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Fish technology newsletter

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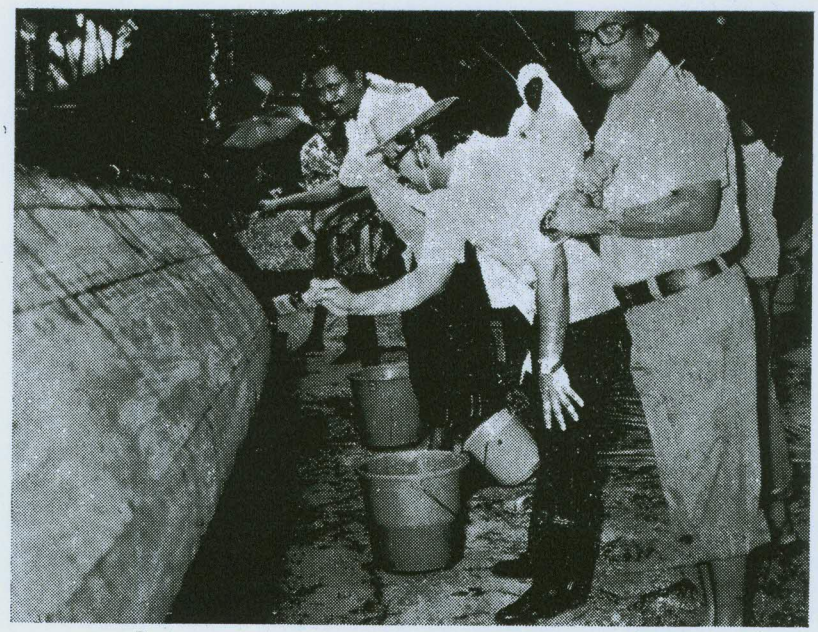

CIFT Scientists demonstrating the application of preservatives on "Thanguvallam" at Chellanam

CENTRAL INSTITUTE OF FISHERIES TECHNLOGOY
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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 investingations 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 application 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 - 8

Preservative treatment of Thanguvallams for their enhanced life

One of the highlights of the Golden Jubilee celebrations of the Indian Council of Agricultural Research being observed this year is 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 and Madras. In this issue we present a report on programmes taken up at Cochin.

The "Thanguvallams" on the beach after fishing

Fishrmen living all along our extensive coastline with their traditional fishing craft, gear and methods of fishing contribute nearly 70% of the total fish landings. Surprisingly still, the full benefits of this achievement have not accrued to that community. Most of them still live at far below subsistance level with low line of real income, substandard housing, mal-nutrition and poor health and eternal indebtedness. Many of them are without any fishing craft or tackle of their own and are thus analogous to the landless Indian farmer.

However, a general survey will only show that our fishermen suffer due to low productivity, inefficient technology and weak institutional support. Industrial revolution ranging all over the country somehow did not reach them. These able seafarers, with their full mastery over the seas around them, may perhaps be made more useful to the nation and to themselves, given all opportunities and the required support.

Small-scale fisheries along and around our Indian coasts will now be given the due importance and recognition as a potential industry and a source of food production.

Thanguvallam under actual operation

APPROACH

The existing technology will be suitably blended with the appropriate modern technology for the benefit of the fishermen community as a whole.

Both harvest and post-harvest technology will go hand-in-hand and the actual producer will get the maximum of the returns.

His buying capacity will increase. His standard of living will change for better. His dependents will be kept above want and he will get their integrated professional assistance at all times. His socio-economic conditions will gradually change over to days of happinese and purposeful living. His dreary surroundings will yield place to modern urban living conditions.

Thus, he becomes fit enough to understand, appreciate and adopt to modern technology as a result of slow and steady process of transition, indeed, revolution and a renaissance.

TECHNICAL PROGRAMME

1. Improvements to the traditional fishing craft, gear and method of operation for better returns.
2. To reduce the cost of inputs through the introduction of cheaper materials for craft construction and gear fabrication.
3. To enhance the normal working life of the traditional craft and gear through preservative treatments and proper maintenance procedure.
4. To introduce modified fishing nets, lines and traps and demonstrate their efficient operations from traditional fishing crafts as well as from improved crafts.

