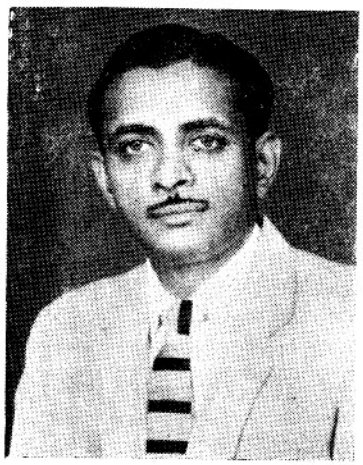

CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY

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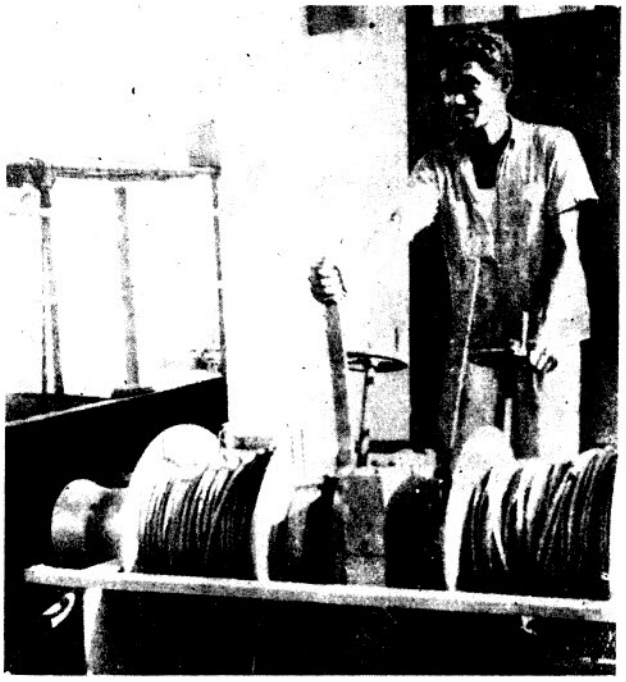
Despite an average annual landings of little over one million tonnes and the foreign exchange of nearly twenty-four crores of Rupees, the production of fish in India is considered low and has to be augmented four-fold if the minimum nutritional requirements of the people are to be met. That the fishery resources of the country are vast and wide is now well established. Intensification of the tempo of exploitation of the existing grounds, exploration of new resources, introduction of advanced and more effectivc fishing techniques, improved methods of handling and preservation of the catch and better utilisation of fishery products and by-products would, therefore, suggest themselves. Severally and collectively all the above bring to the fore an imperative need of technological investigations and research.

Realising the pressing need for co-ordinated research in the various aspects of fisheries technology, the Government of India in the Ministry of Food and Agriculture set up in 1957 the Central Institute of Fisheries Technology (CIFT) with Cochin as headquarters as part of the development programme envisaged in the second five year plan. Since the type of fish and fishing conditions vary considerably in the different parts of India, at representative localities, regional sub-stations and units were set up subsequantly to tackle specific fishing and processing problems. The sub-stations of CIFT are located at Veraval (Gujarat), Kakinada (Andhra), and

Trolling – a new fishing technique introduced by the Institute for capture of Seer fish, Barracuda, etc.

Studies on fibre glass reinforced plastic for sheathing wooden hull of fishing boats



A trawl winch of the Institute's design in operation

Burla (Orissa) and units at Bombay (Maharashtra), Kozhikode (Kerala), Panjim (Goa) and Nangal (Punjab).

Two main research divisions exist in the Institute viz. Craft and Gear Division and Processing Division. A third division, namely Extension, Information and Statistics Division functions as a liaison between the Institute on the one hand, the State Fisheries Department and the Industry on the other. In formulating the research programmes, fisheries has been essentially treated as a need based industry rather than a self generating one.

