Broad Sound (north-west) QLD04.02.01

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 Cape Palmerston to North Red Bluff/North Point (Long Island).

Justification of sensitivity

Overall sensitivity rating of 3.5. Sensitivity ratings range from 3 on the resilient bedrock headlands and islands, to 4 along the beaches and in the estuaries.

Other comments

This is a low wave energy, tide-dominated, east-facing, bedrock-controlled coast with 150 km of shore, including 40 km of Broad Sound water between North Red Bluff and North Point. The mainland coast consists of protruding bedrock headlands and islands, separated by generally low, tide-dominated beaches and 1-1.5 km wide tidal flats, together with ~15 mangrove-filled, tide-dominated barrier estuaries located behind most of the beaches. There are a total of 43 beaches, 28 generally small regressive barriers and 24 tidal creeks/estuaries. The only development on the coast

is a strip of beach houses at Clairview and the highway. The beaches and estuaries are susceptible to storm surges and sea level rise, which will lead to erosion of the beaches (~100 m) and inundation of the tidal flats, causing mangrove migration into the supra-tidal flats. Sediments are poorly sorted, carbonate enriched (~20%) medium sands. There is limited northerly wave-driven sediment transport, with sand trapped in the many estuaries, while shore perpendicular tidal flows dominate the creeks. Estimates of shoreline erosion by 2100 range from 400 m at creek mouths, 100-150 m on beaches, and to 0 on the bedrock coast.

Additional information (links and references)

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

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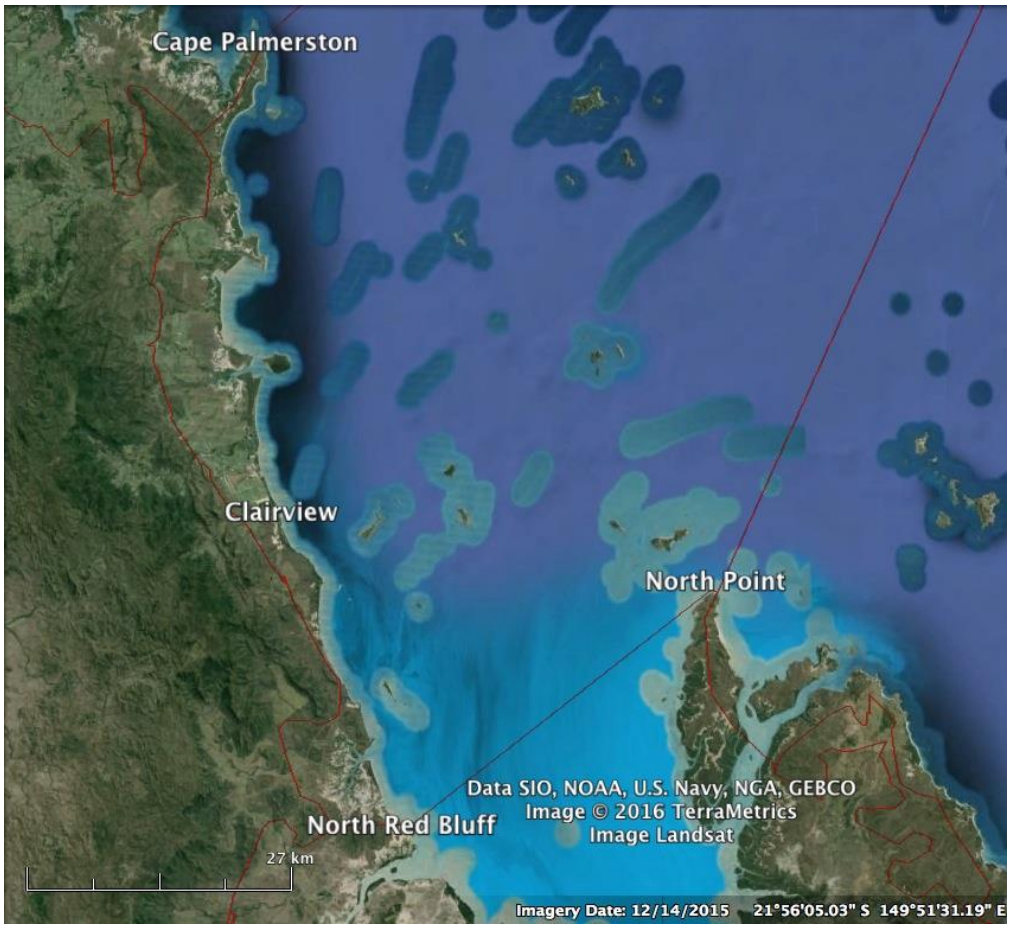

Broad Sound (NW) – Cape Palmerston to North Point.