MAJOR MARINE PLANT GROUPS (PHYLA)

"*Floaters*", (planktonic plants such as many of the diatoms) are *excluded* from this key.
Benthic plants are those that are *attached*, to rocks (*epilithic*), hard surfaces such as harbor facilities or fossil shells, or have runners buried in sediments. They can be attached to other plants (*epiphytic*), or to live animals (*epizootic*) such as corals, shellfish, worm tubes and sponges.

Scale: The 10 cent piece appearing in some images is 54 mm or almost 1 inch in diameter
Classification of major groups follows that of the Website <Algaebase>

1a. Plants grow in soft sediment (sand and mud). Leaves are green, often grass-like; true veins (vascular tissue) are present. Runners (rhizomes), growing through the sediment, produce roots. Flowers and fruit may be present. Figs 1-4 ..... **seagrass**
Phylum: Tracheophyta (vascular plants)
see also **"Seagrasses"**

1b. Plants are attached to hard surfaces. True veins, stems, leaves and roots are absent, although some plants have flattened, leaf-like parts varying in colour with mid-ribs resembling veins; and some have runners and branched attachment organs (holdfasts) resembling roots, but lacking vascular tissue ..... ***non-vascular groups*** (go to step 2)

Fig. 1: pressed specimen of Sea Nymph, *Amphibolis*, stems bearing stiff leaves, notched at the tips

Fig. 2: pressed specimen of Paddle weed, *Halophila*. Small, paddle-shaped thin leaves arise from a thin rhizome

3.

Fig. 3: broad-leaved Ribbon grass, *Posidonia*, and narrow-leaved Eel grass, *Heterozostera*, from 1 m deep, Encounter Bay, SA

Fig. 4: *Posidonia*, 20 m deep. The tufts of leaves are connected by a rhizome buried in the sand

2a. Plants pale green, blue-grey-green or black in colour, and form dry, rough, crusts on rocks just above high tide, some changing to yellow, rusty red or orange as they dry out in summer (Figs. 5-7)
..... **marine lichens**
Phylum: Fungi

2b. Plants of various colours, on rock in the intertidal or subtidal regions, or growing on other organisms ..... (go to step) 3
next page

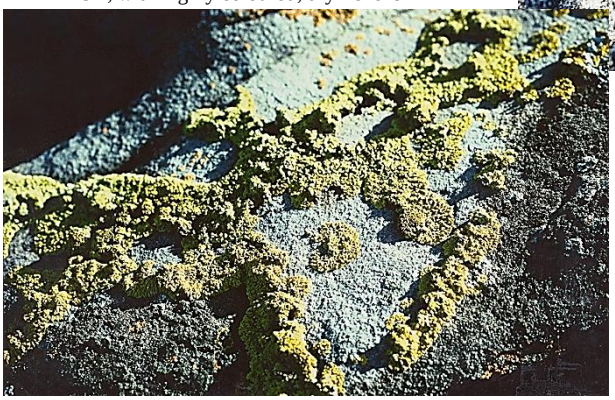

Fig. 5: (left) crystalline pegmatitic rocks Point Souttar, SA, with highly coloured, dry lichens

Fig. 6: (above) close-up of *Lichina intermedia* on limestone reef, grazed by blue-green snails, *Austrolittorina*

Fig. 7: (left) *Caloplaca* on limestone rocks, Troubridge Point., SA

3a. Plants grassy-green to dark leafy-green. Cells when viewed under the microscope are much larger than 1µm wide and contain nuclei and green plastids. …… (Figs 8-16) …….. **Green Algae**
Phylum: Chlorophyta
See also **"Green algae"**

3b. Plants dark olive-green, grey-green or blackish, form films or jelly-like blobs on rocks and other organisms, slippery when wet. When viewed under the microscope, colonies of tiny threads or groups of cells of bacterial size about 1µm wide that do ***not*** contain nuclei, set in jelly, can be seen. (Figs 17-21) ……. **Blue-green Algae/bacteria**
Phylum: Cyanobacteria
next page 3
See also **"Blue green algae"** on this Website

3c. Plants red, pink, light or dark brown, khaki or a yellowish colour. When viewed under the microscope, cells larger than about 1µm wide that contain nuclei and plastids of various colours can be seen ……... (go to step) 4

Fig. 8: green alga, *Caulerpa brownii*, amongst brown algae 2m deep at Cape Jervis, S.A.

Fig. 9: green, ball-shaped alga, *Codium pomoides*, Robe SA

Fig. 10: green, thin sea lettuce (*Ulva*), Port Adelaide River estuary, SA

Fig. 11: Velvet weed, *Codium muelleri*, Robe SA

Fig. 12: thread-like *Chaetomorpha indica*, Port Adelaide River estuary, SA

Fig. 13: mix of *Caulerpa* species at Robe, SA. Strings of glistening "droplets" of *C sedoides* (arrowed) and ropey *C. brownii* (foreground)

Fig. 14: thick, wavy discs of *Dictyosphaeria sericea* from Pt Willunga, SA.

