

Part I LHD [Zoology]

Fresh Water Ecosystem

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Or.

POND Ecosystem

The habitation provided by the small and shallow body of water covering an area of about less than an acre and having a depth of water from few inch to about 10 ft is called Pond Ecosystem. Pond ecosystem is continuously stirred entirely by wind. This causes uniform distribution of oxygen, carbon dioxide and temperature, and provides abundant vegetation, thousands of microorganisms, large plants and animals.

The fresh water pond as a whole represents a self-maintaining and self-regulating ecosystem.

Abiotic Components of Pond Ecosystem

These are non living components of the pond ecosystem and includes basic inorganic and organic compounds such as water, carbon dioxide and ~~include basic inorganic and organic compounds such as~~ oxygen, calcium, nitrogen and phosphorus and their compounds, amino acids and humic acid etc.

Only a small amount of these vital nutrients is found in solid state in the pond water, and large proportion is held in reserve solid form specially in the bottom sediments, as well as in the

organisms themselves.

[2] Biotic Components

1. Producers

These are of two types

Phytoplanktons

Aquatic plants

Phytoplanktons are minute floating plants such as algae, volvox, euglena etc. These remain distributed throughout the pond upto the depth which is penetrated by the light. These provides greenish colouration to the pond water, where present in abundance.

Plants growing in water are called aquatic plants. In case of pond these may be following types -

(a) Submerged - may be rooted to the bottom such as Vallisneria or rootless such as Utricularia and Ceratophyllum.

(b) Floating
- such as Chara, Oedogonium, Spirogyra etc.

(c) Emergent such as Typha, Ipomea etc.

(d) Surface floating plants

These are Pistia, Lemnaea, Wolffia and Eichornia.

2. Consumers.

Consumers feeding directly on the producers or remnants of producers are called primary consumers or herbivores.

Consumers feeding on herbivores are known as secondary consumers and large carnivores (fishes) are Tertiary consumers.

Macro-consumers feed directly upon living plants or plant remains, and are of the following types -

<1> Zooplanktons

These animals drift on the water surface through the agencies of water current and includes dinoflagellates, helizons and copepods.

<2> Nektors

These are free swimming aquatic animals which swim independent of waves and current action. Therefore, these possess definite locomotory organs. Ex. Insects and insect larval.

<11> Benthos

These are bottom-dwelling forms found crawling or attached to the bottom. These includes Molluscs and annelids.

⇒ The secondary consumers or carnivores and producer predeceous insects and tertiary consumers are gamefish.

<3> Saprophytic organisms

The fungi and saprophytic bacteria and flagellates are especially abundant in the mud water and bottoms of the ponds, where dead bodies of plants and animals are deposited.

These decomposes the dead bodies of the organisms and derived their nutrients. Decomposition is more rapid when temperature conditions are favourable.

Key: