



## Giralia Bay (Exmouth Gulf - east) WA11.01.01

### 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 Giralia to Locker Point.

### Justification of sensitivity

The sensitivity rating is a 5 as the shoreline is eroding and likely to continue eroding. The residual mounds on the salt flats indicate erosion of the salt flats by terrestrial overwash from the hinterland. This may be exacerbated by future tidal creek incursion, as indicated by the dissected tidal flats.

### Other comments

Common landform assemblages:

Barrier development is limited to chenier spits and mobile sand sheets close to Turbridgi Point and in the vicinity of Locker Point. Further south, the coast is comprised of salt flats 5km to 11 km wide. These include algal zones, patches of halophytic vegetation, residual mounds of older sediments (some of which are lithified), and tidal creeks along the seaward margin.



Geomorphological features include a tidal terrace, cheniers, mud flats, tidal creeks, mangroves and outwash plain.

This compartment has a WNW aspect.

### **Confidence in sources**

Low confidence: Limited or no information describing landforms or coastal landform change over the historical period is available. Interpretation of landform assemblages comes from satellite imagery and aerial photography.

### **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](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](http://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](http://www.transport.wa.gov.au/mediaFiles/marine/MAC-R-Pilbara_CoastalSedimentCellsL.pdf)