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Underwater meadows of seagrass form a conspicuous part of our marine coastal environments. These meadows, like those on land, are highly productive and support extensive food webs, as well as assisting coastal stability. Nine species are found around Rottnest.

A. *Heterozostera tasmanica*: Common in sand patches, older plants are characterised by their thin dark wiry stems. Younger plants may not have this stem, and are borne directly off the rhizome.

B. *Thalassodendron pachyrhizum*: This is an uncommon species which grows on rock and is usually found in deep water (8-25m). It has a thick stem, with only one or two sets of leaves on each stem. The leaves also have definite teeth.

C. *Amphibolis griffithii*: This is a common meadow-forming species, which has clusters of leaves, attached by a sheath to the stem. This species has an overlapping leaf sheath. The leaves are generally long (3-8cm) and there are 4-5 leaves per leaf cluster, with few branches.

D. *Amphibolis antarctica*: This species is also common, and frequently has lots of algae attached to the stem. The sheath is not overlapping. The leaves are 2-5cm long, in clusters of 10-14.

E. *Halophila ovalis* (Paddle weed): A small species (<10cm) it is widespread on the WA coast, and very common in sand patches on Rottnest.

F. *Syringodium isoetifolium*: A tropical species which reaches its southern limit at Garden Island. It is the only species on Rottnest with a leaf which is circular in cross-section. The leaves are up to 25cm long and ca. 1mm in diameter.

G. *Posidonia coriacea*: There are three species of *Posidonia* on Rottnest Island, but this is the only one with thick, leathery leaves. The leaves can be 0.5-1.0m long and are 4-8mm wide. The plants are usually found in small clumps, frequently 8-15m depth.

H. *Posidonia australis*: A common meadow forming species, which has a hairy appearance at its base, where old leaf bases have disintegrated to straw-coloured fibres. The leaves are 10-18mm wide and up to 1m long.

J. *Posidonia sinuosa*: The old leaf bases of this species are smooth and usually dark brown in colour. It also has narrower leaves (7-9mm) than *Posidonia australis*.

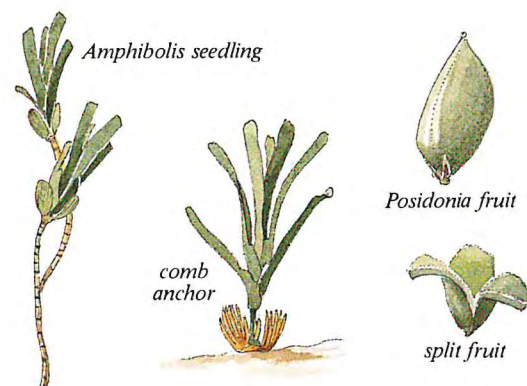


Figure 1
Seagrasses are descended from terrestrial plants which have reinvaded the sea, and as such have flowers which are pollinated underwater. These flowers give rise to seedlings in *Amphibolis* with small "comb-anchors" which are often found in the drift from May to July. In *Posidonia* the flowers give rise to large green fruits which are often stranded between November and January. When dried these may split.

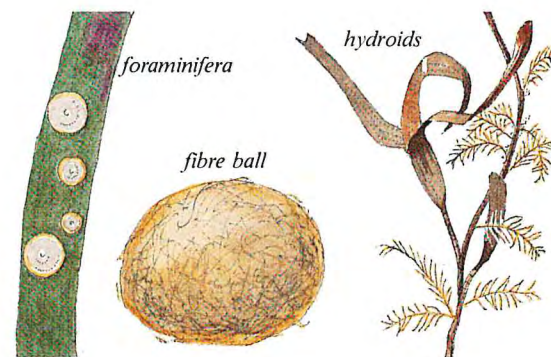


Figure 2
Seagrasses often carry extensive populations of algae (seaweeds) and animals. Examples of these include foraminifera (small discs of calcium carbonate, built up by a microscopic animal) and colonial animals such as hydroids (related to corals).

The fibres of *Posidonia australis* are very persistent. When subjected to wave action, they can form fibre balls which are commonly found in the drift.



Seagrasses are a valuable coastal resource – there are about 40 times more animals in seagrass than in adjacent "bare sand". Seagrasses are vulnerable to reductions in light e.g. from dredging, and also to physical damage which can take tens of years to recover as recolonisation rates are very slow.

Boat users should try to minimise damage to seagrasses by anchoring in bare sand, and by not using outboard motors in very shallow water over seagrasses. Improper sewage disposal can cause nutrient enrichment leading to stimulation of growth of algae which may smother seagrasses and cause their death.

