



Fraser Island (east) QLD05.01.02

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 Indian Head to Double Island Point.

Justification of sensitivity

Overall sensitivity rating of 4.5. Sensitivity rating of 4 is owing to the continuous sandy shore, with a higher rating of 5 along the eroding Rainbow Beach.

Other comments

The eastern shore of Fraser Island, between Indian Head and Double Island Point, forms the bulk of the world's largest sand island. It consists of a 95 km long, continuous, exposed wave-dominated double bar system down to Inskip Point, and another 30 km of the curving Rainbow Beach around to Double Island Point. The northerly longshore sand transport on the order of $\sim 500,000 \text{ m}^3 \text{ yr}^{-1}$ bypasses around Double Island in a series of elongate sand spits that cause major changes in shoreline position and, at times, beach and dune erosion that can extend up to the Rainbow Beach Township. The sand then moves north past Inskip Point and along



the beach, bypassing Indian Head to Waddy Point. The sand is pure fine quartz throughout. 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 dunes to feed the beach. The beaches are, however, predicted to retreat by 150m to 280 m by 2100. Longshore sand transport may also be reduced by loss of sand into Inskip Point and even reactivated dune transgression. 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.

Additional Information (links and references)

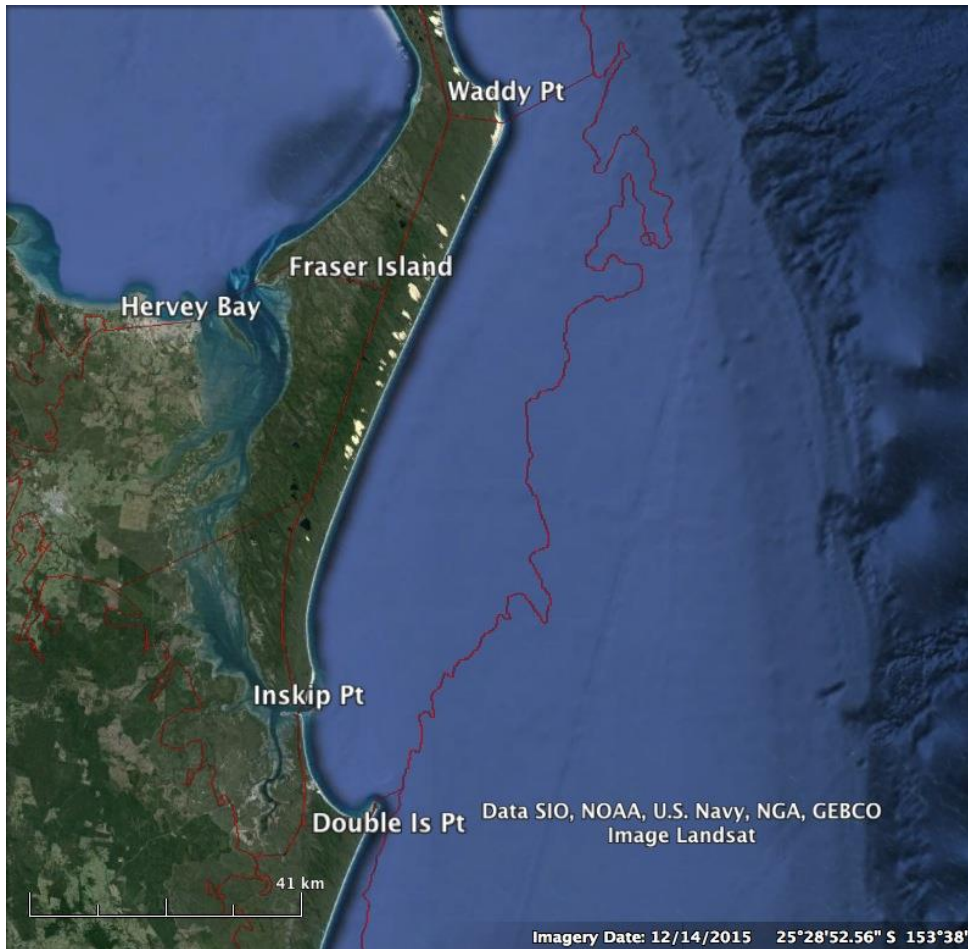
Boyd, R re loss to continental slope

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 (E) – Indian Head to Double Island Point.