A CASE STUDY

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Technical and construction aspects of FRP coated wooden gillnetters of Ratnagiri, Maharashtra

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■ **ABSTRACT :** It was observed that there is a trend in the Ratnagiri fishermen to cover the hull portion of their gillnetters by FRP, to extend its life. The overall length of such type of gillnetters ranged from 06.81 m to 10.00 m. Similarly, overall breadth and depth ranged between 1.25 to 3.10 m 0.47 to 1.6 m, respectively. Inboard engine of 7 to 24 hp were normally installed on the FRP coated wooden gillnetters having gross tonnage of 0.34 to 7.42 t. Construction cost of average size (8.5 m length, 2.2 m breadth and 1.0 m depth) wooden plank built boat coated with FRP, was approximately Rs. 4.0 to 5.0 lakhs, having a average life span of around 15 to 18 years, if maintained properly.

■ **KEY WORDS :** FRP covered wooden gillnetters, Technical aspects

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Gillnetters ranging from 3.15 to 13.00 m were the most commonly used fishing boats by the maximum number of fishermen from Ratnagiri. FRP was most commonly used material for construction of gillnetters and is becoming very popular among the fishermen community of Ratnagiri. FRP gillnetters of 9 to 13 m size, either fitted with inboard or outboard engine have become very popular and are extensively used for gill netting operations in near shore waters. Taking a cue from gillnet operators many trawl owners have started replacing their wooden trawlers with 60 footer FRP trawlers and it is very likely that the Purse seine owners will follow suit. The present study was undertaken to document the technical specifications of a special in-between category namely the 'wooden plank built gillnetters coated with FRP' operated from Ratnagiri.

■ METHODOLOGY

Mirkarwada minor fishing harbor situated on the west of the Ratnagiri city was chosen for the present study. The detail information regarding the technical specifications of the wooden plank built gillnetters coated with FRP were undertaken by physically sampling the units and by collecting the information from gillnet operators. Collected data were analyzed for the required parameters with the appropriate statistical procedures wherever required (Snedecor and Cochran,1967).

■ RESULTS AND DISCUSSION

The detailed technical specifications of wooden plank built gillnetter coated with FRP, operating from Mirkarwada landing center, Ratnagiri are stated in Table 1 and presented in Plate 1.

In this type of FRP-Wood composite material, wood acted as a core material over which the fibreglass resin was coated. As a construction material wood offers many advantages like good strength to weight ratio, workability, load bearing capacity, tensile strength and elastic

Plate 1 : FRP covered wooden gillnetter of Ratnagiri

strength. However, the wood is susceptible to decay and deterioration by different bio-deteriorating agents like micro-organisms, fungi and woodborers. So to protect the hull portion which was continuously exposed to the water medium, it was observed that the fishermen from Ratnagiri had started to give a coat of FRP, to the hull portion of plank built wooden gillnetters.

Shape of gillnetter was observed to be similar to the shape observed in wooden plank built gillnetter, which had a pointed stem with well defined keel and round bottom. Stern end was broad with U shaped hull. Big rudder was fitted at aft side of the gillnetter with long tiller for maneuvering, which was operated manually.

Full cabin was positioned amidships in the FRP coated plank built gillnetters. The large size cabin had dimensions of 6 feet in length, 5 feet in breadth and a height of 5 feet. Cabin was used to cover the inboard engine as well as for resting purpose. Steering of the gillnetter was carried out with the help of rudder present at back side of the boat attached to the hull. Tiller was used for operation of the rudder for manoeuvring. For this categories of gillnetter 7 to 24 hp engines were fitted which had a average speed of around 3 to 5 km.

It was observed that the construction procedure for this categories of gillnetters, was similar to the procedure of construction of plank built wooden gill netters. In addition to this, FRP coating of 3 to 5 mm was applied from outer side of the hull portion to protect the vessel from boring organisms and wear and tear. Before application of FRP coat the gillnetter was taken on beach and mounted by giving firm support and kept for drying. After drying of the hull planks the anti fouling paint was scrapped and the planks were exposed to sunlight. Then the hull surface was initially coated with a thin layer of Isophtahalic resin. When the surface becomes tacky/ partial dry, the procedure of FRP lining was started, by the application of strips of fibreglass chopped strand mat and superior general purpose resin. After the required thickness was achieved, it was allowed to cure for 8 to 10 days to achieve maximum strength. The deck layout of this type of vessel was similar to the gillnetters built with plank, in addition the deck was also covered with FRP coating.

For construction of average size (8.5 m length, 2.2 m breadth and 1.0 m depth) plank built boat coated with FRP, it costs approximately Rs. 4.0 to 5.0 lakhs. Average life of this vessel is around 15 to 18 years, if maintained properly.

The fisherman of Ratnagiri who have wooden gillnetters have applied a coat of FRP to protect the hull from mechanical wear and tear and attack by boring organisms. Shamshuddin (2003) reported that the similar technique of construction was observed in Malaysia. He stated that, in Malaysia fibreglass was introduced in boat building industry in 1980. When FRP coat was applied to the whole of the wooden hull the problem of water leakage and attack of marine growth was minimized. No work has been reported with respect to the technical aspects wooden plank built gillnetters coated with FRP, in India.

From the present study, it was observed that not only artisanal crafts have evolved from non-mechanised

Table 1 : Specifications of FRP covered wooden gillnetters of Ratnagiri

Sr. No.	Specifications	FRP covered wooden gillnetters		
		Mean ± SE	Minimum	Maximum
1.	Overall length (m)	8.69 ± 0.4643	6.81	10.00
2.	Breadth at midship (m)	2.26 ± 0.2407	1.25	3.10
3.	Depth of vessel (m)	0.97 ± 0.0556	0.68	1.10
4.	Horse power	16.71 ± 2.6251	7.00	24.00
5.	GRT	5.03 ± 0.9289	0.34	7.42

to mechanised sector, but also evolved in terms of boat building material. The trend has changed very rapidly from using wood as a basic boat building material to FRP material as it was easily available, low cost and long lasting material. The maintenance cost of FRP or wooden plank built gillnetter coated with FRP is lower as compared to wooden built boats. However, it is felt that the fishermen should now start adopting the new technologies such as gill net haulers and drums, to reduce manual efforts.

Conclusion :

The documented information on the technical specifications of the wooden plank built gillnetter coated with FRP of Ratnagiri, Maharashtra would serve as a base line information for the technological modifications the gillnetters may undergo to increase their efficiency in the coming years.

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