

Navigation Committee

10 June 2021

Agenda item number 13

Construction, Maintenance and Ecology work programme- progress update

Report by Head of Construction, Maintenance and Ecology

Purpose

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

Broads Plan context

Construction, Maintenance and Ecology (CME) activities contribute to multiple objectives, in particular to Aspirations 3, 4 and 6 to manage sediment sustainably, maintain a safe open navigation, and maintain the access network and visitor facilities.

Contents

1.	Maintaining water depths for navigation	1
2.	Maintaining safe public mooring facilities	2
3.	Our resources	3
4.	Managing water plants	3
5.	Other navigation works	3
	Appendix 1 – Annual dredging figures 2020-21	6
	Appendix 2 – Percentage of operational staff time spent on navigation work types	8
	Appendix 3 – Planned staff allocation for navigation work types in 2021/22	8

1. Maintaining water depths for navigation

- 1.1. The detailed breakdown in Appendix 1 gives the total volumes for the annual dredging programme for the whole of 2020/21 to the end of March 2021. A total of 43,990 m³ of

dredged sediment was removed from the prioritised sites. This figure represents 106% of the programmed target of 41,400m³ for 2020/21.

- 1.2. The final work of the 2021/2022 dredging reporting year was completing the dredging on the River Thurne near Martham Ferry. The sediment dredged was all brought back to Chara Bay in Hickling Broad and was used to fill the reedbed created as part of the CANAPE project. As per the project plan, the end point of work in the Upper Thurne was in response to the seasonal increase in water temperature. To protect against the risk of harmful algal blooms the dredging and reedbed creation work was only able to occur when water temperatures were below 8 °C, so works stopped once this was exceeded.
- 1.3. From the dredge projects listed in Appendix 1, the actual cost of all the work for the year was lower than the planned figure. In terms of the revenue budget allocated for expenditure, for dredging this had a forecast outturn of £94,980 with actual project expenditure coming to £78,680. This represented an underspend of £16,960. The majority of this was for work not completed or needing to be completed in the 20/21 financial year due to methodology changes, such as less contractor costs for water vole mitigation at Peto's Marsh, less requirement for equipment hire and fewer contract lifts of large equipment. The actual costs for staff and Authority plant and vessels are as accurate as we can record from staff and equipment usage timesheets. It is the predicted costs generated prior to the start of the financial year where the largest source of variation occurs. The over achievement of the planned dredge volume target indicates that the work was done efficiently and within budget.
- 1.4. April 2021 saw the demobilisation from the winter dredge projects and mobilisation to the two dredging projects on the southern rivers. In May, dredging started at Beccles and Oulton Broad respectively. On the Waveney, the dredging has started at Beccles with a small amount to be removed near the town. The main volume to be removed is focussed around the upper part of the navigation towards Geldeston. In Oulton Broad, the dredging is initially focussed on the approach toward Mutford Lock, then if time allows moving towards the southern basin.

2. Maintaining safe public mooring facilities

- 2.1. Replacement of the timbers at St Benets 24 hour mooring is underway with contractors. In addition to new capping and waling timbers, the level of the capping and the mooring path is being raised so that overtopping by water during higher tides is less frequent. As sections are being completed by the contractor, they are being opened for public use to minimise disruption on this very busy mooring.
- 2.2. The project planning and site investigations at Commissioners Cut 24 hour mooring has begun. Soil cores, investigations of the tie rods and anchoring, and land registration of the area to the west of the mooring are all under way. Once the preliminary tasks by the Ecology & Design Team are completed, a design for a wider mooring cut with new

sheet piling is due by the end of June 2021. Tendering and delivery of the construction work is intended for autumn/early winter 2021.

3. Our resources

- 3.1. A new, 20 tonne, 12 metre long reach JCB excavator was delivered in mid-April. This replaces a long reach excavator that was purchased in 2010. The new machine shall be largely used for dredging work.
- 3.2. Appendix 2 gives an indication of the proportions of Operations Technicians time spend on the different navigation work types over the past five years. The main summary is that most work types have a fairly consistent level of annual effort over this period. The one noticeable variation to the general pattern was in 2017/18 when a greater proportion of time was spent on “other navigation works”. In that year, there was a project to remove the channel markers from along the River Chet and there were several wrecks raised. All of this work was carried out by the Construction Team, using staff time and equipment that would otherwise have been spent on dredging work.
- 3.3. Appendix 3 gives the planned proportion of Operations Technicians time to be spend on the different navigation work types over the next year (2021/22). This set of figures is the baseline with which reporting can be compared at the end of this financial year.

4. Managing water plants

- 4.1. The first round of water plant cutting for the 2021 season has been completed in the northern rivers, with cutting having happened on the Upper Thurne (Martham to Somerton) and River Bure (Belaugh to Coltishall Lock) and the River Ant (Wayford to Dilham Staithe).
- 4.2. On the River Ant, operations staff have been removing invasive floating pennywort, which poses a serious risk to navigation if it is allowed to grow unchecked. New patches have been found during May along Tyler’s Cut. The Authority continues to work in partnership with the Environment Agency, Internal Drainage Board and the Norfolk Non-Native Species Initiative to track, plan, remove and ultimately eradicate this species from the whole of the River Ant.

