

Monitoring for coastal protection

Issued July 2010

EPA 911/10: This information sheet summarises the importance of seagrass and highlights some potential causes of seagrass loss.

Monitoring background environment condition

South Australia has 4,000 kilometres of coastline, ranging from rocky shores and sandy beaches, to seagrass and reef habitats, mud flats and mangroves. These habitats hold a diverse range of plants and animals, including nationally and internationally important species such as southern right whales, Australian sea lions, dolphins, great white sharks and leafy seadragons. The clear, low nutrient waters that characterise the Gulf St Vincent and Spencer Gulf are quite unique, and the animals and plants reflect this uniqueness making South Australia's marine waters among the most biologically diverse in the world, with many species found only in southern Australia.

Seagrass

- Seagrasses form the 'grass meadows' of coastal waters. Seagrasses are true flowering plants and have roots making them very distinct from algae. Their extensive root system is essential for the uptake of nutrients and for anchoring them firmly into the sand.
- Seagrass is habitat for many marine animals including recreationally targeted fish species. They stabilise underlying sand and reduce erosion, help to reduce wave energy and prevent storm damage to coastlines. They also contribute to nutrient trapping and cycling.
- Over 9,000 hectares of seagrass have been lost from Gulf St Vincent. Most of this is from along the Adelaide metropolitan coastal waters. This has contributed to an increase in sand movement along the beaches, a loss of biodiversity and likely decreases in fish stocks along the metropolitan coast.
- Seagrass can be lost when nutrient levels in the water increase. Nutrients cause epiphytes to grow on the seagrass leaves, decreasing the amount of light reaching the seagrass, weighing down the leaves and eventually killing the seagrass.
- Seagrass can also be lost by a high amount of suspended solids in the water. The suspended solids reduce the amount of light reaching the seagrass and disrupt photosynthesis.
- The loss of seagrass has been attributed to discharges that are high in nutrients and suspended solids. Some of these harmful high nutrient discharges come from sewage treatment plants, industry and stormwater.



From left to right: Seagrass in good condition, epiphytes on seagrass, degraded seagrass.

Developments along the metropolitan coast

Years seagrass lost	Environmental modification
1949 -1970	Glenelg Waste Water Treatment Plant (WWTP) outfall constructed, Outer Harbor breakwater constructed, Glenelg WWTP discharge increased, Patawalonga flood gates constructed, Storm water drains and outfalls constructed, Bolivar Treated Sewage Outfall begins construction.
1970-1983	Glenelg WWTP discharge increased, Sturt River concrete lining constructed, Port Adelaide pipeline excavations and WWTP sludge outfall to sea commences.
1983-1996	Glenelg WWTP sludge outfall to sea ends, Port Adelaide WWTP sludge outfall to sea ends.
1996-2002	Sediment plumes from Coastal Protection Board dredging Port Stanvac. West Beach boat ramp constructed, Barcoo outlet diverted stormwater directly to beaches. Periodic releases from the Patawalonga.

Years of improvements	Environment improvement actions
1996-2002	Bolivar DAFF Plant built at WWTP to treat nutrients.
2002-2007	Port Adelaide WWTP is diverted to Bolivar, significant nutrient reductions programs at Penrice Soda products and Bolivar WWTP. Virginia & Willunga reuse schemes to reduce water flow from Bolivar & Christies WWTP's.

