



**NIOSH**




**NORTHEAST CENTER**  
FOR OCCUPATIONAL HEALTH AND SAFETY



मत्स्य महाविद्यालय  
शिरगांव-रत्नागिरी  
डॉ. बाळासाहेब सावंत कोकण  
कृषि विद्यापीठ दापोली

मच्छीमारांसाठी पर्यायी उपजीवीकेची साधने  
माहिती पुस्तिका



भारतीय सामाजिक शास्त्र संशोधन परिषद  
भारत सरकार, नवी दिल्ली

पुरस्कृत प्रकल्प

सागरी मच्छीमारांचे  
पर्यायी उपजीवीकांद्वारे पुनर्वसन  
२०२१

# ALTERNATIVE LIVELIHOOD OPPORTUNITIES FOR FISHERMEN

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India

# Fisheries at Glance



Coastal line

8118Km

EEZ

2 M Sq.Km

Continental  
Shelf

0.5 M Sq.Km

Total Fish  
Production

16.25 MT

Marine Fish  
Production  
4.13 MT

Inland Fish  
Production  
12.12 MT

3<sup>rd</sup>  
Rank

Fish Export  
(Qt.)

1369.26 MT

GVA  
(2020-21)

2326.2  
billions

Contribution in Indian  
Economy (2020-21)

1.1%

Contribution in  
Agriculture(2020-21)

6.72%

Source: Handbook of Fisheries Statistics, 2022

# Fisheries at Glance



Fish Export  
(Value)  
**575.86  
billion**

Contribution in  
world  
Production  
**8%**

Per Capita  
Consumption  
**6.31kg**

**10%**  
Annual  
Growth Rate

Fish Landing  
Centres  
**1547**

Major Fish  
Landing harbours  
**07**

Minor Fish  
Landing harbours  
**67**

Livelihood  
**1.44  
million**

Total fishing  
vessels  
**254457**

Deep Sea  
Fishing Vessel  
**63**

Motorized non  
Mechanical  
**133197**

Motorized  
Mechanical  
**66517**

Non-motorized  
**54680**

Source: Handbook of Fisheries Statistics, 2022

# FOOD SECURITY & NUTRITION



Fisheries



Aquaculture

**184.6** MILLION TONNES  **3.3 percent**



**600** MILLION PEOPLE

**90.3** MILLION TONNES **CAPTURE FISHERIES** **141 billion**

**122.6** MILLION TONNES **AQUACULTURE** **265 billion**

**\$ 406 BILLION**

# The Government of India initiatives



सत्यमेव जयते  
Government Of India

## PRIME MINISTER MATSYA Sampada YOJANA (PMMSY)



### Objectives & Aims

- a) Harnessing of fisheries potential in a sustainable, responsible, inclusive and equitable manner
- b) Enhancing of fish production and productivity through expansion, intensification, diversification and productive utilization of land and water
- c) Modernizing and strengthening of value chain - post-harvest management and quality improvement
- d) Doubling fishers and fish farmers incomes and generation of employment
- e) Enhancing contribution to Agriculture GVA and exports
- f) Social, physical and economic security for fishers and fish farmers
- g) Robust fisheries management and regulatory framework