Fishermen applying the preservative to their craft assisted by scientists

CIFT Scientists with the Fishermen of Chellanam Village

5. To generate adequate skilled man-power from the fishermen community ultimately to operate the mechanised fishing of the future.

6. To locate source of financial help and the required infrastructural facilities

Chellanam panchayat in Ernakulam District is one of the areas selected for the transfer of technology developed at CIFT under the Lab-to-Land programme. Chalakkadavu is a typical fishing village in this panchayat, where the majority of the people depend on fishing for their livilihood. The fishermen of this area operate the gear "thanguvala" from plank built canoes called "thanguvallam". From Chalakkadavu landing centre, 15 Thanguvallams are operating employing about 300 fishermen living in this area.

The 'thanguvallam' is a traditional craft built out of Anjili wood measuring about 48' OAL and operated by 15-20 fishermen. This beach craft costs about Rs. 10,000/-. The local fishermen resort to periodical preservative treatment of their craft with sardine oil or cashewnut shell liquid mixed with resins to prevent deterioration of craft.

From Chalakkadvau landing centre, 10 thanguvallams have been selected for demonstrating the efficacy of chemical preservative treatment developed at CIFT. A team of Scientists of the craft & Gear materials Division of CIFT, visited Chalakk adavu on serval occasions during 1979 to demonstrate and convince the fishermen about the officacies of chemical preservative treatment developed at CIFT over the conventional method.

Accompanied by Fr.Marcel, the local priest, the scientists demonstrated the method of chemical preservative treatment of thanguvallams. The Scientists also explained to 75 fishermen about the reduction in the life of the craft due to the biological and physical agencies and the necessity of chemical preservative treatment.

A 10% arsenic - copper-chrome composition was prepared and applied on the outer portions of the boats. Two brush coats of this preservative of the drying was followed by a liberal coat of creosote preservative. To gain confidence and acquaint with the preservative treatment, the fishermen were encouraged to mix the preservative and apply on the crafts. They were also told about the advantages of preservative treatment in terms of monetary benefit as the new chemical preservative treatment costs about Rs.340/-per annum compared to their traditional method at a cost of Rs.500/-

Of the 10 Thanguvallams selected, five were treated with Arsenic Copper Chrome Composition followed by creosote and the other five were treated with creosote alone.

During the subsequent visits the Scientists noticed greater response from fishermen, who had apparently overcome their initial inhibitions to chemical preservative treatment on these Thanguvallams are still being monitored by the Scientists at regular intervals for future guidance.

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Lab - to - land operational consultancy service

Survey and study of mechanised fishing boats for evaluating their operational efficiency

CIFT has launched an operational consultancy Service for the mechanised fishing craft operating from the Cochin Fishing Harbour numbering about 2,000. The survey covered:

1. Materials of construction, degradation of failure of materials by marine corrosion, fungal attack and mechanical factors, protective coatings, and cathodic protection measures.

2. Maintenance costs on docking, corrosion control, fouling control, painting, replacement of corroded/ mechanically eroded metallic components, damaged wooden structures, anodes and on labour.

3. Loss of fishing days and reasons thereof.

The Survey brought out the following specifically.

1. The level of awareness of modified technologies now available.

2. The impact of transfer of technology from research Institutes.

3. Faulty practices, neglect and wrong substitution for short-term gains.

4. Scope for reduction of maintenance Costs and increase of efficiency.

Based on the survey information, the vessel owners/ operators were provided technical consultancy services on materials specifications like quality and grade of Cu and Al sheets, structural steels, sacrificial anodes, propeller alloy propeller shafts, wire ropes, hull appendages, deck machinery etc., technologies for protection of metals from marine corrosion, and of wood from biological agencies of degradation. Boat owners were also advised of the use of different types of surface coatings, wood preservatives, day-to-day care and of the proven technologies by which cost reduction in maintenance of fishing boats could be achieved.

progress cover the survey which in progress covered about 1,500 boats of different materials of construction and belonging to different size groups.

