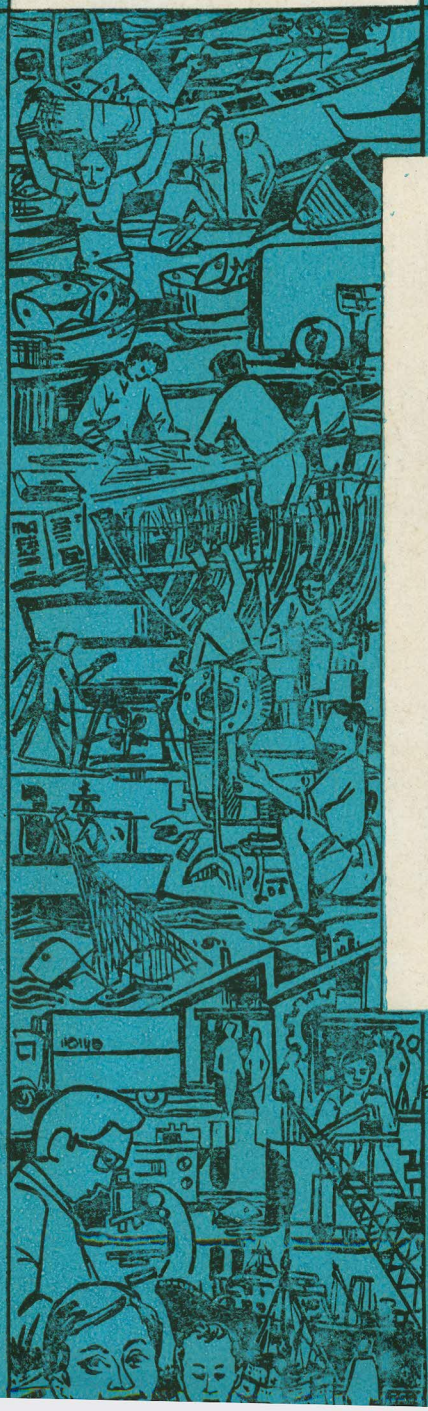
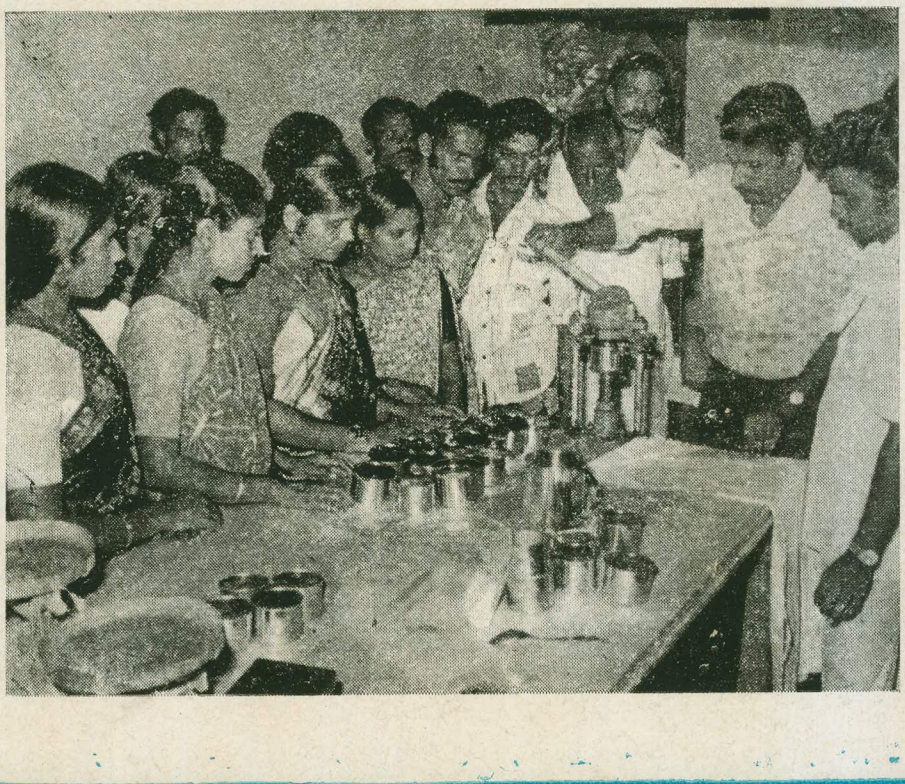
Fish technology newsletter

Vol. II No. 8 APRIL-JUNE 1980





CIFT Scientist demonstrating the canning technique for mussel meat at Elathur Village, Calicut, under Lab-to-Land Programme (Report on page 4)

CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY
MATSYAPURI P. O. COCHIN - 682 029

CONTENTS

Foreword

Fish Technology Newsletter issued every month is intended to bring the fishery industry in India in touch with some of the important developments in fisheries technology resulting from investigations carried out at this Institute and elsewhere. It is not a research publication. Every effort has been earnestly made to express the ideas in non-scientific language. Its ultimate aim is the applicatian of the results of contemporary research for the advancement of our fishery industry.

Fish Technology Newsletter does not owe allegiance to any manufacturer, patent, product or development agency unless otherwise specified. Its purpose is to open up a communication channel through which useful ideas can be exchanged, problems discussed and success shared. The process of exchanging views and opinions makes it easier to identify the real issues and that is where problem-solving begins.

We welcome contributions from any source which will help to achieve our above-mentioned aim. The sources of all such contributions will be acknowledged. We sincerely hope that the current events and informations contained in the columns "GLEANINGS FROM OTHER JOURNALS" and "LET'S TALK IT OVER" will be of interest to the Indian fishing and fish processing industries.

