A new Mobile Model of Community Fish Smoking Kiln (CoFiSmKi) was designed at Burla Research Centre of CIFT. Special features of this model include easiness in transportation to different places and also use of recycled scrap material such as body of discarded refrigerator in the fabrication of smoking chamber of the kiln. The dimensions of the new model of CoFiSmKi are as follows:

**Overall height** - 134.5 cm

- Height of chamber - 108 cm
- Pyramidal Dome - 16.5 cm
- Exhaust Cowl - 10.16 cm

Square shaped exhaust cowl - 103 sq cm

Smoking chamber made of discarded refrigerator

Size of door - 61 x 89 cm
Thickness of insulation - 3.81 cm

Size of smoking tray - 50 x 46 cm
Number of shelves - 6

**Dimension of Kiln**

- Width - 66 cm
- Depth - 60 cm
- Height - 58 cm
Shutter

- Upper portion (fixed) - 34 cm
- Lower portion (sliding) - 33 cm

Total smoking area of all the trays - 1.39 sq ft.

Two kg fish can be smoked in each tray. Time taken for smoking is 1.5 to 2 hours. The quality of the smoke cured fish employing this model is superior to that of fish smoke cured in non-mobile CoFiSmKi. In biochemical, bacteriological and sensory characteristics, the smoke cured fish, *Gudusia chapra* scored higher points over the same variety of fish smoke cured using non-mobile CoFiSmKi.

**News From The Research Front**

**CIFT Introduces Eco-friendly Semi-pelagic Trawl System (CIFT SPTS-I) for Small-scale Mechanized Sector**

Trawling industry in India is shrimp-oriented, due to its economic importance and export value. The Indian trawler fishermen cannot depend on shrimp alone for viable commercial operations any more, due to proliferation of trawlers and overfishing of target resources. Trawler fishermen require to adopt appropriate fishing gear to expand their reach to harvest large demersal and semi-pelagic species which are beyond the reach of currently existing designs of shrimp/fish trawls. Responsible fishing regime, which is promoted in India and around the world, requires that selectivity of the gear has to be improved and its negative environmental impact has to be reduced, in order to maintain the biodiversity and protect the environment and to ensure the long-term sustainability of the fishery resources. It is in this context, CIFT has developed a semi-pelagic trawl system, for the benefit of the mechanized trawling sector.

Semi-pelagic trawling of different designs are in use in Australian and North-Atlantic waters, targeted at snappers,
blue whiting, silver smelt, Atlantic mackerel and other semi-pelagic resources, prevalent in these waters.

What is CIFT semi-pelagic trawl system (CIFT SPTS-I)?

CIFT SPTS-I was developed as an alternative to shrimp trawling in the small-scale mechanized trawler sector, after extensive field-testing. It is capable of attaining catch rates beyond 200 kg.h⁻¹ in moderately productive grounds and selectively harvest fast swimming demersal and semi-pelagic finfishes and cephalopods, which are generally beyond the reach of conventional bottom trawls, currently used in commercial trawl fisheries in India. It was developed and extensively field tested by a team of scientists of Fishing Technology Division of CIFT, viz., Shri V. Vijayan (Team leader), Shri M.P. Remesan, Dr. S.K. Panda, Shri K.R. Madhu, Shri M.V. Baiju, Dr. Pr Pravin and Dr. M.R. Boopendranath, under an ICAR funded research project, 'Development Studies on Responsible Trawl Systems operated from Cochin (Kerala), Veraval (Gujarat) and Visakhapatnam (Andhra Pradesh)'.

The system consists of an 18 m, four panel semi-pelagic trawl with double bridles, front weights and vertically cambered high aspect ratio otter boards (trawl doors) of 85 kg each.

Advantages of the CIFT SPTS-I over the conventional shrimp/fish trawl systems practiced in Indian fishing industry

- Conventional bottom trawls are proven to cause high bottom impact on the benthos. Impact of semi-pelagic trawl system is significantly lower, making it an eco-friendly gear, compared to bottom trawls.
- CIFT SPTS-I has shown significant resource specificity for off-bottom (semi-pelagic) finfishes, which are generally large in size, fast swimming and exhibit shoaling characteristics. Conventional bottom trawls have poor resource specificity and size selectivity and have greater negative impacts on biodiversity and sustainability.
- Conventional bottom shrimp and fish trawls have low vertical opening, mostly limited to 1-1.5 m and hence their catches are limited to species living close to the bottom. Due to higher vertical opening up to 4 m realized in CIFT SPTS-I, resources that are beyond reach of conventional bottom trawls, could be efficiently harvested.
- Significantly high sheer-drag ratio of vertically cambered high aspect ratio otter boards, makes the system energy-efficient, compared to conventional flat rectangular and V-form otter boards. The vertically cambered high aspect ratio otter boards have dual purpose capabilities and can also be deployed for conventional bottom trawling.

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What is the uniqueness of the technology developed by CIFT?

CIFT SPTS-I is indigenously developed and is best suited to Indian fishing conditions and fishery resources. The gear system has been developed and optimized taking into consideration biological, behavioural and distribution characteristics of tropical demersal and semi-pelagic finfish and cephalopod resources and technical capabilities of the small-scale mechanized trawler fleet, operating in Indian waters.