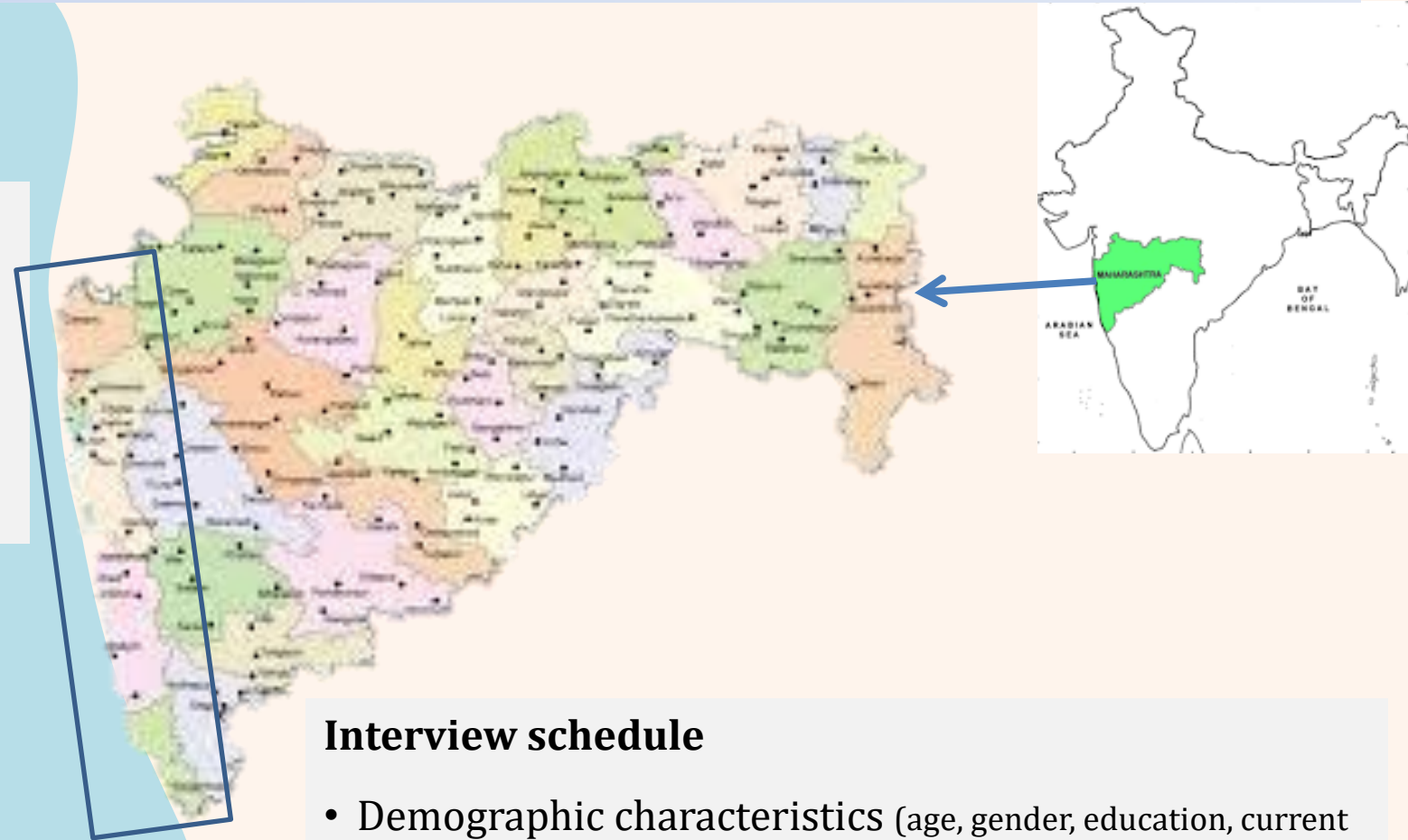
# Methodology

## Study Area

- Maharashtra state of India
- Total area : 307,713 km<sup>2</sup> > 163 countries
- 720 Km coastline
- 152 fish landing centres
- Contribute significantly to the fish export

