



## Stradbroke - Gold Coast QLD05.03.02

### 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), strong tidal currents, 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 Point Lookout to Point Danger.

### Justification of sensitivity

Sensitivity rating is a 5, owing to the episodes of past erosion events and the high cost of maintaining the present Gold Coast beaches. In addition, there are increased threats from sea level rise, increased storminess, changing wave climate and interruption to longshore sand transport.

### Other comments

This compartment contains 105 km of gently curving sandy beaches between Point Lookout and Point Danger, with Jumpinpin Inlet and the trained Seaway in the centre. In addition, there is a series of six bedrock headlands at Miami, Burleigh, Currumbin, Kirra, Greenmount and Point Danger in the south, together with Tallebudgera and Currumbin Creeks. The exposed wave-dominated double bar



beaches make up 97% of the shore and are part of a northerly longshore sand transport system on the order of  $500\,000\text{ m}^3\text{yr}^{-1}$ , assisted by sand pumping systems at the Tweed and the Seaway. The sand is well-sorted fine quartz sand. While North and South Stradbroke Islands are undeveloped, the 32 km long Gold Coast is the most highly developed and heavily managed section of coast in Australia. The development includes the extensive Broadwater, and the canal estates which back much of the Gold Coast. The open coast is subject to episodes of severe erosion, which are managed through the pumping systems, terminal seawalls and dune maintenance. This erosion is likely to be exacerbated by sea level rise, increased storminess and interrupted longshore sand transport. The low lying backshore, including the canal estates, will all be susceptible to sea level rise and any changes in tide range. The Gold Coast beaches are predicted, by 2100, to erode by between 100-160 m. The southern spit of Jumpinpin Inlet is predicted to be breached.

#### **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>



*Stradbroke Island – Gold Coast (Point Lookout to Point Danger)*