Average production and potential yield of resources targeted in semi-pelagic trawling in Indian waters

<table>
<thead>
<tr>
<th>Species groups</th>
<th>Average production yield (1995-99) (tonnes)</th>
<th>Potential yield (tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elasmobranchs (sharks, rays and skates)</td>
<td>68861</td>
<td>71407</td>
</tr>
<tr>
<td>Ribbon fishes</td>
<td>122805</td>
<td>193670</td>
</tr>
<tr>
<td>Carangids (including trevally, leather jacket, scad, horse mackerel, etc.)</td>
<td>151601</td>
<td>238148</td>
</tr>
<tr>
<td>Mackerel</td>
<td>212633</td>
<td>295040</td>
</tr>
<tr>
<td>Clupeoids (oil sardine, other sardines)</td>
<td>283581</td>
<td>396359</td>
</tr>
<tr>
<td>Seerfishes</td>
<td>45059</td>
<td>61719</td>
</tr>
<tr>
<td>Barracudas</td>
<td>15717</td>
<td>20849</td>
</tr>
<tr>
<td>Cat fishes</td>
<td>43762</td>
<td>51255</td>
</tr>
<tr>
<td>Eels</td>
<td>8317</td>
<td>9081</td>
</tr>
<tr>
<td>Croakers</td>
<td>169643</td>
<td>273027</td>
</tr>
<tr>
<td>Perches (grouper, pig-face bream, red snapper, threadfin bream, other perches)</td>
<td>152477</td>
<td>226793</td>
</tr>
<tr>
<td>Pomfrets</td>
<td>41891</td>
<td>46088</td>
</tr>
<tr>
<td>Cephalopods</td>
<td>107439</td>
<td>101259</td>
</tr>
<tr>
<td>Lizard fishes</td>
<td>25262</td>
<td>27568</td>
</tr>
<tr>
<td>Wolf herring</td>
<td>16067</td>
<td>16492</td>
</tr>
<tr>
<td>White fish</td>
<td>7025</td>
<td>17474</td>
</tr>
<tr>
<td>Total</td>
<td>1481623</td>
<td>2055571</td>
</tr>
</tbody>
</table>


Trawler fishermen in India cannot depend on shrimp and associated species alone for viable commercial operations any more, and there is a need to adopt responsible alternate trawl systems for harvesting large demersal and semi-pelagic species.

CIFT semi-pelagic trawl system has been developed and perfected after extensive field trials and observations onboard the departmental fisheries research vessels and Department of Ocean Development owned Fisheries Oceanographic Research Vessel Sagar Sampada, using acoustic gear monitoring instrumentation and inference from...
It’s adoption and responsible use will be a boon to the Indian small-scale trawling industry, to enhance fish production and profits and minimize environmental impacts of trawling.

Collapsible Fish Trap Developed for Riverine Fishing

Different types of indigenous traps are operated in several parts of Kerala for fishes and crustaceans. Box trap made of bamboo splinters are very popular in north Kerala, especially among the riparian communities. Though it is a low cost fishing gear, it has inherent drawbacks like short life and difficulties in handling due to huge size. Moreover only skilled fishermen can fabricate a good trap, which can be successfully operated. A canoe and two fishermen are required for its operation. To overcome these problems, CIFT has designed and fabricated a new collapsible fish trap for riverine fishing.

Design details of collapsible trap

The trap is made with two rectangular stainless steel frames of 1.1 x 0.75 m size. The upper frame is made of 6 mm diameter SS rod whereas the lower frame is made of 10 mm diameter SS rod. The two frames are covered with polyethylene (HDPE) netting keeping 0.6 m distance between the upper and lower frame. Netting made of 1.25 mm diameter HDPE twine with 50 mm mesh size is used. Two entrance funnels made of HDPE netting of 1.5 mm diameter twine with 20 mm mesh size are attached at both ends of the trap. Eight PVC disc floats of 150 x 20 mm size, two each at four corners are used to lift the upper portion of the trap to achieve a box shape. Four disc shaped cement sinkers weighing 1 kg each are attached to the four bottom corners to keep the trap at the bottom.

The design of the collapsible fish trap is simple and any fisherman can adopt the technology. Since it is made of PE webbing, it is light in weight and once it is taken out of water it automatically collapses. A fisherman can transport and operate several units using a canoe unlike the traditional traps. Durability is more in the case of the new trap since bio-deterioration is nil.

Eight collapsible traps were fabricated and were operated in selected centers in Kasargod, Kannur and Kozhikode districts. All the traps have been continuously in operation along with the traditional fish traps of similar size. Like the traditional traps no
bait is used in the new traps. The preliminary results of the fishing trials with collapsible trap shows good catches of *Etroplus suratensis*, *Lutjanus argentimaculates* and *Scylla serrata*.