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Recommendations adopted by the Seminar on 'Protection of Marine Environment and Related Ecosystems' held at Goa, November 13 - 15, 1979

1. Prior environmental appraisal of shipping and harbour projects and shore-based industries is essential. Requisite measures for enforcement of this requirement through statutory obligations need to be pursued urgently.

2. Development of technical and technological capability together with requisite R & D efforts for combating oil and other forms of marine pollution in harbours, estuaries and off shore areas, needs to be accorded very high priority. Programmes and institutions working in this field should be adequately supported.

3. Government is requested to consider on merit, early ratification of the various international conventions on prevention of marine pollution.

4. As reception facilities for oily mixtures and other wastes, etc., are reported to be far from adequate, such facilities should be provided urgently.

5. Municipal Corporations of coastal cities should put up sewage treatment plants and on no account should be permitted to discharge raw sewage in to the sea. (Similarly, all ocean-going vessels operating under Indian flag, should also be adequately provided with minisewage treatment plants).

6. Studies in the fields of of recycling of wastes related to coastal environment, fish culture, algal growth, agricultural practices, etc., should be intensified.

7. There is an urgent need for standardization and intercalibration of the analytical and design techniques pertaining to pollution control.

8. For effective discharge of their responsibility in the field of marine pollution, Coast Guard Organisation should be adequately strengthened, inter-alia by way of capability for application of remote sensing techniques and safety of offshore operations.

9. Proper design of ocean outfalls calls for urgent attention. Necessary facilities for collection of field data and related exchange of information in this regard, need to be built up.

10. In the context of protection of marine environment, Bombay, Hooghly, Visakhapatnam, Cochin and Madras, require urgent attention. Integrated plans to improve the eco-systems should be formulated. Other areas need also to be identified and appropriate action should be taken.

11. Special areas for total prohibition of the discharge of oil and other wastes should be identified and declared.

12. The statutory bodies like Central and State Water Pollution Control boards are presently handicapped to a considerable extent for want of adequate

laboratory and technical support for monitoring the state of environment. Further, such statutory bodies need to have requisite environmental advisory expertise in the discharge of their functions.

13. Educational aspects of ecology, environmental status and problems of pollution need attention. Curriculum development at the school, college and post-graduate levels have to be suitably undertaken. Special efforts should be made to provide proper training to personnel engaged in marine pollution control.

14. In the field of marine environmental protection, citizens' involvement has an important role. Educational efforts through mass media, for promotion of social consciousness, should be promoted

15. Environment-oriented research and development work should be encouraged on an inter-disciplinary basis, through joint inter-institutional programmes, ensuring adequate coordination between industries and scientific institutions.

16. More investigations should be undertaken to determine the immediate and long-term effects of oil, pesticides and heavy metals, on the different marine organisms by suitable bio-assay techniques and construction of stress profiles for different species.

17. Many of the penal provision under Merchant Shipping Act and Indian Ports Act, are not serving as an effective deterrent against possible discharge of oil and and other pollutants. These need to be amended suitably keeping in view the corresponding provisions prevailing in other countries.

18. The various authorities under the Merchant Shipping Act and Coast Guards Act entrusted with protection of the marine environment are presently not clothed with adequate enforcement and magisterial powers. This needs to be looked into urgently by appropriate amendments to relevant Acts and Rules.

19. Legislation in marine environment calls for a continuous review to keep pace with the international dovelopments. It would be essential to have a fully equipped legislative wing in the Directorate General of Shipping, so that timely corrective measures are initiated.

20. Presently in our country, coastal zone management is left to individual states. It is necessary to have a uniform coastal zone management policy and to build up appropriate machinery for effective enforcement of the same.

21. There is an urgent need to take up integrated coastal zone mapping covering coastal and other resources, to an appropriate scale.

22. Inter-institutional coordinated efforts are necessary in mapping of the corrosion behaviour of metals and alloy based systems in the polluted coastal waters of India.

