



Port Curtis (Gladstone Harbour) QLD04.03.06

Regional setting

The regional processes dominating this region include the wet tropics to humid sub-tropical climate, south-east trade winds, meso-macro tides (3.24m), strong tidal currents, low to moderate south-east seas (south-east wind-waves), dominantly terrigenous sediments with interrupted northerly longshore sediment transport (low-moderate), the El Nino Southern Oscillation (driving sea-level variability, tropical cyclone frequency, beach erosion/accretion cycles); and the Madden-Julian Oscillation (driving weather patterns including monsoons and tropical cyclones).

Regional hazards or processes driving large scale rapid coastal changes include: tropical cyclones, storm surges, river flooding, and variable longshore sand transport.

This compartment extends from The Narrows to Gladstone Harbour/Gatcombe Head.

Justification of sensitivity

Overall sensitivity rating is a 4. Sensitivity ratings range from 3 on the bedrock, to 4 on the extensive tidal flats and few beaches.

Other comments

This compartment includes The Narrows - a 0.1 km to 1 km wide shallow tidal channel that separates Curtis Island from the mainland and Gladstone Harbour, down to the southern tip of Facing Island at Gatcombe Head; in total, comprising over 100 km of generally very low wave energy shoreline. This is a tide-dominated embayment, with extensive tidal flats and mangroves along The Narrows - a mix of tidal flats, bedrock high ground and port facilities on the southern tip of Curtis Island and in Gladstone Harbour, together with the mangrove-lined mouth of the Calliope River and South Trees Inlet. The harbour is a sink for sediment moving northward



from Port Curtis, and requires dredging for the large ships. The sensitivity of the shoreline ranges from 3 on the bedrock shore, to 4 along the tidal flats and mangroves and few tide-dominated beaches. These are all prone to inundation from storm surge and sea level rise. This is a heavily developed and, economically, a very important location that will require that port infrastructure remains safe from potential impacts. The Narrows tidal flats are predicted to retreat by up to 400m by 2100.

Additional information (links and references)

Short, A D, 2000, Beaches of the Queensland Coast: Cooktown to Coolangatta. Sydney University Press, Sydney, 360 pp.

<https://www.ehp.qld.gov.au/coastalplan/coastal hazards.html>

https://www.ehp.qld.gov.au/coastal/management/maps/pdf/9150-243_gladstone.pdf

<http://www.o-2.com.au/projects/latest-projects/208-gladstone-port-erosion-and-sediment-control>



Port Curtis (Gladstone Harbour)– The Narrows to Gladstone Harbour/Gatcombe Head.