The new fish trap is highly selective and is species specific in nature. It is also an eco-friendly fishing gear. Since the fabrication, operation and maintenance cost is very less, poor fishermen can fabricate and operate it to earn an additional income. Total cost of a collapsible fish trap is approximately Rs.1000/-. Main advantages of the new fish trap are:

1. It automatically collapses when it is taken out of water
2. More number of traps can be taken on the boat and operated
3. Three to four times more durable than the traditional traps
4. Single fishermen can operate the trap, unlike the traditional one
5. Since weight of the trap is less, handling, transportation and operation is easy

- Shri M.P. Remesan, Dr. P. Pravin, Shri P. George Mathai and Dr. B. Meenakumari
Fishing Technology Division, CIFT, Cochin

**Development of PCR based technique for detection of Salmonella serovars in seafood**

**समुद्री खाद्यों में सालमानेल्ला सरोवरों की जांच के लिए PCR आधारित तकनीकों का विकास**

Salmonella is a major food borne pathogen, causative agent for typhoid fever and Salmonellosis illnesses in humans. Till date, more than 2500 Salmonella serotypes are known based on somatic, flagellar, and capsular (Vi) antigenic profile. Contamination in seafood with Salmonella is (चारों) की आवश्यकता नहीं है। नाशवाण मंज़ियों से युक्त माल्यन परियोजना का प्रारंभिक परीक्षण न हो जाता क्योंकि वह एक एकांतर्गत संसाधन नहीं है जो उत्तराधिकारी माल्यन प्रभाव को अनुभव करता है। यथारूप संभावना, प्राचायण एवं संरक्षण अब भी बन्द करने के कारण गर्भ मछली का इतना फंसा बना जा सकता है और अधिक समय लगा जिस पर वाला प्रभाव दे हैं आपके आधार रखता है। नाशवाण पंदे का कूम खर्च करीब 1000 है। नए मल्यन पंदे का प्रयोग मानक है:

1. जब उसे जल से निकालने पर वह स्वतः विगमा है।
2. नाव से अधिक संख्या में पंदे की प्रभावित किया जा सकता है।
3. पारंपरिक पंदे की अपेक्षा इसे 4 विशुद्ध दिककाँड़ है।
4. पारंपरिक के विपरीत अनेक मछलियों को पंदे के प्रयोग किया जा सकता है।
5. पंदे का दलन निम्न होने के कारण हस्तान, परिवहन एवं पाचन मुश्किल है।

- श्री प.पी. आगे, म.पी. प्रिव्य, श्री पी. जोधा मधा और डॉ. बी. मीनाकुमारी
मल्यन प्रौद्योगिकी प्रामाण्य, सिप्पट, कोचिं

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![Fig. 1 Stn gene 260 bp amplified products](image1)

![Fig. 2 InvA gene 284 bp amplified products](image2)
frequently reported from India and abroad. The conventional culture method is most commonly used technique for the identification of Salmonella from seafood. Culture method requires 5 to 6 days to confirm Salmonella isolate in seafood samples and also it becomes difficult for an analyst to analyze more than 5 samples at a time. To overcome this drawback, rapid and sensitive molecular detection is required to screen and detect Salmonella in seafood. A rapid Polymerase Chain Reaction (PCR) based method has been developed in the Microbiology Division of CIFT. In this study, biochemically and serologically confirmed Salmonella serovars isolated from seafood were used for the development of PCR assay. Three different Salmonella specific primers viz., invA, encoding invasiveness in host, ST11 & ST15, and arbitrary primed sequence for Salmonella pathogenicity island (SPI) region, and stn primer representing toxin genes were used for the PCR amplification. PCR assay for invA, ST11 & ST15, and stn gene genes were carried out as per standard PCR methods. All confirmed Salmonella serovars were found positive for PCR and products of 284 bp, 429 bp and 260 bp, each for invA, ST11 & ST15 and stn gene genes, respectively, were detected. Since, 14 different Salmonella serovars were used for PCR assay and all were detected successfully, it indicates that this method would be ideal for the detection of Salmonella serovars from seafoods. PCR assay was also confirmed by different positive controls (Salmonella London ATCC 8389, Salmonella Dublin ATCC 15480), and negative controls (E. coli and Pseudomonas aeruginosa), and results showed expected amplified products from positive controls and no amplified products were detected from negative controls. All the three primers, invA, ST11 & ST15, and stn used in this study for PCR assay were equally sensitive and gave same results. No amplified product was detected from other closely related organisms. The sensitivity of PCR assay was validated by spiking known number of Salmonella in seafood matrix and it was found that <5 cfu.ml⁻¹ can be detected in seafood by PCR test. This sensitive and specific PCR based technique for Salmonella can be used as a rapid tool for screening Salmonella serovars from seafood.

- Shri Rakesh Kumar and Dr. Nirmala Thampuran
Microbiology, Fermentation and Biotechnology Division, CIFT, Cochin

Fig. 3 ST11 & ST15 429 bp amplified products
Lane 1 : S. Brancaster, Lane 2 : S. Ohio, Lane 3 : S. Typhimurium, Lane 4 : S. Newport, Lane 5 : S. Mbandaka, Lane 6 : S. Weltevreden, Lane 7 : S. Oslo, Lane 8 : S. Braenderup, Lane 9 : S. Derby, Lane 10 : S. Lindenburg, Lane 11 : S. Nchanga, Lane 12 : E. coli, Lane 13 : Pseudomonas aeruginosa, Lane 14 : Salmonella London ATCC 8389, & M:100 bp DNA Ladder

