

Indian Fisheries - A Retrospect

Part III. Craft and Tackle

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Probably the earliest method employed by man for fishing must have been angling and gradually other implements like bow and arrow, spears, harpoons, scoop nets/hand nets, cast nets etc. were developed, all of which could be operated from the land for catching fish. Slowly he ventured into the shallow waters with dip nets, stake nets, shore seine nets etc. and further into deeper waters with trawl nets, gill nets, purse seines, long lines etc. The most interesting fact in this context is that in spite of the latest developments in the fishing gears, the earliest and most primitive ones are also still in vogue for subsistence fishing.

Initially the fishing nets used to be fabricated from cotton yarns available in the market after spinning them into thicker threads. Later on, other natural fibres like sann hemp also were introduced. The most important defect of such nets made of natural fibres was bio-deterioration. If the nets are stored in the wet condition with the blood, slime, oil etc of the fish adhering to them, they are easily acted upon by micro-organisms resulting in loss of

strength and finally in disintegration. The average life of a fishing net made of such natural fibres has been found to be one fishing season viz; about nine months. Bio-deterioration could be controlled to a large extent by sprinkling common salt in between layers of the nets before piling up. Copper sulphate alone or in combination with soap is also used for the above purpose. However, it would be ideal to clean the nets thoroughly after each operation and dry them spreading in the sun for prolonging their service life.

Preservative treatments also were developed for nets made from natural fibres by dipping them occasionally in extracts of barks and fruits of some trees and drying. The active principle in such preservatives is tannin which exercises the protective action.

The most important development in the field of fishing gear in recent years has been the introduction of synthetic fibres by about the middle of the present century. Though comparatively costlier than natural fibres, they possess the advantages of light-

ness, water-proofness and resistance to bio-deterioration. The man-made fibres have revolutionised the fishing industry throughout the world. Introduced into India in the sixties, they have caught up well in the country and have almost completely replaced the natural fibres. Today we have in the marine sector alone 27,000 trawl nets of different sizes constantly filtering the bottom waters of the continental shelf from mechanised boats and catching the bottom dwelling or demersal fishes. There are 460 purse-seine nets operating mostly along the west coast with very high catching efficiencies for the mid-water and pelagic fishes. They are capable of encircling the fishes in vast areas leaving practically no fish for the non-mechanised boats to catch, which has resulted in severe clashes on the open sea between fishermen engaged in the two types of fishing. Some of the maritime states have already enacted laws prohibiting purse seine nets from operating within a specified distance from the shore in order to protect the interests of the artisanal fishermen and avoid clashes between them.

In the non-mechanised marine sector, there are 3,80,000 gill nets, 30,000 boat seines, 68,000 fixed bag nets, 67,000 hooks and lines, 19,000 shore seines and 400 rampans operating throughout the coast line of the country. Statistics of gear employed for fishing in the inland sector are not readily available.

More advanced fishing techniques have been evolved in developed countries recently. They include electrical fishing, in which the fish are given an electric shock from generators operated on board the fishing vessels, when the

fish which happen to be in the field of the current get stunned and float on the surface. They are then easily scooped out with hand nets. Pump fishing is employed for sucking in fish from concentrated shoals, concentration being effected either by immersed electric lights at night times or by encircling with purse seine nets. Application of different coloured lights for attracting fishes depending upon the differences in their behaviour towards colours is widely in vogue in some countries with commercial success. However, these latest developments are yet to catch up in India.

Probably the oldest devices employed by man for venturing into calm waters of the sort obtaining in rivers, lakes, reservoirs etc. were inflated buffalo skins turned inside out, bundles of light floating materials like plantain stems and dried sticks of certain trees forming crazy platforms and inverted earthenware pots whose mouths have been covered water-tight using dry leaves, nine numbers of which are usually used in three rows connected together by tying long pieces of split bamboo stems and supporting a light bamboo plat-form. Such devices can still be seen in Bengal, Bihar, U. P. and Tamil Nadu. Round shaped shallow coracles of about 1.5 m diameter prepared by stretching and firmly tying cow hides on frames of the shape made from split splinters of bamboo stems, arecanut tree or the like are still in vogue in the southern parts of the country. A further improvement over these is the dug-out canoe made from the lower parts of the trunk of palmirah palm.

