

REVOLUTIONIZING FISH FARMING: THE POWER OF BIOFLOC TECHNOLOGY

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INTRODUCTION

The world's growing population demands sustainable and nutritious food sources, and the fisheries industry must meet this challenge while minimizing its environmental footprint. Biofloc technology has emerged as a game-changer, transforming the aquaculture landscape with its innovative and eco-friendly approach.

WHAT IS BIOFLOC?

Biofloc is a natural, protein-rich cluster of beneficial microorganisms, organic material, and small aquatic life. It converts waste into valuable nutrients, reducing water pollution and increasing fish yields.

C:N Ratio	15:1 or 20:1
External sources of carbon	Rice, Molasses, Corn, Starch, Sugar
Protein	25- 50%
Fat	0.5- 15%
Also a good source of vitamins and minerals, particularly phosphorous. It has an effect similar to probiotics	

HOW BIOFLOC TECHNOLOGY WORKS?

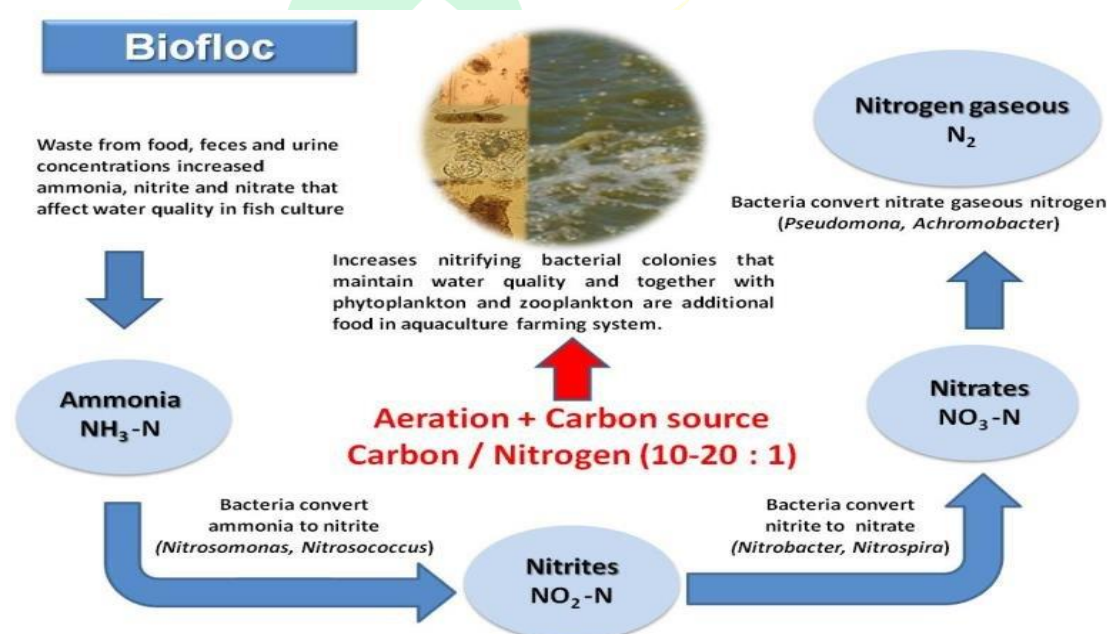
Biofloc technology maintains a balanced ecosystem by managing carbon-to-nitrogen ratios, monitoring water quality, introducing beneficial microorganisms, and controlling factors like

pH, temperature, and nutrient levels. This sustainable approach supports intensive aquaculture practices while minimizing environmental impact.

BENEFITS OF BIOFLOC TECHNOLOGY

Biofloc technology offers numerous advantages, including efficient land and water usage, limited or zero water exchange, higher productivity, enhanced biosecurity, and cost-effectiveness. By providing a reliable source of protein, biofloc technology reduces pressure on wild fish populations, supporting a more sustainable future for aquaculture.

CONCEPT OF BIOFLOC TECHNOLOGY



TYPES OF BIOFLOC SYSTEM

There are two primary types of biofloc systems: Green Water Biofloc (outdoor, natural light) and Brown Water Biofloc (indoor, no natural light). Both systems cater to different aquaculture needs, offering flexibility and efficiency.

BIOFLOC MEASUREMENT USING AN IMHOFF CONE:

It provides guidelines for optimal floc levels in various aquatic species. Ideal floc levels are:

Shrimp	5- 10 mL/L
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Tilapis fingerlings	5- 20 mL/L
Juvenile and adult tilapia	20- 50 mL/L



SUITABLE SPECIES FOR BIOFLOC

Biofloc technology supports a wide range of aquatic species, including air-breathing fish (Singhi, Magur, Anabas/Koi), non-air breathing fish (Common Carp, Rohu, Tilapia), and shellfish (Tiger Shrimp).

WATER QUALITY PARAMETERS

Dissolved oxygen	>4mg/L
Temperature	28°C - 32°C for tropical species
pH	6.8- 8.0
Total ammonia nitrogen	<1mg/L

Nitrite	<1mg/L
Nitrate	0.5-20mg/L
Orthophosphate	0.5-20mg/L
Alkalinity	>100mg/L

GOVERNMENT SUPPORT: PMMSY SUBSIDY

The Indian government's Pradhan Mantri Matsya Sampada Yojana (PMMSY) offers up to 40% subsidy for biofloc fish farms, encouraging environmentally friendly and responsible aquaculture practices. To apply for the subsidy, farmers need to provide required documents, including Aadhaar Card, Land Document, Bank Loan consent (if applicable), Bank Account details, and Self-declaration.

The following subsidy allow to the beneficiaries as per the tanks:

Unit cost	Total cost
2 tanks as one unit	1.5lakh
4 tanks as one unit	3lakh
6 tanks as one unit	4lakh

CONCLUSION

Biofloc technology is a highly efficient and sustainable solution for aquaculture, offering long-term profitability and environmental benefits. With proper management and monitoring, farmers can maximize returns while promoting eco-friendly practices, ensuring a brighter future for the fisheries industry.