



Multicellular Algae:

**The Seaweeds and
Marine Plants**



I. Multicellular Algae

- Marine Algae = seaweed = **macrophytes**
- Classified in either Plantae or Protista depending on who you talk to.
- Multicellular eukaryotic
- Pages 94-102 in Castro Huber Marine Biology Book

A. General Structure

Picture on page 94

- Complete body = **thallus**
- Leaf-like structures = **blades** (Have gas filled bladders called **pneumatocysts** to help float)
- Stem like = **stipe**
- Looks like roots = **holdfast** (just for holding on not nutrient absorption)

B. Types of Seaweed



1. Green Algae (Chlorophyta)

- freshwater or terrestrial with minimal marine species
- most unicellular, many microscopic, use chlorophyll
- can live as epiphytes on other seaweed
- some are endophytes (live within tissue)
- sea lettuce, dead man's fingers are examples



limu
palahalaha

Ulva
fasciata





Benjamin
Cummings



B. Types of Seaweed

2. **Brown Algae (Phaeophyta)**

- Have fucoxanthin for pigment
- 1500 known species, almost all marine
- most complex and largest
- Kelps are largest group
- Can grow up to 2 feet in one day!
- Have been recorded at over 330 feet long!

Pg 102 shows a kelp harvesting ship

B. Types of Seaweed

3. Red Algae (Rhodophyta)

- Phycobillians are the pigments
- most of the 4000 species are marine
- parasites of other seaweeds
- encrusting varieties grow on the surface of rocks or other algae
- articulated varieties branch and grow upward like many land plants usually referred to as “Coraline”

C. Economic Importance of Algae \$\$\$\$\$\$

- Phycocolloids (starch-like) help make gel
- Algin used in products as a thickener and emulsifier (dairy products, ice cream for smoothness, cakes and pies to keep from drying out).
- Carrageenan (Red Algae) = used as an emulsifier (instant puddings)
- Agar can form jellies (protect ham, fish, and meats during canning)
- Variety are used as fertilizers, food additives for animals, etc.

Aquatic Plants

Sea Grasses: Anthophyta

- A Flowering plant related to lilies
- Contain Chlorophyll
- Eelgrass, turtle grass and Manatee grasses common
- Inhabits shallow protected coastal areas
- Very productive and act as protection for many marine species like immature fish



Mangroves: Anthophyta

Trees that can tolerate salt water (very unusual)

Red mangrove found in tropical waters

Roots sit in saltwater at high tide

Chlorophyll major pigment

Leaves are thick for protection from water loss

Review

Type of Algae	Phylum	Pigment type Present	Examples (2-3)	Unusual characteristics (2-3)
Green				
Brown				
Red				
Sea Grass				
Mangrove				

Marine Biology Algae Color pages Directions: Describe the types of algae (labeled with a *) in 2-3 sentences on separate sheet of paper or the back of the color page.

Algal Habitats

- *Green Algae-Green
- *Golden Brown Algae- Gold or yellow
- *Brown Algae- Brown
- *Red Algae- Red

Seaweed Adaptations: Red and Green Algae

- *Sea Lettuce-Green
- *Cladophora-Purple
- *Sea Sac-Blue
- *Coralline Red Algae- Light Red
- *Pepper Dulce- Dark Red

Seaweed Adaptations: Brown Algae

- *Rockweed- Light Brown (blade only)
- *Oarweed-Orange (blade only)
- *Lessoniopsis- blue (blade only)
- *Feather Boa Kelp- Dark Brown (blade only)
- *Bull Kelp- Brownish-green (blade only)
- Holdfast- Black;Stipe- Yellow; Air Bladder-Gray