The sensitive and specific PCR based technique for Salmonella can be used as a rapid tool for screening Salmonella serovars in seafood. A rapid Polymerase Chain Reaction (PCR) based method has been developed in the Microbiology Division of CIFT. In this study, biochemically and serologically confirmed Salmonella serovars isolated from seafood were used for the development of PCR assay. Three different Salmonella specific primers viz., invA, encoding invasiveness in host, ST11 & ST15, and arbitrary primed sequence for Salmonella pathogenicity island (SPI) region, and stn primer representing toxin genes were used for the PCR amplification. PCR assay for invA, ST11 & ST15, and stn gene genes were carried out as per standard PCR methods. All confirmed Salmonella serovars were found positive for PCR and products of 284 bp, 429 bp and 260 bp, each for invA, ST11 & ST15 and stn gene genes, respectively, were detected. Since, 14 different Salmonella serovars were used for PCR assay and all were detected successfully, it indicates that this method would be ideal for the detection of Salmonella serovars from seafoods. PCR assay was also confirmed by different positive controls (Salmonella London ATCC 8389, Salmonella Dublin ATCC 15480), and negative controls (E. coli and Pseudomonas aeruginosa), and results showed expected amplified products from positive controls and no amplified products were detected from negative controls. All the three primers, invA, ST11 & ST15, and stn used in this study for PCR assay were equally sensitive and gave same results. No amplified product was detected from other closely related organisms. The sensitivity of PCR assay was validated by spiking known number of Salmonella in seafood matrix and it was found that <5 cfu.ml⁻¹ can be detected in seafood by PCR test. This sensitive and specific PCR based technique for Salmonella can be used as a rapid tool for screening Salmonella serovars from seafood.
Training Programmes Conducted

**Cochin**

i. Proteolytic and lipolytic bacteria in fish (6 January - 6 June)

ii. Microbial quality evaluation of fishery products (3-22 April)

iii. Occurrence of bacteria of public health significance in fish from different aquatic environments (3 April - 30 June)

iv. Testing of packaging materials used in fishery products and seafood quality assurance (24 April - 20 May)

v. Laboratory techniques for microbiological examination of seafoods (25 April - 12 May & 12-24 June)

vi. Lipolytic enzymes from bacteria isolated from Rastrelliger kanagurta (Mackerel) (1 May - 19 June)

vii. Operation and maintenance of eco-friendly solar fish dryers (2-6 May)

viii. Fish processing technology (1-20 May, 5-19 May & 23 May - 4 June)

ix. HACCP concepts (8-11 May & 5-9 June)

x. Isolation and identification of bacteria present in Nemipterus japonicus (Kilimeen) from Arabian sea (8 May - 12 June)

xi. Fish oil analysis (9-23 May)

xii. Molecular techniques for detection of WSSV (15-19 May)

xiii. HPLC techniques (22-27 May)

xiv. Electrophoretic techniques (22-27 May)

xv. Bacterial techniques for analysis of fish and fish products (8-15 June)

xvi. Preparation of fish and prawn pickle (22-23 June)

**Veraval**

A training programme on ‘Isolation and identification of Listeria monocytogenes from seafood’ was organized at the Centre during 16-21 May, 2006. Four technologists from fish processing industry and two officials from Export Inspection Agency attended the programme.

Outreach Programmes

**Cochin**

A training programme on Preparation of value added fish products such as dried fish and ready to eat fish products such as fish pickle, fish cutlet, fish fingers, fish balls, fish flakes etc. was conducted at Malampuzha (Palakkad dist.) on 27 and 28 June. The programme sponsored by the Deputy Director of Fisheries, Malampuzha was for the benefit of ‘Kudumbasree’ units (Self Help Groups) in and around Malampuzha. The members of five Kudumbasree units who took training intends to start a production unit with financial support from State Fisheries Department.

**Burla**

As part of village adoption programme, two remote fishing villages namely Kurumkel and Rampiluga were surveyed to observe changes, developments and further technological needs on 27th and 28th April, 2006, respectively. In Kurumkel the need observed is raised cemented platform for drying and removal of excess moisture from smoke cured fish. Fabrication of two community fish smoking kilns that could be portable to different locations for the SHG women groups of Barkote, Deogarh, Orissa was taken up during the quarter with new design.

Video Film on HACCP in Food Processing Plants and Pre-requisite Programmes

खाद्य संसाधन संयंत्रों में HACCP पर वीडियो फिल्म और पूर्वापेक्षित कार्यक्रम

CIFT, Cochin has produced two educational Video Films namely: (1) HACCP in food processing plants, and (2) The pre-requisite programmes of GMP & SSOP.
The two videos are designed for imparting training to technologists and all other workers including the members in HACCP team of food processing plants in general and seafood industry in particular. The videos show in detail the type of hazards encountered in common food items, how these hazards can be excluded by implementing the seven principles of HACCP, along with examples of monitoring, record keeping, verification and other essential procedures required for implementing HACCP for food safety in food processing plants. The first video shows typical examples of food groups along with possible significant hazards, methods of their control locating critical control points along with probable monitoring and verification procedures. The HACCP video is supported with actual production examples from various seafood processing plants producing raw products, cooked and ready to eat products from wild and farmed raw materials.

The second video on the pre-requisite programmes of GMP & SSOP highlights the need for operation of pre-requisite programmes along with HACCP procedures for achieving food safety.