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Rottnest Island Seagrasses



A SIMPLE KEY TO ROTTNEST ISLAND SEAGRASSES

1. Plants have a woody stem
Plants without a woody stem
2. Erect stem thin (1mm diam.), red, purplish,
black in colour. Leaves narrow (<3mm),
long (5-25cm)
Erect stem >1mm diam., pale in colour
3. Erect stem, 1-2 branches, roots black
when dried, leaves 7-15cm long, 7-10mm
wide with "teeth" on the margin
Erect stem with many branches
4. Leaf sheath overlapping
Leaf sheath not overlapping
5. Plants small (<10cm) with oval leaves on
short starchy 'stems'
Plants not of this form
6. Leaves circular in cross-section
Plants linear in cross-section with ribbon-
like leaves
7. Plants with thin flexible leaves
Plants with thick stiff leaves, with large leaf
bases
8. Leaves <3mm wide, 5-25cm long, attached to
straw coloured rhizome 1-2mm diameter.
Leaves carried on extensive under-ground
parts
9. Plants with 'hairy' leaf bases disintegrating
to fibres, leaves 10-18mm wide
Plants with smooth dark brown leaf bases,
leaves 7-9mm wide

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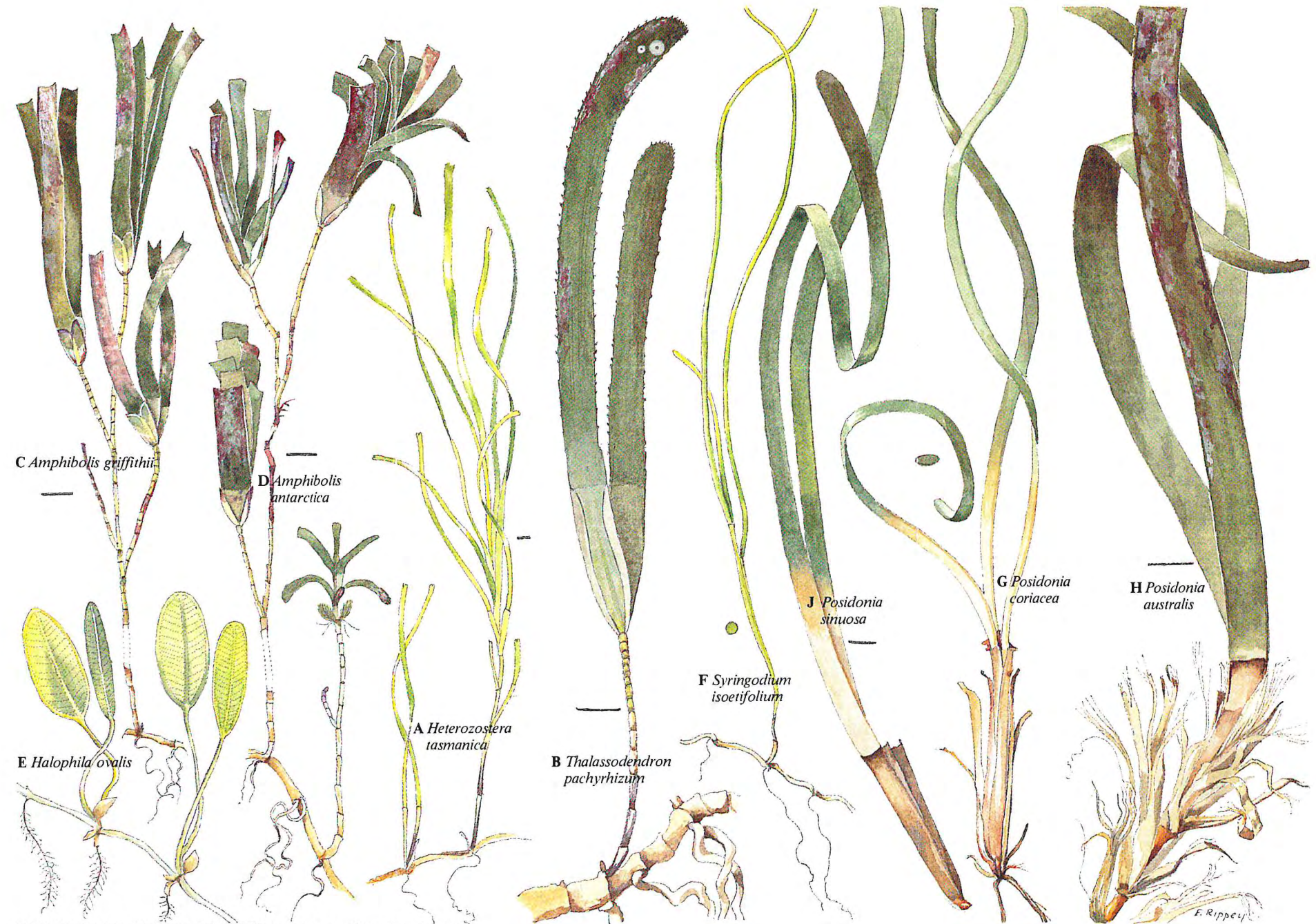
A
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B
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C

D

E
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J



ROTTNEST ISLAND SEAGRASSES and cross sections of their leaves.