Lecture 3 – Algae (*Additional notes*)

Characteristics of Algae

- Only live in aquatic areas.
- Classified based on water they grow; its salt content, temp, quality, flagella content.
- Can be both autotrophic or heterotrophic.

Classifications of Algae

- **Chlorophyta:** Are green algae.
- **Phaeophyta:** Are brown algae.
- **Rhodophyta:** Are red algae.

Chlorophyta

- Found mostly in marine habitats; seawater, swamps, lakes and ponds.
- Single celled, prefer to form colonies.
- **Chlorophyll:**
  - The pigments within cells where photosynthesis occurs.
  - Reflect high-energy green light which gives them their green color.

Phaeophyta

- Multicellular.
- **Blades:** Help algae collect as much light from the surface.
- **Holdfasts:** Rootlike appendages which attach themselves to rocks.
- **Fucoxanthin:** Works together with chlorophyll to enable photosynthesis. Reflect brown light which gives the plant its brown color.

Rhodophyta

- **Phycoerythrin:** Pigments that reflect red light which give the plant its red color.
- **Filaments:** Long chains of single-celled algae.
- **Coralline algae:** Type of rhodophyta, important for coral reefs due to their ability to produce $CaCO_3$ which is a component of reefs.

Diatoms

- **Silica cell walls:** Cell walls are silica based, chemical properties including solubility electropositivity and brittility.
- Has more than 2 Million species.
- Release oxygen into the environment. (1/3 of Earth oxygen from diatoms) making them a vital component to any ecosystem whose organism need a source of oxygen.
- **Environment:** Artic/Marine ; tropical reefs, sea water, forests.

Dino flagellates

- Single-celled, **both** autotrophic & heterotrophic.
- **Heterotrophic dinoflagellates:** Hunt and eat other protists or protozoa.
- **Autotrophic dinoflagellates:** Use their chlorophyll for photosynthesis.
- Have two flagella to assist in motion.
- Some are **Bioluminescent**; living organisms that are able to produce light.
- If they receive large quantities of nutrients they may **bloom**, which may produce toxins that can kill thousands of fish and also infect those who eat them.
- **Bloom:** A rapid reproduction of microorganisms.