

## 5 Considerations in using GFS for salinity management

The 18 GFS presented in this report are similar landscape-groundwater systems which give effect to similar salinity issues and therefore, similar management options may apply. However, for each system the confidence in the options for salinity management is constrained by the lack of scientifically validated models relating the assumed cause (land-use change) to the observed effect (salinity). In fact, the manifestation of salinity in each landscape is a function of the relationship between the geology, hydrogeology, landscape evolution, climate, environmental history and current land-use.

In Australia, salinity research has focused on the hydrologic changes associated with land-use changes in the rural environments, particularly agriculture. In comparison, regional-scale hydrologic changes associated with urban development are poorly understood. The effect on regional groundwater tables of converting agricultural land to suburbs has not been widely investigated, but has a potentially greater impact on the hydrologic balance than most land use changes. Salinity management should ensure that existing saline areas are not urbanised without appropriate asset protection measures, and that the urban development will not initiate salinity by changing the hydrologic budget.

Appropriate salinity management also needs to recognise that land and water salinity are the basis for some of the region's environmental assets of international importance. The saline wetlands, salt marshes and mangrove thickets of Port Phillip (western shoreline) and Westernport are global assets listed under the Ramsar Convention on Wetlands. These assets require appropriate surface water and groundwater management to protect the (primary) saline wetlands from threats such as urban stormwater input or over-pumping aquifers. Conversely, to protect the water quality of the Ramsar-listed Edithvale-Seaford Wetlands, engineering intervention is currently used to prevent interactions with the underlying saline groundwater (EA, 2004).



*Urban development at Berwick. This type of land-use change has the potential to rapidly alter the regional hydrology.*