement a GIS based system to log location and type of every navigation mark within the boundary of the Authorities jurisdiction. The SMS gives reference (5.5.2) to this and states that the electronic GIS system should replace the paper based "Navigation Works Reports" system currently in use. It is understood that this system is yet to be implemented.</p>	

10. Audit Findings - Safety Management

Audit Question	PMSC / GtGP Ref	Findings	Recommendations
Does there appear to be an effective Safety culture in place?		<p>Yes - The Head of Safety Management and the Director of Operations provided a strong element of professionalism, pride and attention to detail during the audit process. Safety information, both for Broads Authority staff and those using the Broads, was clearly evident.</p> <p>A number of safety initiatives have been introduced and implemented over the last three years. The Head of Safety appears to be proactive in his duties and in his attempts to raise the level of safety for users of the Broads. The introduction of the 'Wear it' campaign is one such example, providing posters for display at boat yards and keyrings displaying the message to wear life jackets.</p>	
Do incidents prompt immediate safety review via a risk-based approach?	4.2.6	A mechanism for safety review is in place with the Navigation Committee and the Boating Safety Management Group responsible for maintaining high levels of safety within the Navigation Area and to reduce the risk to ALARP.	It is recommended that all new appointees to the Navigation Committee and the Boating Safety Management Group receive training on the risk assessment process, hazard identification and assessment and the ALARP principle.

11. Audit Findings - Performance Monitoring and System Audit

Audit Question	PMSC / GtGP Ref	Findings	Recommendations
Is there evidence that plans and actions are being monitored and implemented effectively?	4.4.12	At the start of the audit meeting with the Head of Safety and the Operations Director, actions and recommendations from previous audits were reviewed, with good progress made against all the actions presented.	
Is there an effective accident and incident reporting system?	12.5	<p>The Broads Authority actively encourages incident reporting, requesting incident, accident and near miss information. The website provides an online form for users to complete details along with contact telephone numbers and a postal address.</p> <p>Incident data is recorded, with figures for fatalities and injuries recorded. Initial analysis of this data (1993 - 2013) indicates that there is a downward trend for fatalities on or from boats (avg. 2 per year 93-02 compared to 1.6 per year 03 - 12). Collecting and recording usage data for this period (number of leisure users, private owners etc.) would allow for a more comprehensive historical trending analysis to be conducted. This analysis could be linked to the introduction of new safety initiatives and be used to measure the effectiveness of such. It is acknowledged that a large number of these fatalities are beyond the control of the Broads Authority, with Broads users choosing to ignore the safety advice and guidance provided.</p>	

12. Audit Findings - Personnel

Audit Question	PMSC / GtGP Ref	Findings	Recommendations
Are training objectives and requirements being implemented and applied?	3.13 11.1	<p>A comprehensive training plan for 2014-15 was presented at the audit. The Head of Ranger Services is responsible for delivering the in house training to the rangers. Operational staff obtain their training from a variety of in house and external training providers as necessary</p> <p>The Authority does have a Training and Development Policy and actively encourages Professional Development (SMS Annex B).</p> <p>The Head of Ranger Services is responsible for 'signing off' completed Rangers Procedural Manual - a form that details the areas of training (i.e. Byelaws & Legislation, Land based knowledge and skills, Operation of the vessel / launch and Seamanship) that Rangers are required to complete.</p>	<p>Evidence of a comprehensive training requirement was presented at the audit, however records of completed training were not as easy to locate. It is recommended that a process is introduced to ensure the capture and recording of training undertaken by all employees engaged in marine operations, this should also include the requirement to 'sign off' training on the day that it occurred. A central location, accessible by line managers, should be identified to store this information with a periodic review (3 monthly) process to ensure compliance.</p> <p>A mechanism for reviewing the relevance and effectiveness of training received could be considered. For example, a follow up questionnaire, sent 6 months after the training has been completed, requesting feedback (applicability, usefulness etc.).</p>

