Broads Authority

24 September 2021
Agenda item number 8

Waterways Management Strategy and action plan

Report by Head of Construction, Maintenance & Ecology

Purpose

This report introduces the Waterways Management Strategy and Action Plan 2022/23 to 2026/27 (link to full document in section 1.4 of report). The Strategy provides a framework for the integrated, sustainable and cost-effective management of the navigable waterways in the Broads Authority Executive Area, drawing together all the objectives and management techniques used to manage navigational access in the area. It pulls together all the Authority's waterways work areas and describes how they are managed. The Strategy is linked to Authority resources, budgets, known work allocations and emerging trends. A set of key issues are presented for discussion, focussing on some of the technical detail that will shape future prioritisation methods, scope of works and reporting processes.

Broads Plan context

The Waterways Management Strategy will contribute to multiple objectives, in particular those under Aspirations 3, 4 and 6 to manage sediment sustainably, maintain a safe open navigation, and maintain the access network and visitor facilities.

Recommended decision

To endorse the Waterways Management Strategy and Action Plan 2022/23 to 2026/27.

Contents

1. Introduction

1.1. The publicly accessible rivers, broads and channels within the Broads Authority Executive Area form the geographic extent of the Waterways Management Strategy for

activities carried out by the Broads Authority. The character and use of the different parts of these publicly accessible waterways varies considerably. This means that a fixed management approach would not give the best outcome for recreational users or for environmental considerations, or allow efficient deployment of Authority resources. The finite level of staffing and budgets available each year for managing the waterways means that having a clear prioritisation process for works is critical.

1.2. The vision in the Broads Plan (2017) relating to navigation within the Broads waterways is that: "The past and present importance of the waterways for navigation, biodiversity and recreation is recognised and cherished, and the asset is protected, maintained and enhanced. Wildlife flourishes and habitats are maintained, restored, expanded and linked effectively to other ecological networks. Land and water are managed in an integrated way, with local and landscape scale management creating resilience and enabling flexible approaches to meet changing environmental, economic and social needs."

1.3. To work towards this vision, three overarching aims are proposed for the Waterways Management Strategy:

- User experience: The Broads Authority shall manage the navigation area so that users feel informed and safe, have an enjoyable experience and are able to appreciate the special qualities of the Broads environment.
- Integrated management: The actions carried out by the Broads Authority shall be targeted so that resource use is efficient, to have biodiversity protection and carbon reduction is embedded throughout and, through working with landowners and other statutory bodies, to ensure works are carried out according to best practice.
- Transparency: The Authority shall monitor the condition of the waterways, have a clear, evidence-based prioritisation process for arranging work programmes and have open communication with stakeholders to incorporate user feedback. A 5-year plan shall be produced, with regular progress reported.

1.4. The draft Waterways Management Strategy has sections covering:

- Developments in legislation and policy
- Principles of waterways management
- Detailed objectives for the different techniques of waterways management (sediment management, water plant management, riverside tree management, bankside habitat & erosion management and channel marking)
- Technical appendices

1.5. Any required assents, licences or assessments will be gained at a later date, before the implementation of the projects starts.

2. Key areas of strategic review

2.1. Five key areas are presented in this report for targeted discussion and consultation, where there have been substantive changes in approach or where new evidence has been introduced, as set out below.

Update of mean low water level – the sediment modelling baseline

2.2. As water levels vary daily and seasonally, a modelled water level that can be used as a standard reference is required when setting a target water depth in the rivers and broads. Waterways specification depths are presented in the map in Appendix 1 of this report. To ensure that the specification depth is present at most states of tide, the reference water level is taken as the average level at low water (or mean low water). Data from river level gauges operated by the Environment Agency has been used to calculate mean low water level at 18 stations across the navigable system. The values for mean low water level have been updated from those previously used, which were based on data available in 1993. The difference between the two baselines is that the new model baseline is an average of 11.8 cm higher than previous. Sediment volumes causing non-compliance with the waterway specification depths have been subsequently recalculated. Across all the navigable broads and rivers, the updated mean low water model, at the slightly higher level, has reduced the total sediment volume identified as requiring dredging from 1,010,000 m^3 to 815,430 m^3.

