

PICTURED KEY TO SOME COMMON GENERA OF LARGE AND PROMINENT BROWN ALGAE OF SOUTHERN AUSTRALIA, 2nd edition

For small and obscure algae, see **“Pictured key of Common Southern Australian Marine Plants: turf and fouling algae”**

Unmarked common names used come from Edgar, J. G. (2008) *Australian Marine Life. Second edition.* Sydney. New Holland, Names marked § are descriptive names of the author

The key looks first at species most easily encountered or recognised by their unusual shape

- 1a. plant body (thallus) of branched chains of tough, water-filled bladders; plant of the lower intertidal on rocky shores. Figs 1, 2. *Hormosira* (Neptune’s necklace)
- 1b. thallus not as above 2.
- 2a. plants hanging like slimy worms from rocks in the inter-tidal, unbranched, hollow. Figs 3, 4. *Scytosiphon* (Stringweed)
- 2b. not as above 3.
- 3a. plant body (thallus) ball-shaped in outline unless torn into a sheet, thin-walled; plants of the intertidal or shallow water 4.
- 3a. not as above; plants of shallow or deeper water 5.
- 4a. hollow, surface convoluted, and may be torn. Fig. 5. *Colpomenia* (Ballweeds, §Bubbleweed) see also Figs 70-74.
- 4b. hollow, but perforated by different sized holes to such an extent the thallus may appear lacy; plants cast up may be torn into flat sheets. Figs 6, 7. *Hydroclathrus clathratus* (Lace ballweed)



Fig. 1: *Hormosira*, calm water form



Fig. 3 (left): *Scytosiphon* hanging from rocks, Victor Harbor, SA
Fig. 4: (above): *Scytosiphon*: thin and fat forms of plants



Fig 5: *Colpomenia*

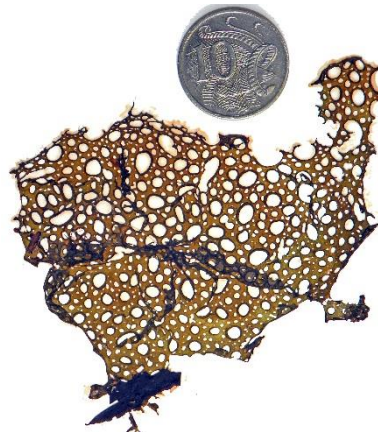


Fig. 6 (left): *Hydroclathrus* torn into a sheet
Fig. 7: (above): *Hydroclathrus* detail of variable perforations

- 5a. plants often in sand amongst seagrasses, pencil thin, **warty**, but often with wiry denuded bases. Figs 8, 9. *Scaberia* Brown Fingerweed §Scabby weed
- 5b. plants not warty, grow on rock or other plants 6.



Fig. 8 (right): *Scaberia* in sand, amongst seagrass
Fig. 9 (far right): *Scaberia* warty upper branches

- 6a. thallus large, 1-10 m long, with prominent attachment organ (holdfast), stalks (stipes) and strap-like, leafy blades, single or divided 7.
- 6b. thallus usually smaller, not as above 9.
- 7a. floats (vesicles) prominent 8.
- 7b. floats absent 13.



Fig. 10: *Macrocystis*, a diver about 15 m deep, amongst a "forest" of the alga



Fig. 11: *Macrocystis*, young plant with floats showing prominently

- 8a. floats \geq 25 mm long, blades usually strap-like 9.
- 8b. floats < 25 mm long, side branches thin 10.



Fig. 12: *Macrocystis*, toothed blades, some stalks denuded, but with basal floats remaining



Fig. 13: *Phyllospora*

- 9a. plants up to 10 m long, stalks long, cylindrical and rubbery, floats at the **base** of long, flat blades edged with tiny points (found in cold SE waters only). Figs 10-12.

..... *Macrocystis*
(Giant Kelp)

- 9b. plants up to 3 m long, floats at edges of axes, independent of blades or side branches 10.

- 10a. side branches **flat**, straplike, unbranched ... Figs 13, 14.