We also welcome suggestions from our readers for improvement in the contents and get-up of Newsletter. Any part of this publication may be reprinted in any language if the translation is true and the source is acknowledged.

Abbreviation: Fishtech News

Editorial Committee.

LAB - TO LAND PROGRAMME OF CIFT - 10

One of the highlights of the Golden Jubilee celebrations of the Indian Council of Agricultural Research observed last year was a country - wide programme of transfer of Technology known as the Lab - to - Land programme to which CIFT is also contributing in a humble way. In the previous issues we published reports on such programme held at Mangalore, Bombay, Kumarakom, Calicut, Kumbalam, Vaikom, Veraval, Madras, Cochin and Kakinada. In this issue we present a report on programmes taken up at Elatnur, Kerala.

Inaugural address by Shri P. S. Sreenivasan, Minister for Revenue and Fisheries

A three-day training-cum-demonstration in various methods of processing mussel meat was conducted at Elathur, 8 kms from Calicut.

The object of the programme was to enable the villagers of Elathur to take up mussel meat processing on scientific lines on a commercial or semi-commercial scale, and to enable the consumer to get a better product with greater shelf-life and better nutrition.

Thirty three persons including six women participated in the training on various methods of mussel meat processing viz drying, smoking and drying making pickles, making chutney and canning.

The participants were selected from the following associations.

1. Elathur Kaduka Thozhilali. Union, Chettikulam, Calicut
2. Kadukka Thozhilali Union, CITU, Elathur.
3. Elathur Kadukka Thozhilali Union.
4. Badagara Taluk Matsya Pravarthaka MahilaSamajam

The programme was inaugurated by the State Fisheries Minister, Shri P. S. Sreenivasan, in a meeting held at Elathur National L. P. School on April 19, 1980.

Speaking on the occasion Shri Sreenivasan said the Government had decided to increase the Fisheries resources of the State at least by two times of the present catch.

"Leaving aside the forest resources, Fisheries sector is the second important source of income to the state. It requires less investment and can provide more employment to the people" the Minister said.

Presidential address by Shri A. C. Shanmugha Das, Minister for Community Development

He promised all sorts of help from the Government for the development of fisheries Industry in the State. He asked the Scientists of both Central and State Governments to work together for better production and utilization of fish in the Inland water resources of the State.

Presiding over the function Community Development Minister, Shri A. C Shanmugha Das, emphasised the need of utilizing CIFT's technical help in the processing sector too as to create more employment potential in the state.

C I F T Director, Shri G. K. Kuriyan, welcomed the gathering. He said the Lab-to-Land programmes conducted by the institute in various centres of the country have benefited over 500 families, especially the weaker sections of society, to improve their economic conditions and living standards "The programme will continue for another two years", he assured.

Calicut District Collector, Shri K. M Balakrishnan, Elathur Panchayat President, Shri K. Krishnan and Chevayoor Block Development Officer, Shri M. P. Moideen Koya, also spoke. CIFT Joint Director Shri M. R. Nair. expressed the vote of thanks.

Trainees frying mussel meat for making pickles

Newest MARCO Combination vessel fishing for Alaska Tanner Crab

The COLUMBIA, the latest 122-foot combination fishing vessel built by MARCO Seattle, was christened recently by Kristine Fuller, daughter of one of the owners.

The all-steel vessel is outfitted for crabbing and for packing salmon and herring. Owners of the vessel include: Charles Bundrant, Philip Fuller, William Howell, Don Leuthold, Kaare Ness, George Schmidt, and Don Tucker.

Dave Kopra, experienced North Pacific fisherman and skipper of the COLUMBIA, is fishing the new boat in the current Alaska Tanner crab season and will deliver his catch to Trident Seafoods in Akutan, Alaska. Later the COLUMBIA will pack herring and salmon before participating in the 1980 Alaska king crab season.

MAIN PROPULSION SYSTEM

The COLUMBIA is powered by a Caterpillar D399 turbo-charged and after-cooled diesel engine that develops 1125 bhp and is coupled to a Caterpillar 7271 hydraulic reverse/reduction gear. The vessel has a Coolidge 90-inch, Four-blade stainless steel propeller.

Auxiliary power is provided by three diesel engines, including a Caterpillar D3408 TA coupled to a 250-kw generator with a MARCO hydraulic pump drive; and a Caterpillar 3304 T with a 90-kw generator.

The COLUMBIA has three insulated holds and an 80-ton chilled seawater system for salmon and herring packing. For crabbing, the hold provide space for 205,000 pounds of ive crab.

HYDRAULIC DECK MACHINERY

Hydraulic deck machinery for crabbing includes a MARCO "King Hauler" for hauling crab pots, a MARCO "King Coiler" for line handling, an articulated crab pot dumping rack, a bait chopper, and a 12-ton Slattery crane.

Galley, mess area, anteroom, bait and food freezer, stores and seven-man crew quarters are located on the main deck; pilothouse and captain's stateroom are on the fo'c'sle deck above.

The galley is all-electric and furnished with a range, dishwasher, microwave and conventional ovens, clothes washer and dryer, and a 19-cubic-foot combination refrigerator/freezer.

The mess area is outfitted with sound and video equipment, including a cassette recorder/player, AM-FM radio, and video recorder/player with accompanying color televisiion.

PILOTHOUSE ELECTRONICS

Pilothouse electronics include two radars, two Loran Cs. autopilot, echo sounder, and two SSB radios.

In addition, the COLUMBIA has a Sperry gyrocompass and a Wagner TI8 hydraulic steering system with two jog stations.

The COLUMBIA is the eleventh combination fishing vessel for the North Pacific fisheries MARCO has delivered this year.

