

MARINE  
ALGAE  
and  
SEAWEEEDS

# Definition

- Plant-like protists, many of which are single celled, that carry out photosynthesis

# Characteristics

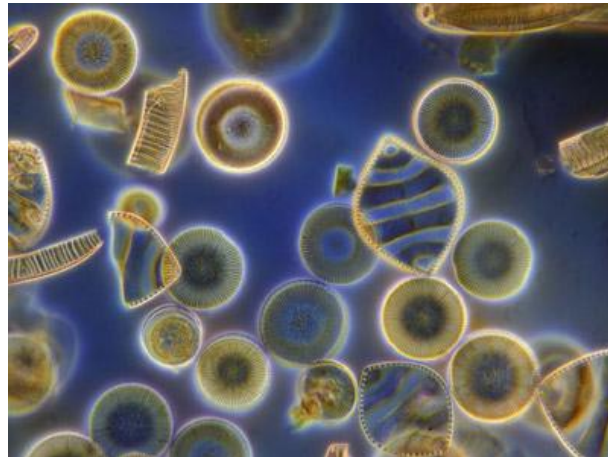
- All algae is classified into kingdom *Protista*
- Autotrophic/photosynthetic
- Possess chlorophyll
- Producer
- Non-vascular/no true roots, stems, leaves
- No xylem or phloem
- No organs or organ systems

# Phyla of Algae

- Algae are classified into six phyla, five of which are important in marine environment
  - *Chrysophyta*
  - *Pyrrophyta/Dinoflagellata*
  - *Chlorophyta*
  - *Phaeophyta*
  - *Rhodophyta*

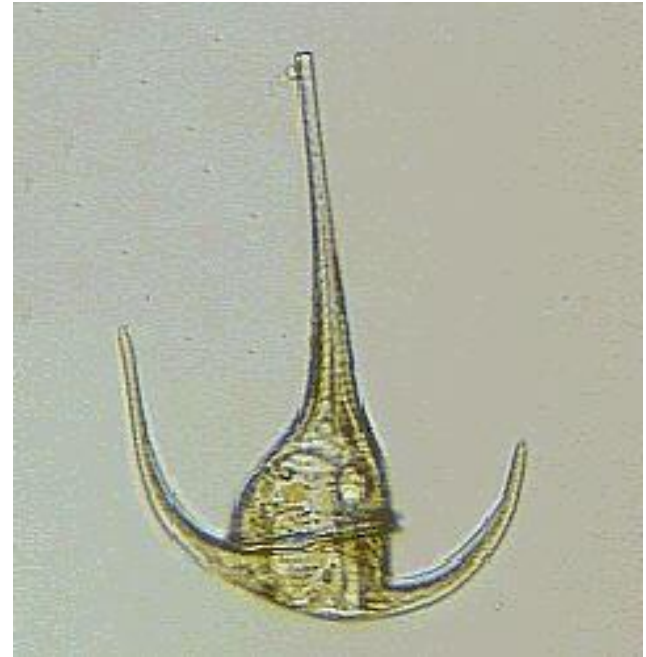
# *Chrysophyta*

- “Golden algae”
- Unicellular phytoplankton
- Diatoms
- Diatomaceous earth is used in pool filters, toothpaste, and scouring cleaners



# *Pyrrophyta/Dinoflagellata*

- “Fire algae”
- Unicellular phytoplankton
- Bioluminescent
- Some cause red tide



# Advantages of planktonic forms

- Phytoplankton can live in the top 200 meters of the whole ocean (Euphotic zone)
- Seaweeds (benthic forms) can live only in shallow water, close to shore
- One exception!!!!!!
  - *Sargassum* is the only seaweed that is planktonic, capable of living on deep ocean water

# *Chlorophyta*

- “Green algae”
- Multicellular/unicellular
- Many are benthic seaweed
- *Ulva* (sea lettuce) – favorite food of sea turtles
- *Halimeda* is a type of green algae that helps produce coral sands



