



Statewide seawater interface - Cockburn groundwater area

Valley subarea

The seawater interface in the Valley subarea extends around 1,000 m inland, along the base of the Superficial aquifer. It starts where the ocean meets the water table on the coastline and forms a wedge shape that extends along the base of the Superficial aquifer to around 25 m below sea level.

In the northern half of the subarea, the Kardinya Shale Member, part of the Osborne Formation, acts as an aquitard. It prevents the seawater interface from extending from the Superficial aquifer into deeper aquifers.

In the southern half of the subarea, the Kardinya Shale aquitard is absent, and the Leederville and Superficial aquifers are hydraulically connected. As a result, when the seawater interface moves in the Superficial aquifer, it also moves in the Leederville aquifer. This means that abstraction from the Leederville aquifer may impact water levels and cause incursions of the seawater interface in the Superficial aquifer and vice versa.

Not all saline groundwater in this subarea originates from the seawater interface. In the northern part of the subarea where the Kardinya Shale aquitard is present, there are localised patches of saline water at the base of the Superficial aquifer caused by the diffusion of hypersaline groundwater from the Kardinya Shale. This zone of diffusion can be as thick as 5 m at the base of the Superficial aquifer.

The figure is a representative cross-section of the seawater interface in the southern half of the Valley subarea. Full details of the investigation methods and analysis are available in the report *HR443: Cockburn seawater interface – Priority area assessment*.

To request a copy, email groundwaterinfo@dwer.wa.gov.au.