[SOURCE; MARCO SEATTLE)

CURRICULAM ON FISHING CRAFT TECHNOLOGY TEACHING TECHNIQUES AND GUIDE LINES

(Sea Fishing today has become a highly competitive business and fishing boats form the highest asset. The economic well being of the Fishing Industry lies in the efficient operation of the entire fishing fleet. To understand, appreciate, administer and able manage this, a curriculam on fishing craft technology appears to be most vital. We publish a paper presented by Shri R. Balasubramanyan at the seminar on "Teaching Fisheries" held on February 22, 1980 at the Tamil Nadu Agricultural University Fisheries College, Tuticorin. Shri Balasubramanyan is senior Scientist/Scientist – in – Charge (Craft & Gear), CIFT, Cochin.)

Fishing Crafts constitute a very important and essential component in the fishing industry today. Choice of fishing crafts, their acquisition, running and maintenance are important aspects in the management of the Industry both in the small scale and large scale sectors. Sea fishing to day has become a highly competitive business and fishing boats form the biggest asset.

For centuries, fishing in our coastal waters has been done from the traditional indigenous crafts like catamarans, dug–out canoes and small built–up boats in accordance with age-old customs and traditions. The success

TAJ SEAFOODS

Taj Seafoods, managed by a group of Ex–service officers has been the latest to enter the field of export of canned Marine Products. The firm has acquired a canning plant at Palluruthy, Cochin and has already commenced exports to United Kingdom.

Recently a short training course on the various aspects of canning was conducted at the institute for the Managerial Staff of the firm at their request Those who attended the course were full of praise of the benefits of the course and we reproduce here an excerpt from a letter received by the Director, CIFT from Commander K. G. Thomas V. S M. I. N. (Retd), Chief Executive, Taj Seafoods

"Without reservation we wish to add that the course and the discussions on various technical points we had with your staff have been greatly beneficial to us and will go a long way in running our canning plant on a more sound technical footing. What is more, it has given us a chance to fully appreciate the yeoman service rendered by the Institute to the fish–based industries.

We also wish to take this opportunity to thank Dr. P. N. Kaul, the Extension officer, and Mr K. Balachandran, the officer who conducted the course, for the cordiality and co–operation extended to us on your behalf."

of any efforts towards introducing more modern fishing crafts and innovated methods of fishing with newer gears is dependent on very many factors. These new changes obviously call for greater catches in order to meet the greater cost in the investment and operation there after. Increased production will also require improved facilities in the field of post harvest technology for obtaining maximum utility. Both modernization and mechanization of fishing crafts have to be studied in greater details for a proper understanding and appreciation of the connected problems. Experimental prototype fishing boats have to be built according to approved designs and recommended specifications so as to set a standard of cost and to test the acceptability of actual operators.

Indian fishing fleet today comprises of nearly 16,000 wooden mechanised fishing boats built on proven lines in the length range of 8 to 15 meters. There are about 200 steel trawlers in the range of 17 to 30 meters in length. There are also innumerable (nearly a lakh or half a million) traditional fishing crafts operating all along the 6,000 Km. coast line of India.

An ideal and appropriate fishing boat for economical operations has to be conceived as a result of interaction between biologists, engineers, naval architects, boat-builders and operators. A fishing boat carried on her business in an hostile environment and so is subject to periodic examination, appraisal and maintenance to keep her in a fit state for her work. To most fisherman over the world, the fishing boat represents the most important investment in his life-time. The economic well-being of the fishing industry lies in the efficient operation of the entire fishing fleet. To undetstand, appreciate, administer and ably manage this, a curriculum on fishing craft technology appears to be most vital