## Study Population and Sample Size

- 276 fishers
- 18–40 years and 41 & above
- June to December 2021

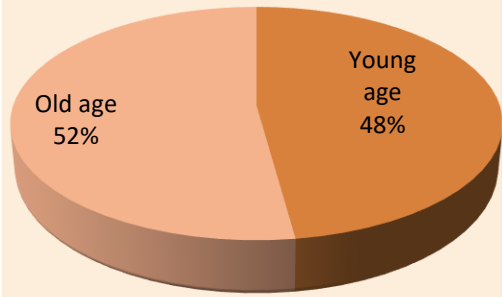


## Interview schedule

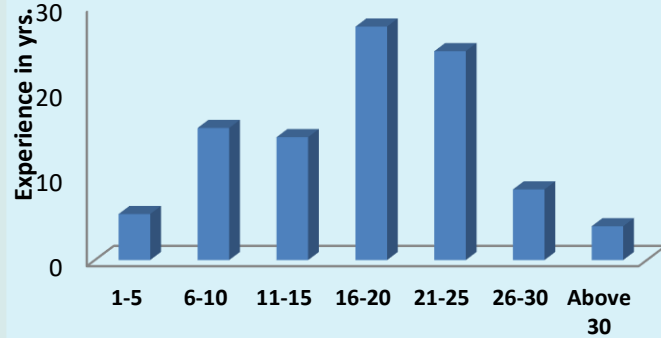
- Demographic characteristics (age, gender, education, current fishing type, years of experience)
- Safety Measures by fishers & Government
- Government schemes

# Demographic characteristics

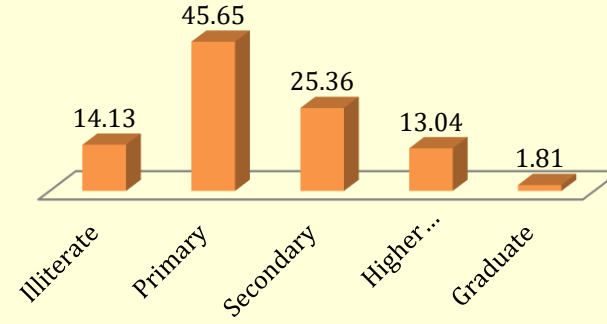
### Age



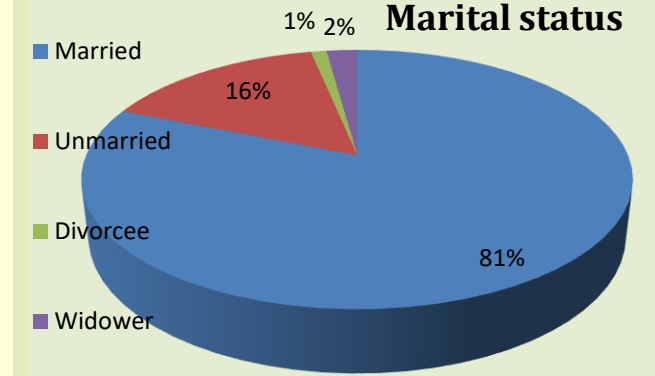
### Experience



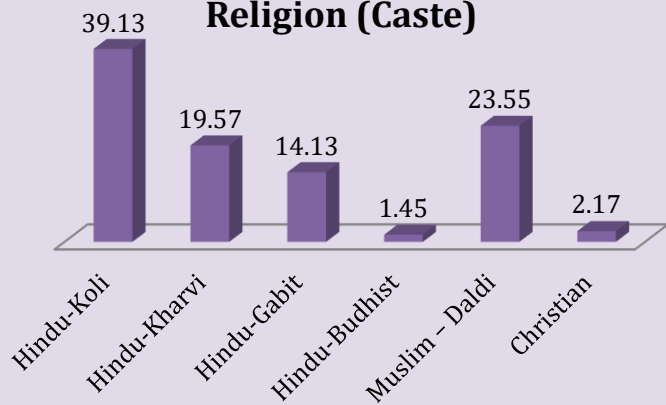
### Education



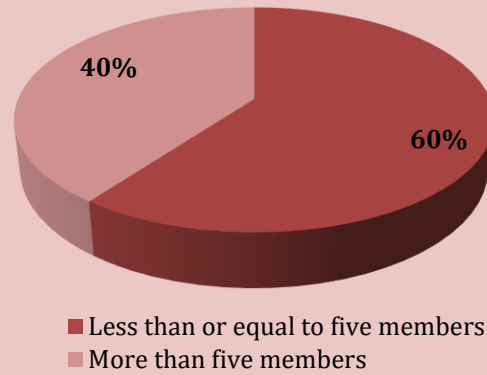
### Marital status



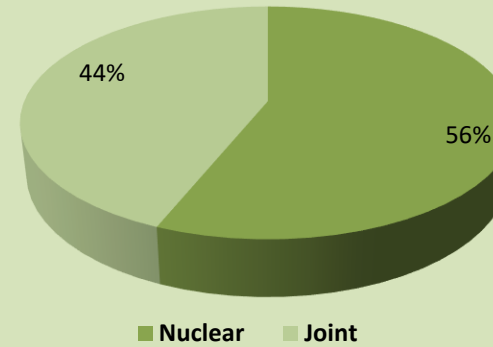
### Religion (Caste)