Typical examples of location requirements, plant design and layout, machinery design and layout, cleanliness of food contact surfaces, hygiene of workers, pest control, safety of water and ice and waste treatment are shown on actual factory situations in India. The two videos are prepared with illustrative visuals from farms, landing centres, transportation, processing in factory, storing and transportation, along with monitoring procedures, sampling, analysis and verification from seafood processing plants operating in the country. Visuals on the need to keep the relevant
records and their maintenance along with procedures for CCP monitoring, SSOP, GMP, rejection of defective products, recall etc. are also included in the videos. The visuals are supported with narration in English for clarity and easy understanding. The videos are directed and scripted by Dr. M.K. Mukundan, Head, Quality Assurance and Management Division, CIFT and produced by Dr. K. Devadasan, Director, CIFT, Cochin. The videos are ideal for imparting training and education of factory personnel and students of food processing, agriculture and fisheries. The videos are available for a moderate price of Rs. 500/- each and can be obtained on written request to The Director, CIFT, Matsuypuri P.O., Cochin - 682 029 including DD towards the cost. The demand draft shall be marked payable to The Director, CIFT at Cochin.

Participation in Exhibitions

The Institute participated in the exhibition entitled, "Organic Kerala-2006" held at Cochin during 19-22 April.

The Visakhapatnam Centre participated in the exhibition held in connection with the Farmers Meet organized by Govt. of Andhra Pradesh at Anakapalli on 6 May.

Staff Research Council Held

The annual Staff Research Council Meeting of the Institute was held on 15th and 16th June, 2006. Dr. A.D. Diwan, ADG (M. Fy.), ICAR, New Delhi led the deliberations. Detailed presentations and discussions were held on the concluded and ongoing research projects, besides projects proposed to be under taken in the future years.

National Technology Day Celebrated

CIFT, Cochin celebrated National Technology Day on 30th May 2006 at St. George Parish Hall, South Chellannam in Ernakulam district. The programme was sponsored by Kerala State Council for Science, Technology and Environment (KSCSTE), Thiruvananthapuram.

Shri K.D. Prasad, President, Chellannam Grama Panchayat inaugurated the seminar held on the occasion. Dr. K. Devadasan, Director, CIFT, Cochin presided over the function. Shri C.T. George,
Ward Member, Chellanam Grama Panchayat and Rev. Father Thobias Thekkeppalakkal, Vicar, St. George Church, Chellanam offered felicitations.

Dr. Jose Joseph, Principal Scientist gave a talk in the technical session on ‘Handling and transportation of fish and waste utilization’. Dr. B. Meenakumari, Head, Fishing Technology Division presented the topic ‘Responsible fishing methods’. Dr. S. Ashaletha, Scientist (Sr. Scale) narrated about the ‘Environmental pollution and impact in coastal villages’. About 60 fishermen and women participated in the programme. A short film on silage production was also screened for the participants and an interactive session was arranged at the end.

World Environment Day Celebrated

CIFT, Cochin celebrated ‘World Environment Day’ on 5th June, 2006. Delivering a talk on “HACCP aspects of food products”, Dr. T.S.G. Iyer, Vice President, Food Safety Solutions International, Cochin, emphasized that environmental hazards and incidences of food poisoning are increasing in our country, which necessitates the strict following of hygienic and safe methods of food processing including seafoods. Dr. K. Devadasan, Director, CIFT explained the importance of environmental protection and the need for use of eco-friendly technologies in fisheries. Dr. S. Balasubramanian, Head, Extension, Information and Statistics Division welcomed the audience while, Dr. G.R. Unnithan, Principal Scientist offered vote of thanks.

As part of the World Environment Day celebrations, CIFT also conducted a Field Day in the coastal village of Chellanam. Saplings of orchard trees were distributed to the women folk of ‘Kudumbasree’ units (Self Help Groups). Dr. S. Ashaletha, Scientist (Sr. Scale), CIFT explained the sources of environmental degradation leading to fishery resource depletion. Smt Mini Raveendran, Ward Member, Shri K.D. Jos, CIFT and Smt. Saroja Xavier talked on the occasion.

A large number of students, farmers, fisherfolk and other stakeholders from the fishery industry visited ATIC during the period for facilities such as training, diagnostic services, purchase of fishery products, purchase of publications and advisory services. Few of the visitors include:

- A group of fisherwomen from the Tsunami-affected areas of Nagapattinam district in Tamil Nadu (7 June, 2006). The visit was sponsored by a Non Governmental Organization named, "SCOPE" based at Trichy, Tamil Nadu.

- Under the ‘Kolleru Lake restoration
Programme’, a group of 80 fishermen from Kolleru lake area in Andhra Pradesh along with five officials from Dept. of Fisheries, Andhra Pradesh (28 June, 2006).

Both the groups of fisherfolk were explained about the various research and developmental activities in the field of fishing and fish processing technologies. They were exposed to the various low cost, post harvest technologies which could help them in additional income generation. The visitors showed keen interest in knowing about the eco-friendly solar fish driers developed at the Institute.

**Foreign Delegation Visits CIFT**

A five member delegation from Ivory Coast visited the Institute on 28th April, 2006. The delegation was briefed about the various research and extension activities of the Institute.