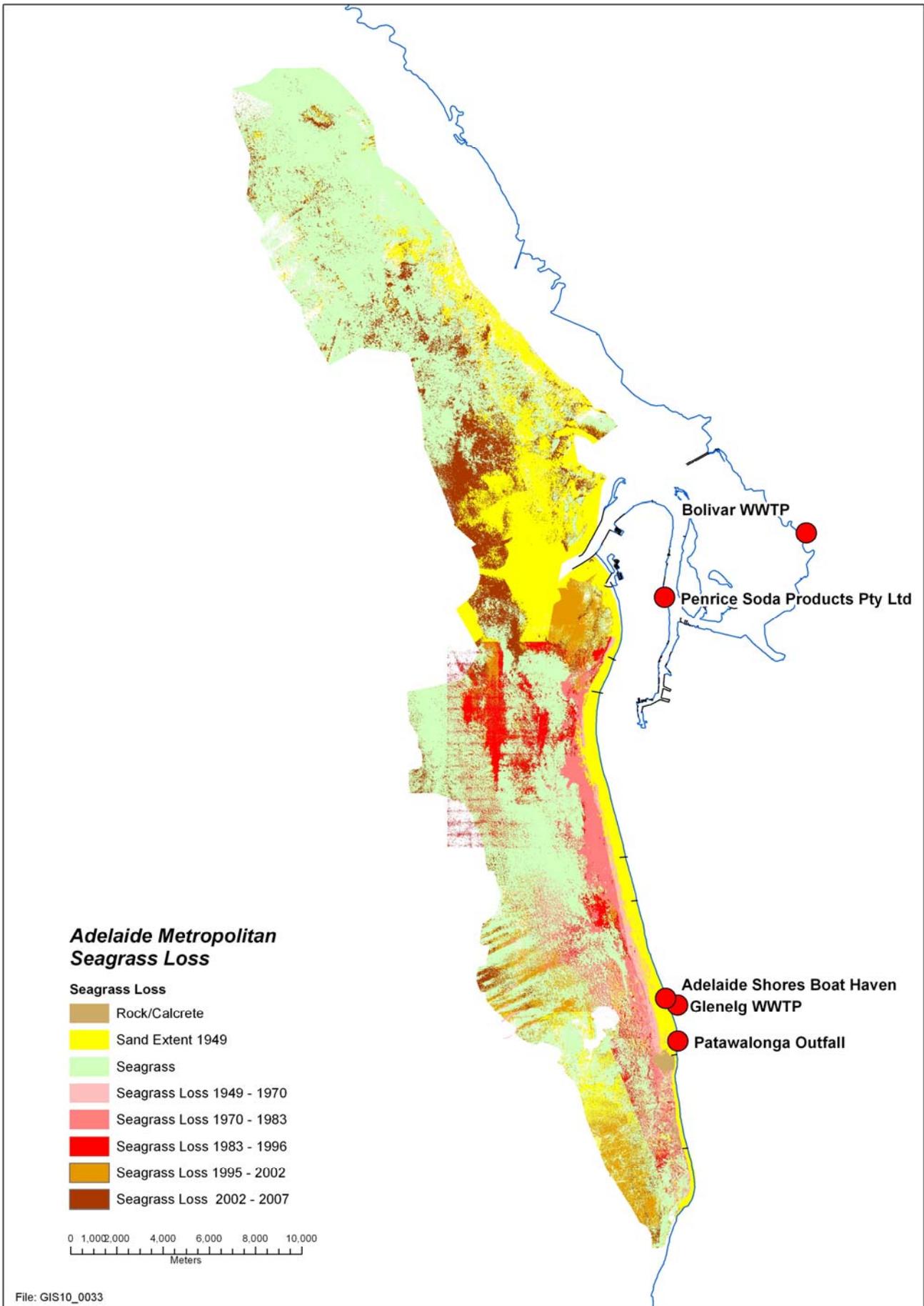


Figure 1 Seagrass loss from Adelaide's metropolitan coast 1949–2007.

Further information

Legislation

Legislation may be viewed on the Internet at: <www.legislation.sa.gov.au>

Copies of legislation are available for purchase from:

Service SA Government Legislation Outlet
Adelaide Service SA Centre
108 North Terrace
Adelaide SA 5000

Telephone: 13 23 24
Facsimile: (08) 8204 1909
Website: <shop.service.sa.gov.au>

For general information please contact:

Environment Protection Authority
GPO Box 2607
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Freecall (country): 1800 623 445
Website: <www.epa.sa.gov.au>
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