

Seagrasses of SOUTH AUSTRALIA



Seagrass – general

Seagrasses are flowering plants that grow underwater in coastal and marine environments. They evolved from land plants and adapted to marine life around 100 million years ago. Seagrasses are a valuable coastal resource, forming extensive beds or meadows comprising many individual plants; around 40 times more animals occur in seagrass than in adjacent bare sand. They are often regarded as a marine 'forest' for they play a vital role in the marine food web as well contributing to coastal stability.

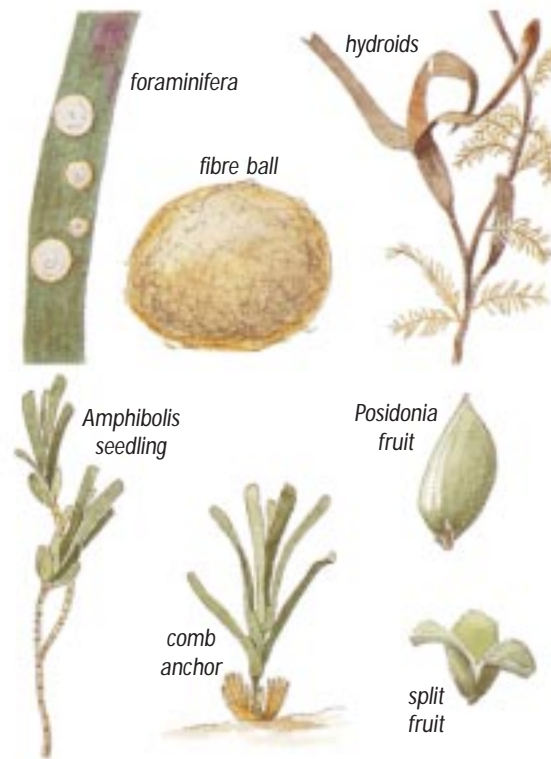
Seagrass species occupy different geographical ranges and favour different conditions. Eleven species of seagrasses are known to occur in South Australia covering an area of approximately 9620 km². They are found growing on sandy or muddy bottoms in estuaries, coastal lagoons, gulfs and sheltered bays, and at the base of exposed cliffs. A selection of these species is shown on the reverse of this leaflet. Two species not shown but found in South Australian waters are *Posidonia denhartogii* and *Posidonia augustifolia*.



Posidonia australis flowers

Seagrass – protection

In South Australia, seagrass is protected under the *Native Vegetation Act 1992*, which is administered by the Department for Environment and Heritage. Prevention of seagrass loss through appropriate planning and use is the best approach to ensuring its conservation. An integrated approach to the management of stormwater run-off, coastal development and effluent discharges will ensure that the integrity of seagrass ecosystems is sustained.



For further information about coast and marine management visit our website
www.environment.sa.gov.au



Environment Protection Agency
Government of South Australia



Photographs by Andrew Melville
Cover Circle - epiphytic growth on *Amphibolis* spp
Cover Background - Seagrass Meadow



Coast Protection Board

Threats to seagrass

In southern Australia, seagrasses have evolved in a low nutrient environment so they are sensitive to increases in nutrient levels. They also require sunlight for photosynthesis in order to grow. Pollution of coastal waters from stormwater run-off, sewage discharge, and oil spills puts the health of shallow near-shore habitats and seagrass communities at risk.

Physical disturbance from anchors and propellers, moorings, dredging and aquaculture, can also cause long-term damage to seagrass beds. Once destroyed, seagrass ecosystems do not readily recover.

In the early 1900s mining leases covered 97 000 hectares of seagrass meadow area in Spencer Gulf. Posidonia fibre was mined for its high cellulose content and used in the manufacture of suits, explosives and household products. Large clearings can still be detected and the seagrass has not regrown.

Seagrasses – forests of the sea

Seagrasses oxygenate the water, recycle nutrients, and provide shelter for marine animals and food for fish. They play an important role in the marine ecosystems, providing a breeding habitat for certain fish species such as whiting, flathead and tailor. Seagrasses also play host to a diverse range of small organisms called epiphytes (plants) and epifauna (animals) living in microhabitats and grazing on the leaves, stems and root systems. These organisms are in themselves important contributors to the overall productivity of seagrass meadows and, due to their rapid growth, can be useful indicators of the nutrient loading in the water column.

