



Nickol Bay (Karratha) WA11.03.04

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 mixed sand and rock coast compartment extends from Dolphin Island (North point) to Cape Lambert.

Justification of sensitivity

The sensitivity rating is a 3 as the shoreline is stable and likely to remain stable. East of Burrup Peninsula, there are lithified cheniers and storm bars. Tidal creeks, salt flats and outwash plains extend landward of the barriers. Near the mouth of Nickol River there are accreting tidal flats. To the east, this changes to an eroded coastline where large tidal creeks have opened embayments landward of rock outcrops, as near Cleaverville and Dixon Island. Damming of the Harding River has reduced sediment supply to the inshore waters.

Other comments

Common landform assemblages:

The Burrup Peninsula forms the western arm of a deep embayment, Nickol Bay. The shore of the Dolphin Island and Burrup Peninsula is rocky, with small sandy beaches either perched on rock platforms or located at the heads of small embayments.



Several of the beaches, including the small embayments north of Hearson Cove, are perched on rock pavements and are fronted by narrow tidal flats and mangrove vegetation. Some of the beaches have a low ridge or storm bar along the backshore of the beach. Broad assemblages of tidal channels and flats may back onto low cliffs and sand ridges (73%). Elsewhere, beachrock and adjacent fringing reefs formed coast with some beach formation between headlands (22%).

Geomorphological features include Nichol Bay, eastern Dampier Archipelago, Nichol River, peninsular, tidal flats, rocky coast and rocky headlands.

This compartment has a NNW aspect.

Confidence in sources

High confidence: Detailed information describing landforms and metocean processes is available from multiple sources, particularly in areas where harbour development has taken place.

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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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