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**C I F E**



**Central Institute of Fisheries Education**

# **ANNUAL REPORT 2011-2012**



# CIFE

## Annual Report 2011-12



**Central Institute of Fisheries Education**

(University under section 3 of UGC act )

Panch Marg, Off Yari Road, Andheri (W), Mumbai - 400061



Published by  
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The Central Institute of Fisheries Education is surging ahead to provide educational and scientific support for enhancing and sustaining fish production in the country and thereby assuring food and nutritional security to the growing Indian population. From its modest beginning as a training centre of Government of India supported by FAO and UNDP in 1961, to impart training and education to the in-service personnel and finally as a Central Institute and University under sec 3 of UGC act, CIFE has marched significantly ahead and celebrated its Golden Jubilee this year in a befitting manner with a number of events like mini symposia, farmer-scientist interface, golden jubilee seminars, national stakeholders consultation, national dialogue on nanotechnology etc.

This report presents comprehensive information on the various activities and achievements of the institute during the year 2011-12. CIFE, as a professional organization, values and recognizes the dedication and contribution of every individual in the system. The Institute promotes and cultivates innovative ideas in all spheres of its activities. The institute has taken initiatives in the diversified but focused research areas. Our scientists are attracting funds from national organizations as is evident from the wide portfolio of externally funded and collaborative research projects operating at the institute. The institute received active support from various agencies such as NAIP, NFDB, DBT, BRNS (DAE), Ministry of Earth Sciences (MoES), INCOIS, SAC, and NFBSFARA.

The institute has achieved significant success in many of the basic, strategic and



applied research programmes this year. The scientists could prove the viability of shrimp culture in inland saline waters on a commercial scale, and this is going to help the farmers in the salt-affected areas for better livelihood, resource generation and employment. The institute has also developed a successful model of sustainable enhancement of productivity of reservoirs through community participation in Dimbhe reservoir, Maharashtra. In the area of applied research, development of biosensors for monitoring of genotoxic pollutants, bio-processing of agricultural wastes and bioremediation of aquacultural effluents, DNA vaccine delivery through nanoparticles, development of value-added fish products are worth mentioning. The institute is also in the forefront of conducting research in molecular phylogeny and bar coding, bio-prospecting of genes, gene silencing as strategy to manage diseases, radio-ecology, characterization of genes responsible for growth and immunity

and development of high throughput disease diagnostic tools. Further, institute involves and progresses in new research frontiers through students' research in diversified areas.

During the year, 20 Ph. D. students and 68 M. F. Sc. students have passed out while 49 Ph. D. students and 73 M. F. Sc students are enrolled in various disciplines. Twenty students were awarded gold medals during the X<sup>th</sup> convocation. A total of 108 students participated in 9<sup>th</sup> Indian Fisheries forum held at Chennai and two students attended an International Advanced Course in Spain. The institute has published 80 research papers in peer-reviewed journals, contributed 23 chapters to books and 10 popular articles to national magazines. Five books were published by the scientists of the institute. Concerted efforts are underway to formulate a road map for higher fisheries education & research in the coming year.

The institute is moving forward with a well planned strategy with dedication and commitment to the cause of education and research in Aquaculture and Fisheries; there are clear signs of emerging excellence in education as well as scientific research. I am

deeply indebted to the Secretary, DARE and Director General, ICAR, Dr. S. Ayyappan for his visionary guidance and support to this Institute. We thankfully acknowledge the support and co-operation from Dr. B. Meenakumari, Deputy Director General (Fy.), Dr. S.D. Singh, ADG ( Inland Fisheries), Dr. Madan Mohan, ADG ( Marine Fisheries) and all other colleagues from the fisheries division.

I am grateful to the Members of Board of Management, Chairman and Members of Research Advisory Committee, Members of Academic Council, Extension Council, Heads of Divisions, Board of Examiners and other Institute level committees for their co-operation and support. I thank the Directors and scientists of all the Fisheries Institutes, Guest Faculty and External Examiners for their timely support. I acknowledge the contributions of all the scientists, technical and administrative staff and students of CIFE. My compliments to the publication team for bringing out this annual report.



(W.S.Lakra)

During the current year, the Central Institute of Fisheries Education continued to contribute significantly with focus on education, research and extension. The year started with the X<sup>th</sup> Convocation with Dr. M.S. Swaminathan, Hon'ble Member of Parliament and Chairman, M.S. Swaminathan Research Foundation, Chennai as Chief Guest and Dr. Anil Kakodkar, Chairman, Rajiv Gandhi Science & Technology Commission as Guest of Honour. A total of 86 masters and 29 doctoral degrees were awarded and 20 gold medals were presented to outstanding students in various disciplines. As in previous year, this year too, 16 posts of Agricultural Research Service were bagged by our students. Two students were awarded the Best Young Scientist Award by Altech Inc. USA, one student bagged Best Research Paper Award and two students were awarded Best Poster Presentation award in two different International Conferences. During the year, 49 Ph.D. students and 73 M.F.Sc. students were enrolled in various disciplines.

The Golden Jubilee function was indeed a remarkable occasion with an year-long commemorative functions which culminated on 6 June 2011 and was attended by a galaxy of dignitaries. The institute recorded many memorable achievements during the year adding colour and glitter to the Golden Jubilee celebration. Several mini symposia were held and a workshop on Higher Fisheries Education and Human Resource Planning was organised to mark the culmination of Golden Jubilee celebrations.

Significant research achievement, in the form of new information and upscaling of technologies and tools for sustainable

aquaculture and fisheries production, were made in 25 institutional and 24 externally funded projects. The institute focused its attention on diversification of species for aquaculture, reservoir development through community participation, testing the viability of *Litopenaeus vannamei* culture, molecular phylogeny, DNA barcoding, bioprocessing of agricultural wastes, bioremediations of aquaculture effluents, development of DNA-vaccines, development of biosensors for monitoring of genotoxic pollutants, gene silencing and radio-ecology. Other areas where significant progress was made include molecular characterization of growth hormone gene of *Pangasianodon hypophthalmus*, assessment of impact of juvenile fishery on fish production along the west coast of India, development of salt-fermentation method for Indian Mackerel, culture of *Fenneropenaeus indicus* and *Penaeus monodon* in inland salt-affected area, bioprospecting of genes responsible for abiotic stress-tolerance, development of quantitative real-time PCR for shrimp viruses, effect of degradation products of both nutrients and anti-nutrients of aquafeed on immune physiology of fish are the other areas where significant advancements were made. Strengthening of digital library and information management was also a focus area of the institute.

The institute organized various extension education/transfer of technology related programmes and activities. A total of 60 short-term training programmes were organized at the headquarter and the four research centres in which 1142 participants were imparted skill in various aspects of aquaculture. The institute actively

participated in 19 exhibitions and kisan melas, at various places across the country showcasing the achievements and services being provided to the fishermen community. The institute organized 18 workshops, conferences and 12 meetings. The faculty attended 72 workshops/symposia/meetings etc. and 27 summer schools/winter schools/training programmes. Sixteen guest lectures were given by the faculty at various universities.

A total of 80 research papers were published in refereed journals with high impact factor. Apart from this, a number of review papers, popular articles, books, book chapters and bulletins were also published during the year. The meetings of IRC, RAC, BoM, Academic Council and Extension Council were held as per schedule.

The infrastructure development of the institute is being carried out at fast pace. The infrastructure developed in this financial year include, Academic building (3<sup>rd</sup> and 4<sup>th</sup> Floor), Boys' Hostel (Stilt + 4 Floors), International Guest House (Stilt + 4 Floors), Residential quarters (Type - V: 12 Nos. Stilt + 4 Floors) and Director's Residence.

The institute also received a number of awards and recognitions during the period. Dr. W. S. Lakra, Director/Vice-chancellor, was honoured with *Vividhlaxi Audyogik Samshodhan Vikas Kendra* Industrial Research

Award (VASVIK) in the category of Agricultural Science & Technology from the Hon'ble Chief Minister of Gujarat, for his outstanding contribution in Agricultural Science & Technology. He was also honoured with Dr. S. Z. Qasim Medal by Bioved Research Society. Dr. K. V. Rajendran, Principal Scientist, was awarded the Fulbright-Nehru Senior Research Scholarship by the United States-India Educational Foundation for the year 2010-11. Dr. S. Dam Roy, Head, Aquaculture Division received Dr. Rajendra Prasad award 2010 for his book in Hindi entitled "*North Bay Andaman Munga Chattano Ke Jaiva Vividhita*" under the category technical book in Hindi in Agricultural and allied sciences. Mr. Dasari Bhoomaiah, Technical Officer, PME Cell was honoured with "Outstanding Services to ICAR" award by DG, ICAR, New Delhi and as "Volunteer-Designer" by Aquaculture without Frontiers, USA for his outstanding contributions to the organization. Dr. M. Krishnan, Head, FEES Division was elected unanimously as Member of Editorial Board of the Journal, Agricultural Economics Research Review, New Delhi. Dr. A.K. Pal, Head, FNBP Division was nominated as the Member, Expert Committee constituted by Govt. of India for Kudamkulam Nuclear Power Station. Dr. V.K. Tiwari was honoured with the Prof.B.N. Pandey, Gold Medal by Zoological Society of India. Several scientists also received best research paper and best poster presentation awards.

The Central Institute of Fisheries Education is a premier institution in fisheries education and training in the country which has completed 50 glorious years of its existence in the service of the nation. It was established on 6<sup>th</sup> June, 1961 with FAO/ UNDP assistance to impart training to the officers of State Department of Fisheries as a Government of India organization. The Administrative control of the institute was transferred to Indian Council of Agricultural Research (ICAR), New Delhi, in 1979. The institute was accorded Deemed to be University status in 1989, by the Ministry of Human Resource Development, Government of India. It offers master and doctoral programs in 11 disciplines of fisheries and aquaculture. Initially, CIFE was housed in the Institute of Science, Bombay, and in 1964, it was shifted to a rented building at Masjid Bunder, Bombay. However, in March 1967, the Institute moved to an independent campus at Seven Bungalows, Versova, in the western Suburbs of Bombay. Presently, it is housed in the newly developed serene and expansive Yari Road Campus. It has a B+G+4 Academic Building that houses state-of-the-art laboratories, class rooms, faculty and staff chambers, chambers of the Director and Joint Director, conference hall, community hall, aquarium, examination and academic cell, etc. Apart from wet-laboratories, ponds and

hatcheries, library building, staff quarters, guest house and students' hostels, CIFE also possess two training-cum-research vessels, MFV Saraswati and MFV Narmada.

