



Mardie Coast (Fortescue River) WA11.02.x1

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 island compartment extends from Barrow Island to the Montebello Islands.

Justification of sensitivity

The sensitivity rating is a 3 as the shoreline is stable and likely to remain stable. This compartment contains largely low relief sand deposits to landward overlying limestone base with very wide subtidal rock platforms.

Other comments

Common landform assemblages:

This is a limestone reef and coral archipelago on a shallow zone of the outer shelf, adjacent to a very steep shelf drop-off. The islands are underlain by calcarenite limestone, with shallow deposits of calcareous sediment. The topography is largely comprised of low relief sandy formations, including low coastal barriers and aeolian dunes. Pocket beaches are prevalent, controlled by limestone headlands and typically with very wide subtidal or intertidal rock platforms. Small sections of mangrove community are present.



Geomorphological features include the offshore Barrow Island and Montebello Islands.

Confidence in sources

Moderate confidence: Coastal landforms are well described in available management literature, and sediment movement along parts of the rocky coast has been described, with supporting modelling and measurement programs.

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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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