2.3. A section is included in the Strategy document about the impact of variations in water level on the ability for vessels to pass under bridges. High water levels have led to vessels of air draughts of above certain heights, not being unable to pass through some low bridges for sustained periods. Some evidence for Potter Heigham bridge is presented.

Revision of waterways specifications inside and outside marked channels

2.4. To aid the reporting of compliance against waterways specification targets, the navigation area has been broken down into Management Units. These are definable stretches of river, individual broads, or marked channels within broads, where there is some level of uniformity of usage or general physical character. To help clarify the waterways specifications in waterbodies with marked channels, Appendix 2 shows where there are examples of two specifications, both within and outside of a marked channel. Significant volumes of sediment not meeting current waterways specifications can be found outside the marked channels, for example in Hickling Broad (191,550 m^3) and Rockland Broad (103,260 m^3). These two management units contribute 36% of the total identified dredging requirement for the whole of the Broads navigation. Separation of management units helps focus priorities. Many of these proposed changes are to regularise existing, but undocumented management specifications and to bring similar sites into a more consistent management approach.

Revision to Breydon-Lower Yare commercial waterways specification

2.5. A managed channel depth of 4 m (below mean low water) has previously been reported for Breydon Water to Cantley. As commercial freight is not presently using this route, it

is proposed to report on dredging requirements and carry out to meet a 2 m waterway specification. Breydon Water has regular transit of smaller in-shore commercial fishing, harbour pilot and windfarm support vessels drawing less than 2 m. If a request was made to the Authority for passage of commercial freight vessels drawing more than 2 m, then the route would be planned, potentially with the aid of a pilot and any dredging requirements to facilitate that passage would be evaluated. Current water depths in the River Yare below Cantley and through Breydon Water are relatively stable. Latest hydrographic data show a water depth consistently greater than 3.5 m below mean low water level throughout this section, for the middle 2/3rds of the channel width.

Revision of waterways specifications – above and below the water

2.6. As well as the depth of water, other dimensions of the physical space in which vessels operate need to be understood and defined. Together these features form the "navigable envelope" and include: width of river (bank to bank); height of water plants growing up from the bed; width of emergent and water plants growing at the river edges; and distance of tree growth out from the river edge and overhanging the water. Scaled diagrams showing the waterways specifications for the various river widths are shown in Appendix 3. Also shown are illustrative examples of waterways specification boundaries for various river edge features such as trees, water plants, 24 hour moorings and channel markers.

2.7. As these river channel features are largely driven by natural processes, a considerable variation in any one or all of these features may be observed across the navigation area at any one time. As such, the management required to maintain minimum standards will be rotational over different timescales. For examples, water plant cutting is focussed at high priority locations within the growing season each year (May-September), while priorities for riverside tree management are spread across a 5-year work programme.

Introducing internal carbon pricing

2.8. Carbon pricing is a financial tool that aids the shift towards a low-carbon economy by allowing the environmental and social costs of carbon emissions to be quantified. The responsibility of emissions is thus allocated back to the emitter instead of society at large and/or the environment, also known as the 'polluter pays principle'. Use of internal carbon pricing in the strategic planning and cost-benefit analyses for procurement options such as for fuel, heavy plant and vessels would allow the Authority to financially incentivise selection of low-carbon technologies that may be more expensive than traditional (fossil-fuelled) options. Current Authority procurement guidelines allow for a 10% surcharge for environmentally friendlier purchase options. This shadow price is proposed to be set to £50/tCO_2eq to align with net-zero targets and globally reported recommendations.

Table 1. Diesel usage for operational vessels and equipment, financial year 2020/21.

Cost of diesel (£)	CO_2 emissions (tonnes)	Internal carbon cost (£ - ICP method)	Cost of fuel + internal carbon cost (£)
29,621	179.8	8,990	38,611

3. Summary of Navigation Committee feedback

3.1. The draft Waterways Management Strategy was presented to the Navigation Committee on 2 September. Feedback was focused on water level trends restricting some vessel passage under bridges and the removal of the 4-metre dredge depth specification for Breydon Water and the River Yare to Cantley.

