



Fraser Island (north-east) QLD05.01.01

Regional setting

The regional processes dominating this region include the wet tropics to humid sub-tropical climate, south-east trade winds, micro tides (1.2m), dominant 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 Sandy Cape to Indian Head.

Justification of sensitivity

This compartment has a sensitivity rating of 4, owing to the continuous sandy shore which will erode with sea level rise and, possibly, decreased longshore sand transport.

Other comments

The northern tip of Fraser Island consists of a curving 30 km long beach from Sandy Cape to Waddy Point, followed by 5 km of the only bedrock on the island down to Indian Head. The beach is a wave-dominated double bar system that receives sediment that is bypassed around the headlands, forming migrating sand spits as they attach to the beach as well as inducing major changes in shoreline position along the southern few kilometres of the beach. The sand moves along the beach ($\sim 500,000 \text{ m}^3 \text{ yr}^{-1}$) past Sandy Cape, out along Breaksea Spit, and ultimately is lost



over the edge of the continental shelf and down the slope. This entire shore is susceptible to sea level rise induced erosion. However, the extent of this erosion will be mitigated somewhat by the large volumes of sand available in the backing dune to feed the beach. The beaches are, however, predicted to retreat by 150 m to 280 m by 2100. While there is no development on the beach, it is an extremely popular tourist 4WD-camping destination, and any ongoing erosion would disrupt these activities. Longshore sand transport may also be reduced by loss of sand into Inskip Point and even reactivated dune transgression. Sand is pure fine quartz throughout.

Additional information (links and references)

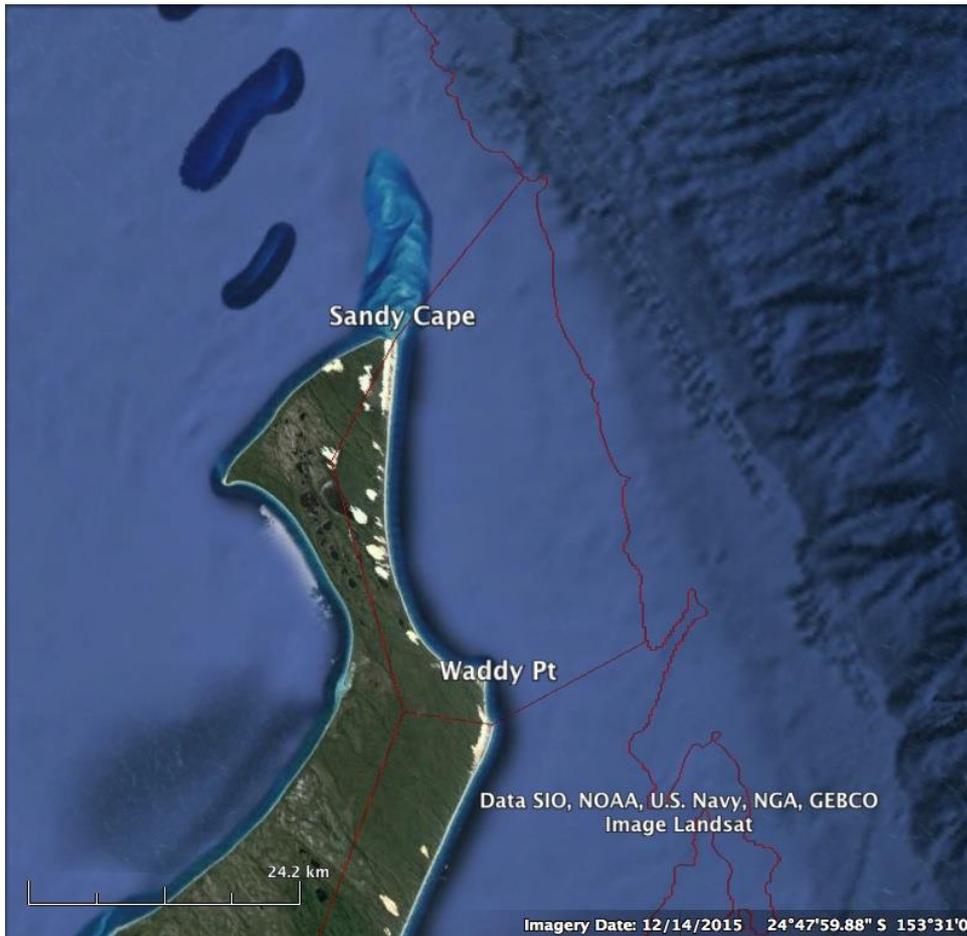
Boyd, R re loss to continental slope

Beach Protection Authority, B., 1989, Hervey Bay Beaches: Brisbane, Beach Protection Authority.

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

<http://www.frasercoast.qld.gov.au/shoreline-erosion-management-plan>

<https://www.ehp.qld.gov.au/coastalplan/coastalhazards.html>



Fraser Island (NE) – Sandy Cape to Indian Head.