

## Report on High Juvenile Incidence in Beach Seine Operations off Kovalam, Kerala

Dhiju Das P. H.\*; Manju Lekshmi N. and Leela Edwin  
ICAR-Central Institute of Fisheries Technology, Cochin - 29  
\*dhijudas@gmail.com

Beach seines are fishing gears operated from the shore for encircling a school of fish in shallow coastal waters. The design and size of beach seines vary based on geographical factors and the target fishery. A typical beach seine in Kerala are locally known as *kambavala* or *karamadi* with two long hauling warps/Kamba, wings/kayaru, and a funnel net (Lekshmi et al., 2019). During fishing operations, one group of fishers remains onshore, holding one end

of the hauling rope, while the second group takes the gear on a boat along with the other end of the rope. When a fish shoal is spotted, the second group encircles the shoal at a distance from the starting point and returns to the shore. The hauling ropes are then simultaneously pulled from the shore by the two groups of fishers, gradually closing the distance between them as the codend approaches the shore. The fishing operation typically lasts from 1 to 5 hr.



Beach seine operation at Kovalam beach, Thiruvananthapuram

Kovalam beach in Trivandrum, Kerala along the southwest coast of India, is one place where beach seine finds as an important fishing activity and plays a significant role in the local economy, and supports the livelihoods of coastal communities. Beach

seines are mainly targeted for the coastal pelagic shoals. The dominant species landed by Karamadi from Trivandrum includes mackerel, sardines, lesser sardines, anchovies, silver bellies, halfbeaks, full beaks, trevallies, herrings, silver whittings,

lizardfish, shrimp, etc. (Edwin et al., 2020). Normally beach seines are non-selective fishing gears with small mesh sizes and are operated mainly during the post-monsoon season due to the high availability of coastal pelagic fishes. However, there is a growing concern over the high incidence of juvenile fish caught in beach seines, due to small codend mesh sizes below 10 mm which can have detrimental effects on fish stocks and the overall sustainability of the ecosystem. In certain months especially during the monsoon and post-monsoon, more than 80% of the catch were juveniles of coastal pelagics. Surya et al. (2015) reported from the Dhanuskodi Island, Tamil Nadu where more than 75% of the catch were juveniles. Saleela et al. (2015) suggested to increase the codend mesh size of beach seines from 6mm to 25 mm.



*Codend mesh used in beach seine of Kovalam*



*Juvenile fish landed in the beach seine fishery of Kovalam*



*Sorting of Juvenile fishes for auction*



*Sale of Juvenile fish in the local market*

The study highlights the implications of juvenile fishing during beach seine operation in Kerala. ICAR-CIFT formulated guidelines for the operation of beach seines along the Kerala coast to reduce the incidence of juveniles, the existing cod-end mesh size of below 10 mm has to be increased to 22mm. As per the guidelines, square mesh is recommended at the cod-end region to facilitate the escape of juvenile fishes (Edwin et al., 2022).

Beach seining is an age-old traditional declining fishing method and currently this gear is considered only as a secondary

option for livelihood of the fisher of Kovalam, Kerala. The present study points the facts that even though there is a reduction in the number of beach seines in Kerala, the dimensions of the gear increased during the last decades as in the case of other pelagic gears. Technical and operational improvements of the gear and policies for the reduction of juvenile catches in seines need to be developed which would support the sustainability of beach seine fisheries in Kerala.

## References

- Leela Edwin, Saly N Thomas and T. V. Sankar (2022)., *Fishtech reporter special issue, Guidelines for responsible fishing.*, ICAR- Central Institute of Fisheries Technology, Kochi.
- Leela Edwin, N. Manju Lekshmi, V. S. Yasmi and Paras Nath Jha, *Beach seine fishery of India - A Review, Fishery Technology 57 (2020): 225 - 233.*
- Manju Lekshmi N., Dhiju Das P. And Leela Edwin (2019) *Karamadi - A waning practice of shore seine operation along Kerala, Southwest coast of India. Indian Journal of Geo Marine Sciences; Vol. 49 (08), August 2020, pp. 1405-1410.*
- Saleela K N, Dineshbabu A P, Santhosh B, Anil M K & Unnikrishnan C, *Shore seine fishery along Poovar in Thiruvananthapuram district, southwest coast of India, J Mar Biol Ass India, 57 (2) (2015) 113-116.*
- Surya, S., Jhonson, B., Jeena N. S., Anikuttan K. K., Rajkumar, M., Remya, L., Shanmuganathan, K. and Abdul Nazar A. K. (2018) *An examination on the biological economics of shore seine fishery: A case study from Dhanushkodi Island, Tamil Nadu Indian J. Mar. Sci. 47(10): 2049-2055*