

Navigation Committee

22 October 2020

Agenda item number 10

Construction, Maintenance and Environment work programme - progress update Oct 2020

Report by Head of Construction, Maintenance and Environment

Purpose

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

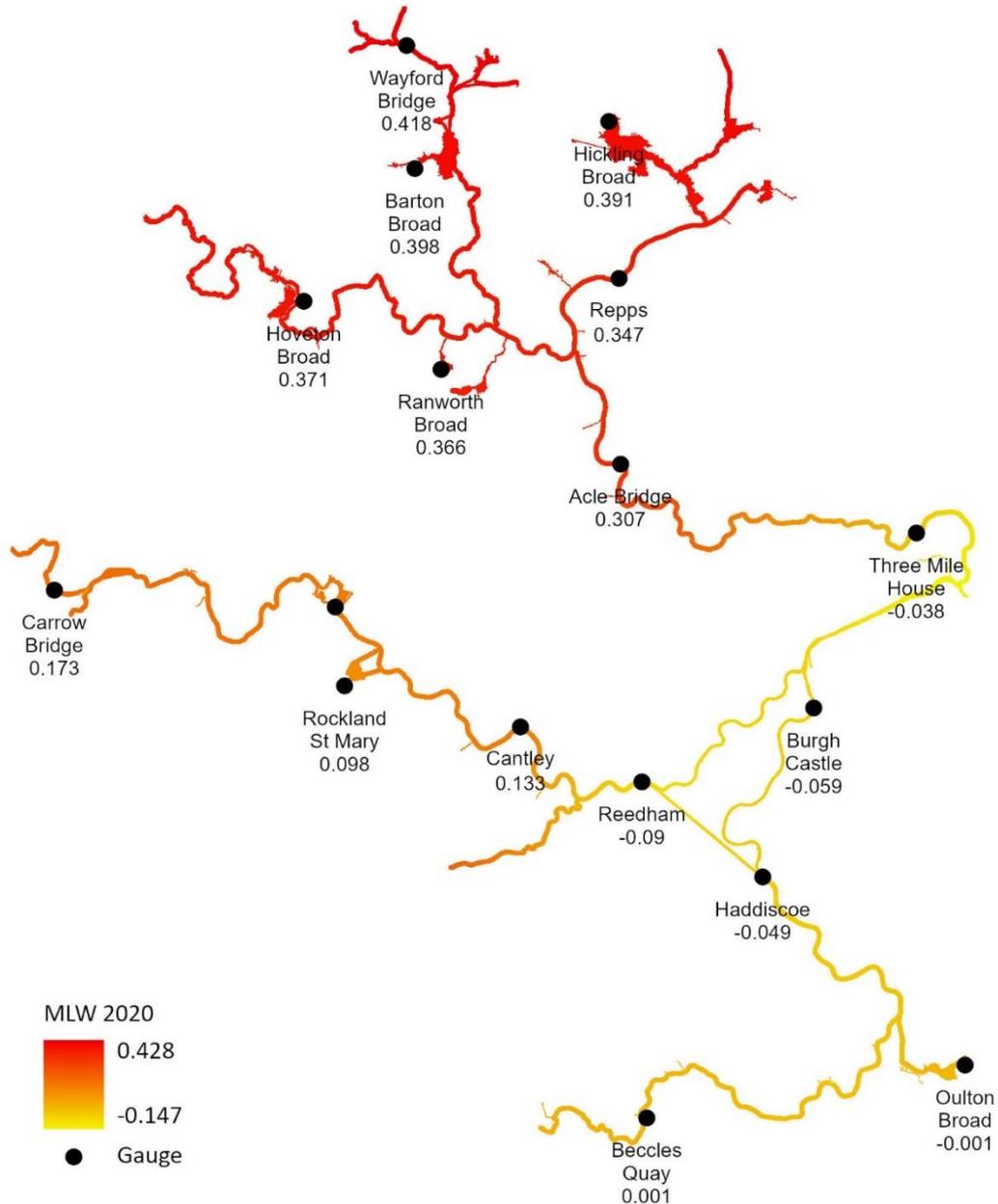
1. Maintaining water depths for navigation

