

STANDARDISATION AND MASS PRODUCTION OF SHRIMP TRAWLERS AND OTHER FISHING BOATS IN INDIA

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[This paper deals with the existing fishing crafts, new vessel types, boat building programmes, their standardisation and mass-production in India.]

The fishing boat normally represents the single largest investment to the fisherman and the dominant position of the fishing vessel in the economics of the industry hardly needs any emphasis.

The application of modern technology in fishing boats in India is of comparatively recent origin. This development has been rather varied, from the simple installation of an inboard or out-board motor in an indigenous craft to the designing and construction of modern fishing trawlers according to the availability or otherwise of existing boats suited for motorisation and the fishing requirement of the regions.

Existing Crafts

Motorisation of the existing boats has been confined mainly to the Gujarat and Maharashtra regions where the Bedi, the Lodhiya, the Bassein and the Satpati type boats have proved themselves suitable for this purpose. These crafts will continue to be built for a long time by the same rule of thumb method of the local craftsmen on a cottage industry basis and as such it will be difficult to introduce a measure of standardisation in them.

In these regions the fishing gear and methods also have not changed appreciably and therefore the main improvement that has generally been done to these crafts has been to make the sternpost of the crafts suitable to take the stern-gear of the engine.

New Vessel Types

The other maritime States of India however had to take to new designs of boats, as the existing crafts were either not suitable for mechanisation or did not provide much

efficiency after installation of an engine. These new designs have originally been developed by the various State Fisheries Departments, with the help of the Naval Architects of the F.A.O.

A decade has passed since this development started with the 24'—7" "Pablo" Boat and at present the popular vessel types are:

- (1) The 30 footer open type boat for gill-netting.
- (2) The 30 footer half-decked boat for trawling and gill-netting.
- (3) The 30 footer fully-decked boat for trawling.
- (4) The 32 footer shrimp trawler.
- & (5) The 36 footer shrimp trawler.

The 30 and 32 footer vessels form the base for the scheme of mechanisation in these States under the Third Five Year Plan and these boats are to be built in their hundreds.

Boat Building Programmes

The boat building practices as they exist now are time-consuming and the costs tend to spiral all the time. Sometimes the builder has to build to a different design the same class and type of vessel when a second order is placed with him, that he has to prepare a fresh set of moulds which mean time and money. The fisherman on his part has often to wait for long and miss peak seasons before the boat is delivered to him.

Standardisation

The need, therefore, is for an accelerated programme of building coupled with efficient techniques to bring down the building costs. Chidambaram (1963) stressed the need for a

few standard designs for fishing boats so that it will be possible to turn them out in large numbers at cheaper rates. Traung (1959) has stated that F.A.O. aimed at cheaper fish production, which could be achieved by building cheaper fishing vessels.

These aspects are as important to the Shrimp Fishing Industry as to any other fishery. The advanced shrimp-fishing countries in the world have achieved a high degree of standardisation in their vessel types, gear and methods. Ringhaver (1959), who has introduced assembly line production methods for shrimp-trawlers, records that "the Florida shrimp trawler has spread to Texas, hundreds of them having been built in Mexico and the type is now spreading into Central and South America."

In the context of the Shrimp Fishery of the South-West coast of India, the design of the 30 and 32 footer vessels can be taken as standard ones, but it will not be long before these vessels are considered too small especially with the prospects of fishing for shrimps in Off-shore areas during the monsoon months.

Therefore it becomes necessary to standardise designs of shrimp trawlers of the 36 foot, 40 foot, 45 foot and 50 foot class, which will probably take care of developments during the next decade. At present there are different types of vessels in this length group operating for shrimps in this area, like —

- (1) The 36 footer boat based on F.A.O./C.I.F.T. design
- (2) The 'M' boats of the Indo-Norwegian Project
- (3) The "Durga" type boats supplied through T.C.M. aid
- (4) The 'Kolmeen' type boats constructed by the New India Fisheries.

These vessels vary from each other in their lines, arrangement and construction and consequently in their performance also. Cost variation is also an important consideration.

The standard shrimp trawler of the South-West coast of India (36 to 50 ft. L.O.A. range) need not necessarily conform to any one of the above types in their size groups, but can combine the good feature of each

vessel. It can also take into account features of mass produced and highly successful vessel types like the Florida Shrimp Trawler.

Such standardisation is necessary in other types of fishing craft also which are being introduced now.

Mass-Production

With standardisation of design an accelerated programme of construction of boats is possible. Except in Kerala State, where boat building is a well established cottage industry, in all other Southern States the boats are built mainly through Government run boat-yards.

Standardised designs of these boats should lend themselves to mass production on an assembly basis instead of the present practice of a set of workmen who start with shaping the keel, work on the boat upto the finishing stage, fabricating each member of the boat and fixing it.

The mass-assembly procedures tried in the boat-yard of the Indo-Norwegian Project at Quilon for the 25 foot I.N.P. Boat and the mass-production methods introduced by Erstlander (1961) in Ceylon for the 27½ ft. fishing boat are cases in point, which prove that standard design boats can be turned out on an assembly line production basis. Ringhaver's (1959) paper on "Design and mass production of Shrimp trawlers" describes how trawlers in the 50 — 70 ft. class are built on assembly line production basis.

At present a large number of 30 and 32 footer vessels are required to be built for the State Fishery Departments and it will be useful to apply mass-production methods to these types of boats. Most of the structural members of these vessels can be pre-fabricated either in the saw-mills or the wood working sections of Industrial Estates or Co-operative or boat-yards. The men who fabricate these parts need not be boat-builders. They need only know carpentry to turn out boat components to conform exactly to the pattern furnished to them.

The boat-yard need only be a place of assembly of these pre-fabricated parts which will be done by specially skilled boat-builders. Thereby it will be possible to make a better utilisation of the skilled personnel of a boat-yard and turn out boats on a mass-assembly basis.

With mass-production the cost of boats will go down and the fisherman will have his boat delivered to him on schedule at a lesser cost. The experience thus gained with

these smaller boats will be of great value in organising mass-production of larger vessels which will be required with the progress of mechanisation.

References

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In view of the limited time and the number of papers to be presented, the discussions were carried after all the papers were read

by the respective authors and the recommendations as given below were made.

Recommendations :

- (i) Detailed studies on the operational aspects and behaviour of trawls and their accessory gear should be conducted using modern recording instruments. The experiments with the gear evolved should be conducted at the various fishing centres.
- (ii) The work on the evolution of an econo-

mic size of shrimp trawler suitable for each region may be continued.

- (iii) The off-Shore Fishing Stations and the Central Institute of Fisheries Technology may collaborate and co-operate in the evolution of suitable winches for all classes of boats.