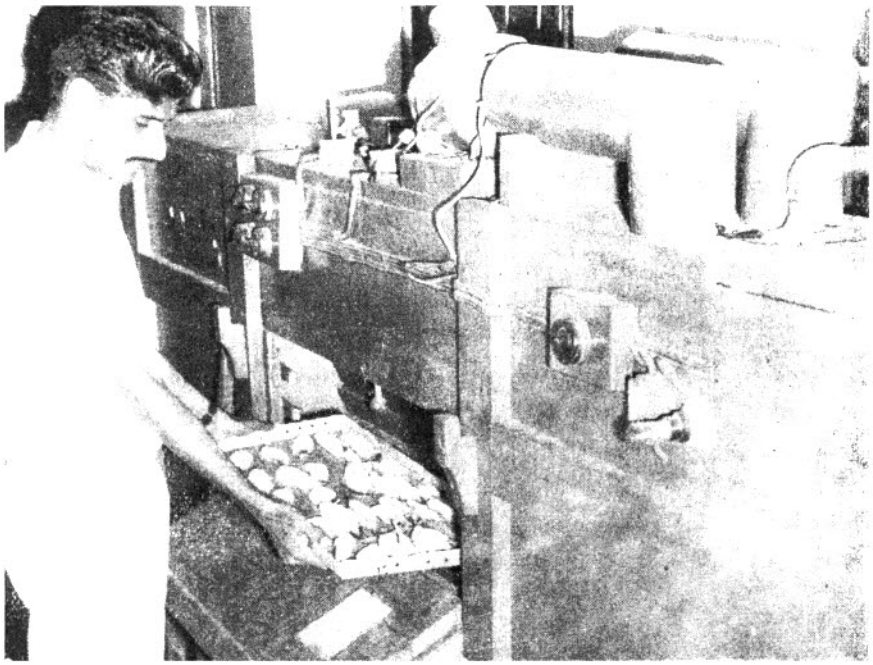
The Craft and Gear Division was organised first with the chief objective of undertaking studies on materials for boats and nets, their maintenance and preservation, improved designs of fishing gear, performance of engines and designs of fishing accessories.

Specifications worked out at the Division for different net materials like cotton, hemp and nylon twines have been adopted as the basis for formulation of the Indian Standards. Similarly, tests conducted on floats, ropes and the like have enabled increased indigenous production of better quality materials, which are essential components that make a fishing gear effective.

An empirical formula developed for estimating the weight of webbing will help the fishermen to properly plan the requirements of materials for their nets. Also improved and effective methods of preservation evolved, particularly for cotton fishing nets, ensures a greater life to the nets and thus safeguard the investment of even an individual fisherman.

Different designs of trawling gear for fish and prawns and for operation from mechanised boats of different sizes and horse power and designs of gill nets both for marine and inland fishing evolved at the Division have contributed directly to increase production. Experimental shrimp (prawn) trawling off Kakinada on the east coast has revealed large scope for that fishery and several mechanised boats have taken up to this new fishing method. On the Kathiawar and Goa coasts also new grounds for shrimps could be located and suitable gear evolved for increased production of this valuable foreign exchange earner.