There are six divisions at CIFE at present, which are equipped with modern laboratories, seven sections and 12 cells. Apart from the headquarters in Mumbai, the institute has four centers located in different aqua-climatic regions of the country viz., Kakinada in Andhra Pradesh, Kolkata in West Bengal, Powarkheda in Madhya Pradesh and Rohtak in Haryana, with farms and infrastructural facilities for imparting hands-on training to students, farmers, entrepreneurs and development personnel. The freshwater, brackishwater and inland saline water farm facilities at these centers help to conduct the field trials and to test and standardize the technologies developed in the laboratories.

Main emphasis of the institute is on basic and strategic research through faculty and students' research. Need-based training programmes, professional development programmes and entrepreneurship development programmes are conducted to cater to the needs of the sector. The institute has been playing a key role in promoting excellence in higher education through revision of syllabi, state-of-the-art



laboratories and farm facilities and innovative teaching methods.

A total of 145 doctoral and 739 post-graduate students have successfully graduated from this university since 2000. It has also successfully trained more than 5200 personnel till date through two years PG Diploma in Fisheries Science, one year Diploma in Fisheries Science and one year Diploma/Certificate courses. CIFE alumni, today are either illustrious scholars or successful entrepreneurs who occupy top management positions in their respective organizations. Through its tailor-made and need-based short-term training programmes more than 600 fisheries personnel, farmers, prospective aqua-entrepreneurs and the industry personnel are trained every year. CIFE as a leader in fisheries education in India is helping to standardize and maintain uniformity in the curriculum of fisheries education in the country. The deemed University has also published quality study materials, reference books and practical manuals useful for students, trainees and faculty members. The Institute has been identified as one of the top 20 'Bright Spots' in the country by Tandon Committee constituted by Ministry of Human Resource Development, Govt. of India to assess the performance of Deemed Universities in the country.

CIFE was instrumental in bringing about Blue Revolution in India in general and Andhra Pradesh in particular through its extension and training programs conducted at the freshwater and brackishwater demonstration farms situated at various centers, especially Kakinada Centre. Through its 'Farmers First' policy, CIFE in collaboration with various State Fisheries Departments is conducting a number of training programmes for fish farmers at various locations including its centers. The institute has conducted several training programs for women and has helped them to organize the cooperative societies for manufacturing and marketing the value-added fish products. CIFE has been playing a significant role in developing aquaculture specially the high-value freshwater prawn culture in the North Eastern States of Tripura, Mizoram and Manipur by setting up hatcheries using artificial sea water. The institute has initiated several programmes in collaboration with Departments of Fisheries of different states for capacity building of extension personnel and other stakeholders in the areas of participatory and cost-effective extension services and fisheries co-management. CIFE maintains close linkages with various national and international organizations and agencies for ensuring quality education and research.

## Vision

To be a world-class organization providing leadership in fisheries education and research

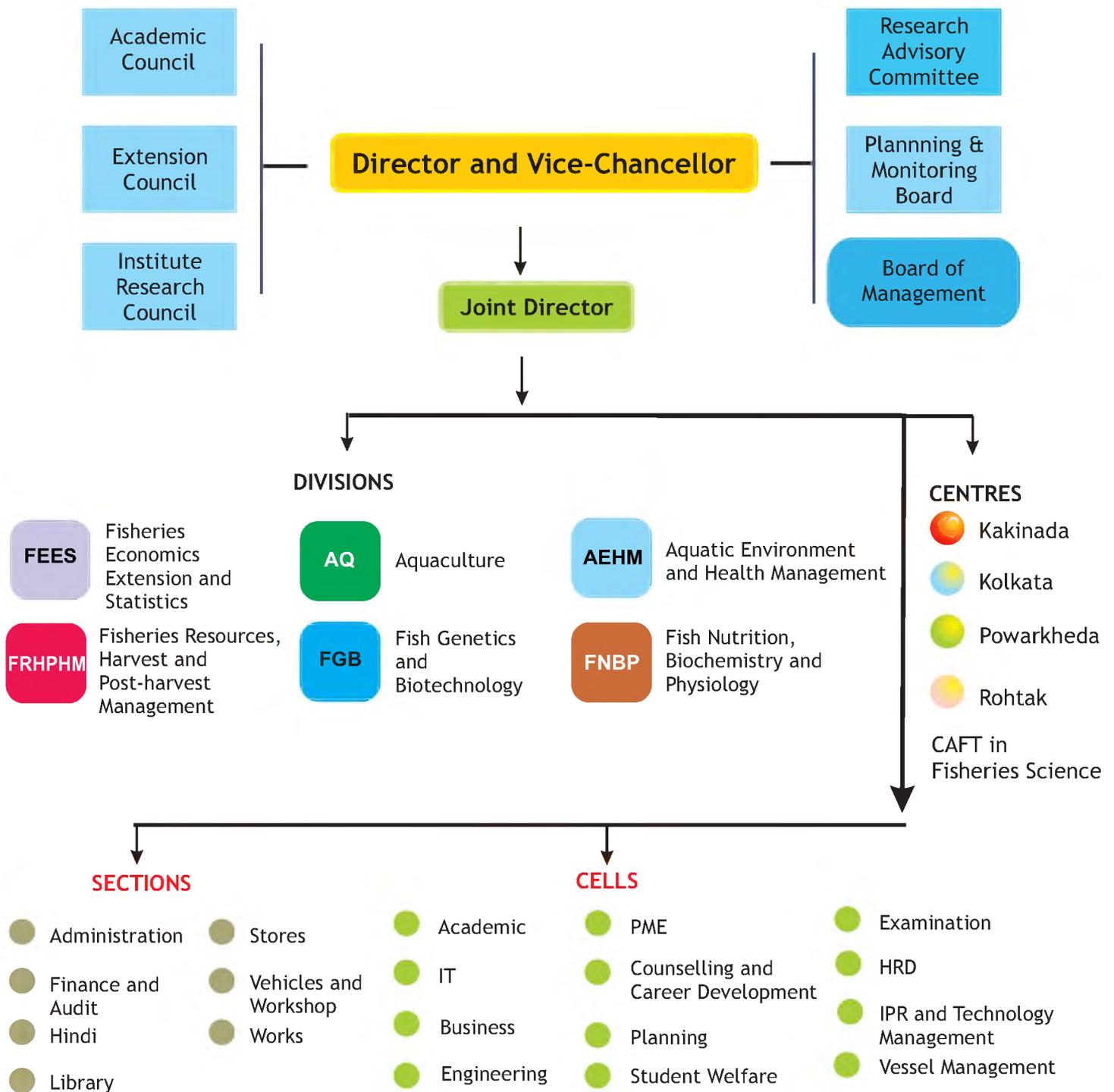
## Mission

To achieve academic and research excellence by creating state-of-the-art infrastructure and globally competitive faculty

## Mandate

- To conduct post graduate academic programs in core and emerging disciplines of fisheries science
- To conduct basic and strategic research in frontier areas of fisheries
- To conduct demand-driven training and educational programs for different stake holders in fisheries sector
- To provide technical support, inputs for policy development and consultancy services

## Organization and Management



### Staff Position

	CIFE Staff	Sanctioned	In Position
Category wise	RMP	2	2
	Scientific	104	71
	Technical	106	97
	Administrative	63	49
	Skilled Supporting	70	68
	Non Ministerial	01	01
	<b>Total</b>		346

### Budget (Rs. in Lakhs)

S. No.	Head	Sanctioned	Received	Expenditure Incurred
1.	Plan	3576.30	3576.70	3373.71
2.	Non-plan	3684.69	3546.00	3451.62
3.	CAFT	10.35	10.21	0.42
4.	SDU	285.65	275.12	276.26

S.No.	Head	Balance C/f	Receipt in this year	Total
1.	AP Cess	4.98	-	4.98
2.	Externally Funded Projects	737.71	140.93	878.64

**Target: 162**

**Achieved: 245.83**

# Educational Achievements

## Results

A total of 20 Ph.D. students and 68 M.F.Sc students from various disciplines passed out during 2010-11

S.No.	Name of the Programme	No. of successful candidates
<b>Ph.D.</b>		
1	Aquaculture	5
2	Fisheries Resource Management	2
3	Post Harvest Technology	2
4	Fish Genetics	1
5	Fish Pathology & Microbiology	4
6	Fish Nutrition & Biochemistry	2
7	Fish Business Management	1
8	Fish Biotechnology	1
9	Mariculture	1
10	Inland Aquaculture	1
	<b>Total</b>	<b>20</b>
<b>M.F.Sc. (2009-11)</b>		
1	Aquaculture	11
2	Fisheries Resource Management	8
3	Post Harvest Technology	8
4	Fish Genetics and Breeding	9
5	Fish Pathology & Microbiology	8
6	Fish Nutrition & Biochemistry	8
7	Fish Business Management	5
8	Fisheries Extension	5
9	Aquatic Environment Management	6
	<b>Total</b>	<b>68</b>



## Enrollments

A total of 73 and 49 students were enrolled for the M.F.Sc. (2011-2013) and Ph.D. Programmes (2011-14) in various disciplines, respectively. Three foreign students (Eritrea) were enrolled for M.F.Sc and 1 foreign student (Eritrea) was enrolled for Ph.D.