- 1.1. The detailed breakdown in Appendix 1 gives the volumes for the annual dredging programme to the end of September 2020. To date, a total of 20,110 m³ of dredged sediment has been removed from the prioritised sites. This figure represents 49% of the programmed target of 41,400 m³ for 2020/21.
- 1.2. As of the end of September, the dredging of selected shoals in the River Yare between Trowse and Brundall has finished, generating a total of 8,570 m³ of sediment. 6,290 m³ of sediment from the Yare was brought to the Authority's licenced landfill site at Postwick Tip, as the sediment was shown to contain mercury at levels above the Environment Agency's permitted threshold of 1 mg/kg. The rest of the sediment (2,280 m³) was below this threshold and was able to be used to strengthen the floodbank at the Yare end of Rockland Short Dyke. A detailed topographic survey of Postwick Tip was carried out in February this year, when vegetation was at its lowest. This information will be essential in identifying where on the site future dredged sediment needs to be placed, and in calculating exactly how much more volume of dredged material can be accepted under the existing licence before the site needs to be capped and landscaped.
- 1.3. At Oulton Broad, the intended location for the bulk of the dredged sediment was Peto's Marsh. In the event, the material was split between the Authority's land on the other side of Oulton Dyke at Horseshoe Point and the habitat creation project at Peto's Marsh. The impacts of Covid-19 were felt in the ability of our ecological contractors and Natural England to gather the required evidence and issue the relevant licenses to enable the works in the presence of a very strong water vole population. A revised plan is now in place to ensure protection of the water voles on the site, with time extensions granted by all parties.

- 1.4. The forward dredging work for the winter season 2020/21 includes the completion of the reedbed creation area in Hickling Broad, funded by the CANAPE project. Dredging will focus on areas of Horsey Mere, Catfield Dyke and the River Thurne between Martham Ferry and Candle Dyke. A separate project will be conducted along Waxham Cut to achieve specification depth between Brograve Mill and the head of navigation. Finally, the Reedham end of Haddiscoe Cut is due for its regular clean out, with sediment being taken to a floodbank setback area at Raveningham.
- 1.5. Steady progress has been made on revising the model to assist our identification and targeting of areas where dredging is required to meet Waterways Specification depth. Environment Agency water level data spanning several decades and from multiple sites has been used to recalculate the mean low water (MLW) level throughout the Broads navigable system (see Fig. 1). This exercise was first carried out using data collated by Broadland Environmental Services Ltd (BESL) in 1994. This latest exercise builds on that earlier work and increases our confidence in the results, especially in the upper reaches of the navigable rivers. Early indications from the inclusion of the most recent 20 years' worth of data has generated some differences between the two modelled surfaces. It should be noted that variations between the modelled MLW levels have not been analysed to determine whether the variance is simply caused by the addition of new data, or whether there are trends over time. General patterns observed in the refreshed MLW level are that:
- MLW in the upper reaches of the northern rivers (Bure, Ant and Thurne) is generally higher (between 10-20 cm);
 - MLW in the rivers Yare and Waveney is the largely same as before; and
 - MLW in Breydon Water and the River Bure through Yarmouth is lower.

Figure 1

Location of EA gauge points and colour representation of the modelled mean low water (MLW) level. MLW at gauge points is in metres above Ordnance Datum (Newlyn).



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- 1.6. The impact of updating the model is that where MLW is now shown to be higher, the proportion of river length achieving Waterway Specification depth is going to be increased; that is, less dredging is required to meet targets. The converse is that where MLW is modelled as being lower, compliance with Waterway Specification is going to decrease; that is, more dredging is required to meet targets. Work is continuing to turn

this model development into dredge volumes for specific river reaches, and this information will be reported at the next meeting.

2. Maintaining safe public mooring facilities

- 2.1. Over a busy late summer season across the system, the maintenance team has been very active with reactive repairs at various 24-hour moorings. Keeping aggregate paths topped up and level, replacing broken or missing mooring posts, fixing gauge boards at bridges and replacing loose capping timbers have all featured.
- 2.2. We have completed drainage improvement works at Potter Heigham staithe within the past few weeks. The works have relieved pedestrian access and public health concerns, following the removal of an area of standing water that was home to a nuisance flock of feral ducks.

