Navigation Committee

11 April 2024
Agenda item number 11

Construction Maintenance and Ecology work programme progress update

Report by Head of Construction, Maintenance & Ecology, and Ecology & Design Supervisor

Purpose

To give an update on the Broads Authority's management activities to maintain public navigation, develop mooring facilities for public use and demonstrate the effective use of available resources in managing the Broads waterways.

Broads Plan context

C1: Maintain navigation water depths to defined specifications, reduce sediment input, and dispose of dredged material in sustainable and beneficial ways.
C2: Maintain existing navigation water space and develop appropriate opportunities to extend access for various types of craft.
C3: Manage water plants, riverside trees and scrub, and seek resources to increase operational targets.
C4: Maintain and improve safety and security standards and user behaviour on the waterways.

Contents

1. Maintaining water depths for navigation

1.1. The detailed breakdown in Appendix 1 gives progress and volumes for the dredging programme for 2023/24 (April 2023 to end February 2024). A total of 30,830 m^3 of dredged sediment was removed from the prioritised sites. This figure represents 77% of the programmed target of 40,050 m^3 for the year.

1.2. Since the new year progress on the two planned dredging projects on the upper Bure and lower Yare has been hit by some unforeseen delays. For the Upper Bure work, the transfer of sediment from the riverside to the lagoons on neighbouring agricultural land has been delayed by about 8 weeks while waiting for replacement parts needed for the concrete pump. The pump is integral to this operation and the manufacturers in Germany have had difficulty gaining the relevant parts from their supplier in India. On the Lower Bure, the dredging was paused to allow the transport of our new hydraulic crawler crane which was imported from the Netherlands. To move the crane by river, as our only means of getting the large piece of plant into the Griffin Lane Dockyard, the modular linkflotes needed to be broken apart and reconfigured to facilitate this transport. Dredging around Bure Mouth and Breydon Bridge has recommenced, with the targeting of some specific shoals that were causing a navigational hazard at low water. See the Notice to Mariners here: Dredging works on the Lower Bure

1.3. Following the continued high water levels across much of the tidal river system this winter, focus on potential options to reduce water levels more quickly after high rainfall or high tides have been prevalent. The Broadland Futures Initiative "interactive toolkit" gives lots of information on the current range of options for increasing resilience to climate change in the Broads, see the link here: BFI Toolkit of Actions to Reduce Flood Risk. The Broads Authority's hydrographic data has been shared with the Broadland Futures Initiative team, who are planning to assess a capital dredging scenario within the hydraulic model currently in development as part of the Broadland Futures Initiative's planned outputs. One specific area of interest is whether capital dredging in the River Bure at Great Yarmouth, to depths beyond which the Broads Authority manages for navigation purposes, would generate significant water level benefits upstream. This model run will be on the unvalidated "draft" version of the model, so any outputs will be indicative only, but this will at least give some information to be reported in time for the next public meeting being arranged by Duncan Baker MP by the end of summer 2024.

1.4. The forward dredging programme for April 2024 to March 2025 is presented in Appendix 2.

2. Maintaining safe public mooring facilities

2.1. Planned repiling at Womack Island 24 hour mooring has been delayed due to inaccessibility to carry out the work due to high water. Work was due to start in at the end of January, but contractors will now commence after Easter.

2.2. Repps Bank 24 hour mooring at Potter Heigham is currently being advertised for open tender for refurbishment of the timber piled mooring, including removal of existing capping, waling, barge boards and mooring posts and replacement with new. In addition, back filling is required behind the quay with installation of a new mooring path.

2.3. Following this winter's high water levels, we will need to conduct a review later in 2024 on the resilience and sustainability of the choice of surfacing material of the paths behind the quay heading at Broads Authority 24 hour moorings. Significant damage has been incurred over this winter with loss of path material creating unsafe conditions. Woodchip has floated away entirely and other surfaces have been eroded or washed out depending on location. The involvement of stakeholders will be key, both in terms of setting the scope of the review and what factors are most important when it comes to choosing the most resilient mooring path materials and design.

3. Water Plant Management

3.1. Following discussions at previous Navigation Committee and Upper Thurne Working Group meetings, the topic of widening the water plant cutting zone outside the current marked channel through Hickling Broad has been considered by officers. As a framework to understand the strengths, weaknesses, opportunities and threats of the proposal, the SWOT analysis in Table 1 is a helpful tool to understand the pro's and con's and practicality of the work involved.

3.2. Table 1. SWOT analysis of proposal to widen the water plant cutting zone either side of the marked channel

Table 1

Strengths	**Weaknesses**
Reduced frequency of vessel fouling issues and fewer vessel recoveries	Increased area of negative impact on rare water plants
Greater confidence for motorboat helms	No current capacity for disposal of additional cut material
Increased navigation access opportunities	Limited capacity of Broads Authority operational staff for additional time requirement
Increased opportunities/stability for regattas in the summer months	Funding sources currently insufficient

Increased stability for local economy & businesses	
Opportunities	**Threats**
Increased investment in day boat hire	Negative impact on SSSI/SAC features would lead to Natural England not granting consent for this proposal
Re-use of cut material for compost or agricultural benefit	Existing ecological study shows short to medium term (at least two years) impact duration on cutting of stoneworts
	Increased risk of the return of poor water quality
	Reduced conservation value of nature reserve

3.3 On balance, with the consideration of the additional demands on Broads Authority staff time to implement this proposal, the limited benefit in terms of increased water space and the lack of evidence to rule out negative impacts on the Protected Site features, the proposal to widen the cut channel will not be taken forward.