S.No.	Name of the Programme	No. of Candidates enrolled
<b>Ph.D (Batch-2011-2014)</b>		
1	Aquaculture	12
2	Fisheries Resource Management	8
3	Post Harvest Technology	5
4	Fish Genetics	2
5	Aquatic Animal Health	5
6	Fish Physiology and Biochemistry	2
7	Fish Business Management	3
8	Fish Biotechnology	5
9	Fish Nutrition and Feed Technology	2
10	Fisheries Extension	3
11	Aquatic Environment Management	2
	<b>Total</b>	<b>49</b>
<b>M.F.Sc. (Batch-2011-13)</b>		
1	Aquaculture	13
2	Fisheries Resource Management	8
3	Post Harvest Technology	9
4	Fish Genetics and Breeding	4
5	Fish Biotechnology	4
6	Aquatic Animal Health	8
7	Fish Physiology & Biochemistry	4
8	Fish Nutrition and Feed Technology	4
9	Fisheries Economics	7
10	Fisheries Extension	6
11	Aquatic Environment Management	6
	<b>Total</b>	<b>73</b>

## List of Dissertations submitted by M.F.Sc.(2009-11 batch) students

Sr.No.	Name of the student	Guide	Topic
<b>Aquatic Environment Management - AEM</b>			
1	Mr. Mallesh B. AEM-08	P.K. Pandey	Assessment of chromium genotoxicity in <i>Cirrhina mrigala</i> using micronucleus assay
2	Mr. Ratheesh Kumar R. AEM-09	C.S.Purushothaman	A comparative study of biodiversity between Powai and Virar lakes in Mumbai
3	Mr. Sandeep K.P. AEM-10	S.P. Shukla	Utilization of seawater and inland saline water for the production of <i>Spirulina platensis</i>
4	Ms. Rathi Bhuvaneswari G. AEM-11	S.P. Shukla	Antimicrobial properties of <i>Spirulina platensis</i> : An assessment
5	Mr. Thirumalaiselvan S. AEM-12	P.K. Pandey	Bioremediation of fipronil in aquatic environment
6	Ms. Manju Lekshmi N. AEM-13	A. Vennila	Nutrient and enzyme dynamics during leaf litter decomposition of <i>Acanthus ilicifolius</i> and <i>Avicennai marine</i> in Manori creek, Maharashtra
<b>Aquaculture -AQ</b>			
1	Mr. Atish M. Mane AQ-235	Kiran Dube Rawat	Growth, survival and production of carps fingerlings under different stocking densities in cages and pens in dimbhe reservoir, Maharashtra
2	Mr. Amiya Ranjan Naik AQ-236	Chandra Prakash	Comparative studies on potency and cost effectiveness of zeolite, alum and lime in aquaculture systems
3	Ms. Pragyan Dash AQ-237	Kiran Dube Rawat	Changes in ovarian activity and vitellogenin level under different acclimation of temperature
4	Ms. Prasanti Nayak AQ-238	S. Dam Roy	A comparison of growth and colouration of <i>Carassius auratus</i> (Linnaeus, 1758) under different culture systems
5	Ms. Upasana Mishra AQ-239	S. Dam Roy	Effect of EPA/DHA enriched live feed on growth and fatty acid profile of Mahaseer, <i>Tor khudree</i> (Sykes, 1839) Fry

6	Amar Bharat Gaikwad AQ-240	N.K. Chadha (Bloch 1790) fry using live and	Studies on rearing of <i>Lates calcarifer</i> formulated feed
7	Mr. Vivek Shrivastava AQ-241	A.K. Verma	Optimization of design of a trickling biofilter in closed recirculating system for growth performance of Rohu fingerlings
8	Ms. Jesna P.K. AQ-242	Neelam Saharan	Comparative study of probiotics on water quality, growth and immune response in <i>Labeo rohita</i> (Ham.)
9	Mr. Jeston N. AQ-243	V.K. Tiwari	Growth performance and maturation in <i>Macrobrachium rosenbergii</i> (de Man, 1879) fed with Methyl farnesoate enriched diet
10	Mr. Anuraj A. AQ-244	V.K. Tiwari	Evaluation of bacterial microflora associated with giant freshwater prawn, <i>Macrobrachium rosenbergii</i> (de Man, 1879) hatchery
11	Ms. Amruta Prakash Shete AQ-245	M.P.Singh Kohli	Production performance of Goldfish ( <i>Carasius auratus</i> , Linnaeus, 1758)

#### Fisheries Extension - FEX

1	Mr. Dusu Nobin FEX-10	S.N. Ojha	Livelihood, culture and innovation in paddy cum fish farming system in Apatani plateau of Arunachal Pradesh
2	Mr. Nikumbe Prabhakar A. FEX-11	Ananthan P.S.	Study of fishers' livelihood and fisheries management in Girna, Yedgaon and Manikdoh reservoir regions in Maharashtra
3	Mr. Zohmingthanga FEX-13	Ananthan P.S.	A socio-cultural study of indigenous people and indigenous knowledge in fisheries of Mizoram
4	Ms. S. Agnes D. Angela FEX-14	Sheela Immanuel	Study of fishers' livelihood and fisheries management in Stanley reservoir in Salem district of Tamilnadu
5	Mr. Kundan Kumar FEX-15	S.N. Ojha	Study on property regime and livelihood in the Bheri fish farming system of Kolkata peri-urban areas, West Bengal

### Fish Pathology & Microbiology - FPM

1	Mr. Nich Tain FPM-43	Gayatri Tripathi	Response of branchial Na <sup>+</sup> , K <sup>+</sup> -ATPase activity during osmotic adjustments in euryhaline fish <i>Etroplus suratensis</i>
2	Ms. Reshma K J. FPM-44	K.V. Rajendran	Comparative evaluation of latency - associated genes of white spot syndrome virus (WSSV) for developing PCR test to detect latent infection
3	Ms. Greeshma S.S. FPM-45	K.V. Rajendran	Non-specific effect of DNA construct (pCMV-GFP-LH) on the expression of prophenoloxidase (proPO) and ferritin genes of <i>Penaeus monodon</i>
4	Ms. Snatashree Mohanty FPM-46	M. Makesh	Development and characterization of monoclonal antibodies to immunoglobulin of <i>Cirrhinus cirrhosus</i>
5	Mr. Arun Sudhagar S. FPM-47	K. Pani Prasad	Characterization of Immunoglobulin in <i>Pangasianodon hypophthalmus</i> (Sauvage)
6	Ms. Jeena K. FPM-48	K. Pani Prasad	Expression profiling of WSSV ORF-249 and shrimp Ubiquitin conjugating enzyme in WSSV infected <i>Penaeus monodon</i>
7	Mr. Saurav Kumar FPM-49	R.P. Raman	Immunomodulatory and antiparasitic effects of Azadirachtin against some selected Ectoparasites in goldfish ( <i>Carassius auratus</i> )
8	Mr. Abhay Kumar FPM-50	R.P. Raman	Immunomodulatory and antiparasitic effects of piperin against some selected ectoparasites in goldfish ( <i>Carassius auratus</i> )

### Fisheries Resource Management - FRM

1	Mr. Gaihamngam Kamei FRM-216	S.K.Chakraborty	Study of damage caused by capture of juvenile sciaenids
2	Mr. Jeetendra Kumar FRM-217	G. Deshmukhe	Biodiversity and density of microalgae along intertidal zone in post monsoon and pre-monsoon season along Mumbai coast
3	Ms. Rejani Chandran FRM-218	A.K. Jaiswar	A study on the recruitment potential of <i>Boleophthalmus</i> spp.

4	Mr. Sreekanth G.B. FRM-219	S.K. Chakraborty	Stock structure analysis of Japanese thread fin bream, <i>Nemipterus japonicus</i> (Bloch, 1791) along Indian coast
5	Mr. Rajesh Kumar Pradhan FRM-220	V.D. Deshmukh	Biology and length-weight relationship of <i>Ilisha filigera</i> (Valenciennes, 1847) in Mumbai waters
6	Mr. Ambarish P. Gop FRM-221	G. Deshmukhe	Effects of light intensity and macronutrients on the growth and phycocolloid content of <i>Kappaphycus alvarezii</i> (Doty) Doty ex Silva
7	Ms. Surya S. FRM-222	Asha T. Landge	Study of trophic relationship in the aquatic community of lake Powai, Mumbai
8	Ms. Suman Kumari FRM-223	A.K. Jaiswar	Taxonomic study of family sciaenidae

#### Fish Genetics & Breeding - FGB

1	Mr. Makwana Nayan P. FGB-42	Gopal Krishna	Cryopreservation of rainbow trout, ( <i>Oncorhynchus mykiss</i> ) spermatozoa using different cryoprotectants
2	Mr. Uday Kumar Udit FGB-43	A.K. Reddy	Breeding and genetic characterization of <i>Puntius</i> sp.
3	Mr. Avinash Rambhau Rasal FGB-44	R.S. Rana	Molecular and functional characterization of $\Delta 6$ fatty acyl desaturase gene from <i>Pangasinodon hypophthalmus</i>
4	Ms. Rakha M.U. FGB-45	Aparna Chaudhari	Promoter sequencing of sodium potassium ATPase of <i>Penaeus monodon</i> using genome walking
5	Mr. Kiran Dashrath Rasal FGB-46	Aparna Chaudhari	Detection of integration site of transgene in Zebra fish ( <i>Danio rerio</i> ) genome by using Inverse polymerase chain reaction (IPCR)
6	Mr. Mujahid Khan A.P. FGB-47	Gopal Krishna	Therapeutic role of a recombinant <i>Penaeus monodon</i> antiviral (rPm AV) against WSSV in <i>Penaeus monodon</i>
7	Mr. Murali S. FGB-48	S. Jahageerdar	<i>In Silico</i> approaches for characterization of stress responsive genes in zebrafish
8	Ms. V.L.Ramya FGB-49	Rupam Sharma	Development of polymer based DNA nano-vaccine against Nodavirus

### Fish Nutrition & Biochemistry - FNB

1	Mr. Nagung Camder Tok FNB-42	K.K. Jain	Growth response of <i>Pangasianodon hypophthalmus</i> (Sauvage, 1878), to restricted protein feeding
2	Mr. Sikendra Kumar FNB-43	S. Munilkumar	Dietary intervention for improving flesh quality in <i>Pangasianodon hypophthalmus</i> (Sauvage, 1878)
3	Ms. Tincy Varghese FNB-44	A.K. Pal	Responses of vitamin E (-tocopherol) on physio-biochemical changes of <i>Cirrhinus mrigala</i> (Ham. 1822) exposed to hypoxia
4	Mr. Mishal P. FNB-45	S. Dasgupta	Physio-biochemical changes during induced gonadal maturation and hydration in <i>Clarias batrachus</i> (Linn. 1758)
5	Ms. Ashalaxmi Narendra FNB-46	N.P.Sahu	Growth and immunomodulation of <i>Pangasianodon hypophthalmus</i> (Sauvage) in response to dietary propolis extract
6	Ms. Rakhi Kumari FNB-47	Subodh Gupta	Chitosan based nano-carriers for delivery of exogenous enzymes in aquafeed
7	Mr. Nitish Kumar C. FNB-48	Sanjay B. Jadhao	Impact of endosulfan and temperature on functional reproductive physiology of fish and its nutritional remediation
8	Mr. Linga Prabu D. FNB-49	N.P. Sahu	Effect of fucoidan rich seaweed extract on growth and immunomodulation of <i>Pangasianodon hypophthalmus</i> (sauvage, 1878)