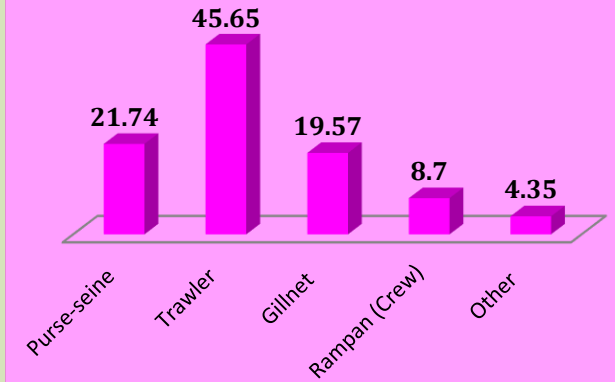
### Family size



### Family type



### Type of fishing vessel



# Safety measures by fishers



First Aid Kit



Safety equipments like life jackets, helmet, gum boots, etc.



Modern navigational equipments



Communication devices - walky-talky, radios, mobiles



Fishing in groups



Insurance of fishers

## Safety measures by Government of India

- Government of India provides **weather advisory to fishers** well in advance to plan fishing trips
- **Trainings and awareness** on sea safety measures are organized by Government
- **Mechanization of fishing vessels and updated fishing practices** encouraged by Government
- **Fishing vessels are regularly checked for efficiency** to operate at the sea by Department of Fisheries, based on that observations fishing licence is issued
- To avoid accidents during vessel berthing and releasing, Government pays special attention by **construction of new and modernization of existing Fishing Harbours**