**Delegation from Ivory Coast visiting Fish Processing Laboratories**

**Release of Book ‘FISHTOONS’**

A book on cartoons on fisheries and aquaculture authored by Dr. P. Pravin, Sr. Scientist, CIFT, Cochin has been published by Fishing Chimes, Visakhapatnam. The book was released on 10th July 2006 on the occasion of the National Fish Farmers Day jointly organized by the Central Inland Capture Fisheries Research Institute, Barrakpore, Kalkota and Fishing Chimes Jayasree Charitable Trust, Visakhapatnam. The function was held at CICFRI Barrakpore.

The function was attended by Shri Kiranmay Nanda, Hon’ble Fisheries Minister, Government of West Bengal. Dr. S. Ayyappan, DDG (Fy.), ICAR, Dr. K.K. Vass, Director, CICFRI and Shri J.V.H. Dixitulu, Chief Editor and Publisher of the journal Fishing Chimes.

**Hindi Workshop Conducted**

The Visakhapatnam Research Centre organized a one day Hindi Workshop for the benefit of the administrative staff of the Centre on 26 May, 2006. Shri Sharat Chandra Jha, Assistant Director (Languages), Hindi Teaching Scheme, Visakhapatnam conducted the classes.

**Delegation from Ivory Coast along with Director, CIFT and Dr. P.N. Joshi, HOD, Engg. in front of Solar Dryer**

**Dr. P. Pravin receiving a memento from Dr. K.K. Vass on the occasion of the release of his book ‘FISHTOONS’**

**Young Researcher From CIFT Meets Nobel Laureates**

Shri S. Santhosh, Senior Research Fellow of CIFT, Cochin was selected for Department of Science and Technology Award - 2006 for participation in 56th meeting of Nobel Laureates and Young Researchers at Lindau, Germany. He is the only person from Kerala among the 27 member Indian group. Academic brilliance and excellence in research were the criteria for the selection. At present he is doing research in the field of fishing and fish processing technologies.
biopolymers under the guidance of Dr. P.T. Mathew, Principal Scientist at CIFT, Cochin. Every year since 1951, Nobel Prize winners in science have been meeting in Lindau, Germany to discuss major issues of importance in their fields, with young researchers around the world. The meetings included lectures, round table discussions and informal small group meetings with the Nobel Prize winners. Young researchers from over 61 countries took part in the conference held during 26-30 June, 2006. After the meeting, Indian group visited premier research institutions in Germany.

**Post Graduate Studies**

**Ph. D. awarded**

Smt. S. Manju, was awarded a Ph. D. degree in Marine Science by Cochin University of Science and Technology for her thesis on "Effect of vacuum packaging on the shelf life of Pearlspot (Etroplus suratensis) and Black Pomfret (Parastromateus niger) during chill storage". This work was carried out at CIFT, Cochin under the guidance of Dr. T.K. Srinivasa Gopal, Principal Scientist, CIFT, Cochin.

Smt. N.R. Smitha, Lecturer, Atharva Educational Trust, Mumbai was awarded Ph. D. degree in Marine Science by Cochin University of Science and Technology for her thesis entitled "Studies on incidence, effect of processing and survival of selected species of halophilic pathogenic vibrios in seafood". She carried out her studies in Quality Assurance and Management Division under the guidance of Dr. S. Sanjeev, Principal Scientist, CIFT, Cochin.

**M. Sc. dissertation**

The following students of Sambalpur University have successfully completed their M.Sc. dissertation work under the guidance of Dr. M.M. Prasad, Senior Scientist and SIC, Burla Research Centre:


2. Sahoo, R.S. (2006) "Quality characteristics of *Labeo rohita* sold in Burla fish market, with special reference to antibiotic susceptibility of *Staphylococci* isolates".


**Publications Available from CIFT**

**Priced Publications**

1. Improved trawls developed at CIFT (Rs. 50.00)
2. Biochemical composition of Indian food fishes (Rs. 50.00)
3. Kadalekum Kanivukal (Bounties of the sea) (Hindi)
4. *Laboratory Manual* - Enzyme linked immuno sorbant (ELISA) for chloramphenicol residue in shrimp (Rs. 50.00)
5. *Manual* - PCR technique for detection of white spot syndrome virus (Rs. 50.00)
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<th>No.</th>
<th>Publication Title</th>
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<td>6.</td>
<td>Spl. Bulletin - 11 Synthetic fish netting yarns</td>
<td>(Rs. 25.00)</td>
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<tr>
<td>7.</td>
<td>Spl. Bulletin - 12 CIFT - TED for turtle-safe trawl fisheries (English)</td>
<td>(Rs. 30.00)</td>
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<td>8.</td>
<td>Spl. Bulletin - 12 CIFT - TED for turtle-safe trawl fisheries (Tamil)</td>
<td>(Rs. 50.00)</td>
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<td>9.</td>
<td>Spl. Bulletin - 12 CIFT - TED for turtle-safe trawl fisheries (Telugu)</td>
<td>(Rs. 50.00)</td>
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<td>10.</td>
<td>Fish canning - Principles and practices - Shri K.K. Balachandran</td>
<td>(Rs. 125.00)</td>
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<td>11.</td>
<td>Laboratory Manual on Microbiological examination of seafood-2006 (Second Edition)</td>
<td>(Rs. 90.00)</td>
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<td>12.</td>
<td>Sp. Bulletin - 13 Rubber wood for marine applications</td>
<td>(Rs. 40.00)</td>
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<td>13.</td>
<td>Value added products from low priced fish (Malayalam)</td>
<td>(Rs. 50.00)</td>
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<td>14.</td>
<td>The seafood canning industry in India (Monograph)</td>
<td>(Rs. 35.00)</td>
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<td>15.</td>
<td>Gill nets in marine fisheries of India (Monograph)</td>
<td>(Rs. 100.00)</td>
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<td>16.</td>
<td>Manual of biochemical methods for determining stress and disease status in crustaceans</td>
<td>(Rs. 90.00)</td>
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<td>17.</td>
<td>Electronic instrumentation technology developed in CIFT</td>
<td>(Rs. 60.00)</td>
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**CIFT Technology Advisory Series**

