

Preface

Freshwater fish are those that spend some or all of their lives in fresh water, such as rivers and lakes, with a salinity of less than 1.05%. These environments differ from marine conditions in many ways, the most obvious being the difference in levels of salinity. To survive fresh water, the fish need a range of physiological adaptations.

Freshwater fisheries are the most heavily exploited aquatic resources, producing about a quarter of the world's food fish from less than 0.01 per cent of the world's water resources.

The majority of freshwater fish ponds in the Indian subcontinent are the dugout ponds of an undrainable nature which at times lack proper embankments. During the course of culture operations, such ponds receive huge amounts of feed, fertilizers and manures as critical inputs and sediment particles carried down by rain water from the catchment area.

A portion of the organic production in the pond also undergoes death and decay and gradually adds to the pond bottom sediment. Thus, with the advancement of time, a thick sediment layer is formed reducing the depth of the pond. They are quite rich in organic and inorganic nutrients, but due to slow bacterial action under prevailing anaerobic conditions the nutrients are almost locked up in the sediment and are not available for primary production. Further, the anaerobic decomposition of the organic matter accumulated in the sediment releases harmful gases and depletes dissolved oxygen level in the water. Thus, it becomes necessary to renovate the existing ponds periodically every 4-6 years by removing sediment from the pond bottom, redressing and repairing the dykes, etc., in order to make the ponds more suitable and to regain their fertility. For this, the following practical measures are recommended.

Species of fish and shellfish harvested from inshore waters that are subject to contamination by human or terrestrial animal feces, and by other industrial/agricultural pollutants, may contain bacteria and viruses

that are pathogenic for humans. This is especially true for filter feeders that concentrate bacteria and viruses present in polluted waters, and oysters harvested from growing waters contaminated with human sewage have been associated with many outbreaks of enteric disease.

There are many types of fish and hence there are many types of fish culture. Fish culture in a natural or artificial pond is a human interaction with an aqua-eco- system and hence requires a system's approach. The fish culture system involves interaction between soil, water, air, light, heat, plants, animals including the fishes that are reared and the human beings that manage the fish pond. Feeding, breeding, disease control, etc., are part of the management of the fish culture.

There are as many systems of fish culture as there are different species of fish. Each fish requires a specific environmental condition which is the result of an interaction between various components that constitute the aquatic-eco-system. These different systems evolve under the variations in the climate, temperature, light and chemical nature of the soil and water. Thus one can have fresh water fish culture, cold water fish culture and saline water fish culture, etc. Again depending on the type of fish one can have carp culture, prawn culture, shrimp culture, salmon culture, tilapia culture, catfish culture, luts culture, air breathing fishes culture, eel culture, etc.

This is a reference book. All the matter is just compiled and edited in nature, taken from the various sources which are in public domain.

The fish farmers and fish & fisheries students too can benefit from this book.

—Editor