Audit Question	PMSC / GtGP Ref	Findings	Recommendations
Are competency standards for key personnel clearly defined and rigorously applied?	3.13 11.1	<p>Job descriptions and reference to training is included within the SMS however direct reference to competency standards is not.</p> <p>It is recognised (by the auditor) that harbours vary widely in size, purpose, type and level of traffic, making it a challenge to identify the necessary competencies required of the Broads Authority.</p> <p>National Occupational Standards (NOS) for Harbour Masters were published in early 2012, setting a benchmark to which national Harbour Master qualifications could be aligned. The ports sector currently has five completed sets of NOS. Two are concerned with port operations and three with harbour management.</p> <p>The Government has no current plans to make occupational standards mandatory, unless Harbour Authorities continue to fail to implement existing voluntary standards.</p>	<p>It is recommended that consideration of competency standards is given in order meet this particular aspect of the PMSC.</p> <p>Consideration should be given to specific marine safety competencies.</p> <p>Liaison with Port Skills and Safety (PSS), the port industry's organisation for health, safety, skills and standards, to identify potential competencies and training, is recommended.</p>

13. Conclusions

General

The results of the Audit reveal that safety is being managed effectively within the Broads Authority areas of responsibility.

The results of the Audit reveal that safety is being managed effectively within the Broads Authority areas of responsibility. The Head of Safety Management is proactive in his attempts to foster a positive safety culture and, through a regular series of forums, identified risks are being addressed and managed.

The SMS has recently (March 2014) been updated to bring it in line with the latest update of the PMSC (as recommended in the last external audit report).

Annual reviews of the Hazard Log are conducted by a committee considered to be Suitably Qualified and Experienced. In the event of new hazards being identified the Boat Safety Management Group is able to convene and assess such hazards, outside of the annual review period.

Compliance with the Requirements of the PMSC

The PMSC comprises a Policy document, together with a Guide to Good Practice. The Code allows some degree of interpretation in application, in order to allow Port Authorities a degree of latitude in ensuring that the systems that are implemented are those that suit their particular operational challenges and environment.

A fundamental aspect of the Code is the requirement for harbour authorities to develop and maintain an effective marine safety management system. This system should be in place to ensure that all risks are controlled, with the more severe ones either being eliminated or kept "As Low As Reasonably Practicable".

An element of interpretation, due to the nature of the Broads Authority's activities, when compared with more 'traditional' ports and harbours, has been accounted for.

The Broads Authority SMS, as updated in 2014, meets the current requirements of the Code and provides an effective mechanism for the management of safety with the Authority's jurisdiction.

Designated Person

Ultimate responsibility for appointing the Designated Person rests with the Duty Holder

"Each harbour authority must appoint an individual as the **Designated Person** to provide independent assurance directly to the Duty Holder" and "A '**Designated Person**' is required to provide independent assurance directly to the 'duty holder' that the safety management system is working effectively." - this is an area that the Director of Operations and Head of Safety have asked for clarification on.

Ultimate responsibility for appointing the Designated Person rests with the Duty Holder. The Duty Holder is to be satisfied that the Designated Person provides the level of assurance necessary to comply with the Code.

The Designated Person must:

1. Demonstrate independence of the operation of the marine safety management systems;
2. Have thorough knowledge and understanding of the requirements of the Code (and supporting Guide to Good Practice);
3. Determine, through assessment and audit, the effectiveness of the

SMS in ensuring compliance with the Code;

The Authority has appointed the Head of Safety Management to this role.

The appointment of the Head of Safety Management to the role of 'Designated Person', although not directly satisfying all of the above criteria (Item 1), does provide sufficient independence and assurance to the Duty Holder so as to comply with the requirements of the Code.

Consideration will need to be given by the Authority for succession planning as this current arrangement works with the experience provided by the individual appointed to the role of Head of Safety Management.

It is important that the Designated Person has independent access to the Duty Holder. To fulfil this requirement, the Designated Person, in this instance, the Head of Safety Management has:

1. Direct access to the lead member for safety (chairman of the BSMG);
2. A standing agenda item, agreed in advance, for BSMG committee meetings;
3. A standing agenda item on the Broads Authority committee meetings, giving direct reporting access to the full executive.

