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CMFRI NEWSLETTER

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RESPONSIBLE FISHERIES - A DECADE AFTER THE FAO CODE

31 OCTOBER 1995 can be considered as a halcyon day in the history of global fisheries management and fisheries science. It was on this day that the Food and Agriculture Organisation (FAO), in its 28th session of FAO conference, unanimously adopted the FAO Code of Conduct for Responsible Fisheries (FAO CCRF). The code is considered as a landmark document symbolizing the international consensus achieved on the necessity for providing guidelines to ensure sustainable utilization of fisheries resources of the world.

Why the Code?

That the sustainability of marine capture fisheries at the current level of harvesting is at stake is no longer a moot point. It is being realized that fisheries anywhere in the world is more a socioeconomic process with biological constraints than anything else. The open access nature of the resource coupled with unregulated penetration of advanced, but not necessarily eco-friendly, harvesting technologies (a phenomenon called *technological creep*) has enacted a virtual "tragedy of the commons" in our seas. Making the issue still more complex, especially in the context of the Millennium Development Goals, is the rampant poverty existing among our fisher folk though the capture fisheries makes significant foreign exchange contribution in our country.

Foundations of the Code

If there are no technological magical bullets for the current impasse what is the way out? This is precisely the question the FAO code is trying to answer. "*The right to fish carries along with it an obligation to do it responsibly*" is the cardinal principle of the code. This principle is built on the foundation of what is known as a Precautionary Approach. Precautionary approach, which originally was proposed as Principle 15 of Agenda 21 the Rio Earth Summit meeting in 1992, enunciates that "where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation". While in simple terms the precautionary approach means "better safe than sorry", it clearly recognizes that changes in fisheries systems are only slowly reversible, difficult to control, not well understood, and subject to changing environment and human values. It involves the application of prudent foresight. It is about applying judicious and responsible fisheries management practices, based on sound scientific research and analysis proactively rather than reactively to ensure the sustainability of fishery resources and associated ecosystems for the benefit of future as well as current generations.

Taking account of the uncertainties in fisheries systems and the need to take action on incomplete knowledge, it requires, *inter alia:* **a.** consideration of the needs of future generations and avoidance of changes that are not potentially reversible; **b.** prior identification of undesirable outcomes and of measures that will avoid them or correct them promptly; **c.** that any necessary corrective measures are initiated without delay, and that they should achieve their purpose promptly, on a timescale not exceeding two or three decades; **d.** that where the likely impact of resource use is uncertain, priority should be given to conserving the productive capacity of the resource; **e.** that harvesting and processing capacity should be commensurate with estimated sustainable levels of resource, and that increases in capacity should be further contained when resource productivity is highly uncertain; **f.** all fishing activities must have prior management authorization and be subject to periodic review; **g.** an established legal and institutional framework for fishery management, within which management plans that implement the above points are instituted for each fishery, and **h.** appropriate placement of the burden of proof by adhering to the requirements above.

The reversal of burden of proof means that those hoping to exploit our marine resources must demonstrate that no ecologically significant long-term damage will result due to their action. Or in other words human actions are assumed to be harmful unless proven otherwise.

Contents of the Code

The code provides a necessary framework for national and international efforts to ensure sustainable exploitation of aquatic living resources in harmony with the environment. It is achieved through 12 articles covering areas like nature and scope of the code (article 1) objectives of the code (article 2), relationship with other international instruments (article 3), implementation, monitoring and updating (article 4), special requirements of developing countries (article 5), general principles (article 6), fisheries management (article 7), fishing operations (article 8), aquaculture development (article 9), integration of fisheries into coastal area management (article 10), post-harvest practices and trade (article 11), and fisheries research (article 12).

Characteristics of the Code

The most salient feature of the code is that it is *voluntary* in nature.

(Contd...)

From the Director's Desk

The recent tsunami which struck the Indian coasts has brought in to focus the relevance of natural disasters, the vulnerability of the people living in the coastal regions, the inadequacy and unpreparedness of our administrative mechanisms to cope with the fallout and the enormity of the problems and issues in the management and rehabilitation processes. While it is accepted that natural disasters can not be prevented, understanding the nature and fallouts of disasters can, to a great extent, help in designing appropriate strategies for reducing the vulnerability of the coastal people, undertaking proactive action in reducing their impacts and putting in to place action plans for coping with disasters if and when they strike. Disaster management is essentially a developmental issue and any preparedness and mitigation agenda must take in to consideration, social, cultural, ethical, technical, policy and overall developmental agenda.

A wide range of natural, technological and environmental hazards can lead to disasters in the coastal region which include, sea erosion, cyclones, tsunamis, tidal waves, tornadoes, oil spills, fires and spills in oil and chemical storage tanks in the shores, fires and oil spills from ships, flooding of dwelling areas with sea or flood water, sinking of fishing boats, entanglement of propellers in nets, collision with ships, engine failures, fire on board, man overboard etc. Disaster management is an emerging science and must be placed in the context of the development challenges that a country faces as a whole. Factors like growth, employment, redistribution / equity etc. are critical for reducing vulnerability to disasters. Disasters have many consequences. Most important is the loss of life that occurs and that could have been prevented. Disasters also result in huge loss of infrastructure, essential civic facilities, fish yields, employment and livelihoods, opportunity loss, disruption in communication, transport, environmental degradation and increase the level of poverty and risks. Indirectly they affect the developmental agenda of governments by reducing funds available for development. The social impact of losses due to disasters is difficult to measure: trauma, depression and grief continue for long periods after the disaster. Thus, it is necessary to understand the various dimensions of hazards and disasters and develop a holistic approach to their prevention and management of their consequences and fallouts. This is a difficult task, which calls for multidimensional and multidisciplinary approaches.

The need for and use of research in disaster management has not fully been recognized by many agencies and organizations. The greater the vulnerability of the population to natural disasters and the smaller the budget available for disaster reduction measures, the greater the need for research and training required to determine the most cost effective measures for risk reduction. Presently no research is going on disaster management in the marine fisheries sector in India, hence must be one priority area for CMFRI to recognize the research needs in this area. Efforts must focus to initiate research into the whole gambit of hazards and disasters in the coastal region by developing a knowledge base on the causes, nature, processes, fall outs, impacts and strategies to cope with and reduce the vulnerability. We must also aim at understanding the role of natural formations such as coral reefs, extensive mangroves, onshore vegetation, sand dunes, bays, lagoons, estuaries, tidal flats etc. Field-testing the effectiveness of certain man made coping mechanisms such as sea walls, tripods and battery of man made submerged FADs in reducing the vulnerability to natural disasters like tidal waves and tsunamis must also receive attention. Whether behaviour of fish and deep sea organisms could be interpreted as indicative of earth quakes or tidal waves could also be examined scientifically.