### Fish Business Management - FBM

1	Ms. Shivta Kureel FBM-35	Swadesh Prakash	Marketing of ornamental fishes in national capital region
2	Mr. Prathvi Rani FBM-36	Sheela Immanuel	Export performance and competitiveness of Indian ornamental fish trade
3	Mr. Dipanjan Kashyap FBM-37	Swadesh Prakash	Socio-economic appraisal of Jagiroad dry fish market of Morigaon district, Assam

4	Mr. Sonmoina Bhuyan FBM-38	Swadesh Prakash farming practices in the Central valley	Socio-economic evaluation of fish zone of Brahmaputra, Assam
5	Ms. N. Bijaya Lakshmi Devi FBM-39	Sheela Immanuel	Study of fishers livelihood and fisheries management in Loktak lake region of Manipur

### Post Harvest Technology - PHT

1	Mr. Sathish Kumar K. PHT-58	G. Venkateshwarlu	Antimicrobial and antioxidant activity of spice extracts and their application in fish preservation
2	Mr. Sreejith S. PHT-59	G. Venkateshwarlu	Preparation and characterization of fish-gelatin based nanomaterials
3	Ms. Renyram M. PHT-60	B.B. Nayak	Development of restructured fish products and their storage characteristics during refrigeration
4	Ms. H. Mandakini Devi PHT-61	B.B. Nayak	Development of active biodegradable edible film from fish gelatin
5	Ms. Layana P. PHT-62	B.B. Nayak	Relationship between polyamine formation and histamine formation by Decarboxylase bacteria
6	Ms. Muhasinath P.V. PHT-63	B.B. Nayak	Effect of preprocessing treatments on yellow discoloration of squid
7	Ms. Mini Mol V.A. PHT-64	B.B. Nayak.	Effect of pH and salinity on growth and virulence of <i>Yersinia enterocolitica</i>
8	Mr. Ponkumar P. PHT-65	B.B. Nayak	Migration of heavy metals among different organs of <i>Loligo duvaucelli</i> (d'orbigny) in chilled storage

### List of Ph.D. students awarded Ph.D. degree during 2011-2012

Sr. No.	Name of the student	Batch	Guide	Topic of the thesis
1.	Mr. Khuntia Marmu (FPM-216)	2004-2007	Pani Prasad	Development and standardisation of immunodiagnosics for detection of Noda virus in prawns
2.	Mr. Shailesh Kumar (AQ-263)	2006-2009	G. Venugopal	Comparative study of immunostimulants on growth, survival and disease resistance of <i>Macrobrachium rosenbergii</i> (de Man, 1879)
3.	Mr. M. Sekar (FNB-279)	2006-2009	S. D. Singh	Cloning and heterologous expression of growth hormone gene from <i>Pangasianodon hypophthalmus</i>
4.	Mr. Bhawesh T. Sawant (FRM-284)	2007-2010	S. K. Chakraborty	Biology and stock assessment of selected catfishes of Mumbai, west coast of India
5.	Ms. Sajitha S. (MC-226)	2004-2007	Imelda Joseph	Efficacy of fermented vegetable discards as a dietary ingredient for shrimp feed
6.	Ms. Babita Rani (IAC-207)	2004-2007	Shrinivas Jahageerdar	Development and evaluation of growth models in <i>Cyprinus carpio</i>
7.	Mr. A. P. Muralidhar (AQ-264)	2006-2009	M. P. Singh Kohli	Dietary supplementation of seaweeds for growth, survival and immunological effects on <i>Labeo rohita</i> (Hamilton, 1822) fingerlings
8.	Mr. Pradyut Biswas (AQ-234)	2005-2008	M. P. Singh Kohli	Cage aquaculture for raising stocking material in beel of Assam for enhancement of culture-based fisheries
9.	Mr. Biswajit Debnath (FBM-254)	2005-2008	R. S. Biradar	An economic analysis of fish production and demand in Tripura state, India

10.	Mr. Jayappa M. Koli (PHT-325)	2008-2011	S. Basu	Optimization of gel properties of gelatin extracted from <i>Otolithes rubber</i> (Bloch and Schneider, 1801) and <i>Nemipterus japonicas</i> (Bloch, 1791)
11.	Mr. Umesha D. (FB-246)	2005-2008	K. Pani Prasad	Production of a toxin gene knockout mutant live vaccine of <i>Aeromonas hydrophila</i> by using mobile group II Introns
12.	Mr. Sarada Kanta Bhagabati (FRM-311)	2008-2011	S. K. Chakraborty	Productivity and ichthyofaunal diversity study on Dhasal reservoir in Thane district, Maharashtra
13.	Mr. Santosh Kumar (FG-300)	2007-2010	Gopal Krishna	Genetic studies on growth and texture of giant freshwater prawn <i>Macrobrachium rosenbergii</i> (de Man 1879)
14.	Ms. Sneha Suman Siman (PHT-223)	2004-2007	K. V. Lalitha	Ecology of psychrotrophic pathogens in refrigerated packed seafoods
15.	Mr. Brajendu Kumar (FPM-330)	2008-2011	K. V. Rajendran	Characterization of hemocytes of mud crab ( <i>Scylla serrata</i> ) based on microscopy and monoclonal antibodies
16.	Mr. Sujit Kumar Nayak (FPM-277)	2006-2009	K. Pani Prasad	Biopharmaceutical potential of the venom of selected coniids from Indian waters
17.	Mr. Ganikant Paswan (AQ-265)	2006-2009	Neelam Saharan	Effect of fipronil a Phenylpyrazole insecticide on <i>Labeo rohita</i> (Hamilton, 1822) fingerlings and its stress mitigation through dietary Riboflavin
18.	Ms. Ciji Alexander (FNB-332)	2008-2011	N. P. Sahu	Physio-metabolic responses of <i>Labeo rohita</i> (Ham) exposed to nitrite stress and its possible mitigation through dietary vitamin E and Tryptophan
19.	Mr. Ritesh Ranjan	2005-2008	K. Pani Prasad	Comparative study of

(FPM-249)				different immunostimulants on the immune system of Asian seabass, <i>Lates calcarifer</i> (Bloch)
20.	Mr. Satendra Kumar (AQ-262)	2006-2009	Dilip Kumar	Eco-physiological understanding of reproduction in Asian catfish, <i>Clarias batrachus</i> (Linnaeus, 1758) under natural condition

### Tenth Convocation

The Tenth Convocation of CIFE was held on 9<sup>th</sup> April, 2011. M. S. Swaminathan, Hon'ble Member of Parliament and Chairman, M. S. Swaminathan Research Foundation, Chennai was the Chief Guest, who also delivered the convocation address. Anil Kakodkar, Chairman, Rajiv Gandhi Science & Technology Commission and Former Chairman, Atomic Energy Commission was the Guest of Honour. W. S. Lakra, Director/Vice-Chancellor welcomed the distinguished guests. In

his welcome address, he mentioned that CIFE is in the forefront of Human Resource Development (HRD) in fisheries, where more than 5100 students have completed their studies so far including 130 foreign nationals from Bangladesh, Egypt, Iran, Kenya, Laos, Malaysia, Myanmar, Nigeria, Phillipines, Sri Lanka, Sudan, Syria, Tanzania, Turkey, Vietnam, Yemen, etc. Two eminent scientists, Dr. K. V. Devaraj, Former Vice-Chancellor, University of Agricultural Sciences, Bangalore and Prof. T. J. Pandian, Former National Professor, ICAR, New Delhi were conferred with D.Sc. (Honoris causa) for their outstanding contributions to fisheries sector. A total of 86 masters and 29 doctoral degrees were awarded in different disciplines of Fisheries Sciences by W. S. Lakra, Director/Vice-Chancellor of the institute. Hiralal Chaudhuri Gold Medal was presented to students who topped in their respective disciplines of M.F.Sc.



The following students received the Dr. Hiralal Choudhuri Gold Medals during the convocation.

### **Dr. Hiralal Chaudhuri Gold Medal**

#### **M.F.Sc. (2007-2009)**

<b>Sl. No</b>	<b>Name of Student</b>	<b>Discipline</b>
1	Mr. Ramkumar S.	Fisheries Resource Management
2	Mr. Arabinda Das	Aquaculture
3	Ms. Suma D.	Post Harvest Technology
4	Ms. K. Syamala	Fish Genetics and Biotechnology
5	Ms. Vidya R	Fish Pathology and Microbiology
6	Mr. Viswanatha B.S.	Fish Business Management
7	Ms. B Nightingale Devi	Fisheries Extension
8	Mr. Ranjith L.	Aquatic Environmental Management
9	Mr. J. Biju Sam K.	Fish Nutrition and Biochemistry (In absentia)

#### **M.F.Sc. (2008-2010)**

<b>Sl. No</b>	<b>Name of Student</b>	<b>Discipline</b>
1	Ms. Swati P. Sen	Fisheries Resource Management
2	Ms. Srijila C.K	Aquaculture
3	Mr. Biswajit Bal	Post Harvest Technology
4	Mr. T. S. Mayekar	Fish Genetics and Biotechnology
5	Mr. Antony J. P. P.	Fish Nutrition and Biochemistry
6	Mr. Anutosh Paria	
7	Mr. K. Ramkumar	Fish Pathology and Microbiology
8	Ms. Banti Debnath	Fisheries Extension
9	Ms. Deepti Ram M. Nair	Aquatic Environmental Management

**Dr. C. V. Kulkarni Gold Medal** was awarded to Ms. Banti Debnath - M.F.Sc. (2008-2010) (In person) and Mr. J. Biju Sam K. - M.F.SC (2007-2009) (In absentia)

### **Institutional awards**

The following students were awarded the Institutional awards in the Best thesis category. For the year 2011 - 2012

#### **Best M.F.Sc. Thesis**

Aquaculture Division  
Fish Genetic and Biotechnology  
Fisheries Extension Division  
Fish Pathology and Microbiology  
Aquatic Environment Management  
Post Harvest Technology

Ms. Srijila C. K.  
Mr. Trivesh Suresh Mayekar  
Mr. Banti Debnath  
Mr. Anutosh Paria  
Ms. Manimekalai D.  
Ms. Jesmi Debbarma

## Students' other achievements

Mr. I. Sivaraman, FEX (2010-2013 batch) bagged the **Best Research Paper Award** in National Conference on 'New Vistas in Indian Aquaculture' organized by CIBA, Chennai during 23-24 February, 2012 at Chennai.

