

Development of brackishwater aquaculture finfish technologies among tribal and other aqua farmers in Gujarat

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Focal Points at a Glance: This report details work carried out by CIBA and NAU for popularising Seabass and Pearlsport culture in Gujarat

India is bestowed with a number of locally important cultivable brackishwater finfishes for culture, such as Asian seabass, milkfish, grey mullet, pearlspot, Estuarine grouper, cobia etc., Diversification of species and culture systems assumes significant importance in terms of sustainability for coastal aquaculture as it provides alternative income generation and livelihood. Gujarat is having 3.76 lakh ha of coastal fallow lands, with good degree of potential for development of brackishwater aquaculture. Tidal amplitude of Gujarat coast is higher than other parts of coastal India. This natural phenomenon has created vast stretches of marshy and saline lands all along the coast. Most of the potential brackishwater resources in Gujarat are still yet to be explored and developed for brackishwater aquaculture. In Gujarat, as these water bodies are potentially highly suitable for farming of various finfish species.

With this background, the Central Institute of Brackishwater Aquaculture (CIBA), Chennai, the collaboration of Navasari Agricultural University (NAU), Navasari, had taken the initiative for the development of brackishwater aquaculture in Gujarat, since from 2009. Under this project, CIBA-NAU team had demonstrated the farming of banana shrimp, milkfish and seabass in the farmers ponds. Seeing the interest of these technology adoptions by the farmers, nursery rearing of seabass in hapas, customised by CIBA, was demonstrated and transferred to the farmer for the first time in Gujarat as one of the alternative livelihoods for

income generation. This initiative resulted growing interest among the tribal and aqua farmers of Navsari and Surat, South Gujarat to adopt the seabass nursery rearing technology, seabass culture in cages, pearlspot culture in cages etc. as alternative livelihoods.

Demonstration of nursery rearing of Seabass at Onjal, Navsari

Nursery rearing of Asian seabass (*Lates calcarifer*) juveniles in hapas-based system was demonstrated at farmer's pond at Onjal, Navsari district, Gujarat. After site selection by the CIBA-NAU scientists, Mr. Anilbhai Patel, a progressive farmer at Navsari, Gujarat, volunteered and his pond (400 m) was selected for demonstration. In this pond, 15 hapas of the size of 2x1x1m (2m²) nylon nets with mesh size 1.5 mm were installed with bamboo poles. A total of 22000 nos. of seabass fry (1.0-1.5cm) were stocked in 15 hapas @ nearly 1500/hapa (@ 750 nos/m²). During the 45 days of nursery rearing, the animals were fed twice daily with farm made ball shaped feed @ 8% of body weight. Grading was done periodically every 5 days to avoid the cannibalism. Periodically hapas were cleaned to avoid thier clogging. Seabass fingerlings were harvested at the end of nursery rearing and sold to interested aqua farmers @ Rs.10-20/ piece depending on the size of the fingerlings. During the harvest, an interaction meet was organised on 7th August 2014 among aqua farmers at Onjal village, Navsari. The meeting was

attended by 70 aqua farmers from Onjal, Aat, Samapore, Danti, Chizgam villages from Navsari district, and Bhagal, Mender villages from Valsad district, and scientists from CIBA and NAU.

During the interaction meeting, welcome address was delivered by Dr.R.G.Patil, Research Scientist, Soil and Water Management Research Unit, NAU. He briefed about the CIBA-NAU research activities at Danti farm, Navsari. He pointed out that, farmers are ready to adopt the new technologies in brackishwater aquaculture in Gujarat. Dr.P.Mahalakshmi, Senior Scientist, CIBA, explained the activities of CIBA-NAU collaborative project (2009-2013) under the categories of research, extension and establishment of aqualab facilities. She pointed out the 2nd phase of research activities in brackishwater finfishes started with seabass nursery rearing and cobia culture and acknowledged the efforts put by Mr. Anilbhai Patel, progressive farmer at Navsari, in carrying out the work during the seabass nursery rearing in hapas.

As stated earlier, India has a number of locally important cultivable brackishwater finfishes for culture such as Asian seabass, milkfish, Grey mullet, Pearlspot, Estuarine grouper, Cobia etc., Diversification of species and culture systems assume significant importance in terms of sustainability for coastal aquaculture as it provides alternative income generation and

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Installation of nursery rearing hapas at Onjal village, Navsari



Oxygen packed seabass fry for nursery rearing at Onjal village, Navsari



Different sizes of harvested seabass fingerlings



Special address by Mr. Anilbhai Patel, progressive farmer at Navsari



Interaction of Dr. A.N. Sabalpara, Director of Research, NAU and CIBA-NAU scientists at demonstration site



Visiting of Cobia culture pond by Dr. A.N. Sabalpara, Director of Research, NAU, CIBA-NAU scientists



