***AQUATIC LIFE:***

**Autotrophic** organisms **are an organism that is able to produce their own food. Autotrophic** organisms utilize solar or chemical energy to convert simple, non-living inorganic material into complex life molecules by photosynthesis or CHEMOSYNTHESIS.

**Heterotrophic** organisms

Heterotrophic Organisms are **incapable of photosynthesizing**.They are not able to synthesize cell components from carbon dioxide as sole carbon source. They utilize the organic substances produced by autotrophic organisms as energy sources and raw materials for the synthesis of their own biomass (ie., carbon sources).

***Eutrophication*:**

Eutrophication describes a condition of lakes or reservoirs involving excess algal growth. The nutrient‐rich body of water then produces a great deal of plant biomass by photosynthesis, along with a smaller amount of animal biomass. Dead biomass accumulates in the bottom of the lake, where it is decayed by the microbes, (recycling nutrient carbon dioxide, phosphorus, nitrogen, and potassium). When this decomposition takes place in an aerobic environment, a simplified representation of aerobic decomposition*.* If the level of dissolved oxygen falls below 5 ppm, then fish (particularly game fish) start to die (When the DO drops below a certain level, fish kills and an invasion and growth of certain types of weeds occurs. Energy is derived from the oxidation process.). If the concentration of dissolved oxygen continues to fall, then invertebrates and aerobic bacteria will be unable to survive. In the complete absence of dissolved oxygen, decomposition of organic matters will not be stopped but is taken over by anaerobic (non‐oxygen‐requiring) bacteria. If this stage is reached then water begins to smell unpleasant because of the unstable end products having disagreeable odours.

**Eutrophication reduces the quality of water**. The water then becomes cloudy, coloured a shade of green, yellow, brown, or red. **Eutrophication decreases the resource value of rivers, lakes,** and estuaries such that recreation, fishing, hunting, and aesthetic enjoyment are hindered. Presence of excessive organic matter pollutes the water and reduces quality of water.

If the lake is not too deep, bottom‐rooted plants begin to grow, accelerating the accumulation of solid material in the basin. Eventually a marsh (A tract of soft wet land, commonly covered partially or wholly with water; a fen; a swamp; a morass) is formed, which finally fills in to produce a meadow (Low land covered with coarse grass or rank herbage near rives and in marshy places by the sea) or forest. **Eutrophication is often a natural phenomenon; for instance, it is basically responsible for the formation of huge deposits of coal and peat.**

**Distribution of species diagram for CO2-HCO3-CO32-**.