23 Protected areas and marine parks have to be developed and established with a view to preserve natural resources such as coral reefs, mangrooves, sandy beaches etc. in their pristne condition.

24. Both short-term and long term data relevant to oceanographic and meteorological parameters have to be collected for solving coastal erosion problems; this has a bearing on coastal zone management.

LET'S TALK IT OVER

Sri. Paramjit Singh, Mathura, U. P.

I came to know that CIFT has developed some cashew nut shell liquid (CNSL) paint for the protection of fishing boats. I would like to know more about it.

CIFT: This Institute has done some work on the utility of CNSL in the protection of fishing boats, as for example in the formulution of anticorrosive and fauling paints, as a surface material etc the details of which are given below.

Cashewnut shell liquid obtained from the pericarp of cashewnut is a by - product of the cashew industry. It is a valuable indigenous raw material finding use in various industrial applications within the country and abroad.

CNSL in the crude form is traditionally used by the fishermen of the coasts of Madras, Kerala and Mysore as a surface coating material on the hulls of indigenous fishing crafts and sailing boats as a measure of protection against timber decay. Old as well as new crafts are periodically smeared with this oil either alone or in combination with other materials like tallow, lime-powder, 'kavi' etc.

The efficacy of CNSL as a protective coating on wooden surfaces of fishing boats has been under investigation at this Institute for sometime past. It is observed that the wooden surfaces receiving a profuse coat of the liquid are normally immune to the attack of marine bacteria, marine fungi and termites on land. Such coating also minimise the weathering action on timber structures. The surface coating however, has not been found to protect timbers in sea water from the attack of marine wood borers and foulers as it does not possess any toxic properties. The CNSL treated wooden surfaces under prolonged immersion are severely infected by marine wood borers like Teredo, Bankia, Nausitora, and Sphaeroma as bad as the untreated surface. The treated surfaces are also heavily fouled by barnacles, oysters, hydroids and tube worms. Though a vesicant fluid CNSL is not adequately toxic to these marine organisms. However, the resistance to attack by marine borers can be enchanced by incorporating suitable toxic substances like 'Dieldrin' and copper salts. Treatment with such preparation has been found to keep the ship worms (Teredo, Bankia & Nausitora) completely away though a few Martesia and fouling organisms were still present under prolonged immersion.

The general characteristic of CNSL can be considerably modified by special treatment. Investigations carried out at this Institute have shown that for coating on timber structures as a protection against weathering and fungal infection CNSL in the form of a resin has better effects than plain CNSL. As a surface coating material for the above purpose the CNSL resin is as good as the imported oleo resin 'Dammar batu' or the indigenous resins like black dammar, white dammar, sal dammar etc recom-

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25. At national level, a comprehensive environmental management policy which should also cover marine ecology needs to be enunciated.

26. For ensuring the installation of requisite pollution control facilities Government should seriously consider offering industries and local bodies adequate incentives.

27. By virtue of their growing importance, envionmental and ecological matters call for very close attention to national level, preferably under the direct charge of a separate Ministry or Department of the Govrnment of India.

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mended by this Institute instead of the imported resin (Ref: Fish Technology Newsletter Vol. V. No.4, January 1965.). The CNSL resin can be successfully used as an efficient water and moisture proof coating and as a caulking compound for all joinery works in wooden fishing boats.

CNSL resin can be cooked with linseed oil and with suitable driers it will result in a good varnish. With an improvised brush it can be smeared all over the surface, both inside and outside, including the backbone assembly and hull planking, in caulking of seams, for plugging, fastening holes etc, i. e. wherever the preparation from 'Dammar batu' or indigenous wood resins is normally applied. Iron fastenings can also be coated with the CNSL resin and counter sunk. The resultant holes can be filled with the CNSL resin putty. A single profuse coat would be sufficient for the hull above water line. On the hull below water line two thick coats may be applied so as to obtain the maximum effect.

