



Moreton Island (east) QLD05.03.01

Regional setting

The regional processes dominating this region include the wet tropics to humid sub-tropical climate, south-east trade winds, micro tides (1.7m), strong tidal currents, southerly swell, 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 Cape Moreton to Point Lookout.

Justification of sensitivity

Overall sensitivity rating of 4.5. This coastline contains a sandy sensitive shore with existing erosion on the tidal inlets, resulting in a sensitivity rating of 5 in the South Passage, and 4 on the ocean beaches.

Other comments

Moreton Island is a massive sand island with 40 km of east-facing exposed shore dominated by a double bar system. This compartment also includes the 12 km long northern shore of North Stradbroke Island, between Amity and Point Lookout, and the large South Passage inlet-tidal delta in between. The entire island is composed of well-sorted fine quartz sand, with northerly longshore sand transport on the order of $500\,000\text{ m}^3\text{yr}^{-1}$ along its eastern shore. The island and its massive, now stable

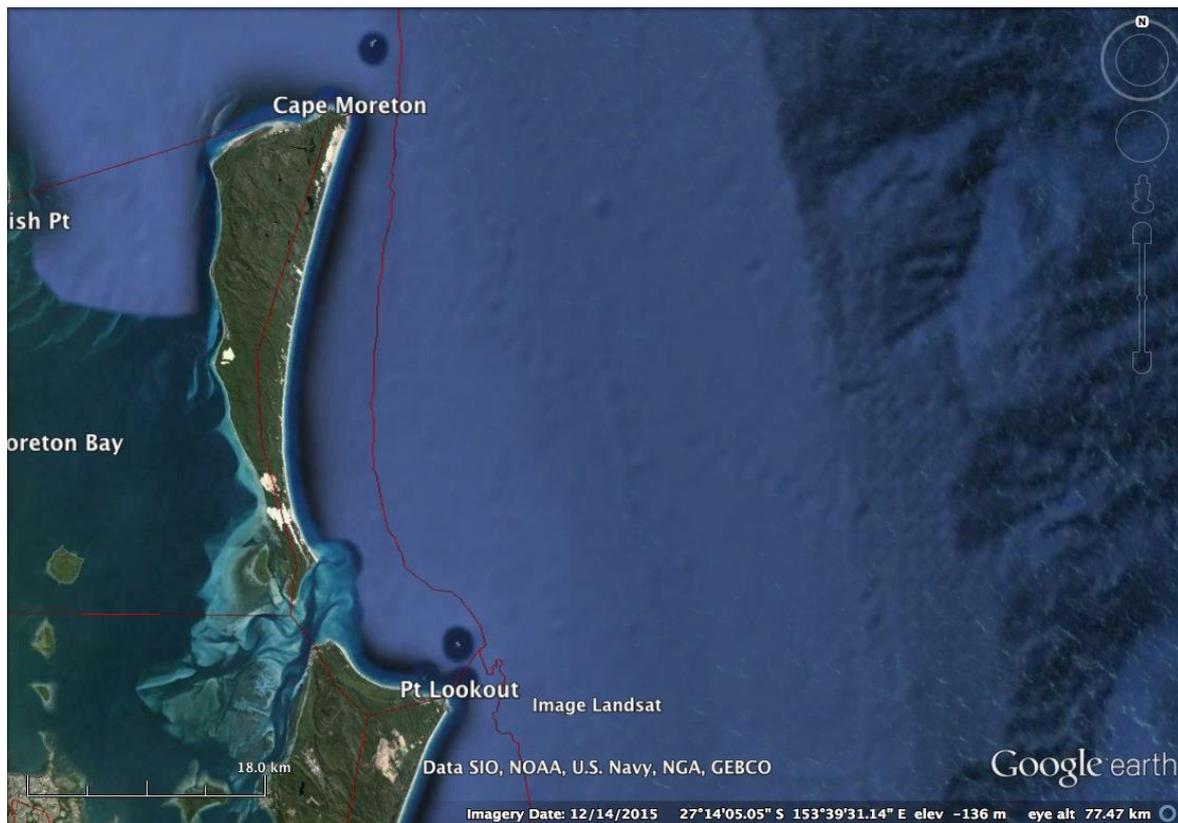


transgressive dunes have been a sink for much of this sand. The island beaches are susceptible to sea level rise induced erosion, as well as the impact of any changes in wave climate and longshore sand transport. Meanwhile, South Passage and its adjacent shores, which are already eroding at Amity, will be highly susceptible to any changes in sea level and tide range. Rising sea level will lead to loss of sand to the flood tide deltas and reduced longshore sand transport, further impacting the beaches. The island beaches are predicted to erode by up to 160 m, and the inlet shores by up to 400 m, 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/coastalhazards.html>



Moreton Island (E) – Cape Moreton to Point Lookout.