Two of the students of FGB Division, **Mohd Ashraf Rather** and **Ms. V.L. Ramya** have been awarded the **Best Young Scientist Award** by Altech INC, USA, based on their thesis work carried out during the MFSc courses. They have secured first and second position, respectively in India and won 1000 USD and 500 USD, respectively. Mohd Ashraf Rather has secured first place in entire Asia-Pacific zone. Both the students worked on Nanotechnology (under Dr Rupam Sharma) in the FGB Division.

First prize was awarded for the **best poster presentation** on 'Ready to eat crab sandwich spread in retortable pouches', (authored by Sreelakshmi, K.R., Manjusha, L., Nagalakshmi, K. and Venkateshwarlu, G) presented in the First Indo-US International Conference on polymers for packaging applications (ICPPA-2012) held at Mahatma Gandhi University, Kottayam, Kerala during 31 March 2 April 2012.

First prize was awarded for the **best poster presentation** on 'Comparative evaluation of latency-associated genes of white spot syndrome virus (WSSV) for developing PCR test to detect latent infection' (PP-C17) authored by Reshma K. J, Reena Yadav, M. Makesh, C. S. Purushothaman and K. V. Rajendran. at the 8th Symposium on Diseases in Asian Aquaculture, 21-25 November. 2011, Mangalore.

## Students' Participation in the 9<sup>th</sup> Indian Fisheries Forum and 8<sup>th</sup> Symposium on Diseases in Asian Aquaculture

A total of 108 students from CIFE, Mumbai participated in 9<sup>th</sup> Indian Fisheries Forum held in Chennai during 19-23 December, 2011 Several students also presented posters and papers. Several Students also participated in the 8<sup>th</sup> Symposium on Diseases in Asian Aquaculture held during 21-25 November, 2011.

## Training abroad

Mr. I. Sivaraman, Ph.D (FEX) and Mr. Pankaj Mudgaonkar, Ph.D (FBM) attended the International Advanced Course on "Applied Economics in Fisheries and Aquaculture" University of Cantabria, Santander, Spain during 4-8 July, 2011



# Research Achievements



## Institutional Projects

### Aquatic Environment and Health Management Division

**Development of monoclonal antibody - based immunodiagnostic technique to quantify immune response in *Cirrhinus mrigala* and *Pangasianodon hypophthalmus***

Project Duration: 2010-2013

Personnel: M. Makesh, K.V.Rajendran and Suresh Babu

**Progress:**

IgM of *Cirrhinus mrigala* and *Pangasianodon hypophthalmus* were purified from serum by column chromatography. The purified immunoglobulins were used to immunize mice. Hybridoma clones secreting monoclonal antibodies against the IgM of *C. mrigala* and *P. hypophthalmus* were produced by fusing sensitized B lymphocytes with myeloma cells. Monoclonal antibodies were produced in bulk and were characterized by western blot and isotyping.

**Isolation, Identification and characterization of common pathogens of *Pangasius* stocks.**

Project Duration: 2010-2013

Personnel: K.Pani Prasad, Gayatri Tripathi, R.P.Raman, Kundan Kumar

**Progress:**

Diseased samples of *Pangasius* were collected from farms in Kolkata. *Aeromonas hydrophila* was isolated from the sample and biochemical characterization was done following standard protocol of Bergey's Manual. Diseased samples of *Pangasius* were also collected from Bhimavaram and Kaikaluru region of Andhra Pradesh. Bacteria were isolated from the diseased *Pangasius* from surface and kidney. On the basis of morphological colony characteristics, seven isolates of bacteria were obtained. The individual isolates were injected to healthy fishes for survivability and pathogenicity of the isolates. Out of seven isolates, two showed clinical signs, viz., haemorrhages of fins, reddening of mouth and pin-point hemorrhages on the belly. Internal



swelling of kidney and accumulation of fluid in the peritoneal cavity were observed. For the first time, *E. cloaceae* was isolated from *Pangasius* in India. Identification and characterization of the bacteria by molecular techniques is under progress.

### Phytochemical studies of *Polygonum* spp. and biological assay of various extracts of the weed against fish pathogens

Project Duration: 2010-2013

Personnel: Subhendu Datta, B.K. Mahapatra, K. Paniprasad, Parimal Sardar

#### Progress:

Dried powder from the aerial parts of *Polygonum hydropiper* and *P. glabrum* was extracted with different organic solvents and water by soxhlet extractor. It was then filtered and concentrated under reduced pressure in rotary vacuum evaporator. Purification of methanolic extracts of *P. hydropiper* and *P. glabrum* was initiated with fractionation in separating funnel with solvents of different polarities i.e. n-Hexane, chloroform, ethyl acetate and butanol after suspending in water. Extracts were subjected to qualitative phytochemical screening for the presence of various secondary metabolites like alkaloids, saponin, anthraquinone, cardinolides, tannin and phenolic compounds, flavonoids, phytosterols



*Polygonum glabrum*

and triterpenoids. Specific tests for sesquiterpene aldehyde and sesquiterpene ester (lactone) were also performed. Different organic and aqueous extracts of *P. hydropiper* and *P. glabrum* were tested against three Gram negative bacteria *Aeromonas hydrophila*, *Aeromonas caviae* and *Edwardsiella tarda* and carried out by well diffusion assays. Extracts which exhibited better efficacy in zone inhibition assay were considered for minimum inhibitory concentration (MIC) and determined by the agar dilution method. Extract of *P. glabrum* was found to be more potent than *P. hydropiper*. Ethanol and petroleum ether extract was found to be more effective on the tested bacteria. Extracts of *P. glabrom* was tested in infected ornamental fish, Sword tail, Goldfish and Kissing gourami. Median lethal concentration (LC<sub>50</sub>) of aqueous extract on Sword tail was found to be 592.4 ppm. Experiment was conducted in aquaria by whole water treatment at 1/64, 1/32, 1/16, 1/8<sup>th</sup> dosages of LC<sub>50</sub> value. Infected ornamental fish showed good recovery in aquarium at 37.5 - 50 ppm. Methanolic and aqueous extracts were tested against Goldfish (8.06-10.36g) inoculated with *Aeromonas hydrophila* and *Edwarsiella tarda*. Experiment was conducted in aquaria for 10 days by giving bath treatment. Methanolic extract of *P. glabroum* showed good recovery.

### Trophic state index through *in-situ* measurement and satellite remote sensing in inland and coastal water

Project Duration: 2011-2014

Personnel: C.S.Purushothaman, Vidya Shree Bharti and Vinod Kumar Yadav

#### Progress:

For the whole sampling area in lake system, the order of abundance was microplankton (49.6%), picoplankton (40.9%) and nanoplankton (09.4%). However, in coastal system the order of abundance was microplankton (82.48%), picoplankton

(13.9%) and nanoplankton (03.5%). The greater abundance of microplankton especially at the surface reflects the fresh nutrient availability supporting larger biomass of microplankton.

Hydrographic and chemical data collected during the sampling indicated that weak upwelling had occurred everywhere in the study region during 9-10 May sampling. In seawater, chromatographic analysis revealed the presence of a wide range of pigments, exhibiting a clear spatial variability. Chlorophyll *a* and fucoxanthin were the two most abundant pigments, and were present at all sampling locations. There were considerable differences in the accessory pigment composition between stations and between surface and 5-m depth. Zeaxanthin and chlorophyll *c*1 and *c*2 were found in the sampling region. This indicates the proliferation of picoplankton (cyanobacteria) and prymnesiophytes in this region. At Station 6, fucoxanthin became much more abundant, indicating the presence of diatoms and dinoflagellates. Chlorophyll *a* was the most abundant of all pigments, but its concentration exhibited considerable spatial variability. Its concentrations were generally the highest at coastal stations reflecting eutrophic conditions resulting from upwelling. Fucoxanthin was the next most abundant pigment, occurring at all stations. It is a taxonomical biomarker for diatoms and dinoflagellates. Fucoxanthin was found to be the most abundant of all photosynthetic

carotenoids. Coastal surface water samples are clustered in one cluster by cluster analysis as they are homogenous samples. Factor analysis has been done by principal component analysis in SPSS taking all variables in a cluster; it is observed that factor1 constitutes chlorophyll *a*, *c*1 and *c*2, diatoxanthin, fucoxanthin, diadinoxanthin, and carotene. It explains the variance in pigment composition up to 63.5%. Factor 2 constitutes zeaxanthin and explains the variance up to 15.5% and factor 3 constitutes chlorophyll *c*1 and *c*2, and explains variance up to 13.5%. Lake surface water samples got clustered in one cluster by cluster analysis as they were homogenous samples. It was observed that factor1 constitutes chlorophyll *a*, chlorophyll *b*, diatofucoxanthin, and neoxanthin, and it explains the variance in pigment composition up to 51.897%. Factor 2 constitutes violoxanthin, diadinoxanthin, alloxanthin and lutein, and explains the variance up to 25.00% and factor 3 constitutes chlorophyll *c*1 and *c*2, zeaxanthin and pheophorbide, and explains variance up to 16.19%. Factor 4 constitutes carotene (total) and explains the remaining variance.

### Enhancement of Indian Major Carp Production through Bio-film

Project Duration: 2011 - 2013

Personnel: P. K. Pandey, C. S. Purushothaman, S.P. Shukla and Somdutt

#### Progress:

Ponds measuring 200 m<sup>2</sup> were stocked with catla, rohu and mrigal in the ratio of 30:40:30 at 5000/ha on 01 November 2011. Sugarcane bagasse was introduced at 400kg/ha/yr. Water quality parameters are being analysed at monthly intervals. Length and weight of the fish are also being monitored at monthly intervals. Qualitative and quantitative analysis of microbial load is also estimated regularly along with primary productivity and plankton analyses.



## Aquaculture Division

### ICAR Mega seed project on seed production in agricultural crops and fisheries.

Project Duration: 2006 - 2012

Personnel: M. P. S. Kohli and V. Hari Krishna

#### Progress:

**Rearing of prawn brooders in open and poly-house ponds to mitigate problem of extreme winter:** A fresh batch of freshwater prawn juveniles has been procured from various culture experiments at Rohtak centre. The juveniles were then harvested in November, 2011 and stocked in two poly-house ponds of size 450m<sup>2</sup> each with the same stocking densities. Poly-house pond-I was stocked with 1200 prawn juveniles and poly-house pond-II with 1200 animals with a male to female ratio of 1:5. Both the poly-house ponds were harvested in the first week of April, 2012. After culturing for 4 months, survival of 70% and 60% was obtained in poly-house - I and II, respectively with large number of females in berried condition. The results have repetitively demonstrated that poly-house ponds are highly suitable for raising prawn brooders during extreme winter climate in northern part of the country and prawn brooders could be raised in high density with a good survival.