Green Algae (continued)

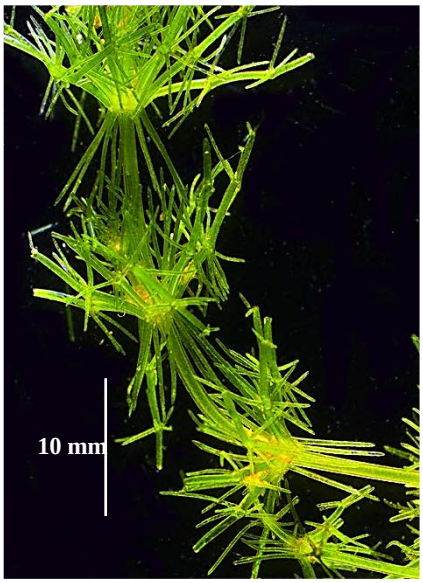

Fig. 15: fragile, small green alga (a charophyte, rough to the touch) of calm waters, *Lamprothamnion*

Fig. 16: small, palm-like green alga, *Acetabularia*, of calm waters, growing on shell fragments, Coorong, SA

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Insert: detail of the umbrella-shaped apical structure

BLUE-GREEN ALGAE

Fig. 17: blue-green alga, Ball-shaped *Rivularia firma*, on granite boulders, Victor Harbor, SA

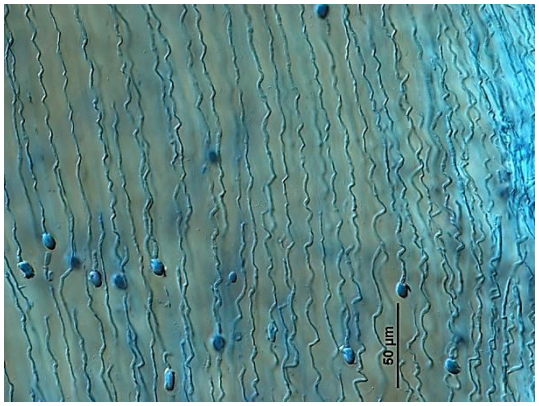
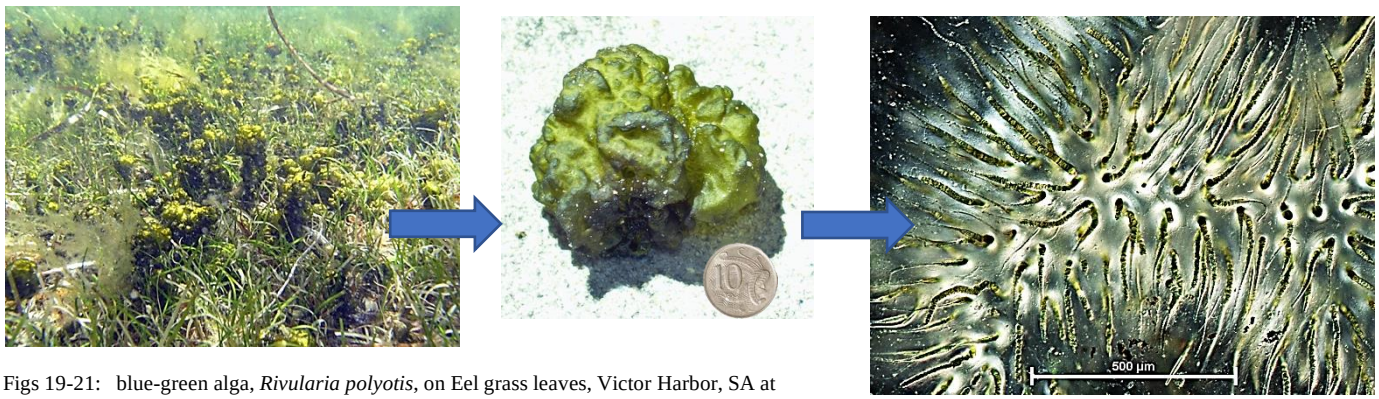


Fig. 18: blue-green alga, squash of a *Rivularia firma* colony under the microscope, stained blue, showing the minute threads of bacterial-sized cells in a jelly



Figs 19-21: blue-green alga, *Rivularia polyotis*, on Eel grass leaves, Victor Harbor, SA at increasing magnifications