FISHING CRAFT TECHNOLOGY

1. Traditional Fishing crafts of India

1.1. East Coast and West Coast types

1.2. Method of construction and cost

1.3. Method of operation with reference to the type of fishing

1.4. Cost benefit ratio

1.5. Scope of improvements-Motorization and Mechanization

1.6. Economic appraisal

2. General requirements for modern fishing boats

2.1. Type of fish located, area of fishing, method of fishing to be adopted, duration of voyage

2.2. Sea-conditions, weather conditions and operational facilities

2.3 Choice of fishing boat types like trawler, gill netter, purse-seiner; long liner, potter and for survey purposes

3. Choice of fishing boat designs

3.1. Design parameters and blue print reading

3.2. Displacement and powering requirements

3.3. Construction details - General arrangements

3.4. Costing

4. Boat building materials and their characteristics

4.1. Wood, plywood and allied materials

4.2. Steel and allied materials

4.3. Copper and copper based alloys

4.4. Aluminium alloys for marine use

4.5. Fibre reinforced Plastics (FRP/GRP)

4.6. Ferro-cement

4.7. Boat fastenings

4.8. Marine paints and coatings

5. Deterioration/Degradation of construction materials

5.1 Biodegradation of materials

5.2. Marine corrosion in metals

5.3. Mechanical wear and tear

5.4. Causes and remedial measures for the above

6. Techniques of boat construction (Wooden hull)

6.1. Table of off-sets and mould lofting and making templates

6.2. Back- bone assembly

6.3 Template installation

6.4. Hull planking

6.5 Framing and other strengtheners

6.6 Preparation of engine bearers and engine installations

6.7. Deck beams, deck planking, bulk heads, and holds and hatches

6.8. Wheel house and super structure

6.9. Rigging and out-fitting, above deck and inside hull

6.10. Stern-gear installation

6.11. Hull protection-sheathing, painting etc.

6.12. Pre-launch inspection and launching

6.13. Tests, trial runs and certification

7. General construction techiques for steel, aluminium, FRP and Ferrocement

7.1. Material specification and method of construction

8. Fishing boat maintenance

8.1. Annual repairs

8.2. Renewals/refitting

8 3. Record maintenance–History of the boat and the machineries on board

9. General aspects

9.1. Condemnation of fishing vessels : Guide lines

9.2. Buying of old fishing vessels : Inspection and assessment

9 3. Boat yard set-up, organisation and management

9 4 Preparation of tender documents, analytical study of tenders received

9 5. Legal agreement between owner and builder

9.6. Scope of inspection, delivery, acceptance and final payment.

10. Fishing Fleet Management

10.1. Berthing facilities inside ports/harbours

10.2. Crew allotment

10.3. Planning fishing voyages

10.4. Establishment of shore facilities

10.5. Catch handling

11. Field studies :

11.1. Inspection of indigenous fishing crafts, their construction and methods of operation

11.2. Visit to a well organised boat-yard to familiarise with the boat design drawings, sections, mould lofting etc.

11.3 Watching the different stages and progress in the construction of fishing boats

(Contd. on page 12)

IMPROVED TYPES OF CATAMARANS AND BEACHCRAFT

The primitive catamarans, a crude but robust and firm assemblage of a few logs, are the most extensively operated fishing craft on India's eastern coastline. As many as 50,000 catamarans fish in the Bay of Bengal from Puri in Orissa and Kanyakumari in Tamil Nadu.

In Tamil Nadu alone. numbering 33,000, this little fishing craft accounts for half of the State's marine fish production. Over two thirds of sea fish in Andhra Pradesh are captured with catamarans.

The sturdily built catamarans can swiftly move across the surf and can be hauled ashore with less effort. This low-cost craft is unsinkable and calls for minimum maintenance. Because of these dominant virtues it rules amongst the east coast fishermen for centuries, as the most handy and popular fishing craft.

The low mobility and poor carrying capacity are however the major complaints frequently quoted against the traditional catamarans.

This Bay of Bengal Programme of the Food and Agriculture Organisation Madras, which is in existence from early 1979 has taken up this aspect and commissioned activities on the improvement of catamarans and in designing a suitable low cost beachlanding mechanised boats for small-scale fishermen.

Under its catamaran improvement plan, with a view to increasing the production and profitability of catamarans several experiments are being conducted according to Mr. L. O. Engvall, Director of Bay of Bengal Programme. To arrest the physical and physiological decay of the logs and to increase their working life, special copper-chrome arsenic compounds and creosote were impregnated in the wood, Mr. Engvall said. New inexpensive but strong timber were also being tried for catamarans.

The heavy surf conditions that prevail in India's east coast with six-feet high waves breaking regularly right on the beach have rendered it difficult for any small craft except the sturdy catamarans to operate in this area, said an expert in fishing crafts

Beachcraft built abroad were operated in safe beaches. But they could be useful under the rough sea conditions of the east coast only when fitted with expensive mechanised equipment-beyond the means of large number of poor fishermen. They were thus unsuited for Indian conditions, he said.

To solve this problem the Bay of Bengal Programme has designed four types of intermadiate beachcraft of higher carrying copacity incorporating the positive features of the traditional craft such as its operational safety and surf riding capacity.

One of them uses buoyant polystyrene 'logs' enclosed in a boatshaped wooden framework, another is a twin-hull craft, and the other two are two decked single-hull boats of different designs.

Mr. Oyvand Gulbrandsen of Norway, a leading fish craft specialist, has designed the four prototypes taking into full consideration the rough condition of Indian seas found successful on surf testing these power-cum sail boats would be an ideal substitute for catamarans said Mr Engvall.

These 7-metre long, beach landing craft built at the Madras boatyards, would undergo rigorous surf tests by an Australian expert during May, Mr. Engvall said.

(Source: HINDU)

WORKSHOP ON RESERVOIR FISHERIES

Co-sponsored by the Indian National Science Academy, New Delhi and the Indian Fisheries Association, Bombay, the Central Institute of Fisheries Education, Bombay (ICAR) organised and conducted a Workshop on Reservoir Fisheries for Rural Development at Bombay during April 8-9,1980.

The Workshop was inaugurated by Dr. O. P. Gautam, Director General, ICAR and presided over by Shri S. P. Mukherjee IAS, Additional Secretary, Ministry of Agriculture & Co-operation, Govt. of India. Dr. S. N. Dwivedi, Director CIFE, Bombay, while welcoming the gathering, reiterated that reservoir fisheries for rural development requires new policies and modern technologies. Dr. C. V. Kulkarni, President, Indian Fisheries Association, Bombay spoke on "Mahseer", the mighty game fish for Indian Reservoirs.

More than sixty scientific papers were presented and discussed at the Workshop. About 100 Scientists from all over the country and the Directors of Fisheries & Fisheries Development Officers from the Inland States attended the workshop and actively participated in the discussions.

From CIFT, the following papers were presented:-

1. Recent advances in reservoir fishing - Development of Craft & Gear - G. K Kuriyan
2. Fishing crafts for Inland Reservoirs - R. Balasubramanyan
3. Efficient fishing gear in Hirakud Reservoir - V. C. George
4. Gill net fishing in Indian Reservoirs - A. A. Khan, V. C. George & M. D. Varghese
5. Scope of trawl fishing in Indian Reservoirs - V. C. George, Percy Dawson, A. A. Khan & M. D. Varghese
6. Control of predatory fishes from Reservoirs - M. D. Varghese, R. S. Manohara Doss, A. A. Khan & V. C. George
7. Netting materials for Inland fishing gear - S. Gopalan Nayar & K. Radhalakshmi

Proceedings of the Workshop on Reservoir Fisheries for Rural Development; Special Number of India Today & Tomorrow Vol. 8, No. 4, 1980

The special number is scheduled to be published shortly. Besides the proceedings, scientific /technical features on the subject along with pictures, statistics etc. are also being included in this issue. Those who are interested in obtaining copies may please register their names at the C.I.F.E. or with the publisher direct. Price per copy is Rs 10/-.

