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Biofloc Fish Farming

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Introduction

Fish is one of the important sources of protein and other nutrient for humans and its consumption is growing at a rate of about 1.6% per year. Fish is also one of the cheapest sources of protein for most of the people around the world. Aquaculture meets near about 2/3rd requirement of fish consumed by humans. To keep up with this growing demand it is necessary to increase the production. The only way to keep up the with this increasing demand of fish is intensification of aquaculture. Biofloc Fish Farming is one such way by which we can boost up the aquaculture. In this type of farming technique huge number of fishes are cultivated in a small tank along with bacteria. It is a type of high-density fish farming. Biofloc Technology was first developed around 1970s at Ifremer-COP (French Research Institute for Exploitation of the Sea, Oceanic Centre of Pacific)with *Penaeus monodon*, *Fenneropenaeusmerguiensis*, *Litopenaeusvannamei* and *L. stylirostris*. Later around 1980-90s Israel and USA (Waddell MaricultureCenter) started their R&D with Tilapia and *L. vannamei*.

Need of biofloc fish farming

In this method of aquaculture, we can grow more fish in a small place that too at higher growth rate as compared to other traditional methods of aquaculture. It is a cost-effective method as it needs less land, water and feed as compared to traditional methods of fish farming. The main concept of Biofloc Fish Farming is Less

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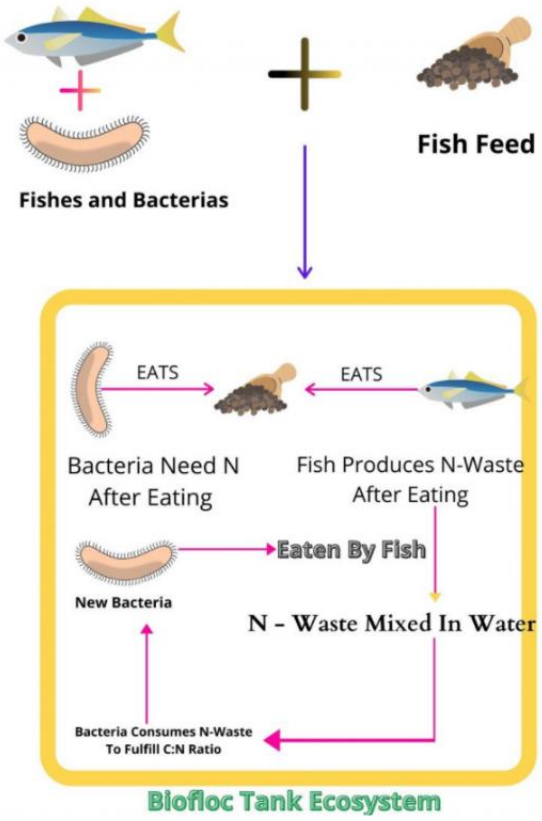
Investment, Less Land and More Profit. In this method we can grow fish in indoors also, we can also do in cities also as it requires very less space to establish a tank. The tank can of various sizes according to the need and capacity of water, fishes are grown in these tanks at a high density. We can establish a Biofloc anytime anywhere it doesn't have any cooldown time as compared to the traditional techniques. We can harvest fish twice in a year by using this method.

How it differs from traditional fish farming

Biofloc fish farming is mainly done in tarpaulin tanks with an outer metal frame supporting it and it lasts about 6 to 7 years. Now days few people are also doing Biofloc in cemented tanks, but some precautions must be taken while using those cemented tanks. Calcium Hydroxide is mixed with cement so that it sticks with the bricks properly. This calcium Hydroxide increases the pH in water which leads to stress to fishes and this problem can only be solved if we dry run the tank for 2 to 3 months. One outlet is made at the base of the tank which is used for removing excess water and also used while harvesting the fishes. Air pump must also be there inside the tank as in Biofloc farming system fishes are cultured in higher density so oxygen demands are met artificially with the help of these pumps, if pump is not provided all the fishes will be dead within 4 to 5 hours. Lastly the main ingredient which differs the Biofloc fish farming is the floc of heterotrophic bacteria. These flocs feeds on the excreta of the fish as well as the leftover feed in the tank thus keeping the Ammonia content in check. These flocs transform few wastes into small blocks of protein cell which are then eaten by the fishes again thus reducing the production cost. These flocs can be brought in the market at a rate of 240 rs/kg.



