



Hinchinbrook Island QLD03.07.06

Regional Setting

The dominant regional processes influencing coastal geomorphology in this region are the wet tropics to humid sub-tropical climate, south-east trade winds, mega-meso tides, strong tidal currents, low to moderate south-east seas (local wind-waves), the 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 Richardson to Lucinda.

Justification of Sensitivity

Sensitivity rating is a 3. The shoreline is currently stable but the sediment supply is limited and predicted to decline.

This is a relatively pristine environment, isolated from the mainland by Hinchinbrook Channel. The beaches are wide and east to southeast facing. They are mostly self-contained by rocky headlands in separate compartments.

There is evidence of some erosion, with blowouts in the foredunes behind Ramsay Bay (the largest beach,) but National Park status may limit further erosion.



Other comments

- This compartment only includes the eastern part of Hinchinbrook Island.
- The Herbert River currently delivers around 680 kt/yr of suspended sediment, which is roughly 6.2 times what it would be under natural vegetation and runoff conditions (see Brodie et al 2011), although bedload is only likely to comprise ~10% of the total. A small proportion of bed-load is delivered to the coast at the Hinchinbrook channel (evidence of sand waves).
- The impact of cyclonic events is likely to be more severe, with longer beach recovery times.

Confidence in sources

Medium confidence in sources.

Additional information (links and references)

Brodie, J, Lucy A. McKergow, I P. Prosser, M F, Hughes, A and Hunter, H (2011) Sources of Sediment and Nutrient Exports to the Great Barrier Reef World Heritage Area, *Australian Centre for Tropical Freshwater Research report 03/11*

Coventry, R J, Hopley, D, Campbell, J, Douglas, I, Harvey, N, Kershaw, A P, Oliver, J, Phipps, CVG. and Pye, K (1980) The Quaternary of Northeastern Australia, *Chapter in* Henderson, R.A. and Stephenson, P.J. (eds.), *The Geology and Geophysics of Northeastern Australia*, Geological Society of Australia, Queensland Division, Brisbane (pp 375-419), ISBN 0 909714 67 3

Pringle, A W (1991) Fluvial Sediment Supply to the North-East Queensland Coast, Australia, *Australian Geographical Studies*, Vol.29(1), pp.114-138

Short, A D (2000) *Beaches of the Queensland Coast: Cooktown to Coolangatta*, Australian Beach Safety and Management Program, University of Sydney Press.