



Repulse Bay QLD04.01.02

Regional setting

The regional processes dominating this region include the wet tropics to humid sub-tropical climate, south-east trade winds, meso tides (3.86m), 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 Proserpine River mouth to Cape Hillsborough.

Justification of sensitivity

Overall sensitivity rating is 3.5. Sensitivity ratings range from 3 on the bedrock, to 4 on the tidal flats which will be inundated. There will also be a decrease in fluvial sediment supply owing to river damming, and the aggradation of the deltaic plain following sea level rise.

Other comments

Repulse Bay is a 60 m long NE facing bay. It is bordered by Cape Conway and Cape Hillsborough, with 115 km of generally crenulate shoreline consisting of a mix of drowned bedrock coast with several large tidal creeks, together with tidal flats and mangroves occupying the drowned valleys; the creek and bays increase in size to the south. The Proserpine River delta occupies the northern 15 km of shore where it has deposited wide (~5 km) lower deltaic plain, with tidal flats extending 2 km



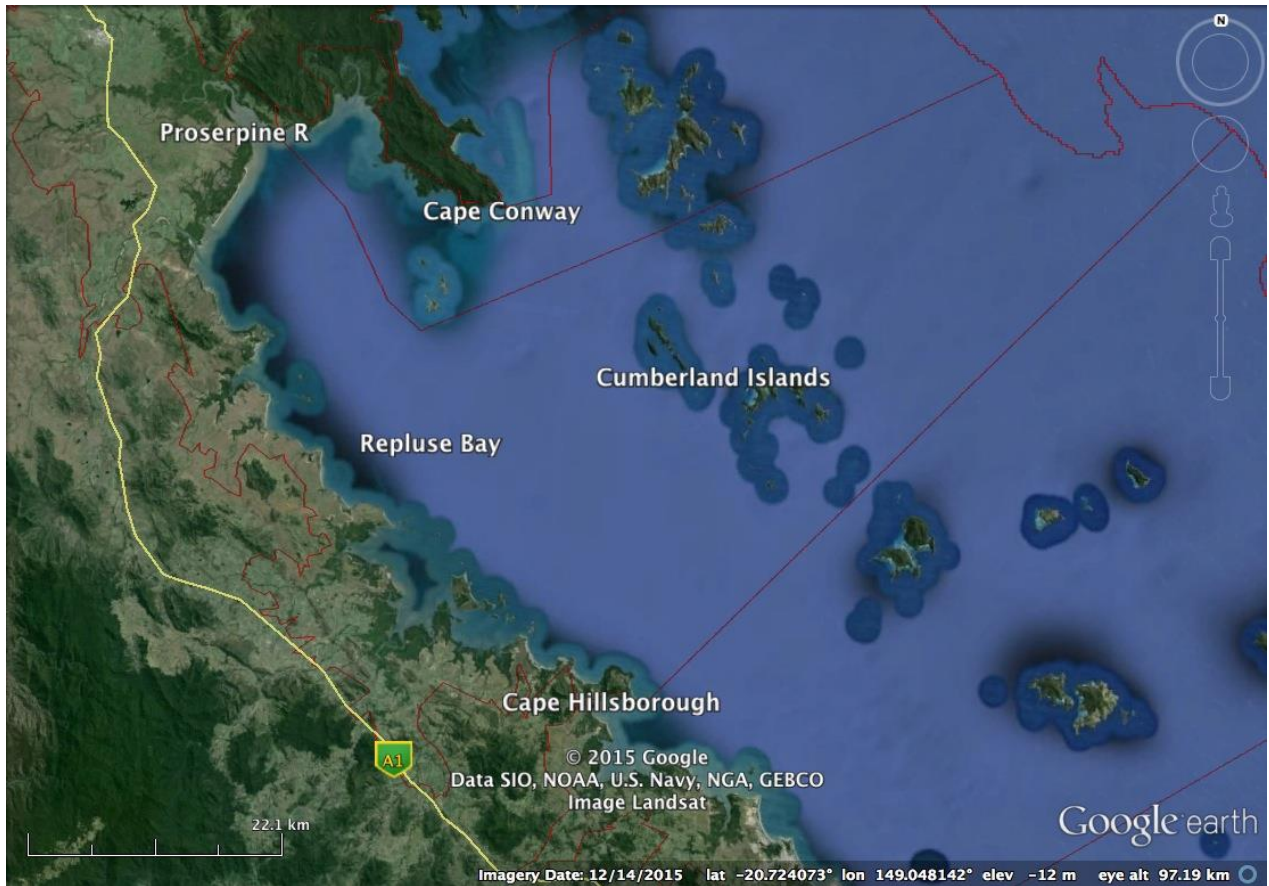
seaward of the shore. The river is delivering fine quartz sand to the northern bay, with the remainder of the bay containing a mix of fine to coarse carbonate enriched sands (~20% carbonate).

Dempster and Harvey Creeks are deeply embayed, while the southern St Helens Bay down to Finlayson Point contains a massive area of tidal flats and mangroves, in places up to 10 km wide. There is limited development at Laguna Quay, Midget Point, St Helens Beach, Seaforth, Halliday Bay, Ball Bay and Cape Hillsborough. The Proserpine River delta and tidal flats are predicated to erode by up to 400 m by 2100, with saline intrusion and higher river flooding also impacting the upper deltaic plain. Most of the small settlements are located behind tide-dominated beaches that may erode by up to 150 m, with the bedrock shores remaining stable.

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>



Repluse Bay – Proserpine River mouth to Cape Hillsborough.