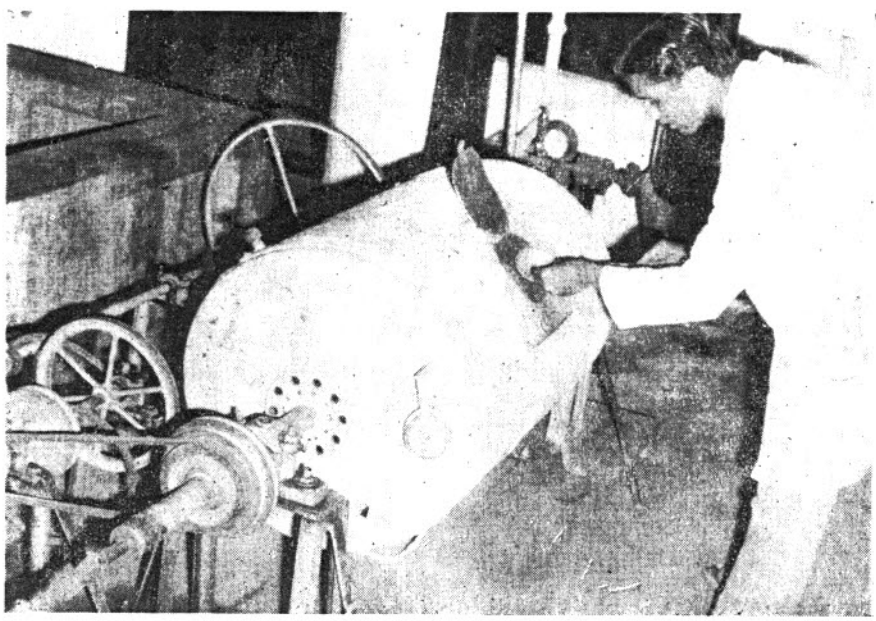
Trial fishing with improved gear conducted in Gobindasagar reservoir has resulted in locating a number of productive fishing grounds. It was feared at one time that this reservoir might have only sparse fish population due to



Laboratory model of a tunnel dryer designed by the Institute for dehydration of fish

the immense depth throughout. Similarly, investigations in the Hiracud reservoir have shown a number of potential fishing grounds. Further, it has been possible to evolve the design of a gill net suitable for selective fishing of calbasu, an endemic population of Gandhisagar reservoir in Madhya Pradesh. Surveys of the Sunderbans in West Bangal and Brahmaputra river system in Assam have been completed and appropriate fishing gear recommended.

Laboratory model of a rotary drum dryer designed by the Institute for production of fish meal



On the Craft side an accurate basis for estimating the requirments of materials and labour for building wooden boats has been worked out. Several cheaper meterials like venteak, aluminium alloy sheathing, G. I. fastenings and cast iron fittings have been experimented with and these experiments have given conclusive evidence that a considerable reduction in the overall cost of construction of wooden boats could be effected, if the conventional materials now used are substituted by the above cheaper ones.

Marine engines manufactured indigenously have been tested both in the laboratory and in the field and drawings for proper installation, cooling arrangements etc. have been prepared and passed on to the industry. By testing a number of Indian woods, it has been possible to find out a substitute for the imported lignum vitae used as stern bearings in the propulsion system. A number of fishing accessories like gallows, winches, gurdies etc. have been designed and are now in wide use all over the country. An equipment has also been developed for effective deweeding of small bheels and tanks.

The investigations of the Processing Division cover both fundamental and applied aspects of processing technology. Particular emphasis has been laid on problems in dehydration techniques; icing, freezing and canning;

utililation of fish wastes and development of different by-products and designing of essential equipments for the processing industry.

By the detailed studies conducted in the different sections, it has been possible to considerably improve the quality of the different processed products, particularly those for export, like canned prawns and fish, frozen prawns, lobsters and frog-legs. The process developed for production of laminated Bombay duck is now in wide use in the export industry.

Effective cleaning schedules evolved for boats and primary processing centres ensure prime quality of the ultimate product. An effective method of deodourising fish boxes and carriers etc. have also been worked out. Development of cheap insulated containers for transport of iced and frozen cargo is yet another achievement.

The Division has been able to work out methods for preparation of fish protein concentrate and bacteriological peptone both from the considerable quantity of "trash fish" landed in a trawl net. Similarly, from the sardine body oil it has been possible to prepare products like commercial factice (mineral rubber), printing ink and a variety of products with water repellent and lubricating properties. Fish cake, fish soup powder and fish wafers, to mention a few, are other processed products developed in the laboratory. Pilot plants for detailed studies on the production of the above mentioned products are being established.

It has also been possible for the Division to develop designs of dehydration units like the tunnel dryer, rotary drum dryer and rotary fish meal dryer using indigenously available materials. These equipments ensure production of good quality products.

Infant though still it is, CIFT through technological research has already contributed much to the scientific development of the fishing industry in India. ●