

## Cutting remains from Fish Cutting Centres - A feed source for fish farming in estuaries of Karnataka

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Demonstration of small scale cage culture of finfishes in coastal waters initiated by Mangalore Research Centre of ICAR- CMFRI during 2008- 2009 period has resulted in large scale adoption of the technology (Fig.1). The fish production through finfish culture in small cages in Uppunda village of Udupi district in Karnataka increased from an estimated 1.2 tonnes (t) during the 2009-10 period to 14 t in 2013-14. The success of cage farming in estuarine areas which was launched as a pilot project in Uppunda village of Udupi district has extended to other estuaries. The fishermen gained experience and confidence in finfish farming which encouraged them to continue fish culture in cages using seeds collected from the wild as well as hatchery bred fingerlings. The fishermen living near Alvekody, Kundapura and Mulky estuaries have adopted the technology which has augmented fish production and provided alternate livelihood options as well as nutritional security to the fishermen.



Fig. 1. Battery of small scale fish farming cages in estuaries of Karnataka

Considering the availability of around 8000 ha brackish water area in Karnataka it is estimated that a minimum of 260 cages can be installed without affecting the coastal environment. This can augment the fish production from these cages to about 260 t of fish every year which would generate an income of around ₹ 10 crores annually. In India,

unavailability of cost effective feed, especially for rearing carnivorous fishes is a major problem. However, since the existing farming practice is being carried out at low stocking densities, feed related issues are not reported by these farmers of Karnataka. But considering the pace of adoption of the small scale cage farming technology and government interventions to ensure sufficient fish seed supply, an annual production of 250 to 300 t fishes from small scale cage farming in estuaries of Karnataka can be anticipated in the immediate future. Foreseeing the fresh feed demand in such a scenario, the Mangalore Research Centre of ICAR-CMFRI carried out extensive surveys to find alternate options for sourcing fresh feeds.

The surveys revealed that lot of Fish Cutting Centres are established for pre-processing of fish for *Surimi* plants and frozen fish exports in Karnataka. Around 25 such centres are functioning in Mangaluru, Malpe, Kundapur and Karwar that process pink perch, lizardfish, ribbonfishes, lesser sardines etc. These centres generate enormous amount of cutting remains (head and tail portion) which is approximately 20-30% of total fish weight, based on the species of fish being processed. Those with more than 10% meat was found to be excellent for feeding of seabass and snappers. Most of the fish cutting sheds have the capacity to produce 10-15 t of processed fish daily during peak fishing season when raw material is available in plenty. As much as 35 to 40 thousand tonnes of fishes are being processed annually by these Fish Cutting Centres which generates around 8000 t of cutting remains. Presently it is being diverted for fish meal preparation. If some portion of these cutting remains can be used for feeding the high value marine fishes being farmed locally in the estuarine cages, it will meet the demand for feed and augment fish production from Karnataka.