Evolution of Fisheries and Aquaculture in India

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Pipeline technologies - marine

Marine

Technologies are being constantly evolved, refined and upgraded with the cooperation of fishermen and R&D organisations in the fisheries sector. Many of these have been perfected to particular needs of the fishing/ farming groups and to suit particular agro-climatic zones of the country. Some of these technologies in the pipeline include:

Capture fisheries sector

- Conversion of trawlers into longliners using monofilament long lines
- Seasonal conversion of bottom trawlers into drift gill netters targetting tunas and seerfishes along the southeast coast of India and purse seiners to trawlers along upper southwest coast of India.
- Conversion into or introduction of large plank-built boats (using plywood) with in-board engines (100-120 h.p.) and power winches for operating large seines in deeper grounds of the shelf for target resources along the south west and south east coasts of India.
- Upgradation of existing medium size trawlers for deep sea fishing.

Culture fisheries sector

- Organic farming technology for the culture of shrimps without the use of drugs and chemicals in any stage of their life cycle
- Development of cost effective ecofriendly shrimp feed
- Production of transgenic shrimps/fishes/crabs and establishment of cell lines of crustaceans for pathogenicity studies
- Domestication of commercially important shrimp species in a biosecurity environment and production of Specific Pathogen Fre e post larvae under controlled conditions
- Tissue culture of abalone *Haliotis varia* and pearl oyster *Pinctada fucata*

- Half pearl production in *Haliotis varia*
- Black pearl production in *Pinctada margaritifera*
- On-shore culture of pearl oyster and production of pearls of desired colours
- Development of alternatives for bivalve culture- Flexible Plastic Strips (FPS) for seeding mussels instead of coir or nylon ropes, pre-stitched cotton nets to put mussel seeds for attachment
- Hatchery technology for cuttlefish *Sepiella inermis*
- Hatchery technology for ornamental gastropod *Babylonia* spp.
- Integrated fish and bivalve culture in brackishwater ponds – Fishes like pearl spot *Etroplus suratensis* can be cultured in cages between mussel or oyster seeded ropes on racks.
- Broodstock development, maturation, sex reversal, spawning and larval rearing of groupers
- Triploid strains of edible oyster and pearl oyster through gene manipulation
- Sea crab and mud crab hatchery technology
- Sand and spiny lobster hatchery technology
- Domestication and selective breeding of selected penaeids shrimps.

All these technologies offer scope for increased income generation and availability of cheap protein food for marginalised fishing communities.

Processing Sector

Prospective products listed by CIFT with technologies in the pipeline are

- Coated products- fish fingers, fish balls, cutlets
- Extruded products –noodles, wafers, flakes
- Fish Mince and Mince based products
- Fish wafers and soup powder
- Battered and breaded products