A modified CNSL resin available in the market under the trade name of ' SILIX ' which is a condensation product of decarboxylated CNSL with phenol formaldehyde at controlled conditions could be successfully incorporated in the formulation of an antifouling paint for marine use at this nstitute. Details of this antifouling composition have already been published in Fish Technology Newsletter Vol. VIII No.1 April 1967. Preliminary attempts of painting matailic surfaces with CNSL paints have also shown encouraging result in as much as they show property as good as any conventional antifouling paint.

Investigations were also under-taken at this Institute towards the formulation of an anticorrosive paint using the commercially available 'SILIX' resin. The details of a succetsful composition worked out are given below:

Ingredients	Weight (Percentage in dry film)
'Silix'	25.3
Phenolic resin	3.2
Linseed - resin	3.2
Lead sulphate	21.0
Iron oxide	21.0
Aluminium powder	15.8
Talc	10.5

White spirit, turpentine and naphtha were added to adjust viscocity and naphthanates as driers in addition to small amounts of ethyl methyl ketoxime and diethyl phthalate. The characteristics of the paint are as below:

1. Drying time	
i· Time for surface drying	- 6-10 hrs.
ii. Time for hard drying	- 36-48 hrs
2. Scratch hardness	- Satisfactory
3. Flexibility and adhesion	- Satisfactory
4, Resistance to sea water (Synthetic)	- Satisfactory
5. Resistance to alkali (2% sodium carbonate)	- Satisfactory
6. Resistance to lubricating oil	- Satisfactory
7. Salt spray test (5% sodium Chloride, 120 hrs	- Heavy corrosion at the scape line, but not under - neath the paint film. No. blistering.
8. Aerated sea water (7 days)	- No corrosion, no blistering

International Year of the Child Celebration at C. I. F. T.

The Year 1979 was observed as the International Year of the Child at our Institute. The major thrust of the programmes was directed towards the health, educational and recreational aspects of the children of all the staff but with a special emphasis on the families of low-paid staff.

In early July, by the time the schools were just re-opened after the summer vacation, cloth for school uniform, note books and stationery were supplied free to the children of the supporting staff.

Painting Competition

The formulation passed the usual tests prescribed for anti-corrosive compositions. The coating did not show any blistering or softening on cathodically protected structures. Paints based on oil or oleo resinous media become easily saponified under such conditions The present composition withstood the alkalinity normally encountered on cathodically protected steel hulls. Further experiments on this antifouling composition are underway.

It is known that many paint manufacturers have brought out ready-mixed paints in various conventional shades incorporating CNSL.

The possibilities of using CNSL resin as an adhesive compound for fixing thermocole insulant in fishholds of trawlers have also been explored at this Institute. Preliminary trials were also undertaken to study the combination effect of fibre glass mat and CNSL resin.

Dr. Samila Al Azhana John, Water Purification Project, Icharloum, Sudan.

I would like to know if there is any water treatment plant or factory in India using chitosan for water coagulation and to what extent chitosan is used for the clarificaton of wine.

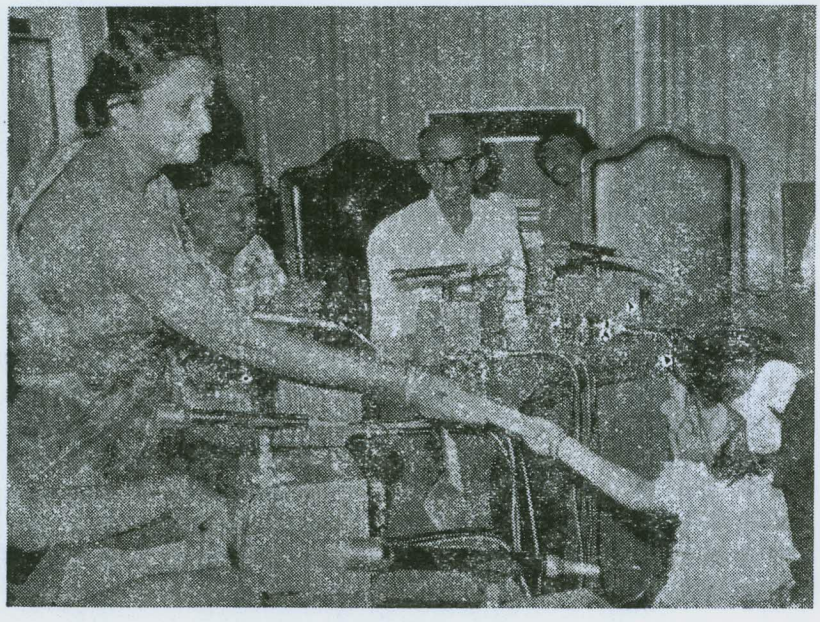
CIFT : In India, no water purification plant employs chitosan. Instead, alum and lime are generally used. Similarly in the purification of wine also, chitosan is not used in India, whereas it is understood, it is used for that purpose in the U. K.