..... *Phyllospora*
(Crayweed)

- 10b. side branches thin, branched, clustered 11.



Figs 16, 17: (above & right): *Caulocystis*, two forms of floats



Fig. 14 (left): *Phyllospora*, floats and strap-like blades

- 11a. floats arise directly from the plant axis. Figs 15-17.

..... *Caulocystis*
(Narrow Grapeweed)

- 11b. floats scattered in or clustered at the base of bunches of small side branches 12.

- 12a. plants often with a zig-zag main branch (axis), floats without a small thread or leafy tip. Figs 18-22. (next page) As floats are not always present, this genus is also considered in the next step of the key *Cystophora* (in part)

Go to "Pictured Key to *Cystophora*"

- 12b. plants with leafy or fishbone flat bases; upper parts leafy **or** finely divided, reproductive, produced and shed annually, bearing floats that often have a thread or leafy tip. Figs 23-28. (next page). As floats are not always present, this genus is also considered in the next step of the key.

..... *Sargassum* (in part)

Go to "Pictured Key to *Sargassum*"





Fig. 18



Fig. 19



Fig. 20



Fig. 21



Fig. 22

Examples of *Cystophora* floats

- Fig. 18: *C. botryocystis*
- Fig. 19: *C. congesta*
- Fig. 20: *C. monilifera*
- Fig. 21: *C. polysystidea*
- Fig. 22: *C. platylobium*



Fig. 23



Fig. 25



Fig. 27



Fig. 24

Fig. 26



Fig. 28



Examples of *Sargassum* floats

- Fig. 23: *S. decurrens* whole plant
- Fig. 24: *S. decurrens* divided leafy base
- Fig. 25: *S. distichum* upper part
- Fig. 26: *S. distichum* basal "leaves"
- Fig. 27: *S. fallax* upper parts with floats
- Fig. 28: *S. fallax* lower leafy parts

- 13a. branches flat, strap-like, small and broad-bladed or of massive blades 15.
- 13a. side branches leafy, or thin and branched, short or clustered. 14.
- 14a. basal and upper *side branches* similar, usually thin. (See examples this page). Figs 29-42.

..... *Cystophora* (in part)

Go to "Pictured Key to *Cystophora*" but note anomalous *Sargassum decipiens* below and *Acrocarpia* spp and *Sirophysalis trinodis* below, also found in the *Cystophora* key under "*Cystophora* Look- alikes"

- 14b. basal *side parts* often different from upper parts: leafy or divided into fishbone flat parts, or larger. (see examples this page). Figs 43-51.

..... *Sargassum* (in part)

Go to "Pictured Key to *Sargassum*"

EXAMPLES OF *CYSTOPHORA* SPP LACKING FLOATS



Fig. 29 (above): *Cystophora brownii*
Fig. 30 (right): *C. pectinata*

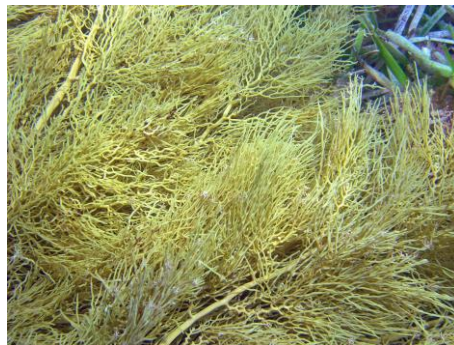


Fig. 32: *C. retorta*

Fig. 33: *C. moniliformis*



Fig. 31: *C. torulosa*

***CYSTOPHORA* LOOK ALIKES**



Fig. 34: *Sargassum decipiens*



Figs 35-37: *Acrocarpia paniculata* (Bushy Tangleweed) (left) whole plant; (centre) detail of fertile beaded tufts; (right) root-like holdfast

- Figs 38, 39: *Acrocarpia robusta* (Spiky Tangleweed) (right) whole plant (far right) radially branched short, thin ultimate branches



CYSTOPHORA LOOK ALIKES (continued)