Major Fishes reared in Biofloc system: -

- Pangasius

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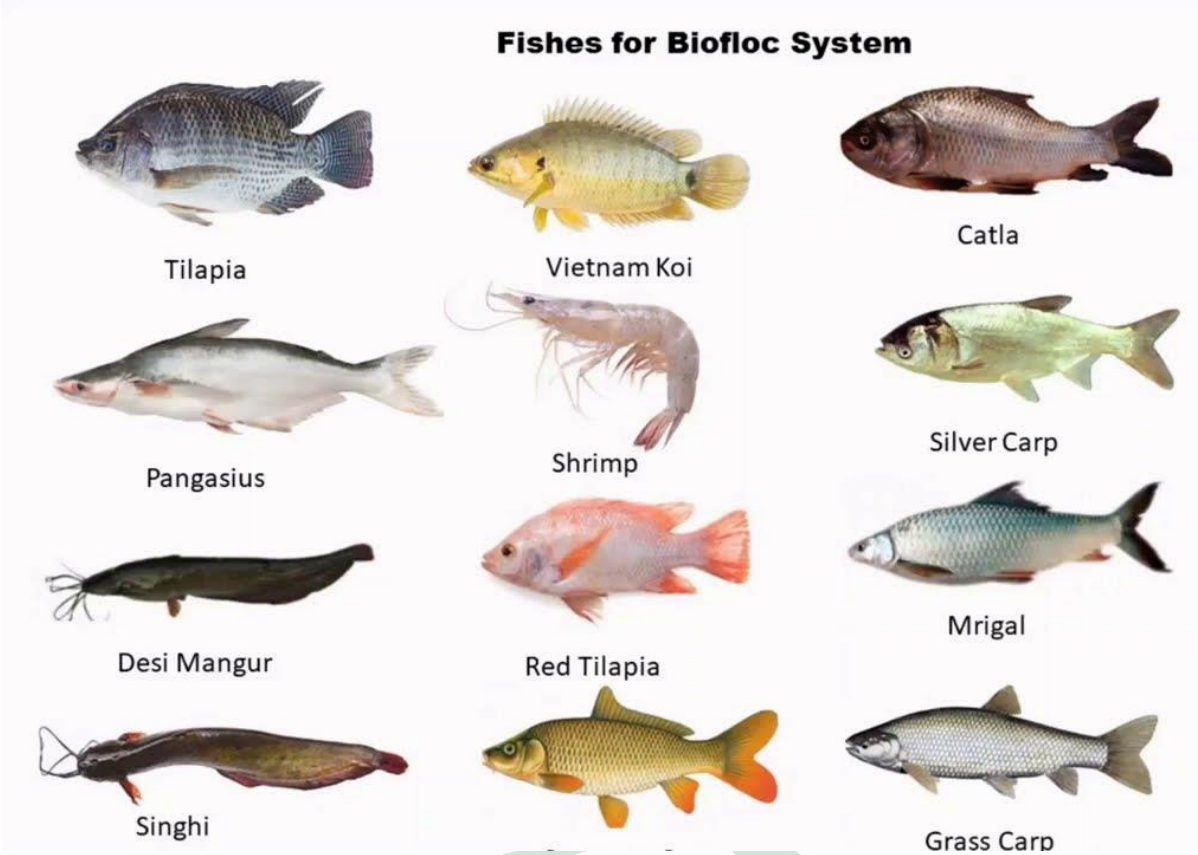
- Vietnamese koi (*Anabastestudineus*)
- Asian stinging catfish (*Heteropneustesfossilis*) (Singhi, Desi mangur)
- Shrimp
- Tilapia
- Carps



Advantages of Biofloc Fish Farming

- It is cost effective.
- It requires less land.
- It is an eco-friendly farming system.
- It Enhances the efficiency of land and water use.
- Higher productivity.
- Water pollution is minimized and is cost-effective.
- Environmental effect on this sort of farming is negligible (as most of the factors are controlled artificially).

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- Higher Biosecurity.
- Fish population can be well maintained (as there is less chance of theft by birds, animals and humans).
- Less investment high return.
- It can even be established indoors.

Disadvantages of Biofloc Fish Farming

- 24×7 oxygen supply is needed or else fishes will be dead within 4 hours.
- C: N ratio must be maintained at a rate of 10:1 or else the Biofloc cycle will break.
- Must have a good technical knowledge on pH, Temperature, Water Parameters, TDH etc.
- Diseases spread rapidly.
- Twice day to day monitoring is needed.
- Few suitable species of fishes can only be cultivated.

Conclusion

Biofloc fish farming is high profitable fish farming method if done properly with prior knowledge. It is not recommended for newbies who doesn't have any knowledge about fish farming. This short of farming require proper monitoring as well as patience. Tanks must be monitored at least twice daily and water parameters must be checked properly every day. It is low investment farming technique with high profit if done with proper care and knowledge and it can be done anywhere as it requires a very small place (1000 to 1500 fish can be cultivated in 10000 litre of water) as compared to traditional methods.

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