Distribution of harvested seabass fingerlings to aqua farmers



Community pond with installed cages at Navipardi, Surat under TSP of CIBA



Stocking of seabass fingerlings in cages at Navipardi, Surat



Feeding of seabass by a tribal farmer at Navipardi, Surat



Distribution of materials to a tribal farmer for cage farming of seabass and pearlspot



Tribal farmers and CIBA-NAU scientists at demonstration site, Navipardi, Surat

livelihood. Gujarat is having 3.76 lakh ha of coastal fallow lands, with good degree of potential for development of brackishwater aquaculture. Tidal amplitude of Gujarat coast is higher than other parts of coastal India. This natural phenomenon had created vast stretches of marshy and saline lands all along the coast. Most of the potential brackishwater resources in Gujarat are still yet to be explored and developed for brackishwater aquaculture in Gujarat as these water bodies are potentially highly suitable for farming of various finfish species. With this background, the Central Institute of Brackishwater Aquaculture (CIBA), Chennai with the collaboration of Navasari Agricultural University (NAU), Navasari had taken the initiative for the development of brackishwater aquaculture in Gujarat from 2009. Under this project, CIBA-NAU team had demonstrated the farming of banana shrimp, milkfish and seabass in the farmers' ponds. Seeing the interest of these technology adoptions by the farmers, nursery rearing of seabass in hapas, customised by CIBA, was demonstrated and transferred to the farmer for the first time in Gujarat as one of the alternative livelihoods for income generation. This initiative resulted growing interest among the tribal and aqua farmers of Navsari and Surat, South Gujarat to adopt the seabass nursery rearing technology, seabass culture in cages, pearlspot culture in cages etc. as alternative livelihoods.

Dr. Prem Kumar, Scientist, CIBA, explained the overview of seabass nursery rearing in India. He informed that CIBA successfully demonstrated the seabass nursery rearing in various other coastal States like Tamil Nadu, Andhra Pradesh and Odisha. But in Gujarat this was for the first time that CIBA-NAU team had taken initiative for the seabass nursery rearing in hapas as alternative livelihood for farmers. Dr.R.V. Borichangar, Associate

Research Scientist, NAU, highlighted the experiences of seabass nursery rearing in the present trial and pointed that drastic change of salinity from 15 to 45 ppt during the seabass nursery rearing period is a major constraint. He expressed that there was a great demand for seabass fingerlings in South Gujarat because farmers are interested in polyculture of seabass and carp and seabass culture in ponds.

Dr.A.N.Sabalpara, Director of Research, NAU, in his special address, stressed about the importance of species diversification and also informed that the Fisheries College and CIBA regional research station at Gujarat will impart the fisheries technologies among the aqua farmers. At the end of the meeting the seabass seed (fingerlings) were distributed to 10 aqua farmers for polyculture of seabass and carp and seabass culture in ponds.

Demonstration of cage farming of seabass and pearlspot at Navipardi, Surat

In an effort to initiate the fish culture activities in cages and ponds under Tribal Sub Plan (TSP) CIBA-NAU scientists had visited Navipardi, Varethi and Kanyashi villages from Surat district and Kabilpore, Dharagiri, Valoti and Pathri villages from Navsari district for site selection. Among the villages, Navipardi and Valoti were identified as suitable sites for fish culture activities. In these two sites, as a first phase cage farming of seabass and pearl spot were initiated at Navipardi village, Surat. Two cages of size of 2x2x1 m and three cages of size of 2x1x1 m were installed in the community pond at Navipardi village, Surat on 8th August 2014. In these cages, 500 nos. of seabass fingerlings, which were harvested at Onjal, Navsari under the demonstration of nursery rearing of seabass were stocked in two cages of 2x2x1 m and one cage of 2x1x1 m. Additionally, another hundred numbers

of pearlspot seed were stocked in two 2x1x1 m cages. Training about preparation of feed, feeding methods, grading of shooters of seabass, washing/cleaning of cages etc were demonstrated at Navipardi. During installation of cages and stocking of seabass and pearlspot around 60 tribal farmers from Surat and Navsari districts, Assistant Superintendent of Fisheries, Government of Fish Hatchery, Surat and CIBA-NAU scientists participated and interacted about the importance of alternative livelihood through cage farming of seabass and pearlspot especially for tribal farmers.

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FISHING BOATS TO GET TRACKING DEVICES

Six years after the Mumbai terror attacks, the Union government is finally all set to install tracking devices in small fishing vessels free of cost to monitor their movement and curb security threat along the coastline, according to a report. Although the previous government had initiated the process, much time went in

identifying the tracking technology and deciding on funding of the equipment. There was also strong resistance from fishermen. Having addressed these concerns, the Union home ministry has moved a Cabinet proposal seeking approval for installation of transponders "free of cost" in fishing vessels below 20

metres in length for the purpose of tracking their movement up to a distance of 50-km from the coastline. The Union home ministry has estimated the cost of each transponder at about Rs. 16,800 and sought funds to the tune of Rs 336 crore for installing two lakh transponders in small boats, the report says. ☺☺☺