**Production and sale of quality prawn seed using ground saline water:** Three lakh prawn post larvae were produced during the reported period of which, around 80000 post



larvae have been supplied to various neighboring fisheries departments.

### Developing strategies for fisheries enhancement of Dimbhe reservoir, Maharashtra through management interventions and community participation

Project Duration: - 2006-2011

Personnel: M. P. S. Kohli, Neelam Saharan, Kiran Dube Rawat, Latha Shenoy, V. K. Tiwari and Chandra Prakash

#### Progress:

To enhance the fish production in Dimbhe reservoir situated at Ghod River into the



Taluka Ambegaon, District Pune, Maharashtra, 20 fish cage culture units were installed for rearing of fingerlings and them back in to the reservoir. From the start of the project in the year 2006, quarterly hydrobiological sampling has been done. During this period, the net aquatic primary productivity enhanced from 250 mgC m<sup>-3</sup>d<sup>-1</sup> to 300 mgC m<sup>-3</sup>d<sup>-1</sup>. To enhance it to 500 mgC m<sup>-3</sup>d<sup>-1</sup> further plantation of green manure crop, *Sesbania aculeata* (Dhencha) is needed. It is in practice for last four years and is a major contributing factor in the increase of productivity level. This plantation increased soil organic carbon from 0.45 to 0.85%. The

water quality parameters like pH, alkalinity, nitrate nitrogen and phosphorous also increased on an average from 6.9 to 7.8, 34 to 52 mg/l, 0.12 to 0.20 mg/l and 0.01 to 0.05 mg/l, respectively reflecting comparatively more availability of nutrients during the course of project period. The fish production has also increased with the improvement of trophic profile of the reservoir. The community was trained in aquaculture practices for rearing fry to fingerlings for taking up stocking program of the reservoir. Tribal women have also been trained in ornamental fish breeding and culture in cages to get additional income. A working module of fisheries management through community co-management has been developed.

### Studies on viability of *Litopenaeus vannamei* culture in India

Project Duration: 2009-2012

Personnel: S.S.H. Razvi, P. Suresh Babu. V. K. Sharma, V. Hari Krishna, K. V. Rajendran, M. Makesh and P.S. Ananthan

#### Progress:

For the experimental culture trial III (May - August 2011) ponds were filled up to 1.25 m depth, treated with 30 ppm chlorine to kill predators, weed fishes, crabs, insects etc. Pond fertilization was done using inorganic fertilizers and organic manures. *Litopenaeus vannamei* PL (8-10 mm) were procured from Samudra Hatchery, Kakinada. After thorough acclimatization, the larvae were stocked in the culture ponds. As per the technical programme, stocking densities of 30/m<sup>2</sup> was adopted in four 0.2 ha ponds and one 0.4 ha pond. The growth performance of the shrimp was analysed fortnightly. A production of 6 tonnes was obtained from the crop with an income of Rs.8,15,114/-.

For the experimental culture trial IV (October-December 2011), same procedure was repeated as used previously. As per the technical programme, stocking densities of 30 / m<sup>2</sup> and 60 / m<sup>2</sup> were adopted in 0.2 ha ponds in duplicates. A production of 2.7 tonnes was obtained from the crop with an income of Rs. 2,87,546/-.





The post-larvae (PL) of *L. vannamei* have been screened for viral pathogens such as WSSV, MBV, HPV, TSV and LSNV using PCR and RT-PCR. The PL were found to be negative for all the viruses. Screening of the shrimp samples during the grow-out period for these viruses revealed that the shrimp were free from the pathogens except for the fourth crop, wherein WSSV positive samples were detected from one of the culture ponds at 55<sup>th</sup> day of stocking (DOC). Considering the potential danger of WSSV infection in shrimp, advice was given for emergency harvest.

**Integration of high value indigenous fish with conventional carp culture**

Project Duration: 2009 - 2012

Personnel: B.K. Mahapatra, G.H. Pailan and Nalini Ranjan Kumar

**Progress:**

The performance of composite fish culture species *i.e.* catla, rohu, mrigal, silver carp, grass carp and common carp with and without one of the small indigenous fish species(SIS) *i.e.* *Amblypharyngodon mola*, *Puntius sophore* and *Salmophasia bacaila* were studied. The performance of minor carp species alone has also been studied. Composite fish culture species *i.e.* catla, rohu, mrigal, silver carp, grass carp were introduced @10,000 nos/ha. Minor carp species viz. *A. mola*, *P. sophore*, and *S. bacaila* were introduced in the carp culture ponds @ 20,000 nos./ ha in addition to major carp. *A. mola* was introduced in pond (CIFE-1), *P. sophore* in pond(CIFE-2), *S. bacaila* in pond (CIFE-3) and pond (CIFE-4) was kept as control where only carp species were stocked. Small indigenous fish species were introduced in pond (CIFE-5). The flesh biomass production was less as compared to conventional practices in all the experimental ponds (MC + AM = 93.39% ; MC+PS=96.17%;MC+SB=75.16%). Economic returns in the diversified culture system by



incorporation of small indigenous fish species were evaluated. In terms of economic returns integration of *A. mola* had clearly showed profit as compared to the conventional practices as well as integrated culture with other SIS (MC+PS= 96.17%; MC+SB=75.16%).

### **Biology, rearing and breeding feasibility of indigenous ornamental snakehead, *Channa barca* (Hamilton)**

Project Duration: 2011 - 2013

Personnel: B.K. Mahapatra, S. Munilkumar and Subhendu Datta

#### **Progress:**

*Channa barca* is available in the Brahmaputra valley covering Goalpara, Darrang, Kamrup, Tinsukia and Dhemaji districts of Assam. The fish is also available in Khasi hills of Meghalaya. The congenial habitat for harbouring as well as natural breeding ground of *Channa barca* has been identified. The fish is burrowing in nature and enters in deep holes in winter seasons during November to March. Ideal time for collection of this fish is April-June. It is difficult to collect the fish during July to October in flooded wetland. The fish was collected from the Tinsukia district of Assam and acclimatized under laboratory conditions. The fish is carnivorous in nature and prefers to eat live food.

### **Water budgeting studies in the hatchery, nursery rearing and grow out practices for Carp**

Project Duration: 2011 - 2014

Personnel: A. K. Verma, V.K. Tiwari and Chandra Prakash

#### **Progress:**

The data on rainfall, temperature, humidity, wind velocity, sunshine hours were collected with the help of meteorological station. The brooders were procured from Aarey fish farm, Goregaon and from Bharuch, Gujarat and



maintained properly. The experiments on hatching of eggs were carried with a circular Chinese hatchery and FRP jar hatchery (a set of 6 jars) at Aarey fish farm, Goregaon. The experiments on estimation of water used in nursery and grow-out operation are being conducted. The water quality parameters like temperature, DO, CO<sub>2</sub>, pH, total hardness, total alkalinity, ammonia-N, nitrite-N, nitrate-N, phosphate, organic load etc. were analyzed for circular hatchery and jar hatchery.

### **Breeding and culture of indigenous medium and minor carps**

Project Duration: 2011 - 2014

Personnel: S. Dam Roy, Dr. Somdutt and Chandra Prakash

#### **Progress:**

The project is being carried out at Powarkheda centre of CIFE Mumbai. For medium carp, *Labeo calbasu* and for minor carp, *Puntius sarana*, survey has been carried out with respect to brood stock availability; length- weight data have been obtained in case of *Labeo calbasu*; for *Puntius sarana* biological data have been analyzed, length weight relationship has been established and fecundity study has been done. Soil and water parameters are being monitored.

## Fisheries Economics, Extension and Statistics Division

### An appraisal of public sector extension delivery system in fisheries

Project Duration: 2009 - 2012

Personnel: Sheela Immanuel, S.K. Mishra, N.R.Kumar, P.K.Roy, V. Harikrishna and Somdutt

#### Progress:

Data were collected from DoF staff and fishermen/farmers of selected areas in Tamil Nadu, Kerala, Andhra, Odisha, Maharashtra and Madhya Pradesh. A total of 140 extension personnel and 300 farmers were selected as respondents. Knowledge index was worked out to assess the knowledge gap. Regarding knowledge gap of DoF staff, it could be observed that the knowledge gap was more in areas like quality aspects of fish (50), laws relating to sea. (50), export regulation (62) and identification of fish species (69). In culture fisheries, the knowledge gap was more in areas like farm designing (57) and farm planning (52). Regarding implementation of welfare measures majority (68) of the respondents reported that they are mostly satisfied followed by input supply (58.66) and scheme implementation (58.33%). "Less transport facilities" was reported as the major constraint by 85.71% of the extension personnel. "More area of operation" was reported as the second problem by 70% of the respondents. The other problems such as less communication skill were reported as problem only by 27.14%. Staff positions of DoF

need to be strengthened and more training opportunities need to be given.

### Impact analysis of food safety measures on export of fish and fish products from India

Project Duration: -2009-2012

Personnel: Nalini Ranjan Kumar, M. Krishnan, Sheela Immanuel and Swadesh Prakash

#### Progress:

Exporters have adopted SPS measures needed for the export market and resumed exports and hence the growth rate of exports has accelerated. Export earning as well as unit value realization has increased from marine products export over time. Marine products export from India has diversified into more processed products in comparison to the inception year of the WTO to reap the benefits of high price of processed products. Indian seafood exports have diversified into China, South East Asia and Middle East. The export competitiveness on overall basis has declined. However, export competitiveness of processed and other products has increased which indicates the opportunity for increasing export of processed products rather than mainly preserved products. In respect of EU-HACCP compliance equipment, almost all the sampled firms have, since beginning or after up-gradation, infrastructure sufficient to comply with the requirements of EU/HACCP. Average investments per plant was about 8.8

crores which varied from Rs.7.6 crore in West Bengal to Rs.10.38 crore in Gujarat. Average processing capacities of sample plants varied from 6500 MT in the state of West Bengal to 27333 MT in the state of Gujarat with overall capacity of 14086 tonnes of raw



material per annum.