In sea fishing, country crafts dug out from single stems of large trees

and of various sizes have been employed on the west coast from time immemorial. Their counter-parts on the east coast have been the catamarans which are light logs of dry wood generally 3 to 5 in number and occasionally 7 tied together. These measure about 3.6 to 4 m in length, with conical ends rising slightly above the level of the raft and provided with a bamboo mast and canvas sail. These are still very popular and widely employed for fishing on the east coast of the country.

Plank-built boats with wooden frames fitted with masts and sails and varying in sizes were then evolved, which are widely in use now on both the coasts. Such boats without any frames are also in use on the east coast. According to a rough estimate made in the late forties, we had a total of about 70,000 non-mechanised country crafts constituted by 27,000 small dug-out canoes, 24,000 catamarans, 9,000 large dug-out canoes and 10,000 plank-built boats, the last with and without frames and ribs.

After attainment of independence and introduction of exploratory fishing activities by the Union Government using imported power fishing boats, which gave encouraging results, the idea of mechanisation of fishing crafts was seriously thought of. Some FAO experts deputed for the purpose ruled that the dug-out canoes widely used in India are unfit for mechanisation and hence new designs like the Pablo etc. were introduced. But much against the conclusions of these experts, we can now see thousands of such dug-out canoes fitted with imported Japanese out-board motors operating successfully especially on the west coast. In-board engines which can be fitted inside

country crafts with provision to tilt the propeller shaft into water (referred to as 'power poles') have been developed recently. But they have not become so popular as the above out-board engines.

In the western countries, the impetus for introduction of power fishing was derived from the development of quick means of transport of the harvested fish like the railways. Even though initially steam power was employed for the purpose, later on an almost complete switch over to diesel power has taken place. In India, it was the export of frozen prawns from the early fifties and the increasing demand for this commodity from the western markets that acted as the catalyst to the process of mechanisation of fishing. It was the 7.5 m Pablo type of boats fitted with inboard diesel engines that were introduced in the beginning. Slowly, 9.6 m, 10.8 m, 12.0 m and 15.0 m long wooden boats fitted with suitably powered engines were introduced and according to the latest available figures we have at present 19,000 mechanised fishing crafts, of which 11,590 are trawlers, 3,990 are gill netters, 2,850 are dol netters and 380 are purse seiners. The number of non-mechanised country crafts works out to 1.4 lakhs consisting of 40,000 plank-built boats, 26,400 dug-out canoes and 73,400 catamarans. These figures pertain to the maritime sector alone. The exact number of crafts employed by the inland sector is not readily available.

Until recently wood has been the material of choice for construction of fishing boats. When the conventional strong varieties of wood like teak, Ayini etc. started to become scarce and hence costlier, cheaper but weaker woods like

Venteak, mango tree etc appropriately treated to give them the required resistance to bio-deterioration found wide use. Mild steel had already been introduced even earlier as a building material for fishing vessels. More recent introductions in this field are ferro-cement and fibre-glass reinforced plastic, both of which have been employed in India for construction of fishing vessels.

Matters have progressed so much in this industry that at present factory ships which can harvest the fish and process them immediately on board by

the modern sophisticated methods of freezing and canning and convert the wastes and unwanted fishes into fish meal are already operating in many of the advanced countries. A couple of such imported factory ships with facilities for freezing on board are operating in the Indian waters also. In the short period of about three and a half decades after independence India has made tremendous progress in her fishery industry from the primitive state of affairs obtaining prior to that and has caught up with many of the developed nations of the world.

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