



Department of
Transport

Entrance Reconfiguration Concept Jurien Bay Boat Harbour

July 2020



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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 six years, 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.

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The preferred solution

Following this large body of work, it was determined that reconfiguring the boat harbour entrance would be the most effective option to investigate as a 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 future tides, wind, wave and wrack movement.

The modelling studies showed that by reconfiguring the harbour entrance with the additional groyne, approximately 80 per cent of the wrack movement into the harbour should be diverted and significantly improve the water quality within the harbour annually. It must be noted that this structural modification will result in some trapping of wrack on the northern beach.

Scope of the project

The JBBH project is proposed to be delivered by DoT and will require State funding. The 150 metre spur groyne addition to the northern breakwater reconfigures the entrance, and thereby prevents seagrass from entering 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 would aim to align works with a future maintenance dredging campaign for cost efficiency, to enhance structural integrity of the new addition, and to increase the capacity / buffer for future sand volumes to be trapped before the entrance and in the inner harbour sand traps.

DoT will continue to collaborate with the Shire of Dandaragan to investigate material and labour supply options from local sources and local contractors, wherever possible.

Status of the project

DoT is working actively with the Shire of Dandaragan to explore funding options and opportunities. Feedback from the community into an Economic and Social Impacts Study currently being undertaken by GHD on DoT's behalf, will greatly assist to support funding requests.

DoT is currently undertaking a detailed design process for the spur groyne that will refine cost estimates and produce a construction drawing set and specifications for tendering.

Environmental approvals are being scoped and actively sourced based on the current preliminary design.

DoT will prepare to contract and deliver the works as soon as possible through our competitive tender processes, if funding is made available.

Further Information

Any enquires during data collection for the Economic and Social Impacts Study should be directed to DoT:

Email: JurienBoatHarbour.info@transport.wa.gov.au

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