40 YEARS
OF
RESEARCH AND DEVELOPMENT
IN
MARINE FISHERIES IN INDIA

A Souvenir issued at the National Symposium on Research and Development in Marine Fisheries held at Mandapam Camp, 16 - 18 September 1987, to mark the 40th Anniversary of

Central Marine Fisheries Research Institute, Cochin
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Fishery Survey of India

The fishery scene in India till the end of World War II was almost entirely artisanal both in the inland and marine sectors. Since then conscientious efforts have been made by the governments at the Centre as well as States for the development of the apparently large resources with which the country is endowed. Many major lines of development in marine fisheries were initiated in the late 1940s. One such was the setting up of the Deep Sea Fishing Station (DSFS) at Bombay in 1946 with the aim of augmenting food supply through development of deepsea fishing. This station, to start with, was conceived as an integrated fisheries project with facilities for fishing, fish preservation, fish marketing, cold storage, ice plant etc. The specific functions, however, were charting of fishing grounds and training of deepsea fishing personnel.

GROWTH

The organisation, undergoing a metamorphosis through the stages of Offshore Fishing Stations (OFS) and Exploratory Fisheries Project (EFP), has at last come of age in the name and shape of Fishery Survey of India with Headquarters at Bombay and six (proposed) Zonal Bases at different sectors along the coastline as well as Andaman Islands. Four Zonal Bases are already functional. The present emphasis is on a scientific orientation and a systematic assessment of stocks of the different fishery resources in the offshore and deepsea areas.

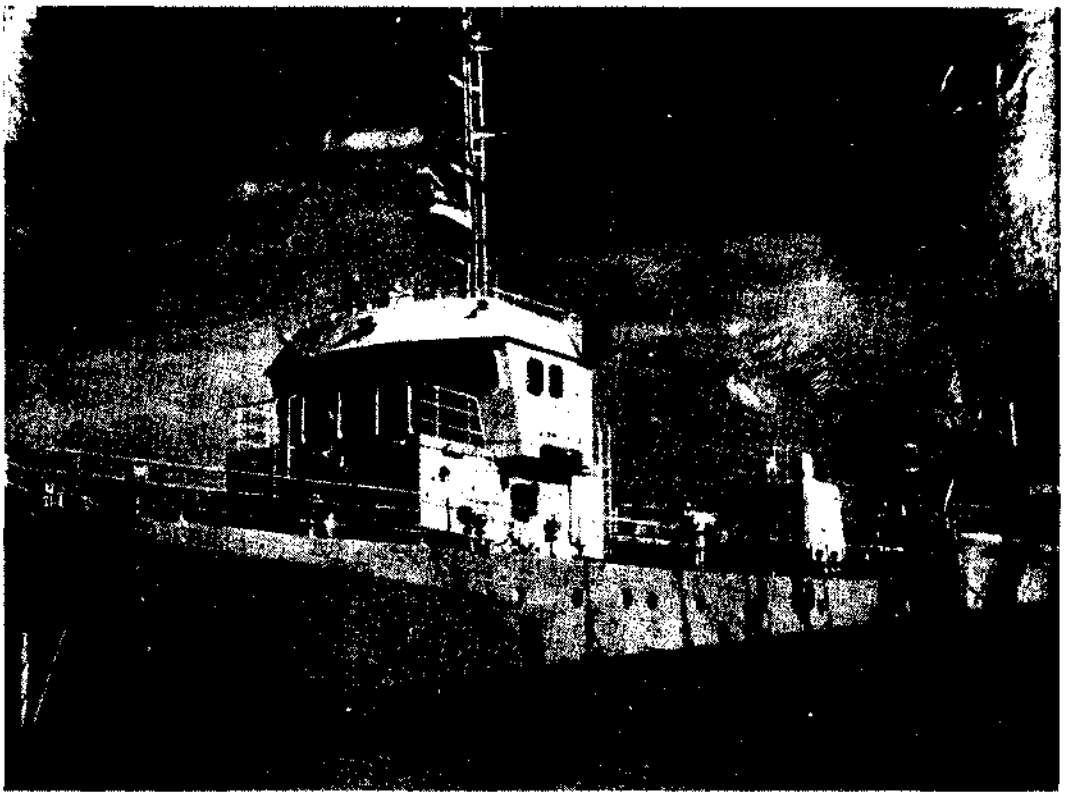
The activities of DSFS started with a mine sweeper-converted stern trawler — S. T. MEENA. Progressively, many fishing vessels of assorted sizes were added to the fleet for survey, training and increased production of fish. Whereas small wooden vessels were the mainstay of the organisation in the 1950s and early 1960s, the picture changed with the acquisition of steel trawlers of modern designs. A new generation of steel trawlers of 17.5 m length were added in the 1970s. The organisation attained the status of the largest fleet operators of deepsea fishing vessels, which were 28 in all by 1982. Relatively larger vessels of over 30 m OAL are the back bone of the present fleet of 17 fishery survey vessels, consisting of combination trawlers, purse-seiners and longliners, This is perhaps a unique fisheries organisation in the whole world having resources survey as its main objective.