There has not been any concerted research effort in India to understand the nature, process, vulnerability and impact of disasters in the coastal habitats. Satellite data are used by the Meteorology Department to predict weather and notify cyclone warnings to the marine fishermen. Port authorities issue bad weather warnings to marine fishermen by hoisting various warning signals. The BOBP, Chennai has done some information dissemination on 'safety at sea' for the benefit of coastal fishers of the east coast. All this point towards the need for carrying out a research study in to the various aspects of disasters in the coastal region.

The conceptual framework for disaster management originated since the 1990s, when there has been a growing awareness that disaster losses can be more effectively reduced and perhaps averted through improved development planning and action. Focused development actually reduces the likelihood of disastrous events. In order to manage disasters, there is need to understand the subtle difference between hazards and disasters. Hazards are to be seen as

integral aspects of our environment- as naturally occurring or human-induced processes or events with the potential to create loss. Exposure to a hazard need not necessarily mean disaster. It is the level of vulnerability of those who are exposed to the hazard that increases risk and thus the likelihood of disastrous occurrence. For example, navigating in the sea in a small boat and on board an ocean liner, the hazard from the seas such as cyclones, waves, currents etc. are the same for both, but the vulnerability is different, the boat being more vulnerable than the ship.

The goals and ultimate mission of the research should focus on the following:

- Developing disaster history of each area and documenting the lessons learnt.
- Understanding the nature and processes of natural disasters in the coastal regions including climate changes.
- Identifying the key common characteristics of each hazard and assessing the location specific vulnerability of coastal communities to these disasters.
- Assessing the effectiveness of existing waning systems.
- Evaluating the effectiveness of biological or behavioral information on deep sea organisms in making disaster predictions or warnings.
- Evaluating the role of natural barriers (bio-shields) like mangroves, sand dunes, coral reefs, lagoons, and coastal vegetations in reducing the impacts of disasters.
- Field-testing the efficacy of FAD batteries, coral reefs, sand dunes and coastal vegetation in reducing the vulnerability to disasters.
- Research on livelihood strategies of the communities at risk.
- Developing a package of practices, which are location specific for coping with disasters in the coastal zone.
- Developing appropriate HR among coastal youth in emergency management of disasters to save life and protect property.
- Developing a decision support tool for disaster management.
- Development of an emergency survival kit for coastal communities.
- Environmental, social, legal and policy issues in disaster management and mitigation including alternate livelihoods, market behaviour, dynamics and coping strategies.

From a development perspective, disasters are not seen as isolated random acts of nature, but as expected consequences of long term poor risk management. They are the outcome of interconnected geological, climatic, environmental, commercial, social and physical processes that increase risk and vulnerability to even modest threats. From this perspective, both risk reduction and disaster management are clearly multi-disciplinary processes, engaging a wide range of stakeholders. In the broadest sense, risk reduction is a developmental imperative for achieving sustainable growth, as well as a strategy that protects the lives and livelihoods for those people who are most vulnerable. Disaster management should be an integral component of development planning as disasters and development are often interrelated. Disasters have special negative impacts on the non-formal sector where approximate costs of disasters are often underestimated mainly because small-scale disasters go unrecorded and receive no national priority. However, these disasters adversely affect households and individuals who feel the consequences most due to loss of income or bread winner members. Disasters depress the non-formal economy through the direct costs of lost equipment, infrastructure, housing, lives and households utensils, and also result in indirect costs such as loss of employment and economic losses. Development programmes must be designed to decrease vulnerability to disasters and their negative consequences. Disasters do highlight high-risk areas where action must be taken before another disaster strikes. The realization of vulnerability after the occurrence of a disaster can motivate policymakers and the public to participate in risk-reduction activities. Causes of manmade disasters are now being seen in a dialectical perspective and are the outcome of cumulative risk processes rooted in patterns of behavior like poor land-use practices, ill-conceived development projects, lack of rules and guidelines, etc.

The research should aim at developing a package for the coastal people which will include, to the extent possible, an early disaster warning mechanism, develop preparedness for coping with disaster when it strikes, reducing vulnerability and putting in to place a recovery and damage control mechanism. Are you listening?

Mohan Joseph Modayil

RESEARCH HIGHLIGHTS

Marine Fisheries Census 2005

Central Marine Fisheries Research Institute and the Department of Animal Husbandry, Dairying & Fisheries (DAHD&F), Ministry of Agriculture, Government of India, have successfully conducted the National Marine Fisheries Census during 15 April to 15 May 2005 all along the west and east coasts with a budgetary provision of Rs. 80.5 lakhs. Tamil Nadu and Union Territory of Pondicherry have not been covered at present under the census data collection due to the havoc caused by Tsunami.

The objective of the National Marine Fisheries Census was to recognize the need for an informed fisheries management regime, and updating the national database on fisher population, which are important requirements for planning strategic inputs in the development sector as well evolving appropriate policies for fisheries management. A similar national level exercise was undertaken by the CMFRI in 1980 to carry out an all India frame survey.

The Census covered about 2,445 marine fishing villages situated in the 6200 km coastal belt. Around 1,116 trained enumerators were employed in the month-long exercise for census data collection covering around 5.9 lakh households supervised by a three tier system of around 300 personnel of CMFRI. The basic information from each household was collected through personal interview and registered in specially prepared schedules designed to cover the entire gamut of parameters comprising family size, education, occupation status, inventory of craft & gear, other fishing related equipment apart from information on skill acquisition through specialized training etc.

Mechanization in mussel harvesting

To help farmers separate the farm grown mussels without damage and in a hygienic manner from the core materials such as ropes, a manually operated de-roping (stripping) was designed and fabricated. The unit (Prototype I) with a wooden ramp of height 75 cm, a cylindrical winding drum and a separator was fabricated and field-tested in the mussel farms of Korapuzha estuary.