India Today &Tomorrow is a journal devoted to the subject of industrial and rural development, international trade & commerce. The journal is being published every quarter since April 1968. Annual subscription is Rs. 35/-, single copy Rs. 10/-.

Shipping & Marine Industrial Journal is being published since October, 1972 and is devoted to Shipbuilding, Offshore and Underwater activities, Fisheries, Ports and Oceanography. Annual subscription, Rs. 35/-, single copy, Rs. 10/-.

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RESERVOIR FISHERIES

In India, the reservoirs have an area of about 3 million hectares and produce 20,000 tonnes of fish annually. This forms a little less than 3 per cent of the total inland fish production of the country. Current average annual fish production per hectare is 6-7 kg. which could be raised many folds by adopting proper development and management policies. National Commission on Agriculture has suggested an annual fish production of 40 kg. per hectare for all reservoirs which can be achieved by use of existing technologies and proper management. At the rate of 40 kg. per hectare about 1.2 million tonnes of fish can be produced which if sold at Rs. 5/- per kg. will yield Rs. 60 crores annually. This will provide a royalty of Rs. 24 crores to State Governments even when they charge the royalty on fishing at the rate of Rs. 2/-per kg. only. Apart from State Governments, the fishermen will get an income of Rs. 36 crores. At a subsistence level of Rs. 5,000/-per fisherman per year this will provide employment to 72,000 fishermen. Fish handling, transport and marketing from production to market centres cost around Rs. 5/-kg. and this gives an additional turn over of Rs 60 crores. This will also provide more jobs to landless labour and fisherwomen.

Reservoirs extending over 2,000 ha. can be considered as large while those with an extent between 501 to 2000 ha. are medium. Small reservoirs are below 500 ha. in area. Though increase in fish production has been obtained in different reservoirs it is observed that the increased fish production in small reservoirs is spectacular eg. Sathanur reservoir in Tamil Nadu and Keethan reservoir in Uttar Pradesh.

Success of improvement of fish production from reservoirs depend mainly on availability of quality fish seed, management of reservoirs on scientific techniques, exploitation with appropriate craft and gear, providing quick transport facilities like ice and cold storage, organisation of co-operatives etc.

(Continued from page 9)

11.3.1. Mechanised wooden fishing boats

11.3.2 Steel trawlers

11.3.3 Aluminium boats

11.3.4 FRP boats

11.3.5 Ferro-Cement boats

11.4 Watching of the hauling and launching of fishing boats-Slipway management

11.5. To undertake fishing voyages on board trawlers, purse-seiners, gill netters, liners and potters and closely watch the duties and performance of such types of boats.

11.6. Visit to a fishing harbour and closely observe the fishing fleet and its management including catch handling

11.7. Examine all construction materials at appropriate places and carefully note their condition before their actual use and after their prolonged use in a marine environment

11.8. Study in detail a boat-yard management, its different sections, machineries, men and tools

11.9. Exercise on costing/evaluation of fishing boats

12. SUGGESTED READING MATERIALS

GENERAL

12.1. The origin and ethnological significance of Indian Boat Designs by James Hornell

12.2. FAO/TA Report No.1 to the Government of India on Fishing Boats by Paul B. Ziener and K. Rasmussan (FAO/56/10/7991)

12.3. FAO/T Report No. 2, 3&4 to the Government of India on Fishing Boats'' by Peter Gurtner, FAO

12.4. Fishing Boats of the World by FAO/UN No. 1; 2 & 3

NAVAL ARCHITECTURE

12.4. Theory of Naval Architecture by Robb

12.5. Modern Naval Architecture by Muckle

12.6. Basic Naval Architecture by Barnaby

12.7 Naval Architecture and ship builders' pocket book by Wollard (Lloyds)

12.8. Naval Architecture of small crafts by Philips Birt

BOAT CONSTRUCTION

12.9. Fishing Boats by Kennedy Brown

12.10. Standard specification for the construction of wooden fishing vessels over all length 30'–90' by White Fish Authority U. K.

12.11. Rules and regulations for the construction and classification of inland water-ways vessels by Lloyds Register of shipping U. K.

12.12. Fishing boat designs : 1- Flat bottom boats–F. A. O. Tech. Paper No. 117

12.13. Fishing boat designs : 2–V–bottom boats–F. A. O. Tech. Paper No. 134

12.14. Simple boat building by Prout

12.15. Amateur boat building by Crosby

12.16. Boat building simplified by Ashcraft

12.17. Twentythree boats you can build by Popular Mechanics Magazine

12.18. Small boat construction by Stewart R. M.

12.19. Small sea–going craft for inland navigation by Rhoode, A.

12.20 Boat building by Chapelle (Howard)

12.21. Know your own boat by Walton

12.22. Complete amateur boat building by Michael Verney

12.23. Building a sawn from fishing boat – F A O Fisheries Tech. Paper No. 96 by John. F. Fyson

12.24. Boat building guide Vol. 1&2 by Swinfield

12.25. Fishing vessel construction materials, Industrial Development Service, Department of Fisheries of Canada, Ottawa.

TIMBER TECHNOLOGY

12 26. Indian woods – Wood seasoning and wood preservation – Publications from the Forest Research Institute, Dehra Dhun, U.P.

12 27. Wood – A manual for its use in wooden vessels-Bureau of ships, Navy Department, Washington D.C., U.S. A.