3. Our resources

- 3.1. Our approach for this year's round of apprenticeships has changed, due to the impacts of Covid-19 on the roll out of the revised Government apprenticeship scheme and the ability of educational providers to respond in time. As such, through review of an operations technician's post recruitment, we have been able to create a new role of trainee operations technician. All three of last year's apprentices, who completed their training and assessment in September, have taken up this role for a fixed one-year term.
- 3.2. Major refits were completed on two vessels, the tug Aberdour and the new welfare and support vessel Snipe. The tug has had its cabin and bows reshaped, a new hatch fitted, been blasted back to bare metal and repainted. Snipe had its hold redesigned and a new engine installed, and was repainted in the corporate livery.
- 3.3. Earlier this year, we started the transition to low carbon vehicles in our fleet of operational vehicles. We are adopting fully electric vehicles (PHEVs) within the plant and equipment team, whose vehicles are normally based at the Dockyard. Electric charging at the Dockyard is relatively simple, with the vehicles having all night to recharge before being used the next day. For the more mobile site-based operations technicians, electric charging options are more limited, so to move away from purchasing fully diesel vehicles we are adopting mild hybrid vans. As an example of the carbon saving from the use of PHEVs, the first 8 months' use of the Nissan e-NV200 electric van in the plant and equipment team was 990 KW/h of electricity to travel 6,100 miles. The diesel version of a similar sized Nissan van would have emitted (at 190 g CO₂/mile) 1,160 kg CO₂ for the same mileage. As the Authority's electrical supply comes from green sources, this saving can be included in the carbon budget. Given that over half of our total carbon emissions come from its operational activities, these types of reductions are needed to ensure the target of zero emissions by 2040 is met. As set out in the Climate Change action plan presented at the Broads Authority meeting in

July, the Authority's target for carbon reduction in 2020/21 is 15 tonnes CO2. By the end of the financial year, this vehicle will contribute about a tenth of this target.

4. Managing water plants

- 4.1. Water plant cutting has finished for this season, with just over 150 days of cutting time across the system. An additional location was cut to ensure navigational access across Bargate Broad and in the dykes connecting the site to the River Yare. As this location is a Site of Special Scientific Interest (SSSI), the cutting specification and area to be managed was agreed in advance with the landowners and Natural England. Whether this site needs to be considered in next year's cutting programme remains to be seen. Rangers will monitor the situation.
- 4.2. The report on the results of the experimental cutting of stoneworts in Hickling Broad is complete. The project steering group is assessing the results in terms of future management options, and intends to share the results and options with the Upper Thurne Working Group at their next meeting. Once this engagement with the Hickling Broad users is complete, we will bring an update to the Navigation Committee.

Author: Dan Hoare

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Background papers: [Climate Change Action Plan](#)

[Broads Plan](#) objectives: 2.1, 2.3, 3.1, 3.2, 4.2, 6.1

Appendix 1 – Dredging progress

Appendix 1 - Dredging progress

Project title	Active BA 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	4,600	40,703	36,630
River Waveney - COMPLETED Oulton Broad to Peto's Marsh (May-Sept)	12/20	8,500	6,940	110,104	84,420
River Yare - COMPLETED Prioritised shoals between Trowse & Cantley (Jun-Sept)	16/15	6,400	8,570	114,507	82,320
River Thurne River Thurne sites & Catfield Dyke to Chara Bay (Oct-Feb) Plus 4 weeks for planting geotextile bags	0/19	8,000	0	150,664	9,230
River Yare Haddiscoe Cut to Raveningham (Nov-Feb)	0/20	8,500	0	106,990	875
River Thurne, Waxham Cut Sidecast (Jan-Feb)	0/7	6,000	0	26,862	670

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

Project title	Active BA dredging weeks completed/ planned	Planned volume removed m³	Actual volume removed m³	Planned annual project cost ¹	Actual project cost
Lower Bure Plough dredge (Mar)	Contractor	2,000	0	10,000	0
Site restoration Waxham Cut (Phase 1), Tyler's Cut	-	-	-	12,000	7,420
Site preparation Peto's Marsh, Carlton Marshes	-	-	-	16,000	7,190
Total	34/89	41,400	20,110	587,830	228,755