***Ulva***



***Halimeda***

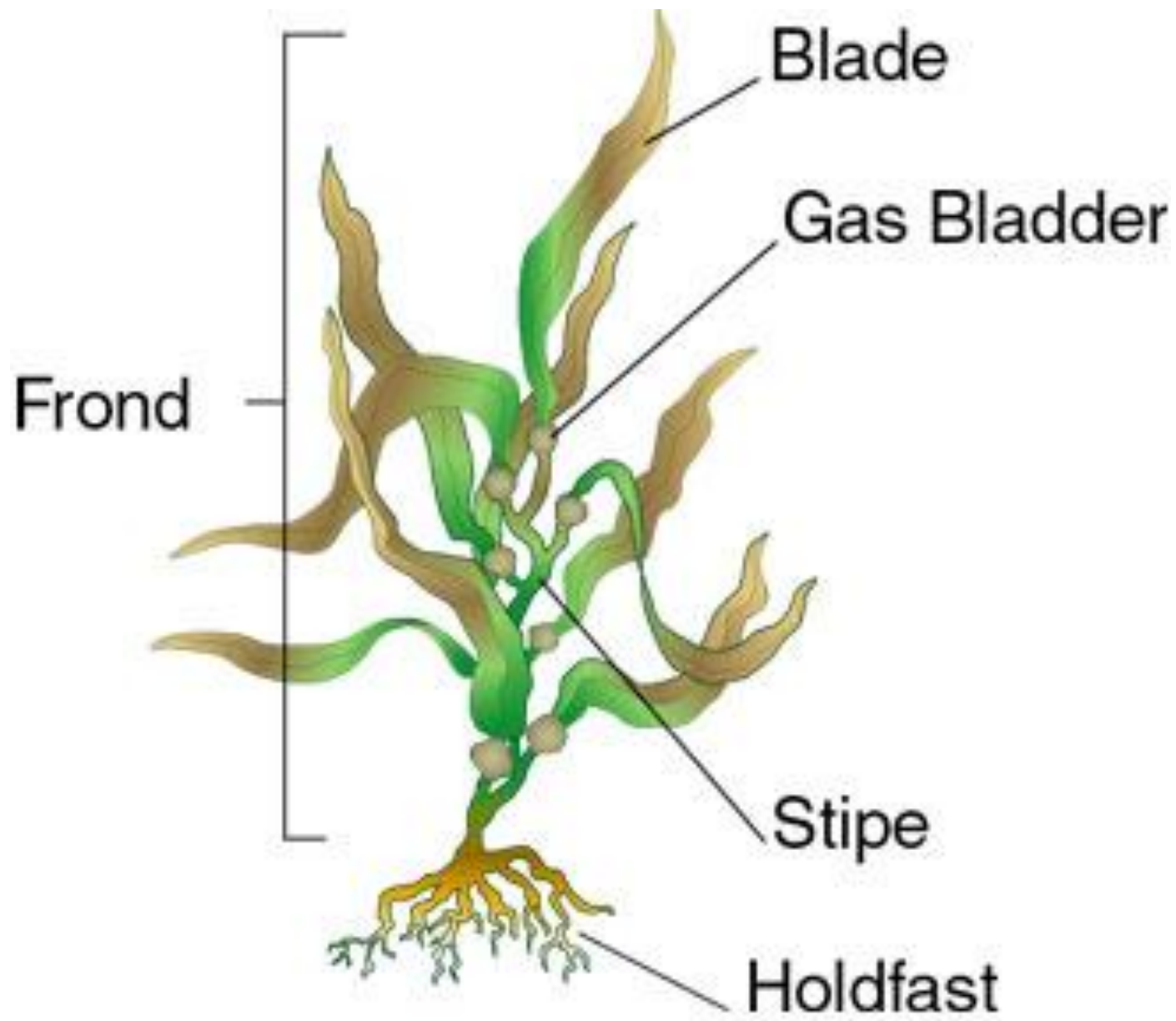
# *Phaeophyta*

- “Brown algae”
- Multicellular
- Benthic seaweed
- *Laminaria* (kelp) is found in “forests” on both coasts of North America
- Kelp forests are habitats to fish, sea urchins, sea otters, sea lions, Garibaldi fish, etc.

# *Phaeophyta*, continued

- Used as fertilizer and a source of methane gas
- Colloids derived from kelp are used as food thickeners for creamy salad dressings and chocolate milk and to make beer foamy
  - algin
  - alginate





# *Rhodophyta*

- “Red algae”
- Multicellular
- Benthic seaweed
- *Nori* is used to make sushi
- Dulse is “Nature’s chewing gum”
- *Corallina* helps build coral reefs
- *Chondus crispus* – Irish Moss

# *Rhodophyta*, continued

- Colloids extracted from red algae are used in foods, like ice cream and pudding
  - agar
  - carrageenan



**Dulse**



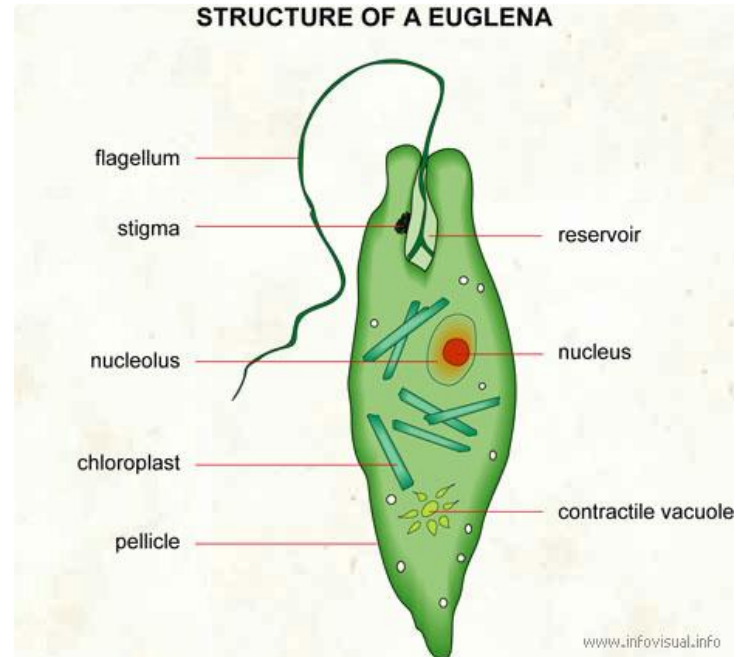
***Corallina***



***Chondus crispus***

# Other Phyla

- *Cyanobacteria* (used to be *Cyanophyta*)
  - no longer classified as an algae
  - some cause “swimmer’s itch”
- *Euglenophyta*
  - only fresh water forms
  - *Euglena*



# Three Phyla of Seaweeds

- *Chlorophyta* – *Green Algae*
- *Phaeophyta* - *Brown Algae*
- *Rhodophyta* – *Red Algae*

# Labels for Drawings

- Name
  - Scientific name, e.g. ***Ulva***
  - or***
  - Common name, e.g. Sea lettuce
- Habitat
  - e.g. sub-tidal or coral reef
- Phylum
  - ***Chlorophyta*** – ***Green Algae***
  - ***Phaeophyta*** - ***Brown Algae***
  - ***Rhodophyta*** – ***Red Algae***