1. Biochemical composition of fish and shellfish (Rs. 5.00)
2. Gill nets (Rs. 5.00)
3. Technology of coating fish products (Rs. 5.00)
4. Frozen squid and cuttlefish (Rs. 5.00)
5. CIFT - TED (Turtle Excluder Device) (Malayalam) (Rs. 5.00)
6. CIFT - TED (Turtle Excluder Device) (Tamil) (Rs. 5.00)
7. Wood preservation for marine application (Rs. 5.00)
8. Nutritional significance of fish proteins (Rs. 5.00)
9. Fish collagens (Rs. 5.00)
10. Indigenous fishing gear of Saurashtra and Kachchh (Rs. 5.00)
11. Commercially viable fishery based technologies recently developed by CIFT (Rs. 5.00)
12. Processing Bombay duck (Rs. 25.00)
13. Trawling methods and designs of Saurashtra coast (Rs. 20.00)
14. Long lines for sharks (Rs. 25.00)
15. Cured fishery products (Rs. 10.00)
16. Processing and utilization of *Acetes indicus* (Jawla prawn) (Rs. 30.00)
17. Mussel meat products (Rs. 25.00)

**CIFT Information Series**

1. Whale shark (*Rhyncodon typus*) (Rs. 40.00)
2. Availability and uses of Ambergris (Rs. 5.00)
3. Important fishery resources of Madhya Pradesh (Rs. 8.00)

**Other Publications (non-priced)**

1. Semi-pelagic trawling
2. Reservoir fisheries of Madhya Pradesh
3. CIFT Annual Report (Bilingual)
4. Fish Technology Newsletter (Bilingual)
5. ATIC Newsletter (Malayalam)
6. Development sans degradation
7. Technology in service of fisheries development
8. Training courses of CIFT
9. An overview of fisheries during the trawl ban in Kerala - Part 1
10. Success story of NATP - Development of convenience foods from fish
11. Management of fisherfolk microenterprises (Malayalam)

**Publications by CIFT staff available from outside**

1. Fish packaging technology (Edited by Dr. K. Gopakumar) (Rs. 270.00) (Concept Publishing Co., A 15-16, Commercial Block, Mohan Garden, New Delhi - 110 059)
2. Tropical fishery products (Dr. K. Gopakumar) (US $ 70.00) (Science Publishers Inc., P.O. Box - 699, Enfield, NH 03748, USA)
3. Post harvest technology of fish and fishery products (Shri K.K. Balachandran) (Rs. 895.00) (1. Education Book Suppliers, Convent Road, Ernakulam, 2. Prabhu's Book House, Cochin, 3. Daya Publishing House, 1123/74, Devaram Park, Trinagar, New Delhi - 110 035)
Publications of Society of Fisheries Technologists (India), C/o CIFT, Cochin

1. Recent trends in processing low cost fish  
   (Rs. 50.00+Postage)
2. Low energy fishing  
   (Rs. 75.00+Postage)
3. Advances and priorities in fisheries technology  
   (Rs. 700.00+Postage)
4. Quality assurance in seafood processing  
   (Rs. 150.00+Postage)
5. Riverine and reservoir fisheries of India  
   (Rs. 600.00+Postage)
6. Nutritive and bioactive substances in aquatic organisms  
   (Rs. 90.00+Postage)
7. Seafood safety  
   (Rs. 750.00+Postage)
8. Sustainable fisheries development - Focus on Gujarat  
   (Rs. 250.00+Postage)
9. Sustainable fisheries development - Focus on Andhra Pradesh  
   (Rs. 300.00+Postage)

Personnel News

Participation in Seminars/Symposia/Workshops etc.