Broads Authority and Navigation Committee Members

New appointees to the Broads Authority and the Navigation Committee are scheduled for next year (2015). At the same time as these appointments will be a requirement to identify a new lead member of safety. This appointment will be made by the Broads Authority and will take on the role of Chairman of the Boat Safety Management Group (BSMG).

The identification and appointment of a new **lead member of safety** by the Broads Authority is considered an essential appointment. This role takes on the responsibility of Chair of the Boat Safety Management Group. Early identification of this role will allow for training to be scheduled and for successful succession planning to be implemented.

Breydon Water

Transfer of Breydon Water into the Broad Authorities jurisdiction was successfully completed.

The physical and asset management of Breydon Water is likely to have a significant impact on the resources (financial and physical) of the Authority. Activities include:

1. Upgrading of channel markings;
2. Provision of lay by moorings - understood to have been warmly received by users;
3. Feasibility study looking at upgrading the Turn Tide jetty upstream of Breydon Water;
 - a. Study conducted 18 months ago by external consultants;
 - b. Impact of removing the jetty;
 - c. Design of a replacement structure;
 - d. Work to commence in Feb/Mar 2015.

A designated water ski zone on Breydon Water was established in 2013, initially as a trial for one year, to allow for information to be gathered on the impact of such activities on the environment and other Broads users. This trial was extended in March 2014 as there had been no formal use of the zone for water skiing and therefore it had been impossible to collect data. Safety of Broads users was considered when designating the zone, with the Water Ski Review Panel, BSMG, Navigation Committee and Broads Forum all consulted.

Mud Pilot**A new 'Mud Pilot' has been appointed and trained**

During the audit process in 2011 it was identified that greater clarification on the requirement for a Mud Pilot (and associated training) was needed. This issue has now been rectified. A new Mud Pilot has been appointed with the previous Pilot providing assessment and training where required.

14. Recommendations

1. **Designated Person:** the PMSC and Guide to Good Practice implicitly detail the requirement for a Designated Person and that a 'Designated Person' is required to provide independent assurance directly to the 'Duty Holder' that the safety management system is working effectively. The 'Duty Holder' (The Broads Authority Executive) has officially appointed the Head of Safety Management to the position of 'Designated Person'. Clarification on the independence and suitability of this appointment has been requested. As stated within the body of this report and during the audit process, the appointment of the Head of Safety Management to the 'Designated Person', although not meeting all of the stated requirements detailed in the PMSC, does provide sufficient independence to the 'Duty Holder'. It is recommended that succession planning is considered for the position of 'Designated Person'. The current Head of Safety Management appears competent in all aspects of Safety Management and provides suitable advice and guidance to the 'Duty Holder'.
2. **Measuring Performance:** *"The status of each indicator, in relation to its defined target, will be recorded on the Authority's website"* - This is not intuitive to find on the website and appears to be not readily available. It is recommended that the status of each indicator is clearly presented on a designated page on the Authority's website, detailing the target, current performance against the target and the historic trend.
3. It is recommended that **closer ties** with Maritime and Coastguard Agency staff at Humber Coastguard is established and that a programme for team meetings and local knowledge briefings be implemented.
4. **Training Records** - Evidence of a comprehensive training requirement was presented at the audit, however evidence of completed training was not as easy to locate. It is recommended that a process is introduced to ensure the capture and recording of training undertaken by all employees engaged in marine operations; **this should also include the requirement to 'sign off'** training on the day that it is verified. A central location, accessible by line managers, should be identified to store this information with a periodic review (3 monthly) process to ensure compliance. A mechanism for reviewing the relevance and effectiveness of training received should be considered. For example, a follow up questionnaire, sent 6 months after the training has been completed, requesting feedback, in terms of applicability, usefulness etc. would allow the management team to monitor training and be better placed to meet the training requirements of the future.
5. It is recommended that consideration of **competency standards** is given in order meet this particular aspect of the PMSC. Consideration should be given to specific marine safety competencies. **Liaison with Port Skills and Safety (PSS), the port industry's organisation for health, safety, skills and standards**, to identify potential competencies and training.
6. Review of **incident data** i.e. fatalities on the Broads, as a result of boating related incidents in comparison with other industries/similar leisure activities. The Broads is in a fairly unique position, with such a wide user demographic. Users have a considerable mix of experience and seafaring knowledge. Incident data, collated over the last 20 years, indicates that fatalities, as a result of boating relating activities, are reducing. It would be useful to understand how the fatality rate compares to that of other similar user groups and the national average. In 2012 the National Water Safety Forum (NWSF) published a report detailing the number of water related fatalities from accidents or natural causes across the UK in 2010. This report shows that, the highest number of fatalities - 217 (52 per cent) - happened in inland waters such as rivers, canals, lakes, lochs, reservoirs and ponds. The same organisation published results for 2013, with an increase to 277 fatalities occurring on inland waters.