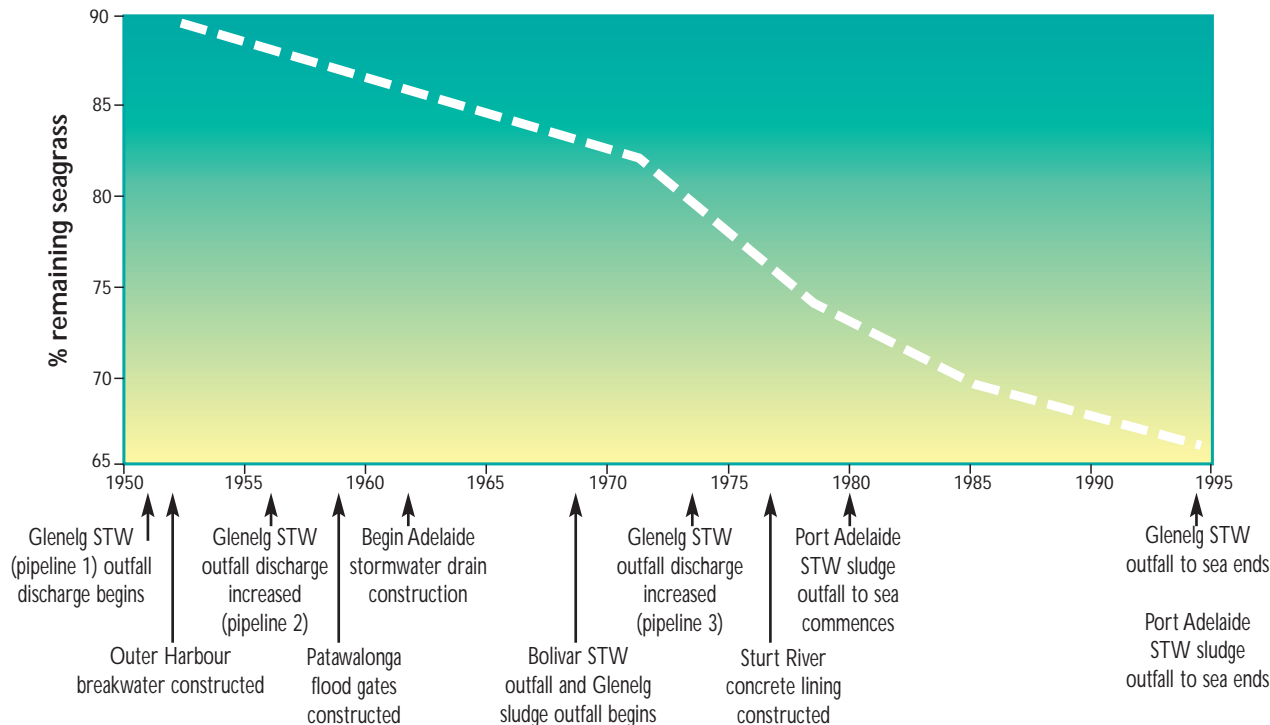
Even in a decomposing state, seagrass leaf litter (now known as detritus) comprises the main diet for many marine species.

Importance of seagrasses to coastal stability

Seagrasses are very important sediment stabilisers and trappers. A study in Spencer Gulf estimated that seagrass beds, through their ability to trap sediment and create sediment through biogenesis, built vertically at the rate of one centimetre every 100 years.

Most of the seagrass beds along the South Australian coast trap beneath them at least one metre or more of sediment. This platform of sediment is an important protective buffer to the shoreline from waves, in particular to beaches. The seabed is readily eroded by waves and currents if the stabilising seagrass cover is lost. In consequence the seabed deepens and near-shore wave energy increases. Adjacent beaches can become unstable as a result. Drifting sediment through seagrass bed erosion can also cause serious management problems to surrounding habitats and coastal developments