12.28. Text Book of Wood Technology Vol. 1&11 by Brown, H. P.

12.29. Decay of wood in boats by Carlhartley and Curtis.

SHIP BUILDING STEEL AND ALLIED MATERIALS

12.30. Lloyd's specification and classification

12.31. Indian Standards Institute's specification

12.32. Strength of Materials (number of publications available)

12.33. Marine Aluminium applications by C. Leveau, Kaiser Aluminium & Chemical Corporation Oakland, California

12.34. Aluminium boats – Kaiser Aluminium & Chemical Corporation

FIBRE GLASS REINFORCED PLASTICS (F. R. P./G. R. P.,

12 35. Glass fibre reinforced plastic boat building No. 43 by Mc Innes & Hobbs, Lloyd's Register of shipping, U. K,

12.36. Fibreglass boats, fitting out, maintenance and repair by Hugo du plessis, Alard Coles, London

12.37. How to build 15' fibre. glass boats by Charles Bell

12.38. Lloyd's specification for the application of FRP in boat

FERRO CEMENT

12.39. Ferrocement with special reference to marine applications by Charles Darwin Canby

12.40. Report of the Seminar on the design and construction of Ferrocement Fishing Vessels, Wellington, Newzealand, 9–18, October 1972–FAO Report No. 131 F IIV/R 131

12.41. Construction of a 16 Metre Ferrocement Fishing Boat by J Fyson of F. A. O.

12.42. Ferrocement construction of fishing vessels by J. FYSON, FAO/UN DP/TA, Bangkok, Thailand

12.43. Ship hulls made of reinforced concrete–design, strength and construction technology – Scientific Documentation Division (205), Department of Navy, Washington, D. C.

12.44. Ferrocement : Applications in developing countries-National Academy of Sciences, Washington, D.C., USA

12.45. F. A. O. Investigates Ferrocement Fishing Craft Edited by John Fyson, Fishing News (Books) Ltd., England.

MISCELLANEOUS

12.46. Marine fouling and its prevention – Contribution No. 580, Woods–Hole Oceanographic Institution, U. S. A.

12.47. Biodeterioration of materials by Harry Walters and J. J. Elphick

12.48. The corrosion Hand Book by Herbert H. Uhlig

12 49. First course in Materials science by A Raghavan

12 50. Materials in Industry by Patton

13. Contact Institutes and Organisation

13.1. Central Institute of Fisheries Technology, Cochin. P. C. 682029

13.2. Central Institute of Fisheries Education, Versova, Bombay. P. C. 400061

13.3. Central Institute of Fisheries Nautical and Engineering Training, Cochin P. C. 682016

13.4. Indian Institute of Technology, Faculty of Naval Architecture, Kharagpur, West Bengal

13.5. Indian Institute of Technology, Madras. P. C. 600036

13.6. Naval Chemical and Metallurgical Laboratory, Naval Dockyard, Bombay

13 7. Indian Standards Institution, Manak Bhavan New Delhi. P. C. 110001

GLEANINGS FROM OTHER JOURNALS

Hull Clearing System with Prolyproplene Bristles

Complete Hull Cleaning Service

Imagine a hydraulic car wash working upside down in the sea and you will understand the principle behind "Seascrub", a new machine for cleaning boat hulls.

According to the makers, Hyd Marine Developments of Farnborough, Hampshire (US), the machine can be used to clean any length of boat including those with deep finned keels using either fresh or salt water.

Tests show that the machine's 12 inch polypropylene bristles defoul the bottoms of boats effectively. The sensing system which controls the brush position against the boat is completely controlled by an hydraulic feed back system. No electronic sensors or servo arrangements are involved.

Mr. Christopher Good, Managing Director of Hyd Marine thinks it will be possible to offer a complete hull cleaning service for about one pound a scrubbed foot – at present, the procedure is to book your boat into a marina where it is lifted out of the water and cleaned by marina staff. The price can be as much as 2.50 pounds a scrubbed foot.

(Financial Times)

Industrial Flocculent from Prawn Waste: Process Developed

The Central Institute of Fisheries Technology has developed a process to manufacture industrial flocculent from prawn shells.

Mr. G. K. Kuriyan, Director of the institute, told a press conference at Calicut that the product chitosan which was de-acetylated chitin could be utilised for treatment of sewerage, and industrial effluents. It could even remove mercury and other heavy metals from effluents. Chitin along with other antibiotics is used in the pharmaceutical industry also.

The institute has set up a onetonne pilot plant at Cochin, which processes one tonne of prawn waste within 24 hours. Three to four percent of the weight of raw material would be the finished product.

According to Mr. Kuriyan prawn wastes in the country would come to about 60,000 tonnes a year. Its processing which was very easy too, could save a lot of foreign exchange which was now being spent on importing other types of similar industrial flocculent While the product from prawn waste would cost about Rs 35 to 40 a Kg. the imported products cost Rs. 200 or so a kg.

There were many enquiries from abroad for the product though not many had come forward yet to take up its manufacture in fhe country except one very small unit.

Mr. Kuriyan said the institute had been working for some time on the problem of utilisation of prawn shell waste which was at present discarded in processing factories. The formula for balanced poultry feed, using prawn shell powder, fish meal, rice bran, wheat bran and molasses had been evolved.

The process for preparation of soluble fertilizer by mixing prawn shell waste and fish waste having a ratio as recommended for arecanut, and ginger had also been developed. During

(Continued on page 18)

LET'S TALK IT OVER

M/s United Carbon India Ltd., Bombay

What is the annual production of Fish meal in the country ? Is there any fish meal manufacturer in India who uses anti-oxidants in the manufacture of fish meal for longer life ? Would you please furnish a list of firms undertaking manufacture of fish meal ?