On-shore mabe production

In the Marine Hatchery of CMFRI at Calicut, preliminary success was achieved in producing mabe pearls in the pearl oyster *Pinctada fucata* by rearing the oysters in onshore cement tanks. The oysters were provided mixed algal diet with drip feeding system @50 liters per h. Thirty percent nacre coating was observed on implanted image after 45 days and full coating by 90 days.

(Responsible Fisheries ..... Contd. from page 1)

Unlike other international agreements like UN Agreement to Promote Compliance with International Conservation and Management Measures by Fishing vessels on the High Seas or the Straddling Stock Agreement,1995, it is not legally binding and violation of the code cannot be challenged in a court of law. It would be tempting to castigate it as an Achilles' heel and thus futility of the code. But it should be remembered, "open access imbroglios'' can not be resolved through attempts that fail to recognize altruistic spirit of the human actors. In a situation where "you and your enemy belongs to the same system, solutions must be found in managing relationships". It doesn't mean that the code is impractical or ineffective. A fundamental objective of CCRF is "to serve as an instrument of reference to help states to establish or to improve the legal and institutional framework required for the exercise of responsible fisheries and in the formulation and implementation of appropriate measures." The policies of the state for managing the fisheries resources should be based on the provisions of the code.

If world fisheries are to be sustainable in the long term, structural adjustment within the fisheries sector is required. Although policy decisions in this regard must be made by national governments, effective implementation of the code requires the participation and cooperation of a wide range of stakeholders, including fishers, processors, NGOs and consumers. Implementation of the code is primarily the responsibility of states. The code will require regional and sectoral implementation in order to address the particular needs of fisheries in different regions or sub-sectors.

The Code and CMFRI Initiatives

It is in this context that the actions and initiatives being taken by CMFRI, mainly through an NATP funded research project titled "Designing and validation of communication strategies for responsible fisheries –a co-learning approach" become relevant. A Responsible Fisheries Extension Module (RFEM), which consists of 13 tools including a Malayalam translation of the code, animation films in all maritime languages etc. developed have been widely used to create awareness among the fisherfolk. A statewide campaign on Responsible Fisheries was launched and the RFEM was released for further scaling up by the respective State Fisheries Departments. These mass communication tools have the potential to reach almost 85 % of the fisher folk and other stakeholders in the country. It is reasonable to conclude that CMFRI has made a pioneering initiative in the cause of popularization of the concept of Responsible Fisheries in India**.**

Our marine resources need careful protection and stewardship. In this regard, it is worth noting that CMFRI, through its multifaceted research activities and outreach programmes for the last five decades, has been committed to promote the idea of responsible fisheries in the country. The recent reorientation given to the capture fisheries research projects by taking into focus each of the maritime states instead of regions denote yet another manifestation of this commitment. In the march towards "Fish for all, and for ever", we hope to build new forms of co-management partnership with the stakeholders in the sector. In order to rededicate our global efforts towards marine fisheries sustainability it is prudent for FAO to declare an international day for responsible fisheries, preferably 31st of October every year.

Article contributed by Dr. C. Ramachandran, Scientist (SS), SEETTD

Mussel harvest from CMFRI Demonstration cum Research farm in Chaliyar Estuary, Kozhikode

An experiment to compare the growth and production of vertically and horizontally seeded mussel ropes was conducted at the CMFRI demonstration cum Research Farm in Chaliyar Estuary, Karuvanthiruthy, Kozhikode. A total harvest of 588 kg shell-on mussels were obtained from 37.5 mt of seeded rope (249 kg from vertical and 339 kg from horizontal) in about 4 months period. The vertically grown mussels registered better for growth and production compared to the horizontally grown mussels. The production per meter rope in case vertical was 18.41 kg and 14.12 kg in case of horizontal. The average production per meter of rope was 15.7 kg at the rate of 38 nos./kg and fetched revenue of Rs. 4050/-. The meat constituted 34% of the total weight.

Integrated bivalve research cum demonstration farm

Mussel harvest

Backwaters turn the watery graveyard for oil sardine

The Indian oil sardine, *Sardinella longiceps*, in small schools, has been found to enter the Ashtamudi and Cochin backwaters by mid December 2004. The species was found to sustain a minor fishery in the area and was exploited by cast nets, Chinese dip nets, gillnets, etc. even upto 30km south in Muhamma. However, mass mortality of sardine was observed at Panangad, Cheppanam, Marad, Kundannoor, Poonithura and Champakkara canals. Interestingly, mortality of no other resident fishes/crustaceans like *Etroplus* spp., *Gerres* spp., *Leiognathus* spp. mullets, carangids, *Tilapia, Metapenaeus dobsoni, Fenneropenaeus indicus, Scylla serrata*, etc. was noticed.

Dead Sardines being discarded

A team of Scientists from CMFRI visited different spots where the mass mortality occurred and monitored various environmental parameters for a week. The salinity in the area ranged from 2.6-3.5 ppt and dissolved oxygen content got gradually reduced from an initial value of 5 to 1.62 ml^{-1}. Among the nutrients, the phosphate (6-15μg at^{-1}) and silicate (40-74 μg at^{-1}) showed higher values.

Drastic reduction in salinity in the backwaters during rainy months would have been the main cause for mass mortality. A rough estimate based on the number per square meter put the quantity of dead sardine at 25-30 t, worth Rs.3 lakhs, at Cheppanam itself. It was a health hazard to the residents in many areas. The fishing activity in the area was also suspended. Many of the resident fishes had moved to safer grounds.

Heavy landings of Tuna at Chennai after Tsunami

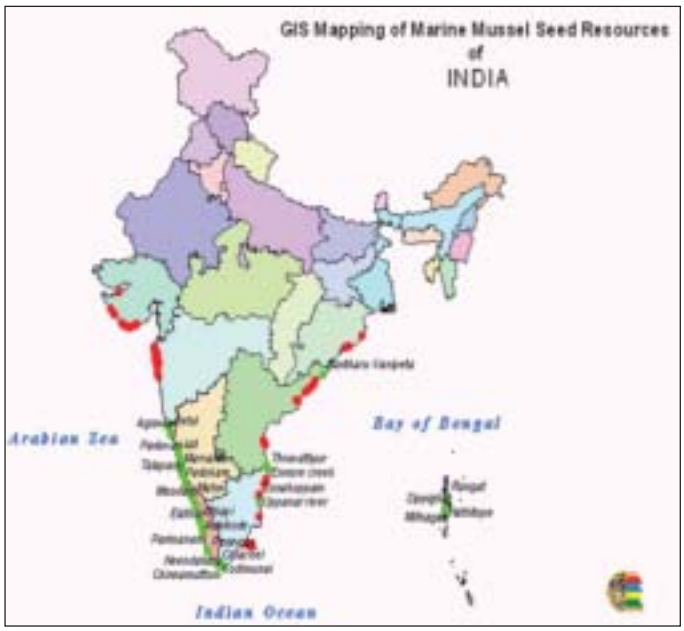
At Chennai there was an increasing trend in landings of pelagic fishes following tsunami. Tuna accounted for 80% of the total gillnet catch at the Chennai Fisheries Harbour landing centre during 6 – 28th June 2005. In June 2005 an estimated 198 t of tuna were landed with *Katsuwonus pelamis* being the dominant species forming 58.6%. Compared to previous year during the same period there was an increase of 20% in the catch.