Rate of seagrass loss 1950 -1995 Largs Bay to Glenelg



SEAGRASS LOSS

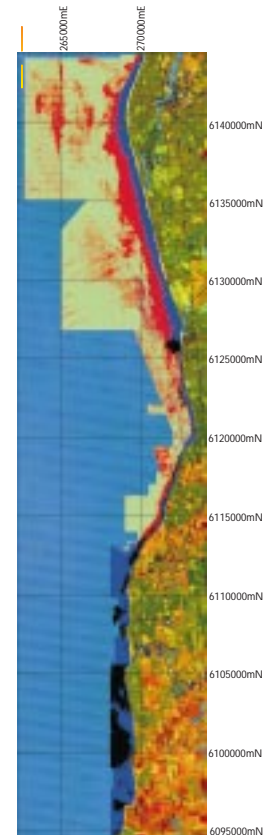
1949 - 1996

Largs Bay to Aldinga Beach

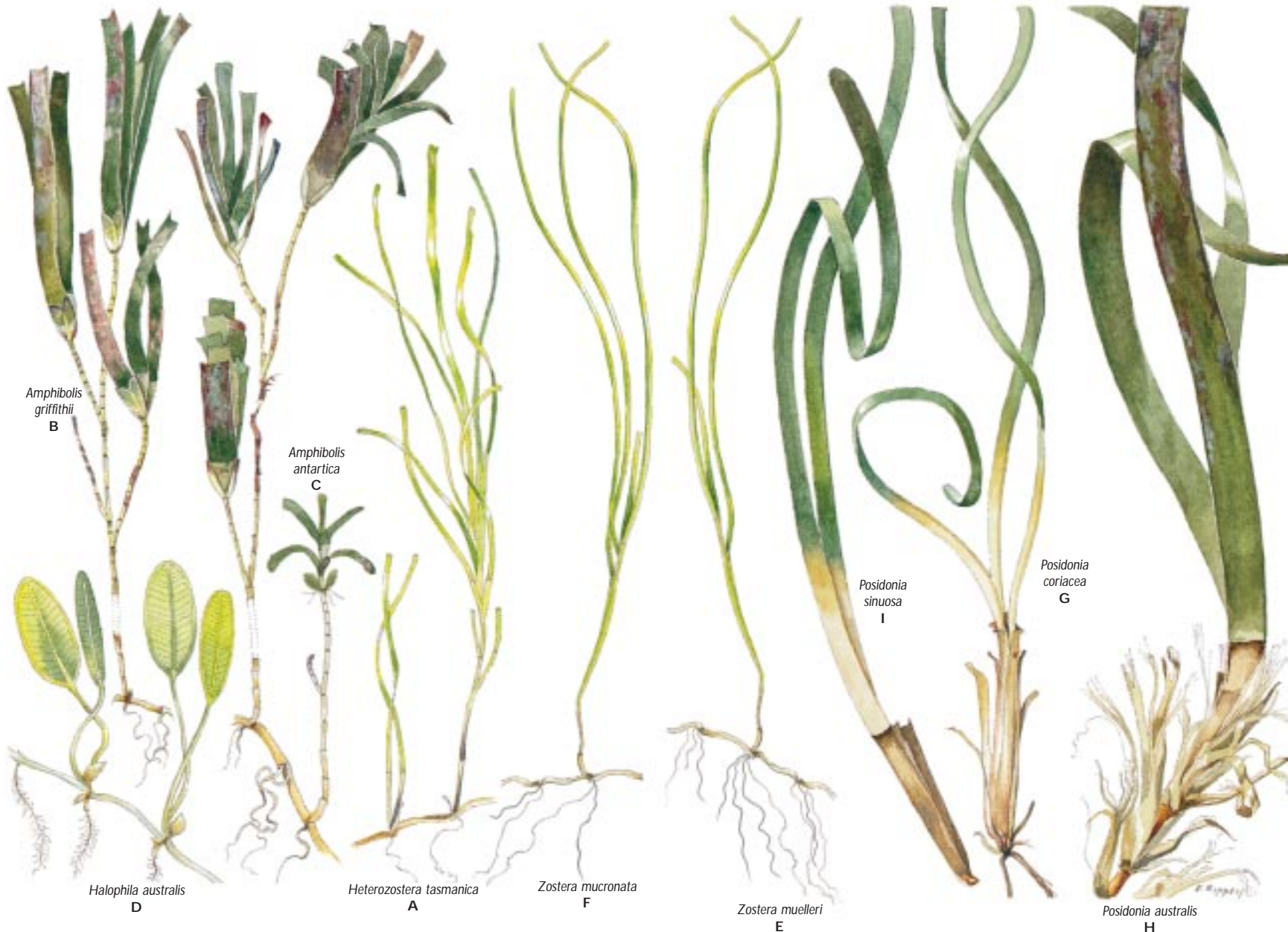
LEGEND

- Sand
- Seagrass
- Seagrass loss
- Ocean
- Rock
- Land

Kilometers
0 5 10



Common Seagrass species of South Australia



A SIMPLE KEY TO SELECTED AUSTRALIAN SEAGRASSES

1. Plants have a woody stem.....2.
Plants without a woody stem.....4.
2. Erect stem thin < 1mm diameter.
Leaves narrow and long 5-25cm.....A

Erect stem thin > 1mm diameter with many
branches bearing terminal leaf clusters.
Leaf blade flat.....3.
3. Leaf sheath margins overlapping completely...B

leaf sheath margins overlapping in
lower half only.....C
4. Plants small (40cm) with oval leaves forming
in pairs. Leaf blade slightly narrowed towards
the base.....D

Plants not of this form.....5.
5. Plants with string (linear) like leaves rising
from a short vegetative shoot.
Roots unbranched.....6.

Plants with strap like leaves.
Roots branched.....5
6. Transverse section of internode showing
4-12 vascular bundles.....A

Transverse section showing only
2 vascular bundles.....7.
7. Leaf apex rounded or deeply notched.
Roots two to several at each node.....E

Leaf apex more or less tridentate
Roots two only at each node.....F
8. Plants with thin flexible leaves.....9.

Plants with thick stiff leaves with
large leaf bases.....G
9. Plants with hairy leaf bases disintegrating
to fibres. Leaves 10-20mm wide.....H

Plants with smooth dark brown leaf bases.
Leaves 7-9mm wide.....I

CROSS SECTIONS OF LEAVES

