



Australian Government

Australia's National Programme of
Action for the Protection of the Marine
Environment from Land-Based Activities

October 2006



case study 19: city of salisbury

executive summary

The City of Salisbury is the point of stormwater discharge from a large part of north-west Adelaide through Barker Inlet, the Port Estuary and West Lakes into St Vincent Gulf (see [Figure 1](#)). The marine waters and coastal wetlands of this area form one of South Australia's largest and most productive estuarine systems. Barker Inlet is listed under Australia's Directory of Important Wetlands and is an important marine breeding ground.

Over the years the area has been affected by loss of sea grass and mangroves, reduced water quality and increases in sand movements, algal blooms and litter on beaches.

The primary purpose of the program is to secure water availability for urban and industrial sustainability and growth of north Adelaide. The Salisbury Stormwater Project collects stormwater, cleans it through wetlands treatment and injects it into suitable aquifers where it is stored for extraction in dry periods. Treated stormwater is also made available to companies with high water dependency at much cheaper rates than mains-treated water. Surplus water flows through maintaining environmental flows to Barker Inlet and Port Estuary.

The Salisbury Stormwater Project takes advantage of suitable aquifer geology beneath Salisbury and the adjacent municipalities of Playford and Tea Tree Gully. It is the most recent of a series of major water efficiency initiatives of the South Australian Government that has also led to reductions of pollution loads reaching coastal and marine ecosystems.

The project provides an economically beneficial secure fresh water supply through the treatment, storage and recovery of stormwater. It also provides environmental benefits to marine water quality but does not measure or report these.

introduction

Salisbury, Playford and Tea Tree Gully are municipalities to the north of Adelaide that form a growth corridor and industrial area. They are underlain by an area that is geologically suited to stable aquifer recharge, storage and discharge.

Surface stormwater discharge through Barker Inlet and the Port River Estuary is equivalent to the total annual use of reticulated water by the City of Adelaide. As the city has grown northwards, increased pollution of stormwater has led to deterioration of the important estuary and wetland area.

The estuary has high ecological significance to the state of South Australia and the wetland is recognised as nationally and internationally significant. It supports saltmarshes, tidal flats, seagrass beds and the southernmost population of grey mangrove. It is used by 12 species of migratory birds listed under international treaties and is an important marine breeding and nursery area.

Figure 1: Barker Inlet and the Port River Estuary



Photo courtesy of SA.gov.au Department for Environment & Heritage

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South Australia has a long history of seasonal water shortage. This has increased as the Adelaide metropolitan area has grown and drought periods have reduced rainfall and flows in the Murray River.

pollution issues

Historically the Barker Inlet has been affected by excessive nutrient loads from inadequacies in treatment of residential and industrial wastes, land management and stormwater treatment. A consequence has been frequent red tides of potentially toxic algae and temporary bans on seafood harvest in the estuary. High sediment loads from stormwater have contributed to loss of seagrass increasing siltation and declining water quality for a resident population of bottlenose dolphins.

management context

The project is led by the City of Salisbury with CSIRO and the South Australian Department of Water, Land and Biodiversity Conservation and the adjacent Playford and Teatree Gully Municipalities as partners.

Initial investment of \$370,000 in 2001 funded by the Commonwealth and South Australian Governments provided for the development of a Water Quality Improvement Plan for Adelaide Port Waterways. A further allocation of \$2.9 million in 2003 provided for a series of interim water quality projects in Adelaide's Port River Estuary and Barker Inlet. This has enabled planning and capital works for stormwater capture and treatment and the development of initial components of the aquifer recharge system.

These projects build from a history of investments in water efficiency and re-use developed by partnerships of government and private industry where high grade recycled water from waste treatment plants is piped commercially to vineyards and horticultural growers. This approach is economically self sustaining, the cost of water to growers is much less than mains reticulated water, enabling more horticultural land use and reducing the levels of nutrients entering the marine environment by as much as 70 per cent.