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## RESEARCH REPORTS

Sustainable Aquaculture for a Secure future

**Title:** Biological Principles Of Pond Culture: Phytoplankton And Macrophytes

**Author(s):** C. Kwei Lin  
Aquaculture & Aquatic Res Mgnt  
Asian Institute of Technology  
PO Box 4 Klong Luang  
Pathumthani 12120  
Thailand

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**Abstract:** Freshwater fish culture has a long history, but an enormous expansion has taken place during the last few decades. The fishes most commonly used in pond culture in warm climates are various herbivorous species, such as carp (grass carp - *Ctenopharyngodon idellus*, silver carp - *Hypophthalmichthys molitrix*, bighead carp - *Aristichthys nobilis*, and mud carp - *Cirrhina molitorella*), species of *Tilapia* and grey mullet (*Mugil cephalus*). The important species in tropical fish ponds are herbivores, plankton feeders, or omnivores that can thrive on detritus material. Generally, a mixture of two or more species having different feeding habits and stocked in the same pond result in greater gross yields. Although some freshwater fishfarming is carried out in cold temperate climates in Europe and North America, those high-yield intensive cultures (catfish, trout, etc.) require expensive fishmeal. The acute need for animal protein in many underdeveloped tropical countries has turned them to supplies from pond cultured fish. In the tropics, the potential growth rates of fishes under the warmer conditions and extended active, growing season provide the most productive fish culture systems (Hickling 1968; Horn and Pillay 1962; Chen 1976). Fish farming in ponds has a long history of empirical development and "greenthumb" expertise, but the scientific investigation and documentation fall relatively short.

This abstract is excerpted from the original paper, which was in: J.E. Lannan, R.O. Smitherman, and G. Tchobanoglous (Editors), *Principles and Practices of Pond Aquaculture: A State of the Art Review*. Oregon State University Press, Corvallis, Oregon, pp. 39-43.

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