

## Executive Summary

This report provides a review of the risk to Council-controlled assets and values associated with shoreline erosion and coastal inundation to mainland communities between Caloundra Bar and Bells Break, northern Pumicestone Passage. Particular attention is given to the increase risk associated with a Bribie Island breakthrough. Assessments undertaken in this and previous studies identified:

- A breakthrough and new permanent entrance immediately south of Blue Hole would be just south of the entrance location observed in the early 1960s. This is presently the narrowest section of the Bribie Island northern spit and appears to be the most likely location where a new entrance would form. Tidal attenuation within the passage may slightly alter, however, would not be expected to cause undesirable water level impacts for the mainland communities. A new entrance would be expected to slowly migrate northward once formed, possibly over many decades as observed previously. During this period, the entrance may also widen in response to severe wave and flow events, as observed during the early 1970s. The character and amenity of northern Pumicestone passage and the mainland communities is likely to be maintained.
- A breakthrough and new permanent entrance opposite or to the south of the Lamerough Canal entrance is likely to cause a significant reworking of the existing mangrove landforms, increased tidal flows, development of new channels and an increase in tide height locally (due to reduced tidal attenuation). This would in turn increase the coastal inundation risk. There may also be significant landform changes to the most northern end of the passage as the existing entrance closes over and tidal flows are significantly reduced. The likelihood of a new entrance forming at this location is considered low; however, the consequences would be significantly greater than a new entrance immediately south of Blue Hole.

The key threat to the study area associated with a Bribie Island breakthrough is a change to the tidal regime within the northern Pumicestone Passage. Reduced tidal attenuation and therefore greater tidal amplitude will lead to an increased risk of coastal inundation associated with storm tide events. This threat is significantly greater for land assets on low-lying land in the southern half of the study area.

To address the perceived threat to assets and values, a strategy to implement the management options promoted in the Sunshine Coast Shoreline Erosion Management Plan (SCC, 2014) has been developed. This strategy is underpinned by the monitoring of water levels within Pumicestone Passage in order to identify changes to the tidal regime and/or an increase to mean sea level. Water level triggers for enhanced management action have been developed:

- (1) An observed increase to the mean high water spring water level greater than 0.1m relative to 2014 levels and/or an observed increase to the mean sea level greater than 0.1m relative to 2014 levels.
- (2) An observed increase to the mean sea level greater than 0.2m relative to 2014 levels.

The realisation of a water level trigger is intended to prompt the implementation of a promoted enhanced management action, namely:

- Before any trigger levels are reached – minor and existing permitted works, including the Golden Beach Nourishment program which allows the dredging and placement of up to 10,000m<sup>3</sup> of sand per year.

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- First trigger level reached – Expand the dredging and nourishment program for the Nelson Street to Bells Creek Shoreline (up to 40,000m<sup>3</sup> of sand). Commence planning for upgrade and/or extension of existing revetment seawalls.
- Second trigger level reached – Revetment seawall detailed design and construction for the Nelson Street to Bells Creek Shoreline.

The successful implementation of the promoted strategy requires proactive planning by Sunshine Coast Council and the Queensland State Government, including:

- Funding allocation;
- A commitment to the monitoring of water levels within Pumicestone Passage;
- Conceptual and detailed design of management strategies; and
- Environmental approval and ongoing compliance.

