



Broad Sound (south & east) QLD04.02.02

Regional setting

The regional processes dominating this region include the wet tropics to humid sub-tropical climate, south-east trade winds, meso-macro tides (6.6m), 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 Red Bluff Point to North Point (Long Island).

Justification of sensitivity

Overall sensitivity rating of 4. The entire shoreline is low-lying, low gradient, and prone to storm surge and sea level rise.

Other comments

The southern half of Broad Sound is a funnel-shaped, macro-tidal, tide-dominated bay bordered by wide tidal flats with extensive mangroves on both sides, apart from some bedrock shore on Long island. Four major funnel-shaped estuaries feed into the sound (St Lawrence and Waverley creeks, the Sytx River and the 10 km wide Herbert Creek). The Sound is 35 km wide at its entrance, with 230 km of predominately muddy tidal flats. The entire shoreline is low-lying, low gradient and prone to inundation by storm surge and sea level rise. There is no development on the shore, with the small St Lawrence community on the high banks of St Lawrence



Creek. There is limited fluvial sediment input into the Sound, with local carbonates and mud dominating. Much of the shoreline is predicated to retreat by up to 400 m by 2100. As sea level rises, the funnel shaped, tide-dominated Sound could also be impacted by changes in the tide range.

Additional information (links and references)

Cook, P.J., and Polach, H.A., 1973, A chenier sequence at Broad Sound, Queensland and evidence against a Holocene high sea level: *Marine Geology*, v. 14, p. 253-268.

Cook, P.J., and Mayo, W., 1978, Sedimentology and Holocene history of a tropical estuary, Broad Sound: Queensland Bureau of Mineral Resources, Geology and Geophysics Bulletin, v. 170, p. 206.

Middleton, J.H., Buchwald, V.T., and Huthnance, J.M., 1984, The anomalous tides near Broad Sound: *Continental Shelf Research*, v. 3, p. 359-381.

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/coastalhazards.html>



Broad South (south & east) – North Red Bluff to North Point.