In July and August, Health Inspection programmes for the children of the staff were carried out. Dr. Joy P. Chungath, the Paediatrician and Dr. (Mrs.) Kairali Mohan Raj, Dentist did excellent job in this respect. A total of 45 children under the age of 12 of all categories of staff were benefitted by this scheme.

Good start for a 50 meter Race

In December, competitions in sports and fine arts for children were conducted, 45 children took part in various events like Painting, Music, Musical Chair, Lemon- spoon race, Picking up toffies and 50 Meter race. The competitions were held for 3 age groups and prizes were awarded to children securing first and second places in various items, by Mrs. Gracy Kurian.

On December 30, a very interesting picnic was arranged for children. 63 children along with parents numbering 53 went on a sight-seing tour to Peechi Dam via. Trichur. On the way up the children and parents made a brief visit to CPCRI, (Kannara).



Mrs. Gracy Kuriyan distributes Prices to the winners.

A committee consisting of Shri. K. Mahadeva Iyer, (Leader), Dr. K. Ravindran, Dr. K. Gopakumar, Shri H. Krishna Iyer, Smty A. Lekshmy Nair, Shri James Abraham, Shri P. A. Uthup and Shri T. K. Sayed Ali was set up to carry out various programmes envisaged.

Bombay and Burla Centres of C. I. F. T. also celebrated the year by distributing note books, stationery, biscuitr and sweets to children of their staff on 15th August, 1979 and 14th November, 1979 respectively, the expenditure on this was met by subscription collected at the respective Centres.

Meet Our Scientists—12

S. Ayyappan Pillai

Shri S. Ayyappan Pillai, Scientist S-2, is holding charge of the Engineering Division of the Central Institute of Fisheries Technology, Cochin.

After his graduation in Electrical Engineering with First Class from the Kerala University, he served as Lecturer in the Govt. Polytechnic, Kottayam for some time before joing C. I. F. T. Joining C. I. F. T. in 1963, he was in charge of Processing Engineering Section in which he was associated in the development of equipments for Fish Processing. He has worked with Mr. C. G. Tucker, FAO Expert, on Accelerated Freeze Drying, in the studies on freeze drying of fishery products and in preparing the feasibility studies on the development of commercial freeze drying plants.

Recipe for shark fin soup

Sweet Corn Crab with Shark fin

Ingredients

1.	Shark fin rays	-	15 g.
2.	Sweet corn (cream style)	-	1 tin
3.	Crab meat	-	200 g.
4.	Sugar, salt and pepper (white)	-	to taste
5.	Ajinomotto	-	a pinch
6.	Soya sauce	-	¼ teaspon
7.	Egg	-	2 Nos.
8.	Corn flour	-	for thickening-

Method

Take 1000 ml fish stock. Add sweet corn and crab meat to the stock kept on a fire. Add salt, pepper and ajinomotto to taste and allow to boil. Add soya sauce taking care not to spoil the colour of the soup. To the boiling mixture, add shredded shark fin rays. Thicken the boiling mixture with corn flour after dissolving the sauce in cold water. (The consistancy of the soup should be a wooden spoon coating consistancy).