4a. Plants often large and leathery, yellow or khaki or olive-brown or dark brown to almost black in colour, usually plentiful on rocks in shallow water and the lower part of the intertidal (Figs 22-27)
……. **Brown Algae**
Phylum: Ochrophyta
(formerly: Phaeophyta)
See also **"large brown algae, hollow brown algae, ribbon and strap like brown algae, wiry brown algae, wormlike brown algae, cystophora, sargassum, sphacelaria**"

4b. Plants delicate, membranous or leathery, or limy and stony (calcareous), red, red-brown, pink to purplish in colour, or bleached yellow in shallow water, growing on rock or other organisms, sometimes at depth (fig 28-31)
…… **Red Algae**
Phylum: Rhodophyta

EXAMPLES OF BROWN ALGAE

Fig.22: kelp, (*Ecklonia radiata* forest Pt Willunga SA, an example of **"large brown algae"** on this Website

Fig.23: pressed specimen of *Dictyota dichotoma* from Kangaroo I., SA an example of **"ribbon and strap-like brown algae"** on this Website

Fig.24: brown alga, bead-like *Hormosira banksia*, exposed at low tide, Pt Willunga reef, an example of "**hollow brown algae"** on this Website

Fig.25: *Perithalia caudata*, an example of "wiry brown algae" on this Website

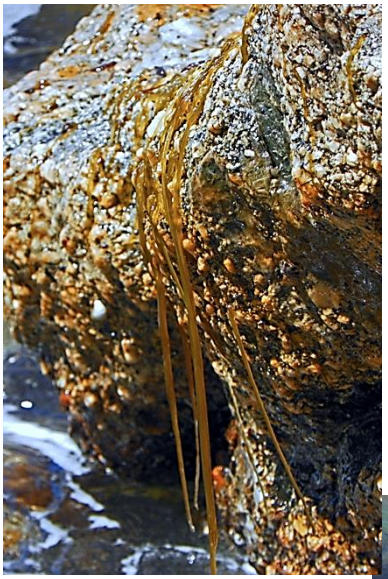


Fig.26: slimy, hollow *Scytosiphon lomentaria*, exposed between waves at The Bluff, Victor harbor SA, an example of worm like brown algae on this Website

Fig.27: *Lobophora variegata*, an example of "common and large brown algae" on this Website

Fig.28: cloud-like brown algae (*Hincksia sordida*) lying on larger brown algae (*Acrocarpia*) (with Giant Cuttlefish) Pt Lowly SA. An example found in "turf and fouling algae" on this Website

EXAMPLES OF BROWN ALGAE (continued)

Fig. 29: *Cystophora* in the upper sub-tidal of Port Willuga reef

Fig. 30: *Sargassum paradoxum* in the upper sub-tidal, Rapid Bay

EXAMPLES OF RED ALGAE

Fig 31: mix of red algae, one (*Melanthalia*) appearing yellowish underwater, reef edge, Pt Elliot, SA

Fig. 32: stony Red Alga, *Lithothamnion*

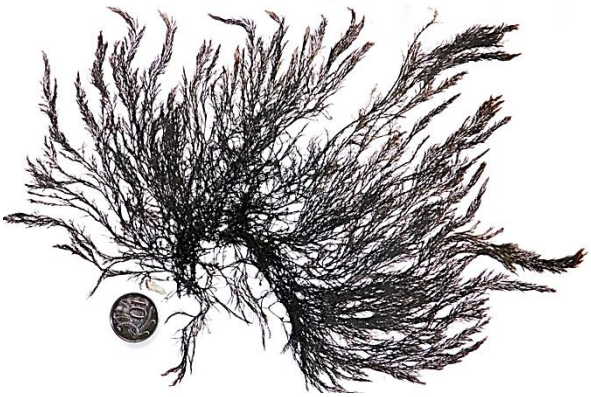


Fig. 33: pressed specimen of the red alga *Polysiphonia decipiens*, almost black in colour

Fig.34: Red Alga, (*Plocamium*) with adjacent large brown alga (*Cystophora moniliformis*) underwater, Cape Jervis, SA

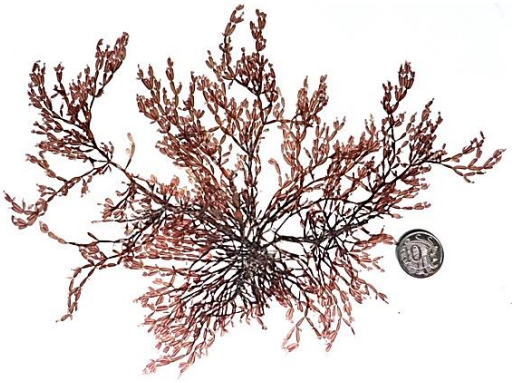


Fig. 35: pressed specimen of the red alga *Coeloclonium tasmanicum*, consisting of chains of red segments