



# Brackishwater Cage Culture for Sustainable Aquaculture in Coastal regions of Kerala, Karnataka & Maharashtra



## Introduction

Brackishwater is water having salt content more than that of freshwater but less than that of seawater. It results from mixing of freshwater discharged by the rivers and canals with seawater. Typically, salinity of brackishwater ranges from 0.5 to 30.0 parts per thousand (‰), and this water is highly productive. Fishes adapted to such salinity range are known as euryhaline fishes and often occur in coastal waters, estuaries, backwaters, coastal lagoons/ lakes, etc. Most of the fishes adapted to brackishwaters are tasty and have a high market value.

It is estimated that there are 12.40 lakh ha of brackishwater areas in India, some of which could be beneficially put to use for aquaculture of highvalue fish and shellfish.

NFDB is promoting brackishwater cage culture with an integrated approach in the backwaters and estuarine regions of Kerala, Karnataka & Maharashtra as an alternative livelihood and income generation programme for the coastal population under Blue Revolution Scheme of Government of India with ICAR-CMFRI as the technology partner. It is also proposed to involve '*Aqua One Centers*' to promote this technology and to assist the coastal fish farmers.

## Aim and Objectives

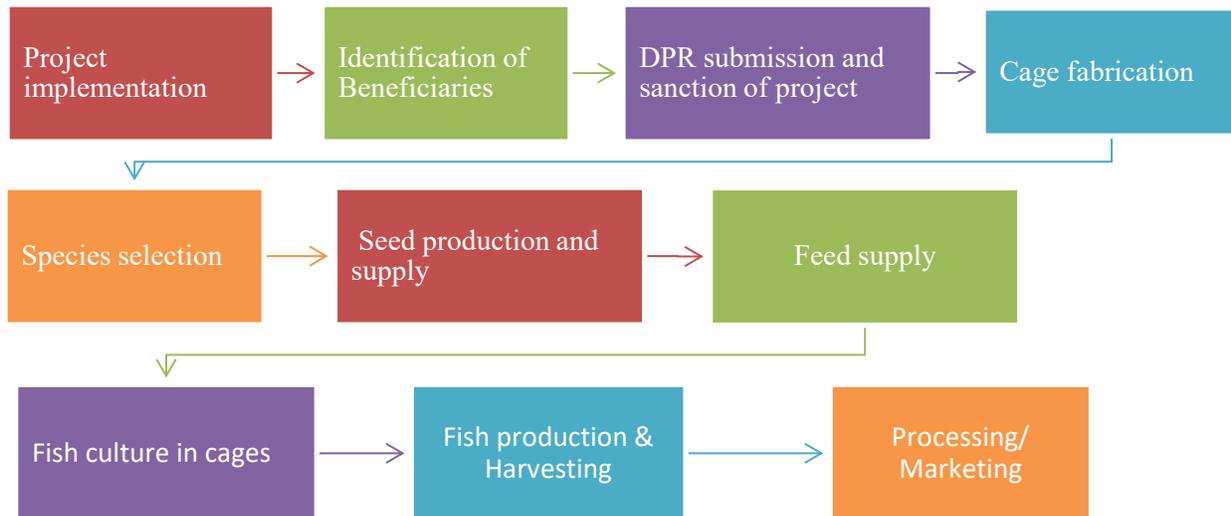
- ✓ To encourage farming of high value fin fishes and enhance their production.
- ✓ To build a good team of skilled professionals who would form a strong link between the farmers and the researchers.
- ✓ To establish a self-sufficient well equipped '*Aqua One Centers*' in all the coastal districts of Kerala, Karnataka and Maharashtra to address the existing and emerging technical problems of brackishwater fish farmers.
- ✓ To assist in marketing of the product by providing training to farmers on use of '*Fish Sales App*' developed by CMFRI and thereby exclude the role of middlemen.
- ✓ To increase the farmer's income by increasing productivity, reducing mortality, increasing unit sale value of farmed product and encouraging integrated farming practices.

## Project Benefits and Outcome

- ✓ It will increase the income and generate alternative employment opportunities to coastal population
- ✓ Efficient use of water bodies in a production perspective will reduce pollution of coastal waters.
- ✓ Availability of high quality fish to local/domestic markets which will prevent the supply of contaminated fishes to the consumers.

- ✓ Empowerment of fishermen, women, unemployed youth, etc. by providing employment, income and entrepreneurship opportunities.
- ✓ The “*Aqua One Centre*”- first of its kind in Kerala, Karnataka and Maharashtra would provide technical knowhow on fish and shellfish farming to the beneficiaries.