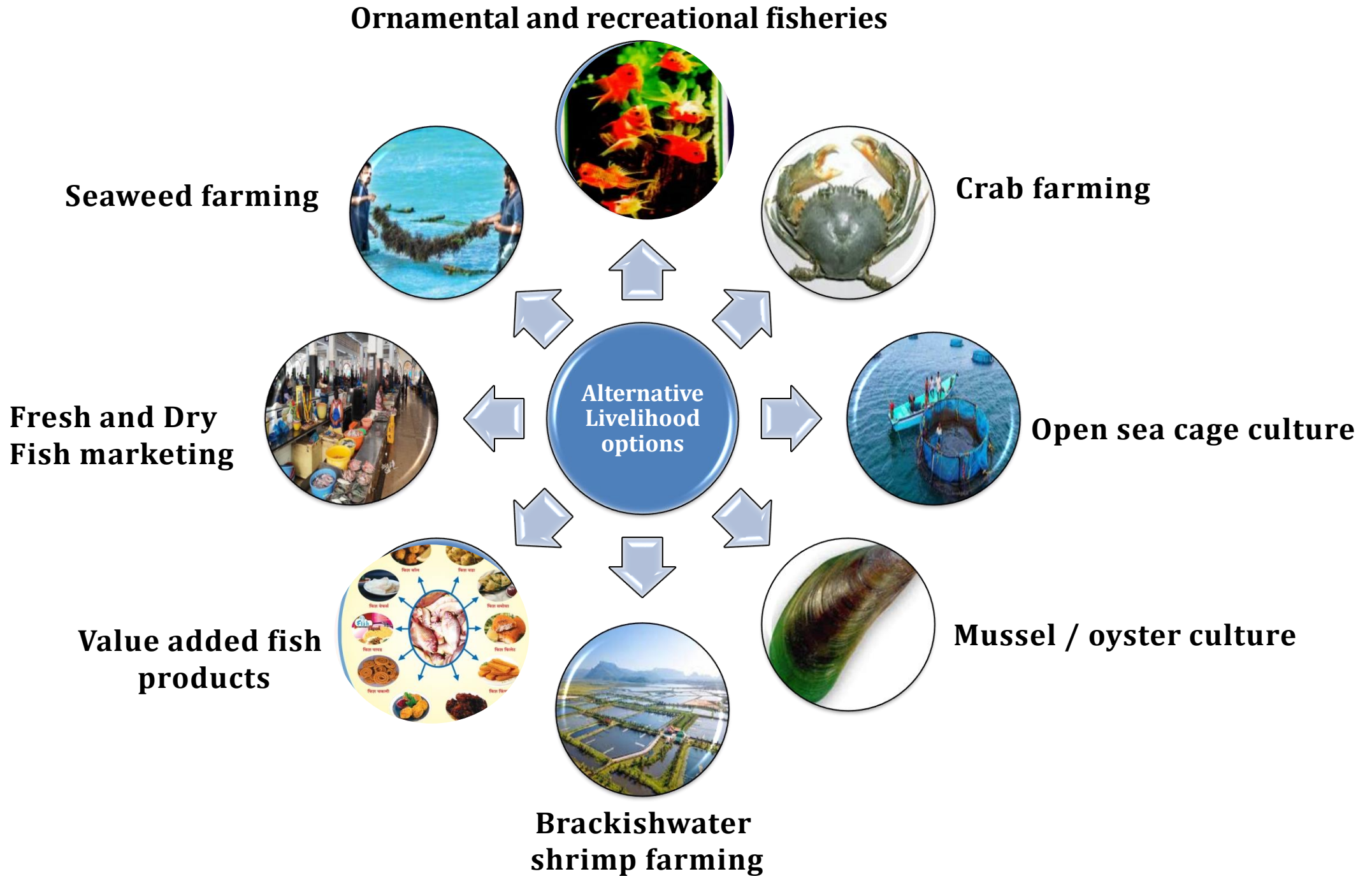


# PRADHAN MANTRI MATSYA SAMPADA YOJANA

Social, physical and economic security for fishers

Schemes	Financial provision
Insurance to fishers @ Rs.20.34/-per fisher per year	(a) Rs.5.00 lakh - death or permanent disability (b) (b) Rs. 2.50 lakh - permanent partial disability
Establishment & Operation of Vessel Monitoring System (VMS)	0.35 Lakhs
Support for providing safety kits for fishermen of Traditional and motorized fishing vessels	1.0 Lakh
Communication and /or Tracking Devices for traditional and motorised vessels like VHF/DAT/ Transponders etc	0.35 Lakh
Establishment of Bio-toilets in mechanised fishing vessels	0.50 Lakh
Special focus on Training, Awareness, Exposure and Capacity building of fishers	
To improve skills of fishers to take up alternative activities like lifeguards, beach tourist guides, etc	

# Alternative Livelihood Options



## Crab farming



- The mangroves and associated habitats of creeks and estuaries have great potential for providing alternative livelihood sources to the local community
- 4,992 sq km of mangroves (India State of Forest report 2021)



A multispecies hatchery complex is proposed by Department of Forest, Govt. of India which would include mud crab, seabass and bivalve hatchery unit in Maharashtra

## Open sea cage culture

- Seabass (*Lates calcarifer*)
- Cobia (*Rachycentron canadum*)
- Silver Pompano (*Trachinotus blotchii*)
- Indian Pompano (*Trachinotus mookalee* G. Cuvier, 1832)
- Pearl spot (*Etroplus suratensis*)
- Rabbit fish (*Siganus canaliculatus*)