3.2. For the refresh of the mean low water level model, the Navigation Committee was content with the approach taken and the way the model is used for informing dredge specifications and reporting of progress. Members asked that the additional value of the water level data was focused above the water line, and when considering the air draught available under the various fixed height bridges around the Broads. Experience of prolonged winter water levels and greater periods of restriction for some vessels under bridges was discussed. While the Authority is not responsible for the bridges, informing navigators of restrictions is an ongoing duty. The Authority's role in wider discussions with the Environment Agency and the Broadland Futures Initiative on managing the navigation impacts of future changes to water level was acknowledged.

3.3. Navigation Committee members agreed that the reduction of the dredge specification from Breydon to Cantley to 2m was acceptable, given the current level of use and cost of dredging to 4m. Given the naturally deeper channel and high tidal range along this section of river, risk of excessive sediment accumulation was not foreseen. The Authority remains open to any discussion for commercial freight access in the Broads. If future dredging or increase of the water depth specification is required, then this can be brought back for consultation with members.

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Background papers: Draft Waterways Management Strategy and Action Plan 2022/23 to 2026/27 https://www.broads-authority.gov.uk/about-us/how-we-work/strategy/waterwaysmanagement-strategy

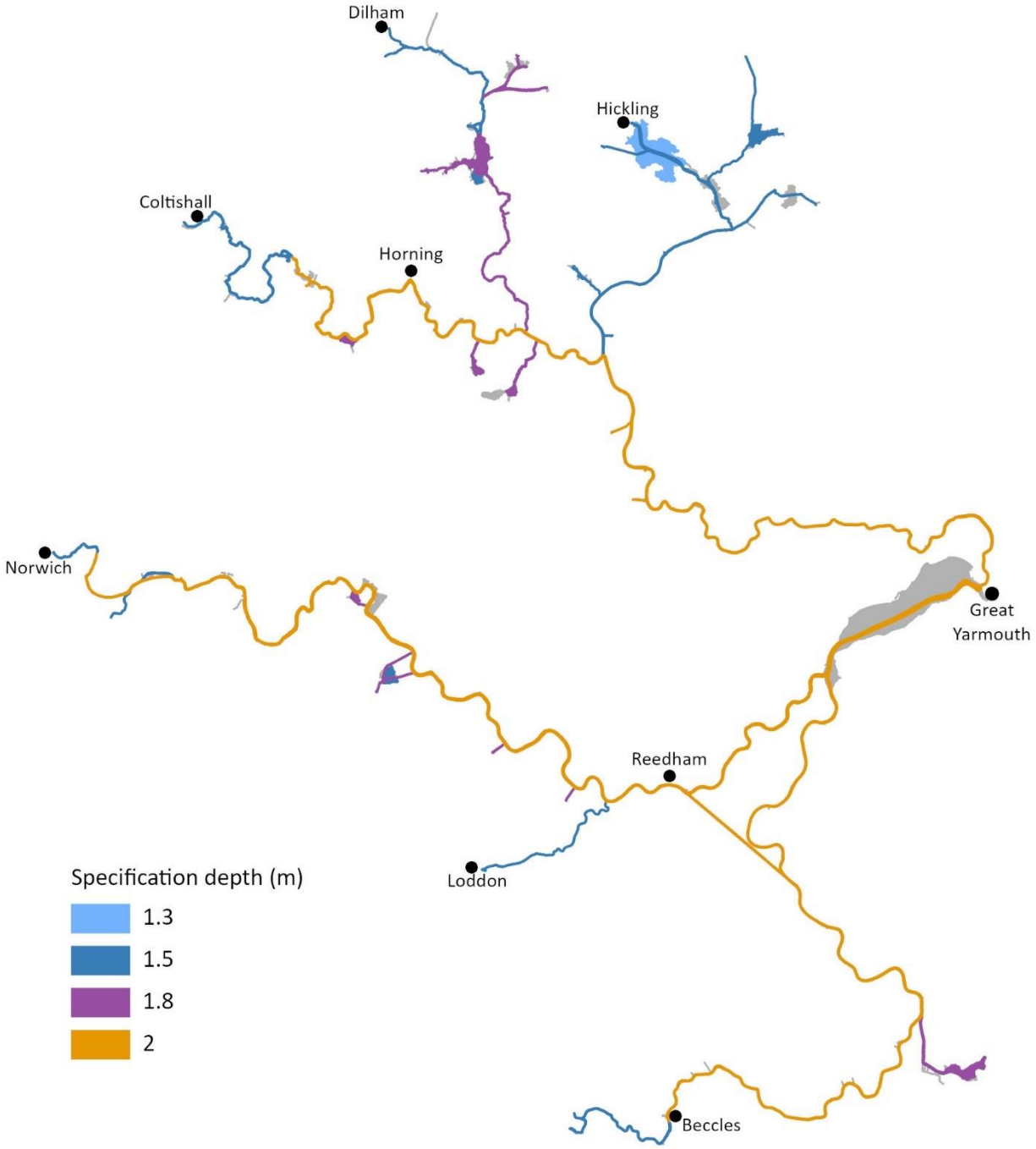
Broads Plan strategic actions: 2.1; 2.3; 3.1; 3.2; 4.2; 6.1