### **Responsible fisheries management in Mumbai coast: Empowering through information and institutional strategies**

**Project Duration:** 2011-2014

**Personnel:** S.N. Ojha, P.S. Ananthan, Sheela Immanuel, M.Krishnan, S.K. Chakraborty and Arpita Sharma

**Progress:**

A preliminary opinion survey was conducted in Vasai. Based on the opinion survey gathered at the Fishers Meet in the *Machhimar Sahakari Sansthan*, Panchubandar, Vasai, it was recorded that Fishers' right on land for housing and depleting fish stock in the sea were their primary concerns. This meeting was organized in the fishers' cooperative society, Panchubandar, Vasai, Thane district, Maharashtra. As per secondary information, two maps were identified to locate the landing centers of Mumbai. Based on the GIS maps developed by CIFE, the landing centers for data collection work are being identified. The questionnaire for data collection work is also being developed.

### **Modeling and forecasting of fish production and marine product export of India**

**Project Duration:** 2011-2013

**Personnel:** V.K. Yadav, M.Krishnan and R.S. Biradar

**Progress:**

Collection of secondary data and review of literature are in progress. The historical data of marine fish production of India have been taken to implement the Fuzzy time series model given by Song and Chissom (1993), Chen (1996), Chen and Hsu (2004) and Singh (2007). The study is aimed to find the marine fish production forecast for a lead year by using different Fuzzy time series models. The forecast of marine fish production obtained through these techniques, has been compared and their performance has been examined. It has been found that forecast obtained by method followed by Chen and Hsu (2004) is more efficient and provides better forecast in comparison to Singh (2007), Chen (1996) and Song and Chissom (1993) method. The forecasting of marine fish production has also been obtained by developing an Artificial Neural Network (ANN) model using back propagation algorithm. It is observed that ANN produces more accurate results in comparison to Fuzzy time series methods.



## Fish Genetics and Biotechnology Division

### Performance evaluation and mass selection for important economic traits in *Penaesus* sp.

Project Duration: 2009-2012

Project Personnel: Gopal Krishna, Shrinivas Jahageerda, A.K. Reddy, P. Gireesh Babu, S Dasgupta and A. K. Pal

#### Progress:

Farmers engaged in *P. monodon* culture were identified in the vicinity of west coast and their ponds were stocked with post larvae of different families in the same pond. Regular sampling was performed to see the growth of the animals at different time intervals. At the end of one-and-a-half months and two-and-a-half months the sample netting, approximately 12 g and 23 g increase in growth was observed, respectively. At the time of harvesting, the larger animals were segregated and stocked in the exclusive ponds for further maturation. The size of the animals ranged from 80 to 110g. The animals were maintained for maturation studies. Water quality parameters were maintained and eye stalk ablation was tried for maturation studies. Simultaneously, hormonal profile was also studied to assess the maturity status. Maturation could not be achieved with such manipulations. The project is completed and the report has been submitted. RNAi approach to silence gonad inhibiting hormone (GIH) in large adult animals to obtain captive maturation through student research is being taken up.

### A comparison of genetic parameters for economic traits in *Macrobrachium rosenbergii* reared in different production environments

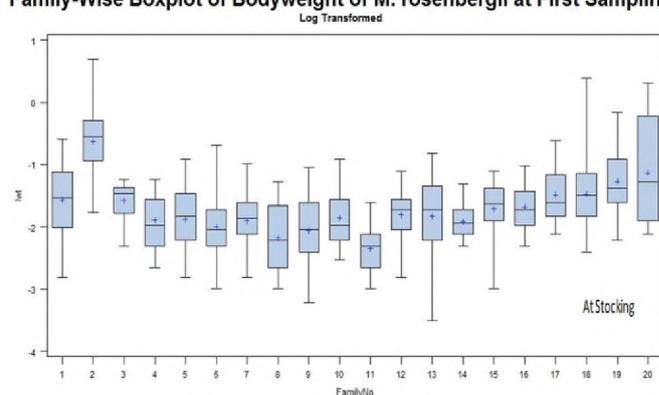
Project Duration: 2009-2012

Personnel: Shrinivas Jahageerda, Somdutt, Gopal Krishna, Pawan Kumar, Suresh Babu and Kundan Kumar

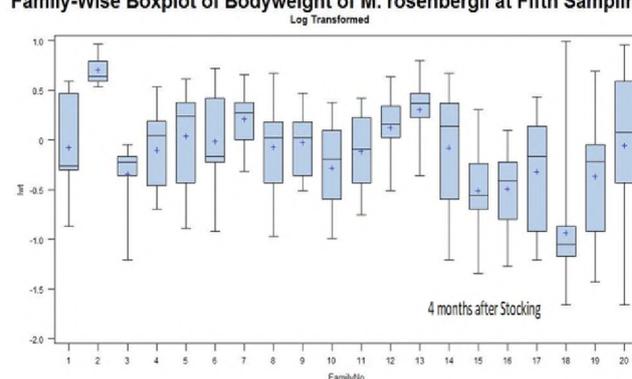
#### Progress:

The data collected from various sampling have been analysed. The heritability for body weight and total length was  $0.73 \pm 0.04$  &  $0.71 \pm 0.02$ , respectively. Twenty full-sib families produced at CIFE, Mumbai from Gujarat stock were reared at CIFE center, Powarkheda. The heritability estimates for total length and body weight at first sampling and fifth sampling were high. Significant variance was observed between family means for body weight and total length. Orissa, Kerala and Andhra stocks were reassembled at Balbhadrapuram and reared in different culture conditions. Mass selection was carried out in December 2011 and potential parents were selected. Mating plan developed and accordingly 57 females have been bred in January 2012 and the rearing of the spawns is in progress. The project is completed and the report has been submitted. As a follow up, work is being continued through student research.

Family-Wise Boxplot of Bodyweight of *M. rosenbergii* at First Sampling



Family-Wise Boxplot of Bodyweight of *M. rosenbergii* at Fifth Sampling



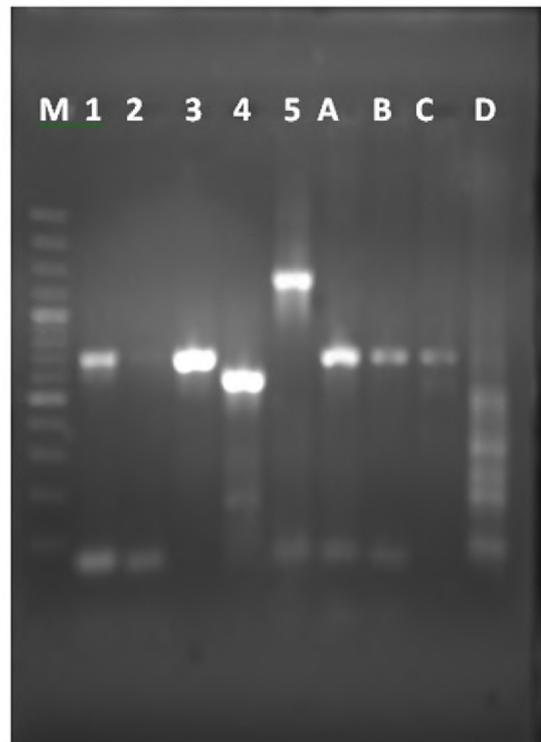
## Molecular phylogeny and DNA barcoding of elasmobranchs and selected teleosts from Indian coast

Project Duration: 2009-2012

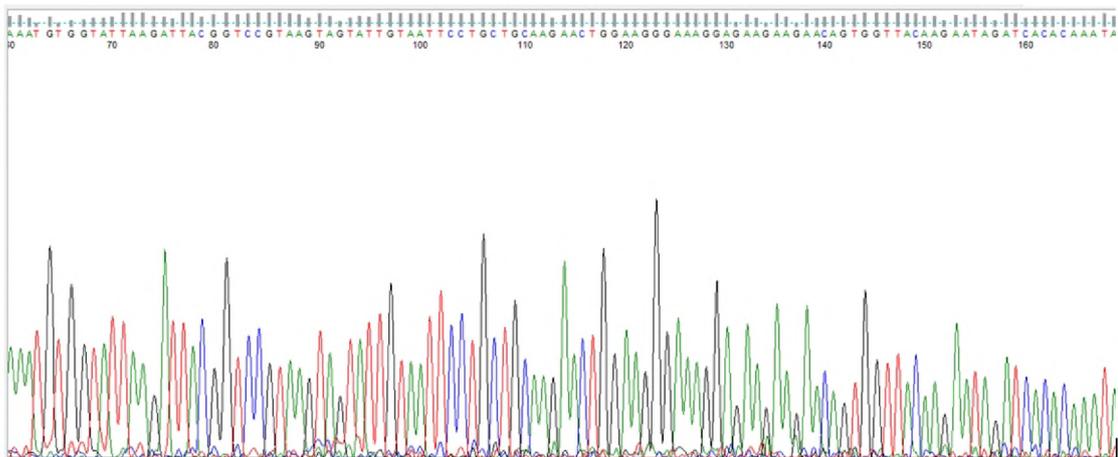
Personnel: WS Lakra, A.Pavan Kumar, Gopal Krishna, S K Chakraborty, Aparna Chaudhari and AK Jaiswar

### Progress:

Thirty-four elasmobranch species have been collected from both east coast (Kakinada, Vizag, Tuticorin, Mandapam) and west coast (Mumbai). Eleven species of Gobidae and Elotridae fishes were collected from Astamudi lake (Kerala). Digital images were taken for all the collected specimens. Primers were designed and procured for amplification of nuclear and mitochondrial markers. PCR conditions were standardized for both nuclear and mitochondrial DNA markers



PCR amplification of nuclear & mitochondrial markers in elasmobranchs. Lane 1,2,3 & A,B,C : COI gene; Lane 4&D : D Loop; Lane 5: ITS lane M: 1000bp plus marker



## Fish Nutrition, Biochemistry and Physiology Division

### Immuno-physiological responses to chronic arsenicosis in rohu, *Labeo rohita* (H.) and its remedial measures through dietary intervention

Project Duration: 2009-2012

Personnel: Parimal Sardar, Archana Sinha and G.H. Pailan

#### Progress:

Rohu juveniles (80.54 ± 0.55 g) were exposed to chronic levels of sodium arsenite (0.43 ppm) for 35 days. These arsenic-exposed fish were fed with diet containing 0.025%, 0.05% and 0.1% DMSA (*Meso*-2, 3-dimercaptosuccinic acid) for 15 days. Similarly, another 3 group of arsenic exposed fish were fed with diet containing 0.025%, 0.05% and 0.1% DMPS (sodium 2,3-dimercaptopropane-1-sulfonic acid) for 15 days. Another arsenic-exposed group was fed with diet without DMSA or DMPS. Residual arsenic was found in the order of liver > gill > muscle. DMSA was found to be more effective in reducing residual arsenic in all the tissues. DMSA at 0.05% was more effective in removal of residual arsenic to the extent of 80% in muscle.

