Forestier Bay WA11.04.01

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 Lambert to Cape Cossigny.

Justification of sensitivity

The sensitivity rating is a 5 as the shoreline is eroding and likely to continue eroding. The sensitivity is high because salt flats and intertidal flats around Sherlock Bay are increasingly dissected by tidal creeks with distance east of Cossack, with open water landward of Westmore, Depuch and other islands formed from lithified cheniers.

Other comments

Common landform assemblages:

Much of the coast is low-lying, deltaic coast where marine inundation and river flooding occur. The salt flats and intertidal flats are increasingly dissected with distance east of Cossack, with the George, Sherlock and Peewah Rivers discharging onto salt flats landward of lithified cheniers. Major tidal creek channels with complex relict sandy beaches, some with tidal flat development between headlands, forms 52% of the coast. Elsewhere, the intertidal flats are broad and may be backed by an extensive supratidal zone (33%).

Geomorphological features include eroded lithified cheniers, eroded deltas, mud flats and mangroves.

This compartment has a NNW aspect.

Confidence in sources

Low confidence: Limited or no information describing landforms or coastal landform change is available for the historical period.

Interpretation of landform assemblages from satellite imagery, aerial photography, available literature, and site visits to Ankatell and Bella Bella.

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)

Australian Maritime Safety Authority (AMSA). (2006) Oil Spills Response Atlas. Australian Government Canberra. Available at https://www.amsa.gov.au/environment/maritime-environmental-emergencies/national-plan/general-information/OSRA/index.asp

Baker C, Potter A, Tran M & Heap AD. (2008) Geomorphology and Sedimentology of the Northwest Marine Region of Australia. Geoscience Australia, Record 2008/07. Geoscience Australia, Canberra. 220pp.

Eliot I, Gozzard B, Eliot M, Stul T and McCormack G. (2014) Geology, Geomorphology & Vulnerability of the Pilbara Coast, In the Shires of Ashburton, East Pilbara and Roebourne, and the Town of Port Hedland, Western Australia. Damara WA Pty Ltd and Geological Survey of Western Australia, Innaloo, Western Australia. http://www.planning.wa.gov.au/publications/7082.asp.

Eliot I, Nutt C, Gozzard B, Higgins M, Buckley E & Bowyer J. (2011). Coastal Compartments of Western Australia: A Physical Framework for Marine & Coastal Planning. Report to the Departments of Environment & Conservation, Planning and Transport. Damara WA Pty Ltd, Geological Survey of Western Australia and Department of Environment & Conservation, Western Australia

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.

Gozzard JR. (2011e) WACoast –Pilbara. Geological Survey of Western Australia digital dataset.

Lyne V, Fuller M, Last P, Butler A, Martin M & Scott R. (2006) Ecosystem characterisation of Australia's North West Shelf. North West Shelf Joint Environmental Management Study. Technical Report No. 12. CSIRO.

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

Sharples C, Mount R, Pedersen T, Lacey M, Newton J, Jaskierniak D & Wallace L. (2009) The Australian Coastal Smartline Geomorphic and Stability Map. Version 1: Project Report. Geoscience Australia & Department of Climate Change, www.ozcoasts.gov.au/pdf/SmartlineProjectReport_2009_v1.pdf

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