CIFT: The annual production of fish meal in the country is estimated at 5000 tons.

At Present, to our knowledge, no firm in India is using anti-oxidants in the manufacture of fish meal. By use of anti-oxidants to the fish meal immediately after manufacture, the meal is 'stablized'. The amount of anti-oxidants required for avoiding under heating depends upon the degree of activity of the oil (lipid unsaturation) and varies from species to species as indicated below.

South African pilchard

Meal (IV.180) : 400 ppm ethoxyquin

Herring meal (IV.120) : 700 ppm BHA

Anchocta meal (IV.190) : 400-750 ppm ethoxyqu n

The anti-oxidant is added immediately after drying It is added to the meal in the screw conveyor leading from the drier to the mill so that mixing can take place enroute.

In some factories, the anti-oxidant is mixed with a constant amount of stick water concentrate, which solution is then added to the press cake in the screw conveyor and then to the drier.

A list of firms under taking manufacture of fish meal is furnished :

Manufacturers of fish meal.

1. M/s Fish meal and Oil Plant
   Kerala Fisheries Corporation
   Azhikode, Trichur District, Kerala.

2 M/s Mukka Oil & Food Industries,
   Karnataka BanK Building
   Kodiyal Bail
   Manglore (Karnataka) 575003

3. M/s Sea Farm Fertilizers
   4/18 A Pullupalam
   P. B. No. 56
   Cochin-1

4. M/s Babcock Perundurai Poultry Farm
   Kaunnathur Road, Perundurai
   Erode R. M. S., Tamil Nadu - 638052

5. M/s Agro-Marine Products Corporation
   Muthupuram Agraharam
   Velipatanam (P. O)
   Ramanathapuram, Tamil Nadu

6. M/s Patel Grinding Industries
   P. B No. 6356, Sewri-Cross Road
   Near Sewri Railway Station
   Sewri, Bombay-400015

M/s Cellulose Products of India Ltd., Madurai

We would I ke to know whether the moisture metre developed in CIFT can be used for measuring moisture in airdried see weeds.
CIFT: The moisture meter developed in CIFT is primarily designed for measurements in wood dried fishes and also in food grains In principle, it should be suitable for airdried weeds also.

The sensor should be slightly modified for measurements with dried seeweeds Every time the material will have to be taken in the pot like sensor and pressed with a standard weight to bring it to a uniform nature, unlike piercing the probe in the case of Wood and dried fishes. Further, a separate calibration has to be made in the case of see-weeds as its properties are different from wood and other materials □

K. A. SADANANDAN

Shri K. A. Sadanandan, Scientist S-2, is a senior scientist of the Gear Division of CIFT.

Born on March 23 1935 at Moothakunnam in Ernakulam District, he took his Msc. Degree in Zoology in 1958 from Agra University. He jointed C I F T the same year.

Shri Sadanandan is one of the few scientists who were privileged to get theoretical and practical guidance and training on problems connected with the fishing gear technology and shrimps trawling from the F A O Gear Technologist, Dr. Miya Moto for five years from 1958 to 1963.

Evolving new designs of nets suitable to Indian Conditions and their introduction to various parts of the country for better catch and easier handling is the field of his specialization. The new designs of Bottom Set Gill Net evolved by him for catching lobsters along the south west and south east coasts of India is found to be three to four times more efficient and easier in handling than the existing ones. He has designed and introduced a nylon gill net of 75 m m mesh size for catching commercially significant size groups of Seer fish. For catching tiger prawns along the ground of zuary Estuary of Goa he has designed another polyamide gill net.

Among the trawl nets designed and developed by Shri Sadanandan, a trawl gear combination suitable for operation from small motorised boats along the east coast of india and the dual purpose trawl net and otter board suitable for operations for demersal and column fishes from small mechanised boats along the west coast of India deserve special mention.

Similarly, the designs of purse seins evolved by him for catching mackerel are found to be cheaper in construction, easier in handling and more efficeint than the traditional purse seins.

He has associated with the extensive studies conducted by C I F T on troll lines and selectivity of artificial lures for caching predatory fishes.

Under an F A O Group Fellowship Study Tour, Shri Sadanandan Visited Soviet Russia in 1967.

To his credit there are eleven scientific papers published in variousjurnals, He hasalsoguided the publication of several Research papers.

WHAT THEY HAVE TO SAY ABOUT CIFT

– Nice to see –a dream come true –

G. M. GERHARDSEN,
Borgen, Norway.

- I am very impressed of your work –

A. BRINGSVOR,
Borgen, Norway

– I am very impressed of the Institute's capacity, and very much appreciate the discussions held with such a Knowledge-able staff –

I. BUORKLUND, FAO, ROME.

– I am very informed with your developments in Fisheries and hope to take back home so-mething we have gathered in a short time –

K. S. AAIGE, Minister of Agriculture, Republic of Seychelles.

(Continued from page 15)

the production of chitosan, an-other by-product that would be available was protein extract, he said.

The method developed by the Institute for the preparation of fish protein concentrate con-taining 80 per cent protein from trash fish had been adjudged good by a few laboratories, inc-luding the Bureau of Comme-rcial Fisheries of the U. S. and the Institute of Catering Tec-hnology, Bombay, Mr. Kuriyan said.

Bacteriological peptone was yet another product which had prepared from miscellaneous trash fish and the product was quite comparable to the impor-ted peptone.

The Institute. according to the Director had developed processes for the preparation of a variety of speciality prod-ucts like fish flakes and rish soup powder dried mussel meat. smoked and dried mussel meat and massel pickies. were some other recent products develop-d by the Institute.

