

(iii) **Tertiary Consumers**:- These are some large fishes as game fish that feed on the smaller fish and thus act as tertiary or top Consumers.

C. **Decomposers**: The decomposers are the aquatic bacteria, flagellates and Fungi. They are distributed throughout the pond and decompose the animal and plants to simple form. Thus they play an animals important role in the returning mineral elements again to the pond.

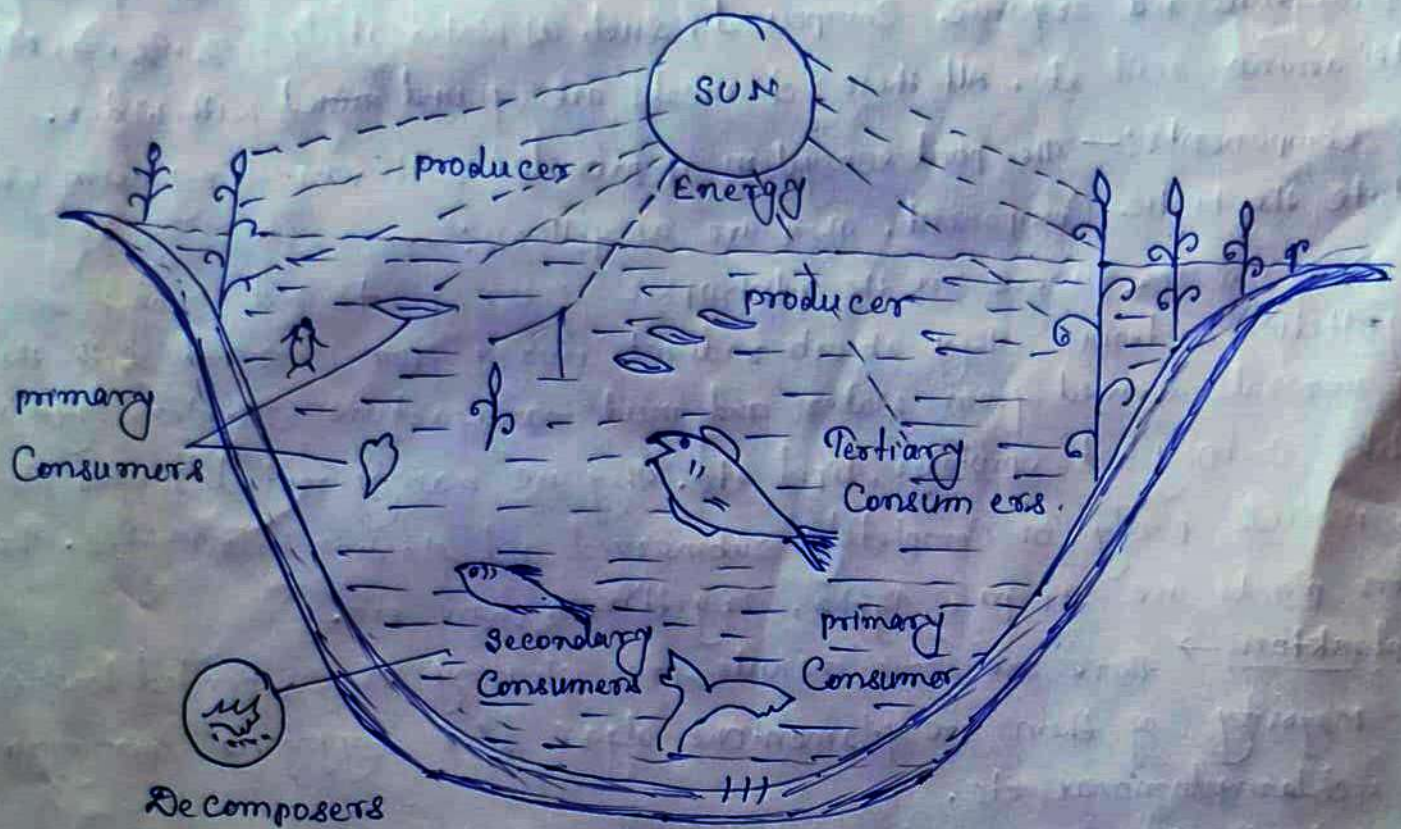


Fig - pond Ecosystem



Question:- Describe the structure and function of a pond ecosystem?

Ans → A pond as a whole serves a good example of fresh water ecosystem. It is a self sufficient, self regulating and very complex ecosystem. Here the plants and animals live together. There is a great variation in the shape and size of plants and animals. Thus pond represents a complete ecosystem. The components of this ecosystem are as follows:-

(1) Abiotic Components:- The chief components are heat, light, pH value of water, basic inorganic and organic compounds, such as water itself, CO_2 , O_2 , Ca, N, phosphate amino acid etc. All these chemicals are found mixed with water.

(ii) Biotic Components:- The pond ecosystem is provided with various organisms which constitute the biotic component. They are as follows:-

A. Producer → The producers are the autotrophic green plants and some photosynthetic bacteria. They absorb radiant energy from sun and with the help of minerals derived from water and mud manufacture complex organic food like carbohydrate, protein, lipid etc. They are mainly rooted larger plants which include partly or completely submerged and floating hydrophytes. The common plants are *Potamogeton*, *Typha*, *Sagittaria*, *Chara* etc.

B. Phytoplankton → There are some minute free floating or suspended lower plants, majority of them are filamentous algae like *Zygnema*, *Spirogyra*, *Volvox*, *Chlamydomonas* etc.

(b) Macrophytes:- They are mainly rooted larger plants which include partly or completely submerged and floating hydrophytes. The common plants are *Vallisneria*, *Marsilea*, *Azolla*, *Wolffia* etc.

C. Consumers:- The consumers are the heterotrophs which depend for their food on the organic compounds formed by the producers and green plants. They are of the following types:-

(1) Primary Consumers or Herbivores:- They are also known as macro consumers. They are all herbivores feeding directly on green plants. The primary consumers are further differentiated into:- *Benthos*, *Zooplankton*, *Nekton*

(ii) Secondary Consumers:- They are the carnivores. They feed on primary consumers. They are chiefly insects, fishes and frogs.

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Question → What is Ecosystem? Describe its characteristic features of Ecosystem?

Ans → The term "ecosystem" (eco = environment, system = inter-related species) was first proposed by British ecologist A.G. Tansley (1935) who defined it as "the system resulting from the integration of all the living and non living factors of the environment. Thus, he regarded the ecosystem including not only the organism complex but also the whole complex of physical factors forming the environment. According to E.P. Odum, "The ecosystem is the basic fundamental unit of ecology of both the organism and their non living environment each influencing the properties of the other and each is necessary for the maintenance of life". According to S. Madhawan, "Ecosystem is the sum total of living organism, environment and the processes of interactions between the various units of the system."

It may be concluded from the above definition that ecosystem is the relationship of organism and their environment where they live. Both the organisms and environment effect each other in various way and there is always an exchange of materials between them.

characteristic features → The principal characteristic feature have them described by Smith (1966). According to them.

- (i) The ecosystem is a major structural and functional unit of ecology.
- (ii) The structure of ecosystem is related to its species diversity.
- (iii) The function of an ecosystem is related to energy flow and mineral cycling through and within the system.
- (iv) The relative amount of energy needed to maintain an ecosystem depends on its structure.
- (v) The ecosystem passes from less complex to more complex.
- (vi) The change in environment leads the change in the community of organism.

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