### Implementation Strategy



### Project Evaluation

Project evaluation would be done right from initiation of the project immediately after beneficiaries are identified. Further, every three months the progress will be reported to NFDB with required details.

### Targeted Beneficiaries

- ✓ Fishermen living in hamlets along the backwater areas, farmers involved in aquaculture and owning homestead near backwater resources, societies or entrepreneurs of coastal region will directly benefit by this project.
- ✓ Fisherwomen can be encouraged to earn their own money and become independent by doing cage culture activities as it requires less capital investment but gives more financial benefits.
- ✓ There is overall development of fisheries in the backwater resources of States and this in return will improve the standard of living of rural population in the coastal districts of the State.

## Cage Management and Total Cost

Management of cages will be under the technical guidance of CMFRI, which will be taken care of as and when required. There will be periodic evaluation of progress by CMFRI for the successful operation of the project.

The total cost of the project is Rs. 4,020 lakh for 1,500 GI Cages which includes all input costs. The subsidy assistance of the project for SC/ST/Women beneficiaries is 60% of the total project cost and for the general category is 40% of the total project cost.

## Pilot Project

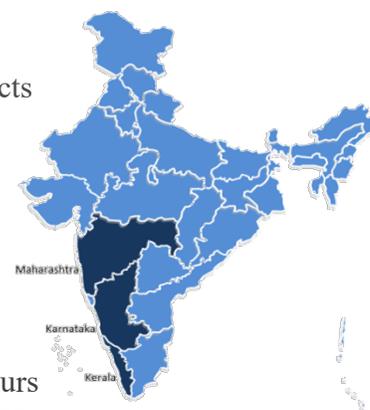
**States:** Kerala, Karnataka & Maharashtra

**Location:** Ernakulam, Thrissur, and Alappuzha, and other coastal districts in Kerala; Backwaters and estuarine regions of Karnataka; Sindhudurg district in Maharashtra

**Project duration:** March 2018 - March 2020

**Technology Partner/ Project Monitoring Unit (PMU):**

- ICAR-Central Marine Fisheries Research Institute (CMFRI)
- In collaboration with SHGs/ fishers/ farmers/ societies/ entrepreneurs
- Financial assistance from National Fisheries Development Board, Hyderabad



**Integrated Project Components:**

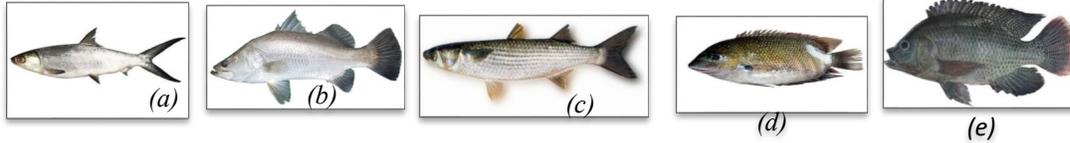
- Netting cage (1500 nos. each)
- Small feed mill (2 nos. each)
- Aqua One Centers (3 nos. each in Kerala and Karnataka and 1 in Maharashtra)

**Unit Costs:**

- Cage - Rs. 2.50 lakh,
- Small Feed Mill - Rs. 10 lakh,
- ‘Aqua One Center’ - Rs. 20 lakh.

**Targeted Species:**

Name and Characteristics of the Species	
(a) <i>Chanos chanos</i> (Milk Fish)	Market demand, fast growing
(b) <i>Lates calcarifer</i> (Asian Sea bass)	Market demand, Bengali cuisine as “Bhetki” fish
(c) <i>Mugil cephalus</i> (Grey Mullet)	Good market available, hardy nature
(d) <i>Etroplus suratensis</i> (Pearl spot)	Locally known as “Karimeen”
(e) <i>Oreochromis niloticus</i> (Nile Tilapia)	Known as “Aquatic Chicken”



(a)Milk Fish (b) Asian Seabass (c) Grey Mullet (d) Pearlsplit (e) Nile Tilapia

### Present Status of the Project and Outcome

- Total cages sanctioned: 500 cages each in Kerala, Karnataka & Maharashtra
- Total cages installed: Kerala: 233 cages, Karnataka: 154 cages
- Total no. of beneficiaries selected: Kerala: 218 nos., Karnataka: 94 nos.
- The farmers started cage culture by stocking Asian Seabass (1500 Nos), Red Snapper and Pearlsplit (500 Nos) in each 4 m x 4 m x 3 m GI cage.
- Estimated production: 600-1000 tonnes from cages in Kerala; 500 tonnes from Karnataka; and 400 tonnes from Maharashtra.



Contact for further information:

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