Captive spawning of *Portunus pelagicus*

Spawning of the swimming crab *Portunus pelagicus* was achieved on 29-06-2005 at Kovalam Field Laboratory. The crabs were grown from immature stage to maturity under captive conditions by feeding pellet feeds.

GIS mapping

A National Mussel Seed Calendar has been prepared using GIS under the NATP project on Mussel Mari-culture. Red markers represent non-availability of mussel seed and the green represent availability. The physico-chemical parameters of the seeding sites are included in the individual state maps.



Onshore image-pearl produced at Vizhinjam

Good quality image pearls were produced under laboratory conditions at Vizhinjam Research Centre. Recirculation system was used with partial replacement at fortnightly interval. A system consisting of a rearing tank, water treatment

tank, storage tank and feed reservoir, developed for maturation of oysters for selective breeding work was used for the purpose. The implanted oysters were kept in the rearing tank, which received continuous inflow of microalgal culture from the feed reservoir. About 70.0% of the rearing medium was transferred daily into the treatment tank, which was provided with biological filtration system and a protein skimmer. Good pearly coating was obtained in three months.

Anticoagulant and Glucosidase inhibitory activity of marine macro algae, *Ulva fasciata* and *Hypnea musciformis*

The methanol extracts of *Ulva fasciata and Hypnea musciformis* exhibited moderate to high anticoagulant activity towards shrimp hemolymph and to salinity acclimated tilapia blood, they indicated moderate to high activity. The normal clotting time of fish blood was extended by 20.0 % as compared to the known anticoagulant heparin at 0.1 % of methanol extract of *Ulva fasciata*. This anticoagulant activity exhibited increase with the increasing concentration of the extract. A similar anticoagulant activity was seen in 1.0 % methanol extract of *Hypnea musciformis*. The water extract did not exhibit any anticoagulant activity.

The methanol-acetone solvent combination (M4) fraction of *U. fasciata* expressed 83.30 % of comparable activity to that of the standard α and β – D- glucosidase inhibitors. Almost similar activity was detected in Dichloromethane-acetic acid and ethanol solvents. However, negligible activity was noted in the water extracts of both algae. Fresh methanol extracts of *Ulva fasciata* showed higher range of β – D- glucosidase inhibition of 87.33 % followed by 86.66 % of its Di choloromethane – acetic acid fraction.

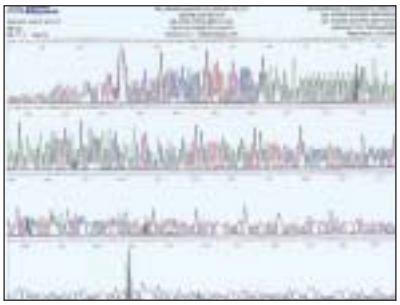
Phyllosoma larvae of spiny lobster reared

The phyllosoma larvae of the spiny lobster *Panulirus homarus* bred under captivity have been reared for the first time to stage 8 in 42 days. Earlier, the larvae attained stage 7 in 60 days. Adoption of ecosystem culture method and feeding with enriched adult live *Artemia* during late stages were the improvements made in the larval rearing protocols.

Purified Eicosapentaenoic acid from sardine oil

Eicosapentaenoic acid (EPA), a highly unsaturated fatty acid required for normal development of finfish and shellfish has been purified from crude sardine oil. A mixture containing eicosapentaenoic acid, docosahexanoic acid and arachidonic acid has been prepared from sardine oil for use in enrichment diets.

Sequencing of microsatellite locus of domesticated clownfish



Microsatellites, which are excellent markers for studying genetic heterogeneity and parental inheritance in cultured fish, were generated from domesticated clownfish, *Amphiprion sebae*. Cloned and sequenced the microsatellite locus (AS 10, 129 bp) from this species and was released by GenBank (NCBI) with the accession number **DQ079821.**

New world class analytical facility created for proximate analyses of feed and feed ingredients (Manufacturers : FOSS Tecator, Sweden)

(i) **(ii)** **(iii)**

i) Digestion system and Kjeltec protein analyzer
ii) Soxtec fat extraction unit
iii) Fibertec fiber extraction unit

ACADEMIC NEWS

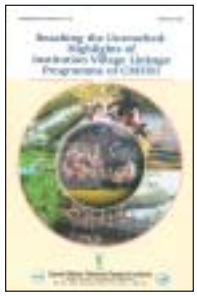
Ph.D. Award

Scholar	Guide	Title of Thesis
Anikuttan, K.K.	Dr. K.C. George, Principal Scientist	Pathology of Aflotoxicosis and heavy metal toxicity in pearl spot *Etroplus suratensis* (Bloch).
Binu Varghese	Dr. R. Paul Raj, Principal Scientist & Head, PNPD	Nutritional studies in sebae anemone fish, *Amphiprion sebae* Bleeker 1853, with special reference to protein and lipid requirements.
Ajitha, S.	Dr. V. Chandrika, Principal Scientist	Role of *Bacillus* and *Lactobacillus* from marine environment for sustainable aquaculture practices.
S.D. Gopakumar	Dr. C.P. Gopinathan, Principal Scientist	Nutritional enrichment of the rotifer *Brachionus rotundiformis* (Tschugunoff) for the rearing of marine finfish and shrimp larvae.
Sheela Immanuel	Dr. K. Kanagasabapathy, Reader, Department of Agricultural Extension, Annamalai University, Tamil Nadu	Linkages among research, extension and clientele system in marine fisheries in Kerala.
Emmadi Dhanwanthari	Dr. Takashi Aoki, Professor and Head, Laboratory of Genome Science, Tokyo University of Marine Science and Technology, Tokyo	Adjuvant studies of Cytokines in DNA vaccine against viral haemorrhagic septicemia virus of Japanese flounder (*Paralichthys olivaceus*)

Study Tour:

M.F.Sc. (Mariculture) IV Semester students undertook a week long tour to Vizhinjam RC of CMFRI as part of their curriculum.

