



## Lake MacLeod (north) WA10.01.03

### Regional Setting

The dominant regional processes are the Mediterranean to arid climate; the El Nino Southern Oscillation (driving sea-level variability); Southern Annular Mode (driving south-westerly swells and storms); strong sea breezes; micro to meso tidal, mainly diurnal; south-westerly swells; southerly seas; and carbonate sediments with moderate northerly longshore transport.

This coastline is susceptible to regional hazards, including extra-tropical cyclones, mid-latitude cyclones (depressions), storm surges, and river flooding (sub-regions only).

This rocky coast compartment extends from Gnarraloo Bay to Alison Point.

### Justification of sensitivity

The sensitivity rating is a 4 as the shoreline is currently stable but likely to start eroding. Cuspate forelands in the lee of coral reefs are susceptible to changing metocean conditions as well as sediment supply from the reefs and inshore lagoons.

### Other comments

Common landform assemblages:

Major tidal channels with complex relict sandy beaches occur in gaps in the fringing reef and at the shore between headlands and cusped forelands (45%). Beachrock and adjacent fringing reefs, formed coast with some beaches between headlands (36%). Narrow sandy or silty beach with a high tide range, may be marked by cheniers, beach ridges or low cliffs (19%).



Geomorphological features include fringing reefs, rocky coast, beaches and dunes.

This compartment has a NW 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, site visits 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. (2012c) The Gascoyne Coast, Western Australia: Shires of Shark Bay to Exmouth. Geology, Geomorphology & Vulnerability. Damara WA Pty Ltd and Geological Survey of Western Australia, Innaloo, Western Australia. [http://www.transport.wa.gov.au/mediaFiles/marine/MAC\\_R\\_ShiresOfSharkBayAndExmouthFullReport.pdf](http://www.transport.wa.gov.au/mediaFiles/marine/MAC_R_ShiresOfSharkBayAndExmouthFullReport.pdf).



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

Gozzard JR. (2011d) WACoast –Gascoyne. Geological Survey of Western Australia

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.

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)