AIMS AND OBJECTIVES

The aims and objectives of the organisation have been modified over the years to suit the emerging situation and challenges in the field of marine resources. Presently, the following charter of work has been assigned to the Fishery Survey of India.

1. Survey of the fishery resources and charting of fishing grounds within the Indian Exclusive Economic Zone.
2. Assessment of suitability of different types of craft and gear for deepsea and oceanic fishing.
3. Monitoring of the deepsea fish resources for purpose of regulation and management.
4. Training of deepsea fishing operatives by providing in-vessel training to CIFNET trainees.
5. Survey of inland fishery resources.
6. Dissemination of information on fishery resources through various media including fishery chart to the industry and others concerned.
7. Consultancy work on these aspects for Industry and others interested on the specific clearance from the Ministry.
8. Such other objectives which the Central Govt. may assign relating to the management of marine and inland fishery resources.

Combination Trawler



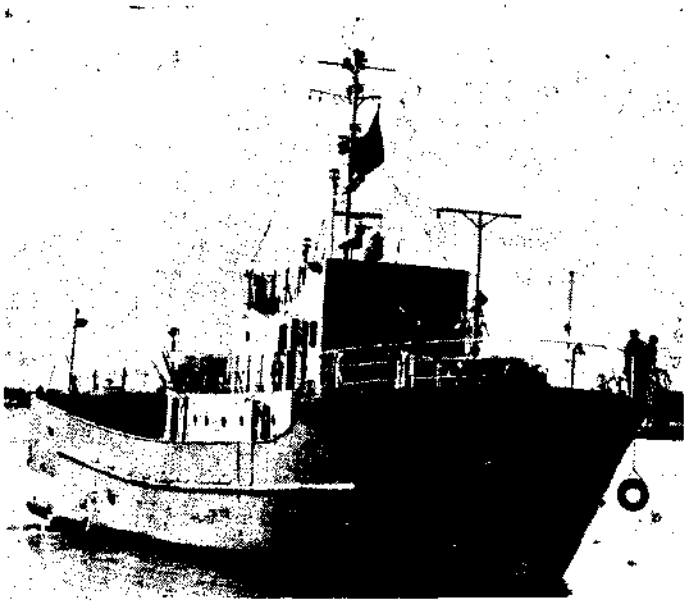
ACHIEVEMENTS

Over the years, the Fishery Survey of India has accumulated a mass of fairly reliable data on the fishery resources of the continental shelf up to 40 fm and has made significant breakthroughs in the deeper waters. It is presently engaged in the completion of demersal resources survey up to a depth of 300 m. The pelagic and oceanic resources are also being surveyed. Some of the major achievements and contributions of the Fishery Survey of India are the following.

— the introduction of bottom trawling in India through experimental/exploratory fishing with a variety of fishing vessels and fishing gears.
— location of rich prawn fishing grounds off Sandheads off West Bengal and off Andhra/Orissa coasts.
— development of tuna fisheries through experimental fishing by PRATAPduring 1962-67 and extensive exploratory tuna long lining.

Stern trawler

Trawler cum purseseiner



Tuna longliner

— introduction of midwater/pelagic trawling along north-west coast and along upper east coast with remarkable results. However, the Industry has not taken up pelagic trawling because of accent on shrimp fishing.

— introduction of purse-seining along both east and west coasts. Purse-seining by mechanised boats has already come to stay along Karnataka and Kerala coasts.

