

Introduction to Aquaculture Engineering

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Basics of aqua farm

- Aquaculture engineering can simply be defined as the application of engineering principles to the production of food and fiber from aquatic environment.
- Two means by which we may meet the world's future food needs are 1) greater production of traditional agronomic crops; and (2) aquaculture.

- The first pond for aquaculture was constructed more than 2000 ago.
- Aquaculture is the production, processing and marketing of biological organisms from Aquatic systems, whereas
- Aquaculture Engineering is the application of Engineering principles and procedures to fisheries and to the culture of Aquatic organisms.

- A wide range of engineering technologies now find application in aquaculture. Engineering techniques employed in aquaculture are drawn from the traditional engineering disciplines of Agriculture, Civil, Chemical, Mechanical, Electrical and Electronics engineering, among others.
- The Indian Institute of Technology (IIT) Kharagpur in India introduced a Post Graduate (M.Tech) course in Aquaculture Engineering during the year 1984, a first of its kind in Asia.

Role of aquaculture engineering

- The Aquaculture Engineering is growing very fast. Following are the areas of interest to modernize and improve aquaculture for augmenting its production effectively.
- 1. Selection of an ideal site for establishment of aqua farms, hatchery, feed mill and processing centers.
- 2. Layout plan, Design and construction of aquaculture farm, preparation of master plan for large scale aquaculture complex, aquaculture estate and satellite farming etc.

- 3. Design and construction exchange structures of water intake systems such as seawater intake system in different coastal regions, intake of tidal water system, freshwater intake system from major multipurpose project, barrages, canals sluice gates, proper drainage systems and other perennial water source system.
- 4. Construction and maintenance of proper infrastructure for effective implementation of Aquaculture projects.
- 5. Selection and design of major equipments for aquaculture such as high discharge pumps, aerators, feeders, feed plant, effluent treatment plant and other mechanical and electrical equipments.