INSTITUTE PUBLICATIONS



"Reaching the Unreached: Highlights of Institution Village Linkage Programme of CMFRI" (R.Sathiadhas, L.Krishnan, D.Noble, A.Laxminarayana, Sheela Immanuel, Jayan and Sindhu Sadananadan).

This is a documentation of success stories on various technological interventions undertaken under the IVLP implemented in *Elamkunnappuzha* village under the Production System Research (PSR) mode of the Coastal Agro - Ecosystem under NATP. Released as CMFRI Special Publication no 82.

"IVLP Experiments of CMFRI: Prioritised Techno – Interventions for Horizontal Expansion" (R.Sathiadhas, L.Krishnan, C.Ramachandran, V.P. Vipinkumar, Juliet Joseph and Sindhu Jerson).

This is a comprehensive brochure on six prioritized technologies for horizontal expansion in coastal Kerala with economic projection at 25 % of adoption level.

"Sagar Sada Bahar" : A well illustrated booklet in Hindi which explains the concept of Responsible Fisheries and the need for following the FAO Code of conduct authored by C. Ramachandran & translated to Hindi by Mrs.Sheela.P.J and released as Responsible Fisheries Extension Series No : 5

"On designing communication tools for responsible fisheries" : A book which narrates the learning experiences derived out of the project. It contains an abridged version of the FAO Code of Conduct for Responsible Fisheries authored by C. Ramachandran and released as Responsible Fisheries Extension Series No : 7

"Teaching not to Fi(ni)sh : A constructivist Perspective on Reinventing a Responsible Marine Fisheries Extension System" : A book dealing with the theoretical and policy issues in Reinventing a Marine Fisheries Extension System especially in the context of Responsible Fisheries authored by C. Ramachandran and released as Responsible Fisheries Extension Series No : 6.

• **"The need for Responsible Fisheries" (*Uttaravaditwapara matsyabandhanthinte avashyakatha*) :** An illustrated brochure in Malayalam which explains the need for following the concept of Responsible Fisheries authored by C. Ramachandran and released as Responsible Fisheries Extension Series No: 3.

• **"Marine Ornamental Fishes" :** A pamphlet prepared by G. Gopakumar and N.G.K.Pillai, released as Technology Information Series No 3 of ATIC edited as a fisher friendly version by Vipinkumar.V.P and R.Sathiadhas, which gives information about the economically important marine ornamental fishes. The Hindi version of the same entitled ***"Samudru ki alamkari machaliyam",*** translated by Smt.Sheela.P.J also was released.

NEW HEIGHTS

New Projects Approved

In-house Projects

Divisional Projects

Division	*Title of the Project*
FRAD	*Assessment of exploited marine fishery resources*
FRAD	*Stock assessment techniques for exploited marine fish and shellfish resources*
FEMD	*Monitoring the environmental characteristics of the inshore waters in relation to fisheries*
FEMD	*Monitoring the state of health of the sea*
FEMD	*Development of strategies for sea turtle and sea cucumber conservation*
FEMD	*GIS based atlas on potential mariculture sites along Indian coasts*
PNPD	*Development of cost- effective and eco-friendly feeds for cultivable marine crustaceans and finfish by biotechnological interventions*
PNPD	*Disease monitoring and management in mariculture*
PNPD	*Development of cost effective low-stress methods for live transport of fish and cryopreservation*
SEETTD	*Price behaviour and marketing system of marine fisheries in India*
SEETTD	*Economics of marine fishing operations and social costs/benefits*
MBD	*Species diversity of exploited marine fishery resources of Indian coasts*
MBD	*Studies on the coral biodiversity of the Gulf of Mannar Marine Biosphere Reserve*
MBD	*Studies on the specific and infra specific diversity of carangids of the Indian seas*
MD	*Broodstock development and seed production of Finfishes*

MD	*Mass production of live feeds and nutritional enrichment for larviculture*
MD	*Development of diversified and sustainable grow out mariculture systems*
MD	*Seed production for shellfish and mariculture*

Inter-Divisional Projects

Sl. No.	Title of the Project	PI & Centre	Nodal Division
1	Appraisal of marine fisheries of Gujarat	Dr.K.V. Somasekaran Nair, Veraval	DFD
2	Appraisal of marine fisheries of Maharashtra	Dr. V.D. Deshmukh, Bombay	CFD
3	Appraisal of marine fisheries of Goa & Karnataka	Dr. C. Muthiah, Mangalore	PFD
4	Appraisal of marine fisheries of Kerala	Dr. N.G.K. Pillai, Cochin	PFD
5	Appraisal of marine fisheries of Tamil Nadu	Dr. E. Vivekanandan, Chennai	DFD
6	Appraisal of marine fisheries of Andhra coast	Dr. G. Syda Rao, Visakapatnam	MFD
7	Appraisal of marine fisheries of Orissa	Dr. S. Sivakami, Cochin	DFD
8	Appraisal of marine fisheries of West Bengal	Dr. M. Srinath, Cochin	FRAD
9	Appraisal of marine fisheries of the Lakshadweep Islands	Shri. K.P. Said Koya, Minicoy	PFD
10	Fisheries ecosystem analysis in a selected ecosystem (eg. coralreef ecosystem)	Dr. K.S. Mohamed, Cochin	MFD
11	Studies on discards at sea and bycatch of trawlers	Dr. G. Nandakumar, Cochin	CFD
12	Impact of marine fisheries regulations on fish stocks, capture and coastal livelihood	Dr. R. Sathiadhas, Cochin	SEETTD
13	Impact of selective fishing, juvenile and brood stock capture, FADs and sea ranching on stock health	Dr. E.V. Radhakrishnan, Cochin	CFD

Inter-Institutional in-house Collaborative mode projects

Sl. No.	Title of the project	Co-PI & Centre	Nodal Division (CMFRI)
1	Genetic divergence studies in prioritized marine finfish and shellfish species	Dr. P. Jayasankar Cochin	PNPD

Underwater video recording system established in RV Cadalmin IV at Tuticorin

The underwater video recording system Titan ROV III made in Australia by M/s.Deep Scenes has been installed in RV Cadalmin IV of the Tuticorin Research Centre. The equipment has a remotely operated vehicle with Camera (RoV), tether cable, control console and power pack. Experimental underwater videographing was successfully carried out at a site off Vaan Island and a video CD of 10 minute duration was prepared and demonstrated during 12th Staff Research Council meeting of CMFRI in May 2005.

