

5 Large brown algae: the fucoids

OVERVIEW

Fucoid algae are the dominant group of canopy species of brown algae on exposed to sheltered southern coasts. The life histories of several species of *Cystophora* and *Sargassum*, and *Xiphophora gladiata*, *Phyllospora comosa* and *Durvillaea potatorum*, are described. These species live for several years and have only one free-living generation. Fertilised eggs from sporophytes sink to the bottom and grow into the next generation of sporophytes. Fucoids mainly occur as mixed assemblages of many species, and these are described for specific sites from SW to SE Australia. The composition of fucoid species changes along an exposure gradient. In areas of strong water movement, *Acrocarpia paniculata* and *Scytothalia* are common and, in moderate to slight water movements, species of *Cystophora*, *Sargassum*, *Seirococcus*, *Caulocystis* and *Scaberia* tend to form a replacement series along a water movement gradient. In the cooler waters of SE Australia and Tasmania, *Durvillaea*, *Phyllospora* and *Xiphophora* are dominant in shallow water. The patch dynamics of fucoid assemblages are complex. In exposed conditions, disturbance from storms tears out plants and creates gaps, so making space for recruitment of many species. Disturbance declines with increasing shelter, and the colonisation of patches

becomes increasingly dominated by local factors, such as the extent of spore dispersal, topography and competition.

INTRODUCTION

The most abundant canopy-forming brown algae in southern Australia are the fucoids (Order Fucales), comprising > 60 species, mainly in the genera *Cystophora* (23 species), *Sargassum* (19 species), *Myriodesma* (seven species), *Acrocarpia* (two species), *Caulocystis* (two species), *Xiphophora* (two species) and one species in each of the genera *Carpoglossum*, *Seirococcus*, *Scytothalia*, *Phyllospora*, and *Scaberia*. *Xiphophora gladiata* is limited to colder Tasmania waters and *Phyllospora comosa* to southern New South Wales, SE of South Australia, Victoria and Tasmania. A related cold-water species, the bull-kelp *Durvillaea potatorum*, once placed in the Fucales, but now in a separate order Durvillaeales, is also included. On the southern coasts of Australia, these species variously dominate the majority of reef habitats from the low intertidal to 10–30 m depth (to > 50 m in the clearest ocean waters of the Great Australian Bight), and from sheltered to moderately exposed waters. Not surprisingly, the composition of fucoid-dominated species