Tissue Culture Method

In collaboration with the For st Development Corporation of Maharashtra Ltd, Nationel Chemical Laboratory, Pune, undertook studies to dvelop a tissue culture method for muitiplying elite 100 year-old teak trees. A method was standardized by which more than 500 plants can be pro-duced from a single terminal bud in a year, or 2500 in two years. This is the first report on the clonal multipli-cation of a mature tree of a known geno and phenotype. Field trials on about 200 plants developed by culture are being conducted by the Corporation at four different locations.

CSIR News

President's assent to TN fisheries bill

The president has given his assent to the Indian Fisher-ies (Tamil Nadu Amendment) Bill, 1979

The Bill seeks to achieve the State Government mono-polise chanks and chank Fish-eries in the State and to prohibit any persons from possession, selling, moving, storing or transporting chanks or carrying on any bnsiness, Industry or other activity in respect of chanks and chank Fisheries in Tamil Nadu except under permits and licences to be granted by authorised office.

Indian Express.

Assam's Plan to Deve-lop Fisheries

Fish production in Assam can be quadrupled in the next few years, according to Mr. V. Ramachandran, Adviser (Fisheiies). North – Eastern Council,

With its ideal agro.climatic conditions and the growing de. mand for fish for an expanding urban population, the State co-uld embark upon a massive pro-gramme of fisheries develop-ment. Mr. Ramachandran said.

He pointed out that the mighty Brahmaputra and the Barak, with over half a dozen other major rivers and scores of tributaries, remained under-ex-ploited. Besides, there were ponds and vast swamps which were yet to be fully exploited.

Hindu

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CIFT is at your Service

It transfers Fishery Technology by way of:

- Demonstrations of Fishing and Fish Processing techniques envolved by it
- Answering Technical queries
- Supplying project reports and design drawings
- Training courses of fishing and fish processing

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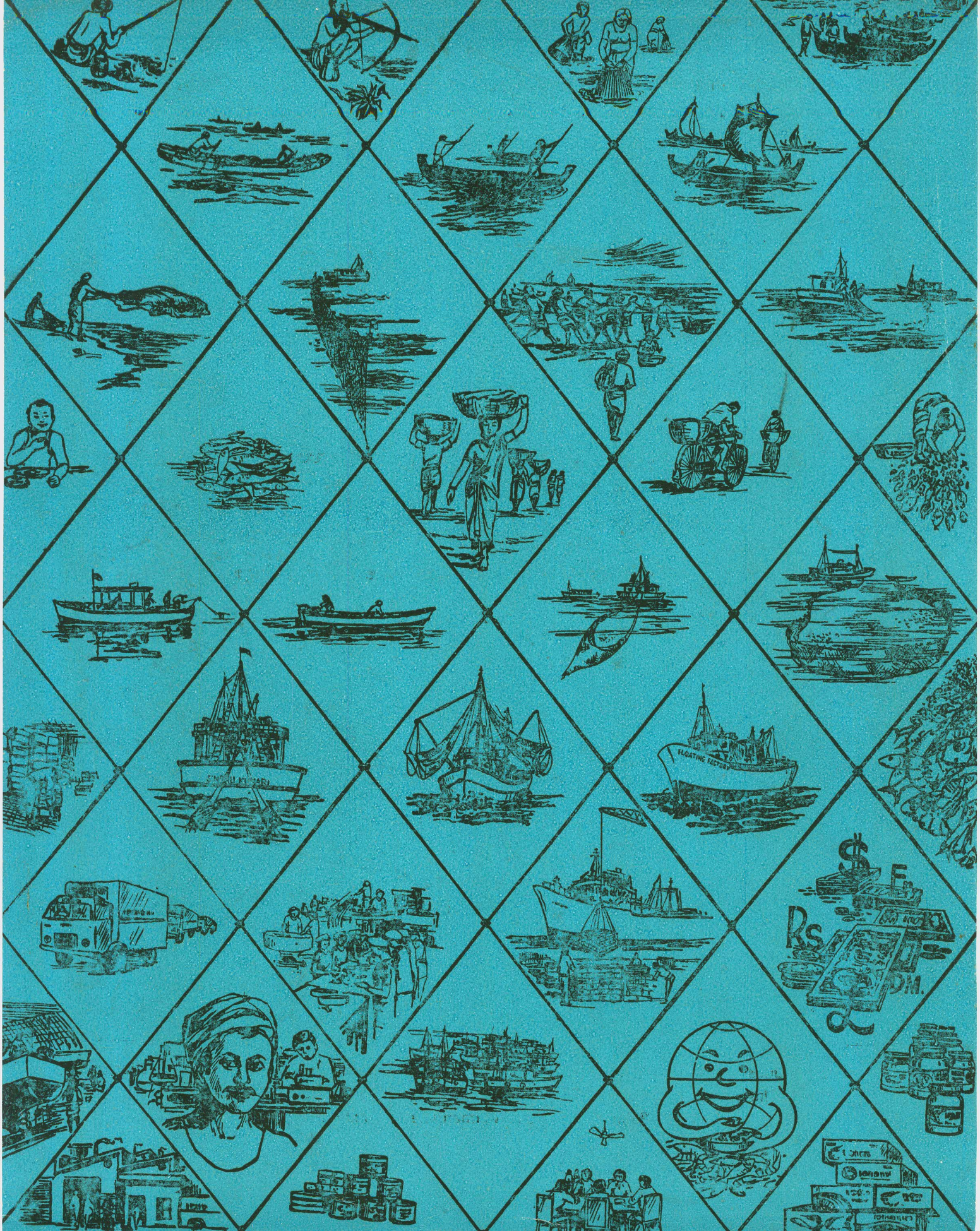
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