4. Riverside Tree Management

4.1. The autumn/winter 2023/24 work programme of riverside tree management has been completed to plan. The core work with the hydraulic tree shears was at prioritised locations on the River Yare at Postwick and the entrance dykes to Bargate Water and Rockland Dyke; and on the River Bure between Ant Mouth and Wroxham (see maps here Riverside tree and scrub management 2023/24) .The tree shears were deployed in these areas to target specific tree growth that had been identified as having a negative impact on navigation, in line with the management policy and overall five year work programme.

4.2. Some additional work was also trialled outside the scope of the routine Broads Authority riverside tree management programme to assist the RSPB and the Yare Sailing Club at Cantley. A stand of semi-mature willow trees set back from the river edge had been identified as causing a specific sailing impact at this location. The landowner (RSPB) was prepared to dedicate their staff time to some felling work over the winter under their existing consent from Natural England and Forestry Commission. Voluntary assistance in clearing the resulting brash was carried out by Yare Sailing Club members, with mechanical removal of the larger cut timber by the Broads Authority.

More work to reduce the overall tree canopy height in this short section is planned over the next few years.

5. Our resources

5.1. A hydraulic crawler crane has been purchased to replace the existing mechanical crawler crane stationed at the Griffin Lane dockyard. The older crane has reached the end of its useful working life, with spare parts now becoming very difficult to source. The more modern hydraulic crane brings increased capabilities and better safety features to our lifting operations. The maximum lifting capacity is nominally 50 tonnes, but on the crane pad at our quayside can operationally handle loads of up to 25 tonnes. The whole crane itself weights 36 tonnes and has a 19m boom length.

5.2. The benefit of this Hitachi KH-180 crane is that it has already been outfitted with the pipework and cabling to allow it to be used for piling, and channel marker post installation as well as having a greater lifting capacity.

The Hitachi KH-180 50 tonne crawler crane being load tested and certificated prior to use

6. Channel Marking

6.1. The programme to replace all of the channel markers Breydon water from wood to steel is set to be completed in April. In-house installation of these navigational safety markers has been facilitated by the purchase of the hydraulic crawler crane, which can operate on our existing linkflote pontoons.

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Broads Plan strategic objectives: C1, C2, C3, C4

Appendix 1 – Annual dredging progress 2023/24 (April 2023 to end February 2024)
Appendix 2 – Annual dredging plan 2024-25

Appendix 1 – Annual dredging progress 2023/24 (April 2023 to end February 2024)

Project title **Dredge site and sediment re-use location**	**Active Broads Authority dredging weeks completed/planned**	**Planned volume removed m³**	**Actual volume removed m³**	**Planned annual project cost [1]**	**Actual project cost**
River Ant River Ant – Wayford to Barton (Apr '23 – Jul '23)	18/17	12,230	12,920	£115,740	£112,070
COMPLETE – lower actual cost was due to slightly lower staff numbers needed to achieve the targets than planned					
River Waveney Oulton Broad (Apr '23 – Sept '23)	23/16	7,600	12,490	£98,430	£121,830
COMPLETE – final costs reflect extension of time on this project					
River Bure Coltishall to Hoveton Viaduct (Oct '23 – Mar '24)	7/30	13,630	4,510	£176,510	£122,550
Planned start delayed owing to mobilisation restrictions. Progress to date interrupted by concrete pump breakdowns.					
River Yare Haddiscoe Cut (Nov '23 – Jan '24)	3/13	6,590	910	£80,630	£25,550
Planned dredging time reduced owing to extension at Oulton. Commencement delayed owing to new crane delivery.					
Site restoration Hardley Flood *(yet to be fully completed)*	-	-	-	£8,800	£1,900
Future site preparation					

Project title **Dredge site and sediment re-use location**	**Active Broads Authority dredging weeks completed/planned**	**Planned volume removed m^3**	**Actual volume removed m^3**	**Planned annual project cost [1]**	**Actual project cost**
Survey, mitigation & set-up	-	-	-	£6,810	£8,440
Dredging support activities Maintenance of ancillary dredging kit etc.	-	-	-	-	£18,200
Total	**51/76**	**40,050**	**30,830**	**486,920**	**£410,540**

1 project costs include staff time for all elements (pre-works ecological mitigation, site set-up, active dredging & site restoration); BA plant & budgetary expenditure (equipment hire, survey costs, contractor costs, mitigation works, materials & consumables etc); within the reporting period.

Appendix 2 – Annual dredging plan 2024-25

Project title	Active Broads Authority dredging weeks planned	Planned volume removal m3
River Bure (continuation from 2023/24) Juby's Farm to Hoveton Viaduct – Lagoon re-use site	27	17,900
River Yare Rockland Broad (channels & dykes) – Rockland Short Dyke & Postwick Marshes re-use sites & Postwick Tip	26	13,500
River Ant Stalham Dyke – Hunsett Mill re-use site	3	830
River Yare Bargate Broad – Postwick Marshes re-use & Postwick Tip	4	2,400
River Thurne Catfield Dyke – Sidecast	4	2,000
TOTAL	**64**	**36,630**