Beat eggs in a bowl and the same to the boiling soup at the same time stirring the whole mixture. (Serve with chilly sauce or chilly vinegar)

(This is sufficient to serve for 4)

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He has developed several Fish Processing equipments like different types of driers, Refrigerated Sea Water Plant, Automatic Brine Dispenser etc.

Shri Pillai has participated in the International short term Training course on the application of Refrigeration to Fruit, Vegetables and Fish in South East Asia conducted by FAO & International Institute of Refrigeratic held at Central Mechanical Engineering Research Institute Durgapur, in January 1974.

Shri Pillai has been asso. ciated with several F. A. O. Projects. He was closely associated with the development of chilled sea water system on board carrier vessels for preservation of purse seine catch sponsored by F. A. O.'s Pelagic Fishery Project, Cochin. Similarly he was associated with the calibration of acoustic instruments on board Rastrelliger, the research vessel of the Pelagic Fishery Project.

Shri Pillai had been the lecturer and the external examiner of the Calicut University for the B. Tech Fisheries Course. He has been the lecturer for Cochin University also for the M. Sc (Industrial Fisheries) Course.

In 1976, the Processing Engineering Section and lhe Mechanical Engineering Section of the Craft & Gear were merged to form the Engineering Division. Shri Pillai has been holding the Division from its inception and his activities since then have been widened. He has been associated with the development of machinery on board fishing vessels over and above the repair and maintenance of the fishing fleet of the Institute.

As per the Indian standard Regulations, C. I. F. T. has been authorised to carry out both type testing and fishing - cum-endurance tests on all the marine diesel engines used in fishing vessels. Shri Pillai along with his colleague of the Engineering Division has been carrying out such tests and all the engine manufacturers are fully co-operating with CIFT for such tests. Technical guidance in modifying the engine and stern gear for better performance has been imparted and the engine manufacturers as well as boat owners are benefited by such close co-operation.

Ever since he joined CIFT Shri. Pillai has been associated in the construction of the permanent building of the Institute at Cochin. He was responsible for designing various Laboratories, workshops, Divisions, Sections Etc. Within the building every minute details were worked out by him before these were implemented by CPWD, which had constructed the building.

The architect of the prestigeous Conference Hall of the Institute was Shri Pillai, who with the able guidance of Shri G. K. Kuriyan, then Director of the Institute, has designed one of the best halls in Cochin area.

Shri Pillai has published more than a dozen papers, one of which was presented and read at the XV International Congress of refrigeration held at Venice during September 1979. He is member of many Scientific and Professional Societies such as the Institution of Engineers (India) Indian Institution of Plant Engineers, Indian Cryogenic Council, Society of Fisheries Technologists (India) Indo-German cultural Society etc.

GLEANINGS FROM OTHER JOURNALS

Deepseas Fishing Harbour in Bombay planned

The Goverment of Maharashtra plans to build a deepsea fishing harbour at south of Bombay. The Project includes a 1000 m. jetty and facilities for repairs, ice making, cold storage, freezing and fish meal productlon. It is expected to be completed in about two yeas.

—Indian sea foods

Plundering of the ocean must stop

The Bonn Government sepnds about 80 million D M a year on research and development in the fisheries industry. The main target of the cash is the Federal Researh Agency for Fisheries in Hamburg, which concentrates on the biological monitoring of sea fish stocks.

About 40 million tonnes of fish is caught every year to provide food for 4,200 million people. In order to ensure that the world's population of 6,500 milllon in the year 2,000 has enough to eat, thr fish "harvest" will have to be doubled. Fishery experts believe this quantity can be achieved quite easily if an end put to the indiscriminate plundering of the oceans' riches and fish protection and breeding is planned on a longterm basis

For centuries, it was thought that the world's massive oceans and seas contained inexhaustible wealth in fish. But only a few decades have sufficed to show the limits of growth in this sphere too and cause fishery experts to do some rethinking. Rapid development of new fishing techniques and the increasingly fast build-up of huge fishing fleets capable of of spending many weeks at sea and processing and storing their catches have caused the annual catch to be doubled to more than 75 million tonnes worldwide. In the old days, experience and luck were the main criteria for tracking down big shoals. Today, electronics arec used to locate them and cont rol the nets.