Best paper award 2004

Shri M. Vijayakumaran, Scientist (SG) Visakhapatnam Regional Centre of CMFRI won the best paper award for the year 2004 instituted by the Society of Fishing Technologists for his paper entitled "A simple model for predicting upwelling status along Visakhapatnam coast".

Consultancy

The Mangalore Research Centre has taken up studies on 'Water quality monitoring and silt load modeling studies in Bhadra River flowing through the mining area' as the Second Phase of the consultancy work with M/s Kudremukh Iron Ore Co. Ltd. The project worth Rs. 14,00,000/- is for a period of six months from June to December 2005.

New Consultancy project on the Conservation and Management of Sea Turtle Olive Ridley of Gahirmatha coast for Reliance Industries, Mumbai initiated at Visakhapatnam.

Prizes won

Dr. (Mrs.) Imelda Joseph, Sr. Scientist, PNPD won third prize in English poetry and Smt. E.K. Uma, Technical Officer (Hindi) has bagged IIIrd prize in Malayalam short story competition in '*Kalasangamam*' organized by Central Govt. Welfare Co-ordination Committee, Cochin in June, 2005.

TRANSFER OF TECHNOLOGY

Training programmes conducted for practising farmers, rural youth and rural women

Krishi Vigyan Kendra of CMFRI, Narakkal conducted 31 training courses imparting training to 585 persons. The number of training courses and beneficiaries in each discipline were as follows: Fisheries 11-211; Agriculture 10-174 and Home Science 10-200. Out of these, two collaborative training programmes were conducted with Brackish Water Fish Farmer's Development Agency, Ernakulam, one on Shrimp farming and the other was on

Crab farming and fattening. One training programme for Extension personnel of State Fisheries Department was also conducted.

Awareness programme in mushroom cultivation

Three awareness programmes for the popularization of mushroom cultivation was organized at Block Panchayat Office, Alangad (9th May), Krishi Bhavan, Thiruvaniyoor (16th May) and at Mulanthuruthy (18th June). Economics of cultivation of milky mushroom and establishment of spawn production unit was discussed during the programme. Three hundred and thirty one persons which included 209 women and 5 extension personnel from the State Agricultural Department attended these programmes.

INTERACTION AND EVALUATION

Farmers meet

Farmers meet on jasmine cultivation was organized and conducted at Krishi Bhavan, Alangad (21st May) and at Krishi Bhavan, Mazhuvanoor (28th May). Cultivation of jasmine in relation to time of pruning to increase flower production, disease and pest management was discussed during this meet. One hundred and forty eight persons including 41 women participated in the programme.

A farmers meet was organized in collaboration with Block Panchayat, Kothamangalam as part of the World Environment Day celebration. An interactive session on farming of freshwater fishes was also held during this meet. One hundred and twenty five persons which included 82 women and 5 extension personnel of State Fisheries Department attended the programme on 6th June 2005.

Mahila meet

A mahila meet was organized on 19th April 2005 in association with 'Samoohya Seva Trust' at Moothkunnam. Empowerment of women through formation of self help groups was the theme of the meet. Seventy rural women participated in this programme (19th April).

Meetings held

- Institute Joint Staff Council Meeting on 5th April
- Institute Management Committee Meeting on 6th April
- Institute Grievance Committee Meeting on 25th April
- Interactive Meeting on 26th May
- Staff Research Council Meeting on 24-28 May

Seminar held

- Divisional seminar on "Communication Tools for Responsible Fisheries" by Dr.C. Ramachandran, Scientist (SS), SEETTD on 16th June.

SRC meeting

The 12th Reconstituted Staff Research Council Meeting of the Institute was held at the Headquarters from 24th to 28th May. Fifty one in-house projects and 14 externally funded projects were reviewed. Dr. S. Ayyappan, Deputy Director General (Fy.), Dr. A.D. Diwan, Assistant Director General (M.Fy.), ICAR, New Delhi, Dr. E.G. Silas, Chairman QRT, Prof. (Dr.) Mohan Joseph Modayil, Director, CMFRI and all Principal Investigators, Heads of Divisions and Scientists-in-charge of the Regional/Research Centres participated in the deliberations held.

OFFICIAL LANGUAGE IMPLEMENTATION

Awards

CMFRI bagged Official Language Implementation Award (1st position) from Cochin Town Official Language Implementation Committee for the best performance in Official Language implementation activities during the period 2004-05. Shri K.L. Meena, Sr. Administrative Officer received the award from the Chief Commissioner of Income Tax in the function conducted on 25th May, 2005 at CIFNET, Cochin. On this occasion the Hindi special publication of the Institute 'Samudra krishi ki nayi pragathiyam' also won IIIrd prize among the Hindi publications released from Cochin TOLIC.

Shri K.L. Meena, Sr. Adm. Officer receiving the TOLIC Rajbhasha Rolling Trophy for best OL implementation from Shri. B. Ravibalan, Chief Commissioner of Income Tax, Cochin

Karwar Research Centre of CMFRI, Karwar won the Rolling Trophy for the effective implementation of Official Language for the year 2003-04. The function was conducted on 27-5-2005.

Best OL implementation Award - Karwar Research Centre

Inspections

The Institute inspection team constituted for the inspection of progressive use of Official Language Hindi has inspected the various Sections and Cells in the month of May, 2005 and gave suggestions for improvement. ICAR inspection team consisting of Shri Rajiv Uniyal and Shri Manoj Kumar, Technical Officers inspected the Hindi implementation activities of CMFRI Headquarters on 30-5-2005. The inspection team gave necessary suggestions for the increased use of Hindi at the Institute.

