

Coastal aqua farms

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Brackish water fish farm

- **Classification of ponds**

Ponds are classified into various types based on number of parameters. Based on source and construction, these ponds are classified into following types.

- Tide fed farms
- Pump fed farms
- Tide-cum pump fed farms

- **Tide fed aquafarms** are best suited for traditional extensive system.
- Tide fed farms are suitable at the places where mean spring tide range is in between 1.3 to 2 m with maximum and minimum spring tide ranges around 1-2.5 m respectively; provided the ground levels are around the mean sea level.
- Invariably tide fed aqua farms require only one water channel which is generally called as “Feeder cum drainage channel”.
- These farms require a main sluice gate which controls the flow of water into the feeder channel as well as all the ponds.

- The main sluice gate which controls the flow of water into the feeder channel as well as to all the ponds.
- The main sluice gate also prevents the farm from flooding during heavy floods.
- Tide fed farms are not suitable for semi-intensive and intensive culture system as it is very difficult to maintain the quality of water due to inadequate water exchange sudden de-watering of the pond is not possible as there is no separate drainage system.

Following are the some of the major disadvantages of the tide fed aqua farms.

- Water quality management poses a problem since entire water intake process is mainly based on tidal influence. It may also be difficult to maintain the designated water level in the ponds.
- Cost of construction of dykes, ponds and channels etc. will be higher as design of these elements mainly depends upon the tidal levels.
- Since individual pond dewatering is very difficult, efficient harvesting is not possible in tide-fed farms.

- Control of predators in tide fed farm is difficult.
- Pond preparation is difficult as tidal water seeps through the dykes and sluices due to tidal thrust.

- **Pump fed aqua farms** is best suited for semi-intensive and intensive culture system.
- Pump fed farms will generally have a separate water channel and drainage channel.
- Pump fed farms also require storage cum sedimentation tank and an efficient pumping unit.
- At the places where mean spring tide range is too small (<0.8m) or too big >2m) pump fed farms prove economical and advantageous

- Water storage cum sedimentation tank is to be constructed to store the water. The capacity of this storage tank should be such that it should supply the water to all the ponds at least for 2-3 days at the desired rate of water exchange in case of failure of electricity.
- Pump fed farms do not require a big main sluice gate to supply the water. In these farms big embankments and ponds can be avoided.

- **Tide cum pump fed farms**
- The places where free tidal water is available only during some months period tide cum pump fed farms are suitable.
- In such farms for some months one has to depend upon the pumps to lift the water from the creeks.
- A site having mean spring tide range between 0.8 m to 1.3 m with ground levels at about low spring tide levels is suitable for such farms.
- These farms would require to be supplemented by pumping of water during certain months when spring tide range is smaller and exchange of water is not possible for several weeks at a stretch.

- This would also require main sluice gate and individual pond sluice like in the case of tide fed farms. But in addition pumping unit is required for supplying the water during the shortage of water.
- Comparison:- Tide fed farms proves expensive on investment but economical in operation. Pump fed farms prove economical on investment but expensive in operation. The tide cum pump fed farms proves expensive on whole because of heavy investment and operation.

- **Site selection for Brackish water fish farms**

The following are the important points to be considered for selecting a site for brackish water fish farming

- Topography and Tidal amplitude
- Availability of active tidal creek resources
- Existence and density of mangrove vegetation
- High flood levels
- Range of tidal variations
- Type of soil and its quality
- Water sources

- **Topography and Tidal amplitude**
- The best area for fish ponds/shrimp ponds is where the ground is levelled (flat) or where there is a slight slope. The optimum slope is between 0.5 to 1.0%. The ground slope shouldn't be more than 2%, as it needs construction of high and costly embankments.
- At the places where tidal fluctuations (daily fluctuations) are too high (say 4 m and above) would be problematic because very big and costly dikes would be required to prevent flooding during the high tide.

- Areas where tidal fluctuations are too small (say 1 m or less) would pose serious problems because filling and draining of the pond cannot be fully executed.
- In general, the sites where tidal fluctuations are moderate (say between 2 m and 3 m) are most suitable for proper management. Ideal tidal amplitude for extensive and semi-intensive culture is 1.5 meter.