



BEACHPORT BOAT RAMP

Key focus of investigation: Determine process driving siltation at Beachport boat ramp and identify management options

Management options for the Boat Ramp have been assessed purely on the technical information produced by a scientific model. This analysis determined the most effective approach to reducing sand in the Boat Ramp Basin. However social, safety and environmental factors still need to be considered. Council is not proposing to further investigate the management options at this time, as any additional structures would require the closure of Beachport's main swimming beach, relocation of the swimming pontoon and boats to travel through this well utilised area to avoid the new nib or offshore breakwater.

BACKGROUND

Building on previous work, Council engaged coastal consultants, Baird, to collect local metocean data that could be used to investigate the coastal processes driving siltation at Beachport Boat Ramp and potential management options.

These options were identified from concepts raised in community discussion, previous studies, and the assessment of key coastal processes in the technical study. A scientific base model built with local coastal data was used to forecast the success of viable management options and identify preferred options. This project was co-funded by the Coast Protection Board.

WHAT WE LEARNT?

The investigation concluded the following processes were driving siltation at Beachport Boat Ramp:

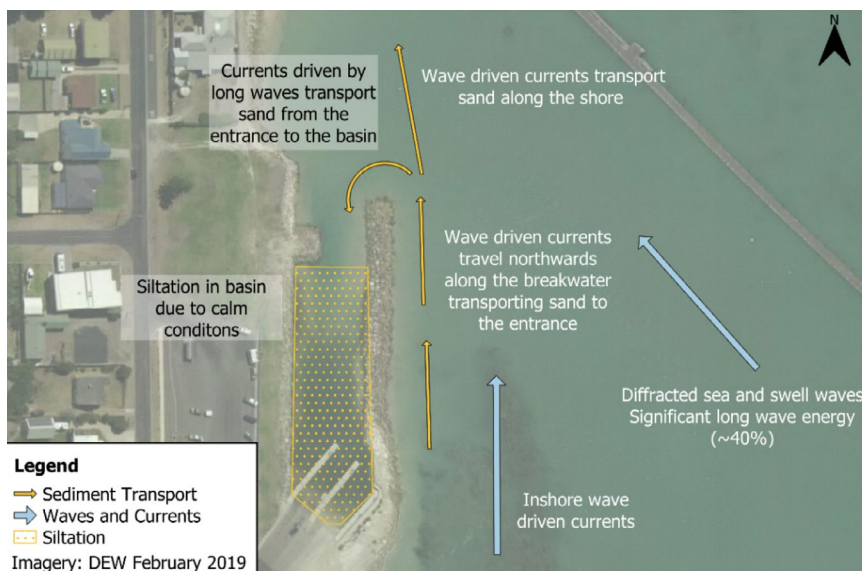
Significant long wave energy is present in Beachport. The long wave energy enters the boat ramp basin, becomes trapped and then magnified. This generates currents that travel in and out of the boat ramp basin every 2 to 3 minutes.

Wave driven currents moving north along the shore are another key coastal process in Beachport. Wave driven currents drive sand north along the ocean side of the boat ramp breakwater. These currents are strong enough to stir up and move sand to the entrance of the boat ramp basin in a plume of sand laden water.

Long wave driven currents move the plume of sand laden water from the entrance into the basin. These currents are also strong enough to move sand from the seabed into the basin.

In calmer conditions the sand then settles in the basin and at the boat ramp.

The volume of sand transported into the basin increases during high tides.



Long waves are similar to normal waves but they have long wave periods, typically 60-120s compared to 12-20s for normal waves. They can be hard to see as they are small and often masked by other waves. If you watch the water level at the Beachport Boat Ramp for 5-10 minutes it moves up and down slowly due to long waves.

Key siltation processes
at Beachport Boat
Ramp (Baird 2021)



BEACHPORT BOAT RAMP

Potential management options to reduce siltation at Beachport Boat Ramp were identified from concepts raised in community discussion, previous studies, and the assessment of key coastal processes in the technical study. Three options (pictured below) were progressed to detailed assessment using the base model (shown in table below).

MANAGEMENT OPTION

OUTCOME OF DETAILED ASSESSMENT

Option BR2b

Added deflection structure



The model results indicate a 95% reduction in siltation when a 25m long nib is added to the breakwater. Different deflection structure lengths were assessed confirming a 25m long nib would lead to the greatest reduction in siltation.

Option BR3b

Offshore Breakwater



The model results indicate an offshore breakwater could reduce siltation by up to 75%, however this was not the most effective option. A submerged offshore breakwater was also modelled as an alternative but was less effective.

Option BR4b

Breakwater shortening



Models indicated shortening the breakwater by approximately half would likely increase siltation within the boat ramp basin.



Modelled management options for Beachport Boat Ramp



BEACHPORT BOAT RAMP



The assessment found the addition of a 25m long deflection structure to the existing boat ramp breakwater (as shown in figure) could reduce siltation at Beachport Boat Ramp by up to 95%. The deflection structure guides sand laden currents away from the boat ramp entrance, removing the main source of siltation in the basin.



Based on community feedback the feasibility of upgrading boat launching facilities at Glenn Point was assessed as an alternative option within the technical study. The analysis indicated Glenn Point is not an appropriate location for a boat launching facility due to wave exposure, eddies and the potential to interrupt sand transport processes.

WHAT NEXT?

Council is not proposing to further investigate these management options at this time due to the impacts on the community, safety and tourism. Council will continue with dredging the Boat Ramp Basin and further investigate the recommended options for the Beachport and Southend Foreshore areas. Should the community wish for Council to proceed with further investigation of the management options discussed in the Rivoli Bay Data Collection & Modelling Report, this would include the following additional considerations:

1. Further design deflection structure including detailed modelling to optimise the length of deflection structure, quantify the reduction in boat ramp siltation and determine the fate of the deflected sand.
2. Quantify impact when combined with recommended management options for the Beachport foreshore to ensure an integrated approach.
3. Quantify capital and ongoing costs and consider alongside existing sand management practises.
4. Present benefits and constraints for Council consideration and community consultation.
5. Review sand management practices for the beaches adjacent to the boat ramp to reduce any potential secondary sources of siltation to the boat ramp.

A full description of the analysis can be found in the technical report, *Rivoli Bay Data Collection and Modelling*

A summary of the technical report has been prepared and can be found in *Rivoli Bay Summary Report*

This fact sheet is part of a series summarising the investigations into:

- Coastal Processes across Rivoli Bay
- Beachport Foreshore
- Beachport Boat Ramp, and;
- Southend Foreshore