Fig. 40: *Sirophysalis* (formerly *Cystoseira*) *trinodis*, whole plant



Fig. 41: *Sirophysalis* (formerly *Cystoseira*) *trinodis*, dried (slightly distorted) specimen); lower part of an axis (left) with characteristic stubs of denuded ultimate branches (ramuli), upper part of a plant (right) with narrow branched ramuli



Fig. 42: *Sirophysalis* (formerly *Cystoseira*) *trinodis*, unique floats, not always present

EXAMPLES OF SARGASSUM SPP LACKING FLOATS



Figs 43, 44: *Sargassum sonderi*, thick, flat, knobby main axis



Fig. 45: *S. fallax*

EXAMPLES OF SARGASSUM SPP LACKING FLOATS (continued)



Fig. 46: *S. paradoxum*



Fig. 47: *Sargassum paradoxum* amongst other algae in shallow water, only basal crinkled leaves present



Fig. 48:
S. heteromorphum



Fig. 49: *S. linearifolium*



Fig. 50: *S. tristichum*, lower leaves



Fig. 51: *S. verrucosum* mainly divided basal leaves, upper parts denuded

15a. thallus with a massive, trunk-like stalk and broad leathery blades often torn into broad strips by the high wave energy found at reef edges in cold SE waters only. Figs 52, 53.

..... *Durvillea*
(Bull Kelp)

15b. not as above 16.

16a. root-like attachment organ (holdfast), single trunk-like stipe, tough blade-like upper axis with opposite flat side blades from edges with rippled surfaces, prickly in some forms. Figs 54-57.

..... *Ecklonia radiata*
(Common Kelp)

16b. not as above 17.

17a. plants large, to 3 m long, thallus upper parts thick, leathery, strap-like 18.

17b. plants smaller, hollow, wiry, leafy, fan-shaped, or with thin, forked strap-like, fronds; fertile structures in surface spots 20.

18a. thallus forked evenly close to the plant base, strap-like upper blades toothed at edges. Figs 58, 59.

..... **Lessonia*
(Strapweed)

18b. thallus divided throughout the plant's length, blades with smooth edges 19.



Fig. 52 (left): *Durvillea* at low tide, fronds hanging from the reef edge

Fig. 53 (above): *Durvillea* seen underwater



Fig. 54 (above): *Ecklonia*, smooth fronds, short stalk



Fig. 55 (right): *Ecklonia*, prickly fronds, long stalk



*watch out for the pest introduced species *Undaria* similar superficially to *Ecklonia*, at present, restricted to Tasmania & Victoria

Fig. 56:

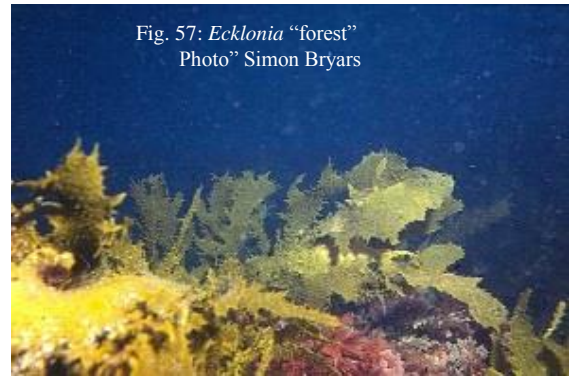


Fig. 57: *Ecklonia* "forest" Photo" Simon Bryars



Fig. 58 (left): *Lessonia*, pressed specimen, toothed upper blades

Fig. 59 (right): *Lessonia* plants exposed at low tide, Tasmania. Photo: F. Scott




19a. tiny, beaded fertile structures at edges of blades. Figs 60, 61.

..... *Seirococcus*
(Bristled Crayweed)

19b. larger, flat, beaked fertile structures at blade edges. Figs 62, 63.

