



# Sediment cells in Western Australia

**The aim of these studies was to identify a hierarchy of sediment cells for planning, management, engineering, science and governance of the WA coast.**

Sediment cells are natural management units with a physical basis, identifying sections of the coast within which sediment transport processes are strongly related. They provide an elegant format for summarising coastal data and can be used to:

- Conceptualise the spatial **context** for coastal evaluations;
- Provide a visual framework for **communicating** about the coast;
- Support coastal management **decision-making**;
- Support a range of **technical uses** largely relating to coastal stability assessment; and
- **Reduce problems** caused by selection of arbitrary or jurisdictional boundaries.

Each sediment cell is a collection of marine and terrestrial landforms, inter-related by sediment transport between them. They include areas of sediment supply (sources), sediment loss (sinks) and areas through which sediment is moved between sources and sinks (pathways). Sediment transport pathways include both alongshore and cross-shore processes and therefore cells are best represented in two-dimensions.

## **Sediment Cells Mapping**

Sediment cells have been mapped as a hierarchy of primary, secondary and tertiary levels to incorporate three spatio-temporal scales. The hierarchical nature of the cells gives a basis for comparison of planning and management at a number of scales, from small-scale engineering works, through to large-scale natural resource management.

Sediment cells have been defined in three steps through selection of:

1. Points along the shoreline (beachface);
2. Offshore and onshore boundaries; and
3. Alongshore boundaries through the points to the offshore and onshore boundaries.

An example at the secondary cell scale for the Mid-West Region is shown to the right.

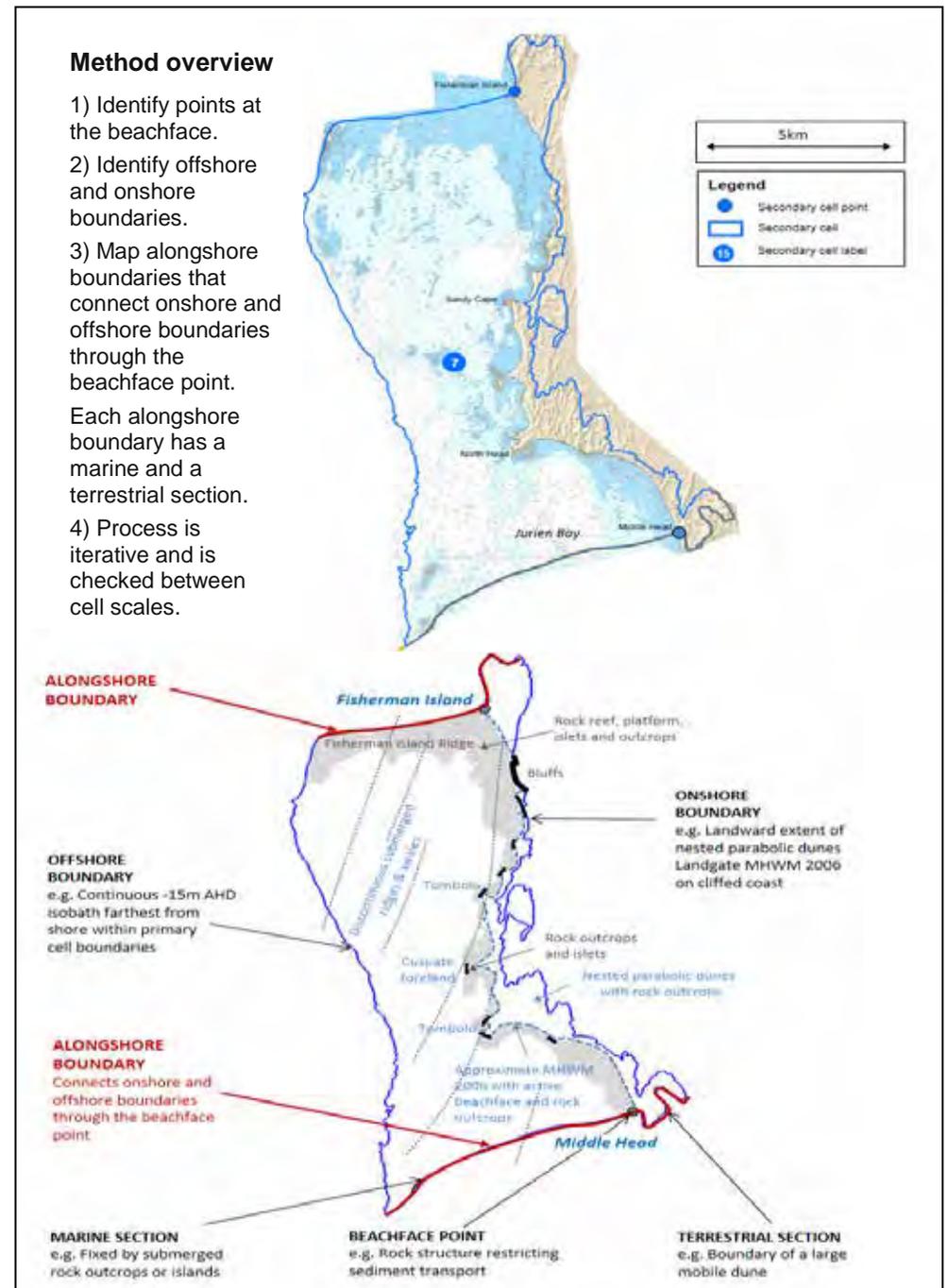
Sediment cells have been mapped for the:

- [Vlamingh Region](#)
- Mid-West Region
- Northampton Region
- Pilbara Region

The cell information is provided for download for each region as a report and a dataset of boundaries and beachface points in ESRI Shapefile format and as Google Earth KMZ files.

Further information regarding the use of spatial frameworks in Western Australian coastal management includes:

- Geological Survey of Western Australia: WA Coast Project
- WA State Government: Coastal Compartments of Western Australia: a Physical Framework for Marine & Coastal Planning \*
- [WA Department of Transport: Geology, geomorphology and landform vulnerability studies](#)
- [Federal Department of Environment: Coastal compartments of Australia for improving coastal erosion assessments](#)



\*MHW: mean high water mark

– [Federal Department of Environment: Application of Geomorphic Frameworks to Sea-level Rise Impact Assessment](#)

\* 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.