

# Ocean Entrances – Sediment Transfers

Ocean entrances to both natural and artificial water bodies are typically dynamic, with changing bank position and bed forms.

Maintaining navigability often needs both dredging and structures. However, entrances evolve, requiring ongoing observation and adaptive sediment management.

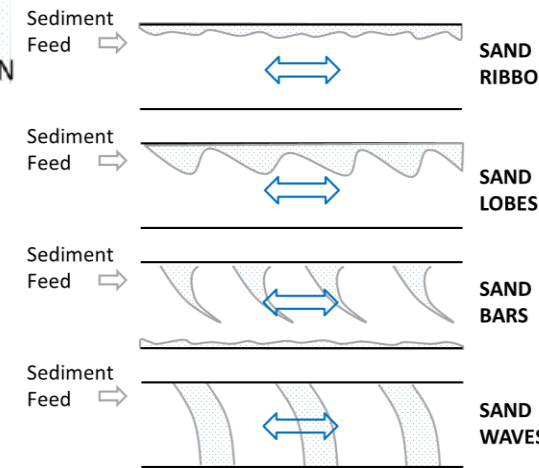
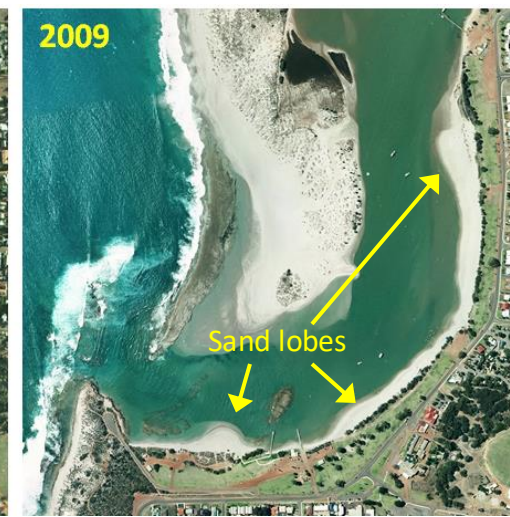
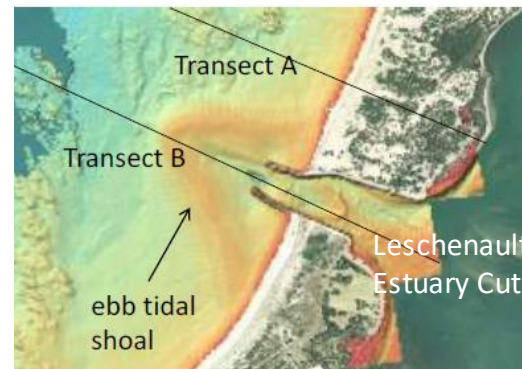
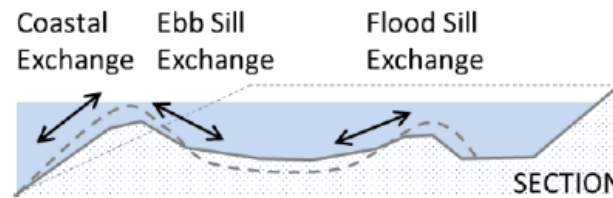
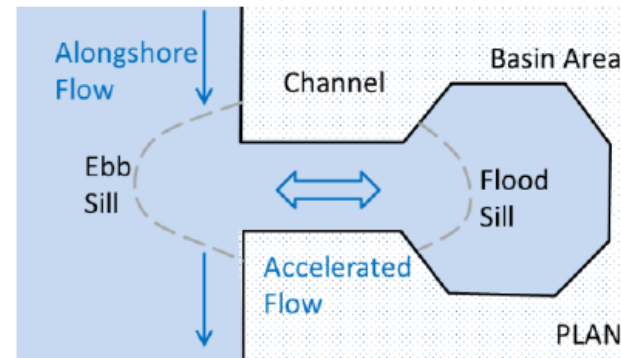
Mechanisms that transfer sediment into the ocean entrance include:

- Suspended sediment transport
- Littoral transport (wave-driven)
- Morphologic transfer

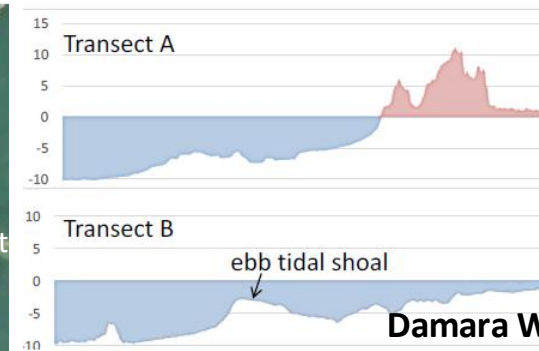
In general, suspended sediment and littoral transport are managed through dredging or entrance training structures. Historic management usually gives a reasonable guide to future requirements, subject to weather variations.

By contrast, morphologic transfer can change rates of sedimentation, potentially accelerating over a few years to unprecedented levels, challenging entrance management and often making existing practices uneconomic.

Features principally determining morphologic sediment transfer at ocean entrances include:



- External sources of sediment supply
- Bed mobility in the entrance channel due to flow constriction
- Mobility of flood sills inside or ebb sills outside the entrance
- Development of bank & bed features in the channel.



These features usually build with more sediment in the entrance. Not all features need be present to accelerate sediment transfer from outside to inside.