— confirmation of the abundance of tuna resources off Karnataka and indication of these resources along the east coast and Andamans.

TASKS AHEAD

An objective assessment and introspection about the activities and achievements of the Fishery Survey of India indicates that what remains to be done is much more than what has already been done. The tasks ahead are indeed

challenging, but with the proper appreciation from the fishing industry and the policy makers and above all the support being extended by the Government of India, the future appears to be full of promise.

FUTURE

The results of the surveys conducted by FSI have been published from time to time providing the necessary information support for the formulation of Government policies as well as commercial projects. All the same, it is to be admitted that a lot remains to be done in the field of marine fisheries exploration to get a comprehensive and clearer picture of the resources both qualitatively and quantitatively to enable planning and decision making.

Demersal fishery resources survey has been completed up to 75 m, all along the Indian coast and up to 300 m along southwest coast. The areas of abundance of demersal resources in this zone is very clear excepting certain stretches off the coast line. The resources picture beyond this depth contour is not so clear. Hence greater efforts would have to be put in completing the survey in the deeper waters within a time frame of five years or so.

Pelagic resources survey has been carried out only in certain areas and as such a lot remains to be done particularly in terms of purse-seining and midwater trawling. The efforts which are now on would have to be intensified and programmes drawn up to get a synoptic picture of the resources within as short a time as possible.

Survey for oceanic species such as the tuna, sail fish, marlin etc have got off to a fine start in the last couple of years and offers great promise for the development of the deepsea fishing industry. More specialised fishing vessels for the exploitation of the resources, stock assessment and commercial feasibility studies have to be acquired immediately to complete the task. Tuna longliners, tuna purse-seiners and

Blackruff

Bullseye

Indian drift fish

Deapsea lobster

pole-and-line fishing vessels are an immediate necessity. Though jigging has been a conventional method for exploiting the cephalopod resources, in recent years breakthroughs have been made elsewhere in the world, utilising midwater trawling for squids and cuttlefishes. There is immediate need to upgrade the technical capabilities of our fisheries operative in some of these lines.

The FSI has adopted the swept area method for assessment of demersal stocks. It is, however, well known that this method invariably leads to an underestimate of the available stocks. The assessed potential through the direct survey technique would have to be complemented by other methods of resources survey for a more precise picture to emerge. With the completion of the resources assessmnt of demersal fish in our continental shelf area, which is likely within the next few years, efforts have got to be intensified for monitoring of the resources with the sole aim of working out the total allowable catches at least in respect of some important resources such as prawns, pomfrets, sciaenids etc.

Remote sensing for natural resources in recent years has opened up exiciting possibilities. The FSI would do well to adopt this technique for speedy assessment particularly in terms of pelagic stocks and oceanic resources within our extensive EEZ.

The acid test for the effectiveness of resources research will ultimately lie in our capacity to advise the industry in advance of a particular season regarding the likely behaviour of the fishery so that the industry can suitably plan their commercial exploitation programmes. This would naturally lead to the concept of fishery forecasting, which, in the long run, should be our objective. However, the resources of the FSI alone are not sufficient to take up this challenging task. It is imperative that we have an effective programme of collaboration and cooperation with institutes and organisations conducting research on environmental parameters, biological cycles of fish species etc. Simultaneously efforts should be made to evolve and test improved gear with the sole aim

Deapsea prawn

Oceanic squid

of effective management of fishery resources through suitable regulations on the input of effort into the fishery and other related matters. The future holds a challenge to the FSI to make effective contribution in the areas mentioned above.

Survey of our inland fishery resources has been added to the charter of FSI, but a serious beginning in the assessment of the resources in the large inland water bodies is yet to be made. Preliminary work in terms of planning such a programme for the first time in India would pose considerable problems which have to be tackled with the assistance of various institutes and organisations having expertise in the area of inland fisheries. The large water bodies available in the country, as is well known, offer great scope for the development of capture as well as culture fisheries. The immediate task of FSI would be to assess the potential of the capture fishery resources in these water bodies. Though the new activities in this regard have been approved by the Govt. of India for implementation in the VII Plan it is not likely that any significant activity would take place before the end of this plan period. The work would have to be geared up to the needs of the situation during the VIII Plan period.

Communicated by Dr. D. Sudarsan, Dy. Director General (FY).