ITEM 9c

Somerset Rivers Authority Board Paper

Title: Progress with the preparation of a dredging strategy

RECOMMENDATION

The SRA Board is asked to:

Note the progress made and the encouraging interim results of investigations

Purpose of the item:

To update the Board on the progress with preparation of a dredging strategy.

Background and context:

The IDB on behalf of the SRA commissioned 'Dredging Opportunities Report' by HR Wallingford to assist in the preparation of a dredging strategy. The report recommended the Board undertake:

1. further detailed modelling of the River Parrett upstream of Burrowbridge to Oath and the River Parrett downstream of Northmoor towards the M5
2. a review of proposed dredging locations on the River Brue
3. trials of potential agitation dredging techniques
4. monitoring of the channel and sediment

The Strategy Board also asked that:

5. further work on Environmental assessment and benefit assessment should be carried out before the strategy could be considered complete.

Latest status

1. **River Parrett Modelling:** Additional modelling sensitivity tests have been undertaken and are reported in "River Parrett-Further Dredging Assessment Stage 1 Hydraulic Modelling Report" prepared by AW Water Engineering (Draft v3 January 2017). This shows that further dredging at the suggested sites will increase the conveyance in the Parrett by approximately 7 cumecs during the duration of a flood leading to reductions in flood levels and durations in a number of moors with the exception of a small increase (60mm) in peak levels in Currymoor.

   Further work is also being undertaken to optimise the desired channel dredged profile whilst minimising the potential for siltation.

2. **River Brue:** The Environment Agency's River Brue Hydraulic Model which will be used to carry out the recommended investigations has been received. We are currently reviewing the model to ensure it is suitable for the intended assessments before commencing modelling.

3. **Dredging trials:** Dredging trials using Water Injection Dredging and Cutter Suction Agitation methods were undertaken during November and December 2016. Following the success of the initial trial, and in order to gain further understanding and benefit from the process, the trial was extended. The work was delivered within budget and on time and subsequent analysis of

productivity identified that using this methodology could achieve actual dredging rate costs of £7/cubic.

A thorough sediment and water chemistry monitoring programme was undertaken before, during, and after the dredging activities. A report "Dredging Trials Monitoring Programme November-December 2016 (AmbSDBC02)" has been drafted by Ambios Environmental Consultants Ltd. The report is currently in draft form but key findings indicate that Water Injection Dredging and Cutter Suction Agitation methods were effective in lifting sediment into suspension from the Tidal River Parrett and being dispersed within the background levels of sediment in suspension. The work is also providing further insights in how the mechanisms of sediment accretion and erosion work in the tidal reaches and how they may be affected by operations.

4. **Monitoring (channel shape and form):** An excellent monitoring data set is being recorded from which we are identifying seasonal and positional trends in deposition and scour. As recommended, Single Beam and Multi Beam Bathymetric Survey of the channel bed, combined with Laser Scanning of the banks, have also been trialed to understand whether these methods compare favorably with the existing survey methods, and to investigate any improvements that might be possible in data quality, time and cost. Initial results are quite encouraging. Monitoring of the seasonal channel changes is continuing.

5. **Environmental assessment:** A full EIA (including WFD and HRA assessments) was completed for the dredging trials, to avoid and minimise environmental impacts and to enable the trials to gain the necessary permits. River habitats and geomorphological features were surveyed and monitored before, during and after the trials. Water quality was continuously monitored throughout the trials. Only minor environmental effects were recorded during the trials. These were of a short duration and did not result in any significant damaging impacts being observed. Work on an environmental assessment for a wider programme of work has not yet commenced but it is hoped we can build from the work done for the trials.

6. **Dredging Strategy Board**

   The Strategy Board will meet shortly to consider the results of the modelling and dredging trials and to determine the next steps from a range of recommendations that will be put forward by the IDB.

   Recommendations:

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   Note the progress made and the encouraging interim results of investigations

   Date: 31/1/17