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Groundwater dependent ecosystem pictorial conceptual model ‘canal estates (estuarine)’

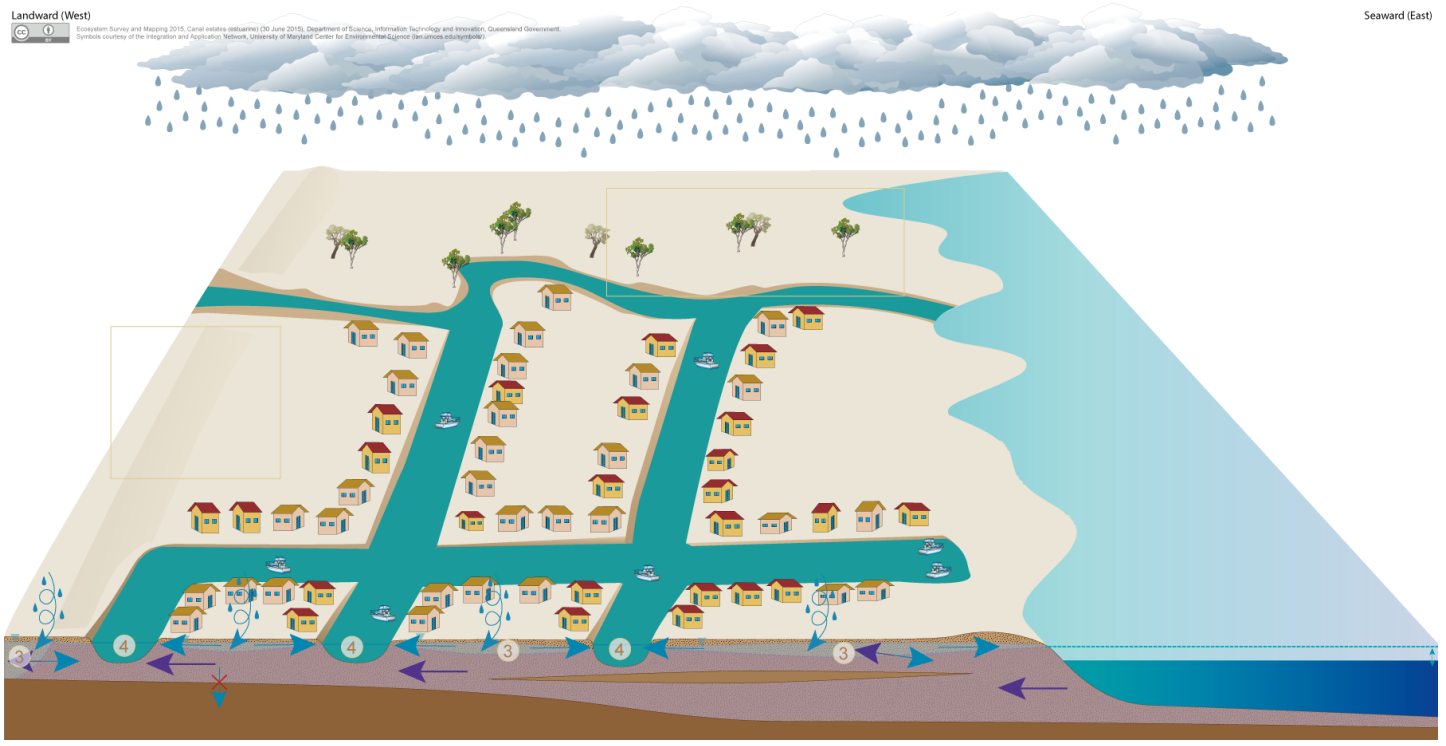
Version 1.5

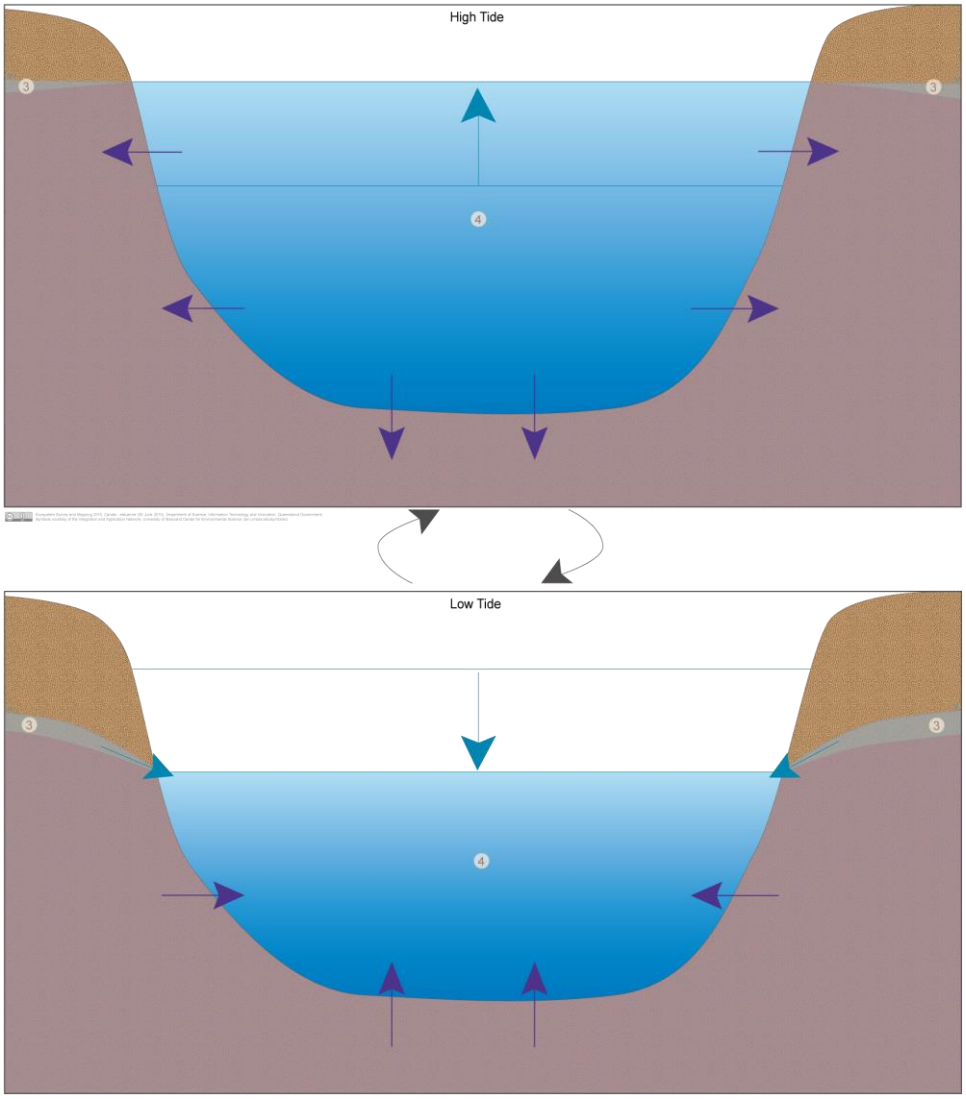
Canal estates (estuarine)

Estuarine canal estates are man-made canals that are connected to estuaries and therefore have tidal influence. The canals are usually dug into unconsolidated sedimentary aquifers including coastal sand masses (see coastal sand masses – beach ridges) or alluvia deposited during periods of higher sea level by fluvial processes in current river channels, floodplains, estuaries, deltas and other near-shore environments (see low-lying coastal swamps). These unconsolidated sedimentary aquifers store and transmit groundwater through intergranular voids between gravel and sand particles.

At high tide marine water from canals infiltrates adjacent unconsolidated sedimentary aquifers. A thin lens of fresh groundwater is supported above the saline marine water which may then discharge back into the canal at low tide. These areas may support fauna and flora communities, ecological processes and delivery of ecosystem services.

- Estuarine canal estates may depend on the surface expression of groundwater from the underlying unconsolidated sedimentary aquifers.