5. Other navigation works

- 5.1. The revised timetable for the consultation on the Waterways Management Strategy & Action Plan is as follows:
 - 15 July – internal consultation on final draft – Operations Group meeting
 - 26 August – Navigation Committee papers – members provided with link to draft document for comment
 - 2 September – Navigation Committee – presentation, discussion and recommendations

5.2. In the previous Navigation Committee meeting the results of the revision of the Mean Low Water modelling surface was presented with respect to the impact on total sediment volume identified for dredging. To provide some more detail on the reporting boundaries for sediment volume calculations, within the rivers and broads, the following “rule of thumb” have been followed. These general principles follow closely those adopted within the Sediment Management Strategy (2007) [Sediment mgt strategy nov 06 \(broads-authority.gov.uk\)](https://www.broads-authority.gov.uk/sediment-mgt-strategy-nov-06). Following improvements in the GIS mapping and the hydrographic survey data resolution, greater accuracy and repeatability can be applied to the methodology for calculating the volume required for dredging. Given the Waterways Management Strategy aims to incorporate all of the management activities required to meet Broads Plan objectives for the waterways, some of these principles also apply to water plant management, as indicated in the examples below:

- 20 m non-intervention margin around the edges of broads.
- For river channels at least two thirds (66%) of the total bank to bank width, is aimed to be within the stated Waterways Specification depth for that stretch.
- For river channels, there will be a non-intervention margin where no dredging or water plant cutting takes place. The untouched strip aims to maintain valuable habitat that supports the unique wetland ecology of the Broads. The width of this margin varies according to total channel width. The exceptions are very narrow dykes and channels where it would be impractical to leave any of the width unmanaged.
- Where there are existing publicly accessible moorings within the public navigation, when required, any dredging and water plant cutting shall be up to these moorings.
- Where a channel is defined by marker posts, the Waterways Specification depth for dredging and water plant cutting shall be maintained for the channel width up to the marker posts.
- Waterways Specification depth is only that which can be achieved by maintenance dredging of recently accumulated sediments. If the natural substrate of the river or broad bed is reached during dredging works, for example previously undisturbed gravels or peat, then these areas are to be left and the appropriate navigation information given (see the Water depths and Navigation notes section of the Authority’s website [Water depths and navigation notes \(broads-authority.gov.uk\)](https://www.broads-authority.gov.uk/water-depths-and-navigation-notes)). Excavation of undisturbed bed sediments is beyond the scope of the Broads Authority’s permitted activity and routine operation. Such dredging activity would be deemed as capital dredging, as defined by the OSPAR Convention rules (The Convention for the Protection of the Marine Environment of the North-East Atlantic) administered by the Marine Management Organisation through its Marine Licensing procedures.

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Background papers: Sediment Management Strategy 2007 [Water conservation reports \(broads-authority.gov.uk\)](#)

[Broads Plan](#) strategic actions: 2.1; 2.3; 3.1; 3.2; 4.2; 6.1

Appendix 1 – Annual dredging figures 2020-21

Appendix 2 – Percentage of operational staff time spent on navigation work types

Appendix 3 – Planned staff allocation for navigation work types in 2021/22

Appendix 1 – Annual dredging figures 2020-21

Project title	Active Broad Authority dredging weeks completed/ planned	Planned volume removed m ³	Actual volume removed m ³	Planned annual project cost ¹	Actual project cost
River Bure – COMPLETED South Walsham & Acle to Oby (Apr-May)	6/8	2,000	4,605	40,703	36,860
River Waveney – COMPLETED Oulton Broad to Peto's Marsh (May-Sept)	13/20	8,500	7,655	110,104	89,340
River Yare – COMPLETED Prioritised shoals between Trowse & Cantley (Jun-Sept)	16/15	6,400	8,570	114,507	95,960
River Thurne – COMPLETED River Thurne sites & Catfield Dyke to Chara Bay (Oct-Mar)	25/19	8,000	11,920	150,664	118,860
River Yare – COMPLETED Haddiscoe Cut to Raveningham (Nov-Dec)	10/20	8,500	8,240	106,990	63,270
River Thurne, Waxham Cut – COMPLETED Sidecast (Jan-Feb)	6/7	6,000	3,000	26,862	14,640
Lower Bure – COMPLETED	Contractor	2,000	1,000	10,000	5,250

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.

Project title	Active Broads Authority dredging weeks completed/ planned	Planned volume removed m³	Actual volume removed m³	Planned annual project cost ¹	Actual project cost
Plough dredge (Mar)					
Site restoration – COMPLETED Waxham Cut (Phase 1), Tyler's Cut	-	-	-	12,000	16,720
Site preparation – COMPLETED Peto's Marsh, Carlton Marshes	-	-	-	16,000	19,850
Total	76/89	41,400	44,990	587,830	442,910

Appendix 2 – Percentage of operational staff time spent on navigation work types

Navigation work type	2016/17	2017/18	2018/19	2019/20	2020/21
Dredging	62.6	56.1	63.0	64.6	68.0
Mooring maintenance & repairs	19.2	20.9	19.3	18.3	16.5
Riverside tree management	4.3	3.4	8.1	4.9	3.9
Aquatic plant cutting	4.6	5.8	5.1	5.8	6.5
Other navigation works	9.3	13.9	4.5	6.3	5.1

Appendix 3 – Planned staff allocation for navigation work types in 2021/22

Navigation work type	Staff days planned	% of total
Dredging	1843	60.5
Mooring maintenance & repairs	626	20.6
Riverside tree management	180	5.9
Aquatic plant cutting	230	7.6
Other navigation works	165	5.4
Total in plan (2021/22)	3044	