Vasai  
Raigad  
Ratnagiri  
Jaigad  
Devgad

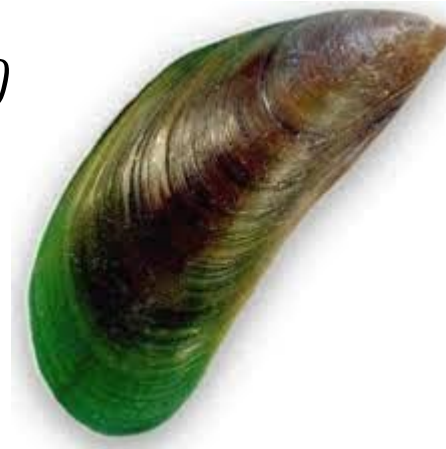


	Establishment of Open Sea cages (100-120 cubic meter volume)	Rs. 5.00 Lakhs
<b>PMMSY</b>	Development of Genetically improved strains of Seabass	100% Central funding on genetic improvement programmes and Nucleus Breeding Centre

# Mussel / oyster culture

Mussel / oyster culture is a **low investment activity with very good returns**

- Green mussel (*Perna viridis*)
- Indian backwater oyster (*Crassostrea madrasensis*)
- Rock oyster (*Saccoctrea cucullata*)
- West coast oyster (*Crassostrea gryphoides*)



The Malabar region, encompassing Malappuram, Kozhikode, Kannur, and Kasaragod districts, witnessed a significant increase (160%) in green mussel production in 2022

PMMSY

Bivalve cultivation (mussels, clams, pearl etc.)

Rs. 0.20 Lakhs

## Brackishwater shrimp farming



	Development of Genetically improved strains of Seabass	100% Central funding on genetic improvement programmes and Nucleus Breeding Centre.
<b>PMMSY</b>	Establishment of need based New Brackish Hatcheries	50.00 / no.
	Construction of New Rearing ponds (nursery/seed rearing ponds)	7.0 Lakhs / ha
	Construction of New ponds for Brackish Water Aquaculture	8.0 Lakhs / ha
	Inputs for Brackish Water Aquaculture	6.0 Lakhs / ha

# Value added fish products



PMMSY

Fish Value Add Enterprises Units

Rs. 50.0 Lakhs

# Fresh and Dry Fish marketing



<b>PMMSY</b>	Refrigerated vehicles	25.00 Lakhs / unit
	Insulated vehicles	20.00 Lakhs / unit
	Motorcycle with Ice Box	0.75 Lakhs / unit
	Cycle with Ice Boxes	0.10 Lakhs / unit
	Three-wheeler with Ice Box including e-rickshaws for fish vending	3.00 Lakhs / unit
	Live fish vending Centres	20.00 Lakhs / unit

# Seaweed farming

Seaweeds are wonder plants of the sea, the new renewable source of food, energy, chemicals and medicines with manifold nutritional, industrial, biomedical, agriculture and personal care applications.

Ulva, Gelidiella acerosa, Gracilaria edulis, Gracilaria sp., Corhcata, Gelidiopsis variabilis, Gelidium pusillum, Hypnea musaformis, Acanthophora spicifera, Hormophyta triqueta, Cystoseira trinodis and species of Sargassum



<b>PMSSY</b>	Establishment of Seaweed culture rafts including inputs (per raft).	00.015 Lakhs / unit
	Establishment of Seaweed culture with Monoline/tubenet Method including inputs (one unit is approximately equal to 15 ropes of 25m length)	0.8 Lakhs / unit

## Ornamental and recreational fisheries



<b>PMMSY</b>	Backyard Ornamental fish Rearing unit (both Marine and Fresh water)	3.00 Lakhs / unit
	Medium Scale Ornamental fish Rearing Unit (Marine and Freshwater Fish)	8.00 Lakhs / unit
	Integrated Ornamental fish unit (breeding and rearing for freshwater fish)	25.0 Lakhs / unit
	Integrated Ornamental fish unit (breeding and rearing for marine fish)	30.0 Lakhs / unit
	Establishment of Freshwater Ornamental Fish Brood Bank	100.00 Lakhs / unit
	Promotion of Recreational Fisheries	50.00 Lakhs / unit

# Institutional support





# Thank you!