..... *Scytothalia*
(Western Crayweed)

 Impossible to separate without fertile structures

20a. plants with small, **flat**, fan-shaped, or tooth-like ultimate branches or larger forked flat bladesFamily: Dictyotaceae

see examples in Figs 64-69.
Go to "Southern Australian genera of Dictyotaceae at a glance"

20b. plants hollow, balloon shaped. see examples in Figs 70-74.
Go to "Pictured key tohollow Brown algae shaped like bubbles, balloons or thin tubes"

20c. plants wiry. see examples in Figs 75-77.
Go to "Pictured key toalgae with wiry or stiff cylindrical main branches"

20d. plants ribbon and strap-like, thin. see examples in Figs 78-88.
Go to "Pictured key to ribbon and strap-like Brown algae"



Fig. 60: *Seirococcus*



Fig. 61: *Seirococcus*, minute fertile structures at blade edges



Fig. 62: *Scytothalia*



Fig. 63: *Scytothalia*, beaked fertile structures at blade edges

EXAMPLES OF THE FAMILY: DICTYOTACEAE



Fig. 64: *Dictyota*

Dictyota dichotoma L.
East side of Ballast H
upper sublittoral.
31/10/1947



Fig. 65: *Glossophora*



Fig. 66: *Lobophora*



Figs 67, 68:
Lobospira



Fig. 69: *Padina*

EXAMPLES OF HOLLOW BROWN ALGAE



Fig. 70 (above): *Colpomenia* (also at step #4 above)



Fig. 71 (right): *Splachnidium* amongst lozenges of Blue-green alga on granite in the wave-breaking zone of the lower intertidal



Fig. 72: *Asperococcus*, on a leaf of a seagrass



Fig. 73 (left): *Asperococcus bullosus*, on a stem of a seagrass



Fig. 74 (right): *Adenocystis fistulosus*, on a stem of a seagrass

EXAMPLES OF WIRY BROWN ALGAE

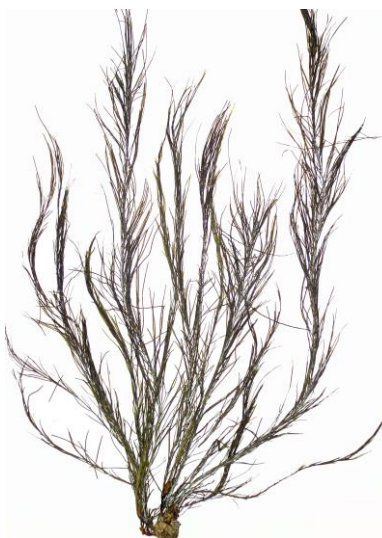


Fig. 75: *Perithalia*



Fig. 76: *Encyothalia*



Fig. 77: *Spoochnus*

EXAMPLES OF THIN RIBBON AND STRAP-LIKE BROWN ALGAE



Fig. 78: *Cutleria*, whole plant



Fig. 79: *Cutleria*, hairy tips



Fig. 80: *Carpoglossum*, spatulate tips



Fig. 81: *Carpoglossum*, whole plant



Fig. 82 (left): *Platythalia*, whole plant



Fig. 83 (above): *Platythalia*, base and detail of frond with serrated edges



Fig. 84 (above): *Myriodesma integrifolium*, fertile swellings



Fig. 85 (right): *Myriodesma integrifolium* whole plant



Fig. 86: *Myriodesma leptophyllum* whole plant

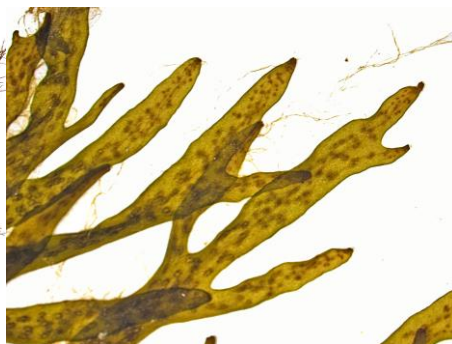


Fig. 87: *Myriodesma leptophyllum* tips with fertile patches



Fig. 88: *Myriodesma serrulatum*, serrated fronds