

ALUMINIUM ALLOY CANOE

For Artisanal Fishing



ICAR- CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY

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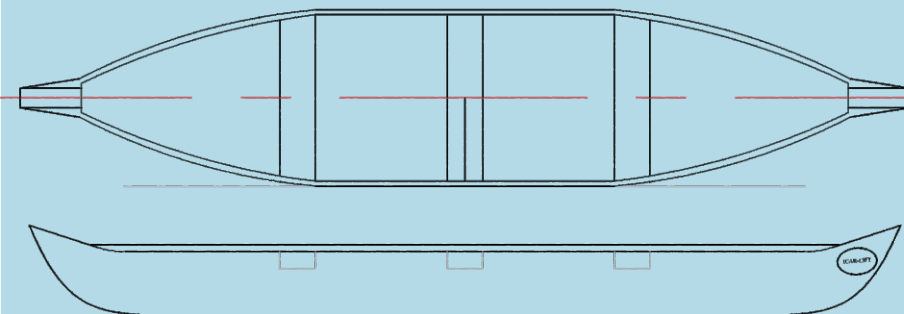
The artisanal fisheries sector in India holds considerable importance in subsistence fishing activities. Artisanal fishers frequently employ small canoes in the inland and coastal water bodies and traditional methods of canoe construction have been confined to wood. In response to a decrease in the availability of wood, a rise in demand, and the escalating costs associated with raw materials and maintenance, fishers have made a notable transition from wood to Fibreglass Reinforced Plastic (FRP) for the construction of canoes. FRP exhibits numerous advantageous, including its lightweight nature, minimal corrosion rate, extended lifespan, and efficient mass production capabilities. These attributes contributed to the widespread adoption and utilization of FRP materials for canoe construction. However, the use of FRP, being a plastic polymer, presents challenges in terms of disposal due to its inherent properties. Unfortunately, there are no viable and feasible technologies for the recycling of FRP boats. The environmental implications associated with the disposal of fractured non-biodegradable Fibreglass components have become a subject of significant apprehension. It is under the above circumstances that the viability of employing aluminium alloy as a prospective material was considered.

The aluminium alloy canoe possesses several advantages that makes it a desirable choice. One notable feature is its recyclability, which aligns with the principles of sustainability and environmental consciousness.

Advantages	Particulars of the canoe
Durable Can be recycled Light in weight Low corrosion rate Least maintenance No protective coating required	Material: Aluminium - Magnesium alloy 5083 (Marine grade) LOA: 4.5m Breadth: 0.9m Depth: 0.30 m Number of persons: 3 max Type of activities: gillnetting, lining, fishery related transportation, aquatourism, fish farming

SPECIFICATION OF ALUMINIUM ALLOY CANOE

Length = 4.5 m; Breadth = 0.90 m; Depth = 0.30 m



Additionally, the aluminium canoe is of lightweight construction, has remarkably low corrosion rate, and the aluminium variant does not necessitate any surface coating or painting, further simplifying its maintenance requirements.

ICAR-CIFT has successfully addressed the requirements of the artisanal fishing sector through the implementation of various technical interventions. The present endeavour focuses on the creation of an aluminium canoe specifically designed for the purpose of artisanal inland fishing. The durability of the aluminium alloy canoe could surpass that of its traditional material counterparts by a factor of 4-5. Though the cost is 2-3 times greater than conventional canoes, the durability and the potential for expanded production would help in cost reduction in the future, would justify the adoption of this technology.

The construction and design of the canoe were undertaken as a component of the Institute Project titled "Technological Interventions for Improvement of Fishing Systems in Selected Inland Water Bodies along India" with funding from the Tribal Sub Plan. The canoe has been transferred for field trials, and the feedback will help in further enhancements to the design in the future.

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