Government of **Western Australia**
Department of **Transport**

Empowering a thriving community

Entrance Reconfiguration Concept

Jurien Bay Boat Harbour - May 2024

Entrance Reconfiguration Concept Jurien Bay Boat Harbour

The Jurien Bay Boat Harbour (JBBH) has experienced seasonal water quality issues that are primarily caused by ingress, accumulation and decomposition of seagrass (wrack) into the boat harbour during winter. Decomposing seagrass leads to oxygen depletion in the boat harbour waters and at times a strong hydrogen sulphide odour. The low oxygen levels typically occur in winter and through spring, leading to occasional fish kill events.

What DoT has been doing to address it

Over the past decade, Department of Transport (DoT) has completed a comprehensive data collection and research program in order to better understand the physical and biological properties of these events, and to develop an effective solution to the wrack issue. These include coastal modelling studies, data collection, environmental studies and a number of trials including dredging, trawling and more recently the use of a bubble curtain to prevent wrack ingress into the harbour and to oxygenate the harbour water.

Consultants were engaged to put forward and assess an assortment of possible solutions using the data collected earlier, and these were then ranked on their practicality and viability.

'DoT has worked closely with the Shire of Dandaragan to manage the water quality while exploring solutions.'

The preferred solution

Following this large body of work, it was determined that reconfiguring the boat harbour entrance to better exclude the seagrass wrack would be the most effective solution. Two independent numerical seagrass wrack modelling studies were undertaken to examine the various ways to reconfigure the entrance.

A structural modification to the northern breakwater by the addition of a large spur groyne proved to be the most effective when modelled against tides, wind, wave and wrack movement.

The modelling studies showed that by reconfiguring the harbour entrance with the additional groyne, a high percentage of the seagrass wrack should be excluded from entering the harbour significantly improving the water quality. It must be noted that this structural modification will result in some increased seasonal trapping of wrack on the northern beach outside the harbour.

Dredging at Jurien Bay Boat Harbour

The Jurien Bay Boat Harbour northern breakwater extension

Scope of the project

The JBBH project will be delivered by DoT with State funding. The 170 metre spur groyne addition to the northern breakwater reconfigures the entrance, limiting the ability for seagrass to enter the harbour. The works will include import of rock material by truck and placement of this material using large earthmoving equipment to construct the spur groyne. If possible, DoT will aim to align the works with a maintenance dredging campaign for cost efficiency.

DoT is continuing to collaborate with the Shire of Dandaragan on material and labour supply options including via local sources, where possible.

Status of the project

DoT has completed environmental studies, numerical modelling, an economic study , prepared and cost preliminary designs and presented a Business Case for State government consideration.

In May 2024 the State has confirmed funding from the 2024/2025 financial year to deliver the improvements.

DoT will soon commence preparation of the contract documentation to procure the works through a competitive tender process.

Further Information

Visit www.transport.wa.gov.au/imarine/jurien-bay-boat-harbour.asp for more information and updates on the project or email: dotmarineenv@transport.wa.gov.au

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