



Regnard Bay WA11.03.02

Regional Setting

The dominant regional processes are the sub-tropical arid climate (Trade winds), El Nino Southern Oscillation (driving sea-level variability), mega to meso semi-diurnal tides, waves dominantly seas, episodic high river sediment discharges, mixed carbonate-terrigenous sediments, and tidal sediment transport.

This coastline is susceptible to regional hazards, including tropical cyclones, storm surges and river flooding.

This coastal lowlands compartment extends from Cape Preston to West Intercourse Island.

Justification of sensitivity

Sensitivity is rated as 4 overall. Coastal landforms include resilient rocky topography on Preston Point and in the vicinity of Gnoorea (Rating 3), as well as low-lying deltaic coast to the east, where marine inundation and river flooding are highly likely to occur during severe storms (Rating 5).

Other comments

The coast is directly open to the north and northwest. It is partly sheltered by the Barrow Island – Montebello Island ridge to the west, Dampier Archipelago to the east and, closer to shore, a chain of limestone and sand islands approximately 9 km offshore.

A broad complex system of tidal channels and flats comprises (73%) of the coastline. Much of the remainder (20%) is narrow sandy or silty beach associated with cheniers, beach ridges or bluffs.



Several streams debouche onto the coast. The largest - Erramurra Creek and McKay Creek, west of Gnoorea Point - drain onto salt flat basins prone to flooding and inundation, whereas Yanyare and Maitland Rivers connect with tidal creeks and drain off shore to the east.

Common landform assemblages:

Coastal landforms include resilient rocky topography on Preston Point and in the vicinity of Gnoorea (Rating 3) as well as low-lying, deltaic coast to the east where marine inundation and river flooding are highly likely to occur during severe storms (Rating 5). The broad complex of tidal channels and flats includes most of the coast (76%). Tidal creeks are prevalent on the deltas of the Yanyare and Maitland Rivers, especially the latter. Elsewhere, narrow sandy or silty beaches subjected to a high tide range may be marked by cheniers, beach ridges or low cliffs (24%).

Geomorphological features may include tidal flats, lithified cheniers, eroded delta, mud flats and mangroves.

This compartment has a NNW aspect.

Confidence in sources

Moderately high confidence: Coastal landforms are well described in available management literature, particularly for Cape Preston. Sediment movement along the rocky coast has been described. However, the sediment budget for the coast is not well known. Ratings were established by field survey, desktop studies and reference to the available literature. Interpretation of landform assemblages from satellite imagery, aerial photography, available literature and site visits.



Additional information (links and references)

Australian Beach Safety & Management Program (ABSAMP) database of over 12,000 beaches can be accessed at http://www.ozcoasts.gov.au/coastal/beach_intro.jsp (also see Surf Life Saving site)

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Eliot M. (2013) Application of Geomorphic Frameworks to Sea-level Rise Impact Assessment. Report 193-01-Rev 0. Prepared for Geoscience Australia. Damara WA Pty Ltd, Innaloo, Western Australia.

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Semeniuk V. (1993) The Pilbara Coast: a riverine coastal plain in a tropical arid setting, northwestern Australia. *Sedimentary Geology*, 83: 235-256.

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Short AD. (2005) Beaches of the Western Australian Coast: Eucla to Roebuck Bay: A guide to their nature, characteristics, surf and safety. Australian Beach Safety and Management Program. University of Sydney Coastal Studies Unit and Surf Life Saving Australia. Sydney University Press. Sydney, New South Wales.

Stul T, Gozzard JR, Eliot IG and Eliot MJ (2014c) Coastal Sediment Cells for the Pilbara Region between Giralia and Beebingarra Creek, Western Australia. Report prepared by Seashore Engineering Pty Ltd and Geological Survey of Western Australia for the Western Australian Department of Transport, Fremantle. http://www.transport.wa.gov.au/mediaFiles/marine/MAC-R-Pilbara_CoastalSedimentCellsL.pdf