OLIC meeting

The 66th meeting of the Official Language Implementation Committee of the Institute was held on 30-6-2005 under the chairmanship of Dr. Mohan Joseph Modayil, Director of the Institute. All Heads of Divisions, Incharges of Sections & Notified Cells and members of Inspection Committee attended the meeting. The Committee reviewed the progress of work done for the period ending 31-3-2005 and chalked out programmes for implementation for the year 2005-06.

IN-HOUSE EVENTS

Club day celebration

Club day was celebrated at Madras Research Centre on 18th June by arranging music programmes. Prizes were distributed to the winners who participated in the games.

Felicitation of meritorious children of staff of Vizhinjam by the staff welfare/ recreation club

The Staff Welfare/Recreation Club, VRC of CMFRI, Vizhinjam, arranged a function to felicitate the meritorious children of the staff members who have secured 60.0% marks and above in the Secondary/Higher Secondary Examinations, 2005. A cash prize of Rs. 500/- per student was presented in the function held on 18-06-2005 at the Centre. Commdt. M. Venkatesan of the Indian Coast Guards, Vizhinjam Station was the Chief Guest. Emilin Thomas D/o Shri. K. T. Thomas, Deepthi, V. S. D/o Shri. A. K. Velayudhan, Lijimol, A. S. and Linesh, A. S., daughter and son respectively of Shri. S. Anil were felicitated on the occasion. Shri. Jose Kingsly, Secretary of the Club proposed vote of thanks.

PERSONALIA

Guests

Headquarters, Kochi

- Shri Pankaj Kumar Bansal, IAS, Addl. Director, Fisheries, Govt. of Tamil Nadu
- Dr. K.L. Chadha, Ex. DDG (Hort.), National Professor (Retd.), ICAR, New Delhi.

Visakhapatnam Regional Centre

- Dr. A.D. Diwan, Assistant Director General (M.Fy.), ICAR, New Delhi
- Shri Ajay Bhattacharya, Joint Secretary, Ministry of Agriculture, Krishi Bhavan, New Delhi
- Shri A.J. Banga, Director, Department of ADF, Ministry of Agriculture, New Delhi
- Dr. M. Sakthivel, President, AFI
- Dr. G. Santhana Krishnan, Joint Director, MPEDA, Cochin
- Dr. Jayaram, Joint Director, Department of Fisheries, Bangalore
- Shri Chakraborthy, Joint Director, Government of West Bengal
- Shri Arjun Nayak, DDF, Government of Orissa
- Shri P.C. Appa Rao, President, AP Mechanised Boat Owners Association

Mandapam Regional Centre

- Shri B.L. Jangira, Director (Finance), ICAR, New Delhi
- 950 visitors including 333 students from 18 colleges

Veraval Regional Centre

- Shri K.K. Khakhar, Dept. of Economics, Sasurashtra University, Rajkot
- Shri D.K. Singh, IAS, Deputy Secretary, Ministry of Agriculture, Govt. of India, Krishi Bhavan, New Delhi
- Dr. P.V. Dehadrai, Former Deputy Director General, ICAR, New Delhi.

Madras Research Centre

- Dr. Mangala Rai, Secretary, DARE & Director General, ICAR, New Delhi

Vizhinjam Research Centre

- Mr. M. Kumaran, M.L.A, Kerala visited on 04-05-2005
- Dr. M.L. Maheswari, Prof & Head (Retd) Animal Nutrition Div., Veterinary University, Mathura, Uttar Pradesh visited.
- Dr. D. Kapoor, Director, NBFGR, Luknow visited.
- Mr. B.L. Jangira, Director, Finance Dept., ICAR, New Delhi visited.

Minicoy Research Centre

- Dr. A.P. Prem, Consultant General Surgeon, Apollo Hospital, Gream lame, Chennai
- Dr. Jegadheeswaran, Chief Medical Officer, Jipmer, Pondicherry
- Shri P.N. Mohanan, Director, Office of DDGM(SI), Instruments Division, Shivaji Nagar, Pune
- Mr. Farooque, Sports Manager and 20 tourist
- Deputy Collector and Vice Chairperson

Programme participation

Prof. (Dr.) Mohan Joseph Modayil, Director

Summer Camp on Coastal Zone Awareness Camp for school children at St. Mary's H.S. Auditorium, Chellanam and gave felicitations (1 April).

IX IJSC of CMFRI at CMFRI, Kochi (5 April)

Fisheries Development Masterplan (Road Map) meeting at CMFRI, Cochin (20-21 April)

Meeting convened for Coastal Fisheries Research and Development and to prepare a Master Plan for Fisheries R&D in Karnataka under the chairmanship on the V.C., KVFSU, Bidar (23 April)

Discussion meeting on Compilation of Report on Impact of Tsunami at KSCSTE, Pattom, Trivandrum (28 April)

Meeting for Andaman Fisheries Development Master plan at CMFRI Cochin (7 May)

SRC Meeting of CMFRI (24-28 May)

Meeting of National Coastal Zone Management Authority at MoE&F, New Delhi (8 June)

Dr. M. Srinath, Principal Scientist & Head, FRAD

Workshop on "Fisheries Stock Assessment Capacity Building at Visakhapatnam (9-13 May)

Dr. M. Rajagopalan, Principal Scientist & Head, FEMD

Meeting for the development of road map in the fisheries sector at A&N islands organized by SMD Fisheries Division of ICAR at CMFRI (20-21 April)

First meeting of the Expert Committee for studying and Reviewing impact of Tsunami on Ocean Ecosystem and its resources at NIO, Kochi organized by Director, INCOIS and Chairman of Expert Committee (6 June)

Dr. E.V. Radhakrishnan, Principal Scientist & Head, CFD

Workshop on preparation of a Roadmap towards development of fisheries in the Andaman & Nicobar Islands at CMFRI (20-21 April).

Meeting of the Core Committee to finalise the approved new project proposal at CMFRI, Cochin (22-24 June)

Dr. S. Sivakami, Principal Scientist and Head, Demersal Fisheries Division

Workshop on preparation of a Roadmap towards development of fisheries in the Andaman & Nicobar Islands at CMFRI (20-21 April).

Meeting with the visiting team in connection with the formation of National Fisheries Development Board at CMFRI, Cochin (21-24 June)

Research Project finalisation meeting at CMFRI, Cochin (22-24 June)

Dr. L. Krishnan, Principal Scientist

Meeting of the Task Force at DBT, New Delhi (28-30 April)

Meeting of the Task Force at DBT, New Delhi (28-30 June)

Dr. Rani Mary George, Principal Scientist & Head, Marine Biodiversity Division

Workshop on preparation of a Roadmap towards development of fisheries in the Andaman & Nicobar Islands at CMFRI (20-21 April).

