



Shoalwater Bay QLD04.02.03

Regional setting

The regional processes dominating this region include the wet tropics to humid sub-tropical climate, south-east trade winds, meso-macro tides (5.5m), strong tidal currents, low to moderate south-east seas (local 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 North Point (Long Island) to Cape Townshend (Townshend Island).

Justification of sensitivity

The bay has a mix of northern bedrock and beaches, and southern continuous tidal flats, creeks and wide mangrove forests. The sensitivity rating ranges from 3 on the bedrock, to 4 on the beaches and tidal flats, which are subject to storm surge, sea level rise erosion and inundation.

Other comments

Shoalwater Bay is a major tide-dominated, funnel shaped estuary, approx. 25 km wide at its entrance and extending 50 km into the narrowing bay. It extends from North Point on Long Island, south for approx. 100 km, then north along the western shore for approx. 50 km to Cape Townshend, with several large island located in the bay entrance. Much of the western shore and outer bay islands consist of low



bedrock headlands and embayed beaches usually associated with a small regressive barrier and tidal creek. The beaches are tide-modified in the north, grading to tide-dominated in the south as wave energy decreases, and finally to mangrove-lined tidal flats. The southern and eastern shores are dominated by wide tidal flats and mangroves, with some eastern belts of mangroves spanning 10 km wide. There is limited input of sediment into the bay, with most of the beach sediments being carbonate-rich (~40%) fine-medium sand. The only coast development is at the small Plumtree community, which is on high ground. Much of the bay is part of the Department of Defence's Shoalwater Bay Training Area.

By 2100, it is predicted that the bedrock will remain resilient, with the beaches eroding by up to 100m, and the tidal flats by up to 400 m. As sea level rises, the funnel shaped, tide-dominated bay could also be impacted by changes in the tide range.

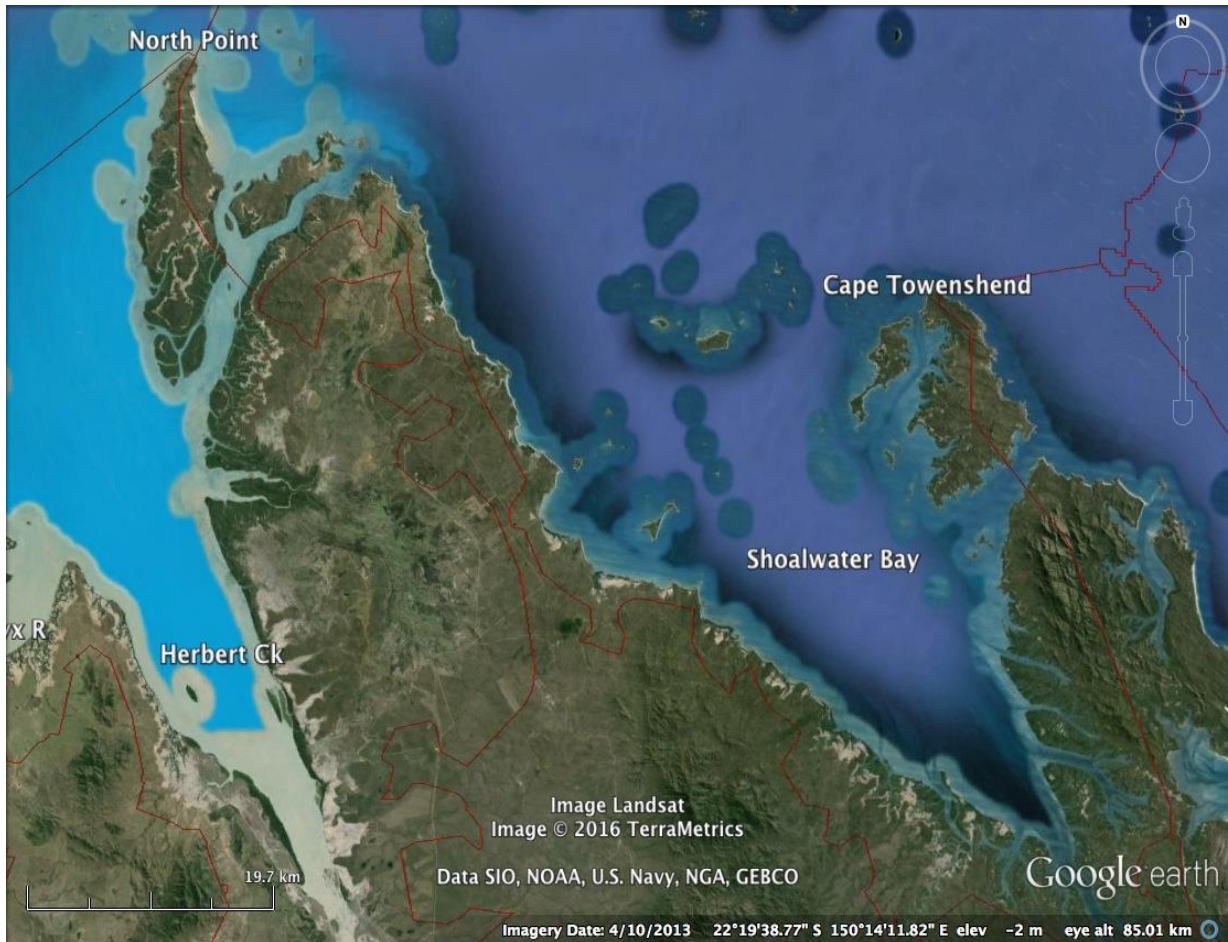
Additional information (links and references)

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Shoalwater Bay – North Point to Cape Towenshend