Appendix 1 – Map of waterways specification depths

Appendix 2 – Waterway specification for inside and outside of marked channels

Appendix 3 – Waterways specification diagrams

Appendix 1 - Map of waterways specification depths (September 2021)

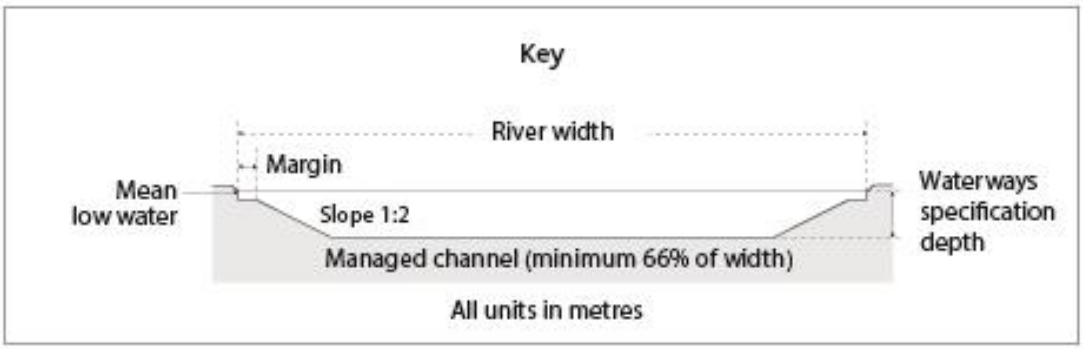


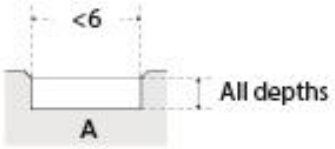
Appendix 2 – Waterway specification for inside and outside of marked channels

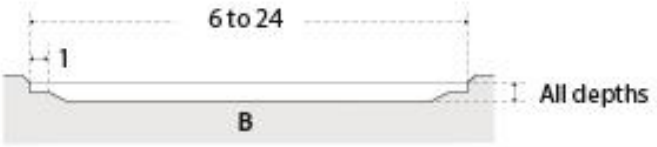
	Marked Channel - (m below MLW)	Outside of Channel - (m below MLW)	Hydrographic survey outside of marked channel	Revision of waterways specifications inside and outside marked channels
Barton Broad	1.8	1.5	17.8 ha = £1,220	Consistently apply the 1.5 m waterway specification outside the channel Report as two separate areas for dredge volumes. Carry out hydrographic survey at least every five years within marked channel and every ten years for outside
Hickling Broad	1.5	1.3	112.0 ha = £7,710	Retain existing waterways specifications. Report as two separate areas for dredge volumes. Carry out hydrographic survey at least every five years within marked channel and every ten years for outside.
Heigham Sound	1.5	No waterways specification set	23.1 ha = £1,590	Retain existing waterways specifications. Propose not to carry out a hydrographic survey outside the marked channel unless a specific project requires it in the future.
Martham North Broad	1.5	No waterways specification set	4.8 ha = £330	Retain existing waterways specifications. Propose not to carry out a hydrographic survey outside the marked channel unless a specific project requires it in the future.
Rockland Broad	1.8	1.5	13.1 ha = £900	Retain existing waterways specifications. Report as two separate areas for dredge volumes. Carry out hydrographic survey at least every five years within marked channel and every ten years for outside