15. References

- 1 **BMT Isis's letter proposal 31255/Isis-F-O-300**, dated 21st May 2014;
- 2 The Port Marine Safety Code (PMSC), December 2012;
- 3 Guide to Good Practice on Port Marine Operations, July 2013;
- 4 Suffolk Broads Act 1988;
- 5 Safety Management System Documentation, 31006/E0018, Issue 4.0, March 2014;
- 6 The Port Marine Safety Code: Development of the Safety Management System, Agenda Item No 15, 22 March 2013.

PMSC Safety Management System Audit Action Plan

Audit Recommendation	Description	Action	Officer	Target Compl Date	Progress to Date	Completed
1	<p>Designated Person: It is recommended that succession planning is considered for the position of 'Designated Person'. The current Head of Safety Management appears competent in all aspects of Safety Management and provides suitable advice and guidance to the 'Duty Holder'.</p>	Document roles, responsibilities and procedures relating to the duties of the 'designated person' in order that they are available to any new post holder.	HofSM	Sept 2015		
		Develop People Strategy to include succession planning	Senior HR advisor	June 2015		
2	<p>Measuring Performance: It is recommended that the status of each indicator is clearly presented on a designated page on the Authority's website, detailing the target, current performance against the target and the historic trend.</p>	Metrics to be collated to enable regular publication on Broads Authority Website	HofSM	June 2015		
3	<p>Measuring Performance: It is recommended that closer ties with Maritime and Coastguard Agency staff at Humber Coastguard is established and that a programme for team meetings and local knowledge briefings be implemented.</p>	Set up regular liaison meetings with MCA sector officer. Continue attending MCA East Anglian sub-committee meetings and emergency Planning meetings	HoRS and Hof SM	Aug 2015	Continuing liaison with the acting Sector Manager and local area management.	
4	<p>Training Records: It is recommended that a process is introduced to ensure the capture and recording of training undertaken by all employees engaged in marine operations; this should also include the requirement to 'sign off' training on the day that it is verified. A central location, accessible by line managers, should be identified to store this information with a periodic review (3 monthly) process to ensure compliance.</p>	System to be developed to ensure training is captured in a timely manner and records stored in a central location.	HofSM, Senior HR advisor	Aug 2015		

Draft	Date 13 January 2015
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PMSC Safety Management System Audit Action Plan

5	<p>Training Records: A mechanism for reviewing the relevance and effectiveness of training received should be considered. For example, a follow up questionnaire, sent 6 months after the training has been completed, requesting feedback, in terms of applicability, usefulness etc. would allow the management team to monitor training and be better placed to meet the training requirements of the future.</p>	Feedback questionnaires and review process to be developed.	HofSM, Senior HR advisor	Aug 2015		
6	<p>Competency standards: It is recommended that consideration of competency standards is given in order meet this particular aspect of the PMSC. Consideration should be given to specific marine safety competencies. Liaison with Port Skills and Safety (PSS), the port industry's organisation for health, safety, skills and standards, to identify potential competencies and training.</p>	Develop and Review Skill Matrix with Port Skills and Safety to determine any relevant skills deficiencies	HofSM	Sept 2015		
7	<p>Incident data : Incident data, collated over the last 20 years, indicates that fatalities, as a result of boating relating activities, are reducing on the Broads. It would be useful to understand how the fatality rate compares to that of other similar user groups and the national average.</p>	Annual incident report to include benchmarking against other inland navigations and national statistics.	HofSM	May 2015		