- Unconsolidated sedimentary aquifers associated with estuarine canal estates may also support aquifer ecosystems which can be indicated by the presence of stygofauna.





Geology legend

Sand

Low permeability rock

Basement of the model

Groundwater hydrology legend


Sand (unsaturated)


Sand (saturated with marine water)


Sand (saturated with groundwater)


Low permeability rock (unsaturated)


Basement of the model (unsaturated)


Infiltration and percolation
Rain infiltrates through the soil to recharge the aquifer below

Groundwater table


Direction of groundwater movement


Negligible groundwater movement


Direction of marine water movement


Groundwater and marine water interface
The position of the interface will vary temporally


Tidal range

Flora legend


Corymbia spp.


Melaleuca spp.

Groundwater dependent ecosystem legend

Subterranean GDEs
Aquifer and cave subterranean wetlands may depend on the subterranean presence or expression of groundwater for some or all of their water requirements.

Surface expression GDEs (estuarine systems)
Estuarine wetlands may depend on the surface expression of groundwater for some or all of their water requirements. This sub-type of GDE is not currently mapped in the Queensland GDE mapping.

Citation

Queensland Government (2017) *Groundwater dependent ecosystem pictorial conceptual model ‘canal estates (estuarine)’: version 1.5*, Queensland Government, Brisbane.