- Dr. K. Devadasan, Director – As the Chief Guest of Launching of IS/ISO 22000:2005, Food Safety Management System Certification Scheme, BIS, Cochin (4 April)
- Dr. P.K. Surendran, Principal Scientist – Meeting of the Directors of Fisheries Institutes and PI’s of network project on ‘National risk assessment programme for fish and shell fish products for domestic and international markets’, NRC on Cold Water Fisheries, Bhimtal (15-16 April)
- Dr. K.G. Ramachandran Nair, HOD, FP and Dr. P.N. Joshi, HOD, Engg. – Meeting convened by Department of Fisheries, Govt. of Kerala on Fisheries Tsunami Emergency Assistance Project Livelihood, Thiruvananthapuram (5 June)
- Dr. M.K. Mukundan, HOD, QAM – Training workshop on Value Chains, TNAU, Coimbatore (5-9 June)
- Dr. S. Balasubramaniam, HOD, EIS – Workshop on Training Need Assessment under Tsunami Emergency Assistance Project (TEAP) implemented by the Directorate of Fisheries, Govt. of Kerala, Thiruvananthapuram (7 April)
- Dr. S. Balasubramaniam, HOD, EIS – Workshop on Impact Assessment of Fisheries Research in India, NAARM, Hyderabad (20-22 April)
- Dr. S. Balasubramaniam, HOD, EIS – Discussion meeting on NATP project ‘Impact of fisheries research’, CMFRI, Cochin (16-17 May)
- Dr. S. Balasubramaniam, HOD, EIS – 72nd meeting of the expert committee for the schemes of DST, New Delhi (29-30 June)
- Dr. B. Meenakumari, HOD, FT – 12th Meeting of the Textile Division, BIS, New Delhi (7 April)
- Dr. B. Meenakumari, HOD, FT – Meteorology, Oceanography Programme Meeting, SAC, Ahmedabad (25 April)
- Dr. B. Meenakumari, HOD, FT – Ocean Sat II meeting, SAC, Ahmedabad (20-22 April)
- Dr. B. Meenakumari, HOD, FT – Meeting on expert consultation to prioritize areas in fisheries for technology interventions for implementation of projects by TIFAC, New Delhi (25 May)
- Dr. B. Meenakumari, HOD, FT – First meeting of the working Group on fisheries for the Eleventh Five Year Plan (2007-2012), NASC Complex, New Delhi (26 June)
Dr. P.T. Mathew, Principal Scientist and Dr. T.V. Sankar, Senior Scientist – Awareness-cum-implementation course on Laboratory accreditation under ISO 17025:2005 standard, New Delhi (2-3 May)

Dr. P.T. Mathew, Principal Scientist – 3rd Meeting of Sub-group Committee on Fisheries and Fish Technology, TIFAC, New Delhi (15 May)

Dr. T.K. Srinivasa Gopal, Principal Scientist – Conference on ‘Packaging for Safety of Foods’, Pune (25 May). He also gave an invited talk on ‘Packaging materials for marine products’.

Dr. A.R.S. Menon, Technical Officer (T9) – Workshop on Right to Information Act-2005, NAARM, Hyderabad (18-19 April)

Dr. A.R.S. Menon, Technical Officer (T9) – Inter Media Publicity Coordination Committee Meeting, Southern Railways, Thiruvananthapuram (26 April)

Dr. K. Sobha, Technical Officer (T5) – Hindi Workshop, Coconut Development Board, Cochin (20 June) (As resource person)

Smt. T. Silaja, Technical Officer (T5) – Workshop on Building institutional repositories using Dspace™, U.C. College, Aluva (24 June)


Shri Santhosh Alex, Jr. Hindi Translator (T4) – Town Official Language Implementation Committee meeting, Visakhapatnam (19 May)

Shri L. Anbu Rajan, SRF – Workshop on Microbial Biotechnology, University of Madras, Chennai, (19-23 June)

Smt. T. Silaja, Technical Officer (T5) – Workshop on Building institutional repositories using Dspace™, U.C. College, Aluva (24 June)

Dr. K. Sobha, Technical Officer (T5) – Hindi Workshop, Coconut Development Board, Cochin (20 June) (As resource person)

Personalia

Transfers

1. Dr. R. Chakraborti, Principal Scientist, Visakhapatnam to Mumbai
2. Dr. D. Imam Khasim, Principal Scientist, Veraval to Visakhapatnam
3. Shri K. George Joseph, Principal Scientist, Calicut to Cochin
4. Smt. Tara Karupalli, Technical Officer (T5), Calicut to Cochin
5. Smt. M.K. Sreelekha, Technical Officer (T5), Calicut to Cochin
6. Shri K.P. Velayudhan, Asst, Calicut to Cochin
7. Shri T. Gangadharan, Sr. Lab. Asst. (T3), Calicut to Cochin
8. Smt. M.V. Valsala, Sr. Lab. Asst. (T3), Calicut to Cochin
9. Shri T.P. Balakrishanan, Driver (T2), Calicut to Cochin
10. Shri P. Rajeev, SSG-II, Calicut to Cochin

Retired

1. Dr. P.K. Surendran, Principal Scientist, Cochin
2. Shri P. George Mathai, Principal Scientist, Cochin
3. Shri V. Muraleedharan, Principal Scientist, Cochin
4. Shri A. Veeranjenyulu, Technical Officer (T6), Visakhapatnam
5. Shri M.M. Devassia, Technical Officer (T5), Cochin
7. Shri V.R. Kesavan, Assistant, Cochin
8. Shri Gajendra Karali, SSG IV, Birla
9. Smt Chandrika C. Tank, SSG III, Veraval

Published by: Dr. K. Devadasan, Director, Central Institute of Fisheries Technology, Cochin - 682 029.
Edited by: Dr. A.R.S. Menon, Secretarial Assistance: Smt. V.P. Vijaya Kumari
Photographs: Shri Sibasis Guha, Hindi translation: Dr. Sobha K.