



## Cape Sidmouth - Steward River QLD03.03.05

### 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 Sidmouth to Stewart River.

### Justification of Sensitivity

The sensitivity rating is a 3. The shoreline is stable, with evidence of continuing northerly littoral drift.

- This compartment shows extensive northerly littoral drift of sediment.
- Stewart River has produced deltaic sediments which are being reworked, along with migratory spits and a wide series of Holocene beach ridges.
- Further north, the Nesbit River has built its own delta and has migratory spits; sand ridges supply sand to the north.



### **Other comments**

- This compartment appears to leak sediment to the north.
- Stewart River currently delivers around 100 kt/yr of suspended sediment, which is roughly 4 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.
- The impacts of cyclonic events are 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*

Short, A D (2006) *Beaches of the Northern Australian Coast: The Kimberley, Northern Territory and Cape York*, Australian Beach Safety and Management Program, University of Sydney Press