The result has been a major decimation of fish stocks and some species have vanished from the oceans forever. Many regions close to the coasts have been swept clean of all fish life. Furthermore, industria waste pouring into the sea has stopped natural reproduction processes. The European Community (EC) even found itself with no altrenative but to impose fishing bans to protect vital North Sea herring stocks

Additionally, 200-mile zones have been imposed along the coasts of most seaboard countries to restrict fishing activlties. The battle for catch quotas has begun.

In the Federal Republic of Germany, where the fishing industry employs some 30,000 people, early attempts were launched to adapt to changing conditions. Research ships explore new specialised sectors; hitherto unknown types of fish are being tried out on the market and major Public relations campaigns are run to prepare the general public for coming hanges.

— IN — Press

Catalogue of Implements/Machinery for Fish harvest and Post harvest Technology

CIFT has been publishing special Bulletins on the Research work done in the various disciplines since its inception. The latest in this series is a "Catalogue of implements/Machinery for fish harvest and Post harvest Technology". (Special Bulletin No. 7)

The bulletin is a comprehensive catalogue of machines doveloped at this Institute for use in fisheries research and development. It contains description, design, function, power requirement and cost of such machinery which can be indigenously fabricated. The details have been compiled and classified under the following heads:

1. Electronic instruments for fishery by hydrographic

Fisheries Development Projects in Orissa

The world Bank has cleared an Inland Fisheries Development Programme in Orissa. This five-year project aiming to take up Inland Fisheries Programme in 16,000 acres also envisages the formation of a fish seed corporation to supply quality fingerlings to entrepreneurs.

The Orissa State Government will also be giving top priority for two schemes for developing fisheries in and around Chilka Lake. The scheme will be carried out by the Orissa Maritime and Chilka Area Development Corporation. One of the projects will develop fisheries in brackishwater. The other aims at exploiting the offshore and deep sea fishing potential ih the coastal area adjoining the lake. The construction of a fishing harbour near the lake is also included in the project.

—Indian sea foods

But the main attention is being devoted to protection of stocks in traditional fishing grounds on the flat continental shelves. Other aspects of this switch from "hunter to protector" are aquacultures and fish farming, which fishery experts regard as an almost providential alternative to sea fishing.

Because fish-farming is still relatively new, there's great public interest in unconventional solutions. The Press recently reported on a German farmer's scheme to breed trout - a popular clear water fish - not in reservoirs but in "hammocks" coated with layers of synthetic. The advantages lie in the small space required and the rapid growth of the fish - they take half- the normal time to mature. The fish are fed on dry meal composed of algae, soya, maize and krill, tiny crabs from the Polar regions. The idea has provided capable of devcloping and similar facilities have already bcen set up in Switzerland and Brazil.

Already, some six million tonnes of fish, crabs and muscles are produced annually through controlled breeding in closed-off areas of water or underground - cages. The UN Food and Agriculture Organisation (FAO) estimates that this could be boosted to 30 million tonnes.

Another example is to be found in the Federal Republic of Germany: the warm water emerging from the cooling towers of power stations is being used in three separate projects for the breeding of fish and oysters The fish grow much faster in warm water. This scheme is backed by a detailed fishery research programme.

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investigations.

2. Electronic instruments for testing and standardisation of fishing gear.
3. Electronic instruments for commercial fishing.
4. Equipments for electronic/light/sound fishing.
5. Mechanical deck equipments.
6. Electronic instruments for watch keeping in fishing boats.
7. Electronic instruments for behaviour studies of marine animals.
8. Electronic/electric equipments for fish processing factories.
9. Mechanical equipments for fish processing.
10. Other equipments.

Many organisations/Institutions of public and Private sectors have come forward to get the technical know-how and feasibility reports of these equipments.

CIFT is at your Service

It transfers Fishery Technology by way of:

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