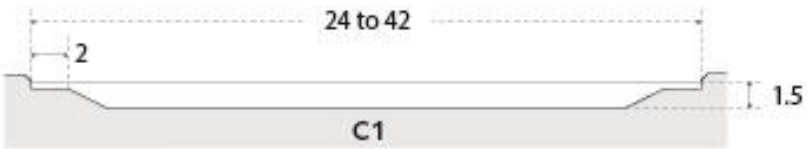
Bargate Broad	1.8	No waterways specification set	3.1 ha = £210	Retain existing waterways specifications. Marker buoys to be placed to indicate the line of the managed channel between the connecting dykes. Propose not to carry out a hydrographic survey outside the marked channel
Breydon Water	2.0	No waterways specification set	460 ha = £30,880	Retain existing waterways specifications. Work with partners to obtain access to existing hydrographic survey data from outside the marked channel.

Appendix 3 – Waterways specification diagrams

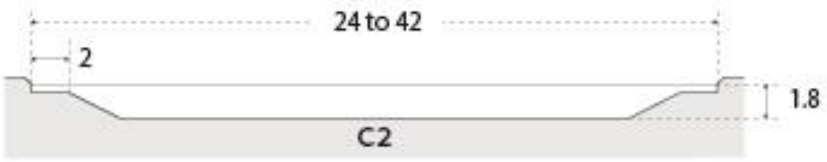


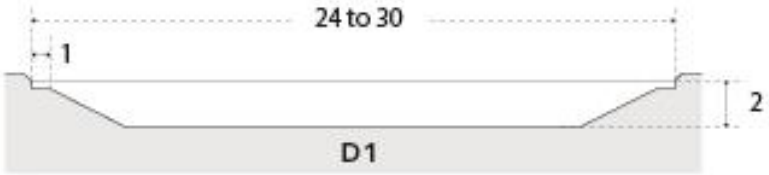


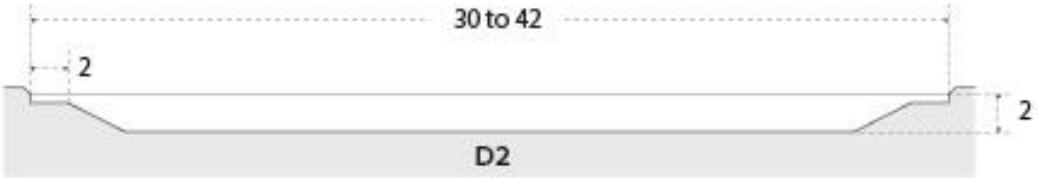


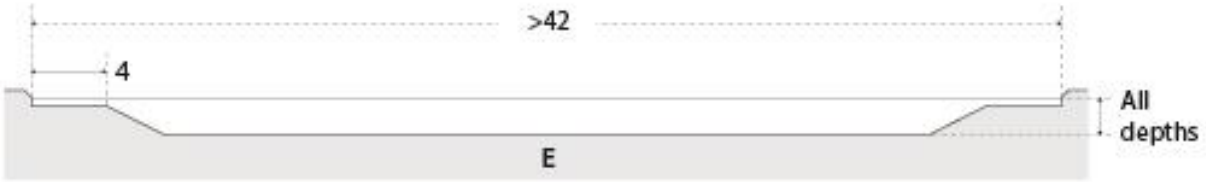


Diagrams A to E scaled relative to each other


24 to 42
2
1.8
C2


24 to 30
1
2
D1


30 to 42
2
2
D2


>42
4
All
depths
E