Dr. Rani Mary George, Principal Scientist & Head, Marine Biodiversity Division and **Dr. G. Gopakumar**, Principal Scientist & Head, Mariculture Division

Training course on **'Leadership and personality development'** at NAARM, Hyderabad (17-23 June)

Dr. G. Syda Rao, Principal Scientist & Scientist-in-Charge, Visakhapatnam Regional Centre

Planning workshop on "Fisheries stock assessment capacity building" organized by Department of Fisheries, Andhra Pradesh in collaboration with the Marine Resource Assessment Group – UK at Visakhapatnam (9-13 May).

Dr. H. Mohamad Kasim, Principal Scientist & Scientist-in-charge, Madras Research Centre

Meeting on "Sea Water Farming for coastal area prosperity" at M.S. Swaminathan Research Foundation, Chennai (2 April)

Stakeholders' Consultation Workshop on "Sustainable Livelihood Rehabilitation project for Tsunami affected rural communities of Tamil Nadu" at M.S. Swaminathan Research Foundation, Chennai (4-5 April)

Delivered a lecture on "Fishery Resources – Commercially important fishes of Tamilnadu on 16th June 2005 at Fisheries Staff Training Institute, Chennai.

Dr. V.D. Deshmukh, Principal Scientist & Scientist in charge, Mumbai Research Centre

Consultative Committee Meeting at Fishery Survey of India, Mumbai (29 April)

Departmental Promotion Committee meeting at CIFE, Mumbai (3 May and 14 June)

Dr. C. Muthiah, Principal Scientist & Scientist-in-Charge, Mangalore Research Centre

Core Group meeting of Project Leaders of the new project at CMFRI, Cochin (22-24 June)

Dr. C. Muthiah, Principal Scientist and **Dr. Prathibha Rohit**, Scientist (Sel. Grade)

38th meeting of the Town Official Language Implementation Committee, Mangalore at Conference Hall, Corporation Bank, Head Office, Mangalore (31 May).

Dr. A.P. Lipton, Principal Scientist & SIC, Vizhinjam Research Centre and **Dr. K.S. Sobhana**, Scientist (SS)

A two-day seminar-cum-workshop on "Globalised Agricultural Economy" organized by NAARM, Hyderabad (29-30 April)

Dr. P. Jayasankar, Senior Scientist

Participated as Zonal level officer for the Prakasham district, AP in the ***Marine Fisheries Census 2005*** (10 April –13 May).

Dr. T.V. Sathianandan, Sr. Scientist

Project Meeting of the AP Cess Fund Project entitled "Assessing the Impact of Fisheries on the biodiversity of Marine Fisheries Resources of south west coast of India" at Mangalore Research Centre of CMFRI, Mangalore (7-8 April).

Dr. K.S. Sobhana, Scientist (SS)

Served as resource person for taking class on "Ornamental fish diseases" for the training programme on 'Production and marketing of ornamental fishes' organized by the State Fisheries Resource Management Society (FIRMA), Govt. of Kerala, at the Office of Department of Fisheries, Ernakulam (28 June).

Dr. P.S.Swathilekshmi, Scientist

The two-day seminar-cum-workshop at NAARM on Capacity Building Programme for Indian Agricultural Research, Extension Development Organisations in Globalized Economy sponsored by ICAR (29-30 April).

Shri M.K. Abdulla, Assistant Administrative Officer

Training programme on "Improving administrative efficiency and financial management" at NAARM, Hyderabad (15-22 June)

Dr. R. Narayanakumar, Senior Scientist & Scientist-in-charge, Kakinada Research Centre, **Dr. K. Asokakumaran Unnithan**, Senior Scientist and **Shri K. Dhanaraju**, Technical Officer

Inauguration of the Boat building Research Centre and function as moderator in the interaction session organized by South Indian Federation of Fishermen Cooperative Societies, Thiruvananthapuram and Kakinada (13 June)

Promotions

Name	Centre	w.e.f.
Ministerial staff from UDC to Assistant		
Smt. N.S. Sarala	HQ, Kochi	01-04-2005
Supporting Staff in Grade II to Grade III		
Shri M.P. Chandrasekharan, Watchman	Madras R.C.	30-12-2004
Shri U. Rajendran, Lab. Attendant	Mandapam Regl. C.	30-12-2004
Shri M. Shahul Hameed, Messenger	Mandapam Regl. C.	30-12-2004
Supporting Staff in Grade I to Grade II		
Shri K. Subramanian, Safaiwala	Tuticorin R.C.	26-06-2004

Transfers

Name	Designation	From	To
Dr. N. Ramachandran	Principal Scientist	Tuticorin R.C.	Mangalore R.C.
Shri I. Rajendran	Scientist (SG)	Mandapam Regl. C.	HQ, Kochi
Shri Boby Ignatius	Scientist (SS)	Mandapam Regl. C.	HQ, Kochi
Shri V. Chandrasekharan	Assistant	HQ, Kochi	KVK, Narakkal
Shri N.K. Mohanan	UDC	KVK, Narakkal	HQ, Kochi
Shri P. Satheeshkumar	SSG-II (Messenger)	HQ, Kochi	Calicut R.C.
Inter-Institutional Transfer			
Shri Vipul Raj	Administrative Officer	NIRJAFT, Kolkatta	CMFRI, Kochi

Retirements

Name	Designation	Centre	w.e.f.
Retirement on Superannuation			
Shri K.C. Purushothaman	Technical Assistant (T-3)	Calicut R.C.	30-04-2005
Shri R. Sevugan	SSG-IV (Safaiwala)	Mandapam Regl. C.	31-05-2005
Voluntary Retirement			
Shri A. Srinivasan	Sr. Technical Assistant (T-4)	Madras R.C.	06-05-2005
Compulsory Retirement			
Shri V. Antony	Field Assistant (T-1)	HQ, Kochi	26-04-2005

OBITUARY

- Shri V.C. Gopi, SSG-III (Safaiwala), CMFRI, Cochin expired on 11-04-2005
- Shri K.K. Bose, Engine Driver (T-4), Tuticorin Research Centre of CMFRI expired on 29-06-2005.

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