### Formulation and preparation of carotenoid-rich granular feed for ornamental fish

Project Duration: 2009-2012

Personnel: G.H. Pailan, Archana Sinha and P. Sardar

#### Progress:

Formulated and prepared carotenoid-rich ornamental fish feed. For the preparation of control diet, selected ingredients viz. fish meal 15%, soyabean meal 22%, groundnut oil cake 25%, rice bran 20%, wheat flour 12%, starch powder 3%, soya oil 2% and vitamins and minerals 1% were thoroughly mixed and dough was prepared by adding required amount of water. The experimental diets were prepared by supplementing different levels of marigold flower meal at 4%, 6% and 8% to the control diet replacing the same amount of rice bran. Dough was prepared and autoclaved. After cooling the dough, marigold flower meal was mixed uniformly. This dough was taken into hand pelletizer to make 2.0 mm pellets. The pelleted feeds were air-dried and ground and then stored in air-tight zipper



bags until further use. The granular feed was prepared using the spheronizer.

Experimental feeding trial was conducted in Sword tail using the experimental feeds. Sword tail of uniform length and weight were purchased from a commercial aquarium fish farm and were acclimatized to laboratory conditions for two weeks before the start of the experiment. The experiment was conducted for a period of 60 days. The biochemical composition of fish muscle in terms of moisture, lipid, crude protein and ash content was similar in all the experimental groups. Total carotenoids

concentration in the muscle and skin of sword tail after 60 days of experimental feeding trial showed that the total carotenoid concentration ( $\mu\text{g/g}$ ) remained similar in control diet (2.94 vs 3.17). The supplementation of marigold meals in the diet increased the total carotenoid concentration in the muscle and skin of Sword tail from 2.87 to 6.17  $\mu\text{g/g}$ . The study revealed that supplementation of 4% marigold petal meal was found to be an effective colour enhancer at a cheaper price without any adverse effect on growth and body composition of fish.

## Fisheries Resources Harvest and Post Harvest Management Division

### Impact of juvenile fishery on fish production along the west coast of India.

Project Duration: 2009-2012

Personal: S.K. Chakraborty, Latha Shenoy, G. Deshmukhe, A. K. Jaiswar, Asha T. Landge, Zeba Jaffer Abidi and S.K. Patil

#### Progress:

As recorded from the trawl landings at Greater Mumbai, a total of 33 commercially important species of juveniles landed in significant quantity. They are *Pampus argenteus*, *P. chinensis*, *Parastromateus niger*, *Ephinephalus diacanthus*, *Otolithoides biauritus*, *Protonibea diacanthus*, *Saurida tumbil*, *Megalaspis cordyla*, *Psettodes erumei*, *Sphyraena jello*, *Lepturacanthus savala*, *Scomberomorus commersoni*, *S. guttatus*, *Otolithes cuvieri*, *Johnnieops vogleri*, *J. macrorhynchus*, *Decapterus russelli*, *Arius sp.*, *Auxis thazard*, *Cynoglossus arel*, *Coilia*

*dussumieri*, *Muraenosox talabonoides*, *Nemipterus japonicus*, *Rastrelliger kanagurta*, *Sardinella longiceps*, *Lactarius lactarius*, *Pomadasys hasta*, *Hemiramphus spp.*, *Pricanthus hamrur* and *Sphyraena barracuda*

Table 1: The length range of some species recorded as juveniles

Name of species	Mumbai	Ratnagiri
<i>P. diacanthus</i>	184 - 790 mm	78 - 192 mm
<i>M. talabonoides</i>	510 - 780 mm	339-402 mm
<i>E. diacanthus</i>	150 - 260 mm	
<i>S. tumbil</i>	170 - 330 mm	
<i>M. cordyla</i>	190 - 290 mm	
<i>P. argenteus</i>	110 - 265 mm	
<i>P. niger</i>	200 - 250 mm	
<i>P. chinensis</i>	120 - 250 mm	
<i>O. cuvieri</i>	110 - 210 mm	91 - 255 mm
<i>J. vogleri</i>	120 - 195 mm	
<i>L. savala</i>	370 - 610 mm	
<i>N. japonicus</i>	138 - 202 mm	80 - 128 mm
<i>Lactarius lactarius</i>	90 - 170 mm	79 - 200 mm
<i>R. kanagurta</i>		118-252 mm



## Studies on improvement of rheological and functional properties of fish gelatin

**Project Duration:** 2010-2013

**Personnel:** G.Venkateshwarlu, B.B.Nayak and Nagalakshmi. K

### **Progress:**

The waste from surimi processing was utilized for extraction of gelatin by following the conditions optimized using response surface methodology (RSM) with composite design. The skin of tiger-toothed croaker (*Otolithes ruber*) and pink perch (*Nemipterus japonicus*) yielded 7.56% and 5.57% gelatin at optimal conditions derived by RSM, whereas their bones yielded 4.57% and 3.55%, respectively indicating skin as an important source for gelatin production.

The gel strength of gelatins from the skin and bones of tiger-toothed croaker (170g and 140g, respectively) were found higher than pink perch skin and bone gelatins (150g and 130g respectively). Similarly, the viscosity, melting point, emulsifying capacity and stability, foaming capacity and stability, and water holding capacity of gelatin extracted from tiger-toothed croaker were in general greater than those of the gelatin from pink

perch and the values of skin gelatin were higher compared to bone gelatin in both the species. Hydroxyproline content in skin and bone of tiger-toothed croaker was 7.77 and 7.51 mg/g and in pink perch the content was 7.63 and 7.41mg/g, respectively. The observed gel strength (170 g) and melting point (20.3 °C) of fish gelatin obtained from tiger-toothed croaker skin were found low compared to the reported values of mammalian gelatin.

In order to improve rheological properties of fish gelatin, three co-enhancers viz., MgSO<sub>4</sub>, sucrose and microbial transglutaminase have been incorporated into fish gelatin solution in different combinations by following Box-Behnken Design to study their effect on gel strength and melting point. Addition of co-enhancers at different combinations showed the gel strength and melting point in the range of 150.5 to 240.5 g and 19.5 to 22.5 °C, respectively. The optimal concentrations of co-enhancers for predicted maximum gel strength (242.8 g) obtained by RSM were 0.23M MgSO<sub>4</sub>, 12.60% sucrose (w/v), and 5.92 mg/g transglutaminase and for predicted maximum melting point (22.57 °C), the values were 0.24M MgSO<sub>4</sub>, 10.44% sucrose (w/v), and 5.72 mg/g transglutaminase. By addition of co-enhancers at the optimal concentrations in

verification experiments, the gel strength and melting point were improved from 170 to 240.89 g and 20.3 to 22.7 °C, respectively. These experimental values agreed well with the predicted values demonstrating the fitness of the models.

### **Development of a method for salt-fermentation of Indian mackerel, *Rastrelliger kanagurta***

**Project Duration:** 2010-2013

**Personnel:** B.B.Nayak and L. Manjusha

#### **Progress:**

Salt fermentation of Indian mackerel was carried out leading to a stable, non-rancid product with pleasant flavor. Periodic sensory evaluation of the product indicates typical flavor development from 4 months onwards. Bimonthly evaluation of biochemical and microbial parameters was done. Microbial composition changed from multiple types to only two types indicating the establishment of fermentation flora as dominant species. The bacterial species were characterized and indicated the roles of *Bacillus* and *Staphylococcus*. The data generated also helped to understand the protein and fat degradation by the bacteria during fermentation.



# Externally funded projects

## Utilization of inland saline and sodic soils for aquaculture (ICAR Niche Area Excellency project)

**Funding Agency:** Education Division (ICAR), New Delhi

**Project Duration:** 2006-2012

**Personnel:** C. S. Purushothaman, V. K. Sharma, G. Venugopal, S. S.H. Razvi, V. Harikrishna and A. P. Murlidhar

**Progress:**

### Culture of *Penaeus monodon* and *Fenneropenaeus indicus* in Rohtak Farm under saline conditions

Grow-out experiments of *P. monodon* culture using inland saline waters: The experiments have been successfully completed by the second week of October 2011 and a total production of 1280 kg/ha with a net survival of 70% had been obtained in 110 days culture duration at a stocking density of 10/m<sup>2</sup>.

Experiments to assess the survival, growth and suitability of inland-saline waters for the culture of *F. indicus*: A total of 30000 post-larvae (PL- 5) of *F. indicus* have been procured from Chennai. The post-larvae were initially conditioned using potassium-supplemented inland-saline water of salinity 10‰ inside the wet lab for around 15 days to attain a better size to stock into the outdoor ponds. After the attainment of suitable size, around 18000 post-larvae were stocked in a poly-lined pond of size 0.1 ha for nursery rearing and 6000 post-larvae were maintained under indoor conditions. The animals were reared using inland-saline water of salinity 10‰ and fed with commercial shrimp feed. The animals grew to an average size of 5 g in 2 months.

The experiments for the last few years have repetitively proved the validity of the technology for developing avenues of livelihood, resource generation and self-employment.

### Evaluation of the bacterial fauna in inland saline waters for the prediction of probable disease outbreaks

Regularly evaluated the culture water and the shrimp samples for various bacterial diseases. Inland saline waters are almost bio-secure for the shrimp culture. The only predominant shrimp pathogen found was *Vibrio parahaemolyticus*.

## Development of bacterial consortia for bio-processing agricultural wastes and bioremediation of aquaculture effluents.

**Funding Agency:** Application of Micro Organism in Agriculture and Allied Sector (AMAAS), ICAR

**Project Duration:** 2006 - 2012

**Personnel:** C. S. Purushothaman, P. K. Pandey and A. Venilla

**Progress:**

Screening bacteria for cellulose and xylanase activities, formulation of consortia of these bacteria, and isolation of nitrifiers and denitrifiers:

The crude consortium Cb (*Bacillus pumilus*, *B. subtilis*, *B. endophyticus* and *B. megaterium*), which was designed in 2009-10 was evaluated for its efficiency to degrade complex agro-wastes like cotton boll and also for its stability. The consortium showed lower xylanase and cellulase activities compared to the individual members. The crude consortium Ca (*B. pumilus*, *B. megaterium*, *A. fecalis*, and *B. cereus*) evaluated in 2009-10 was modified since *B. cereus* was found to have a negative effect on the overall activity of the consortium. *B. cereus* was replaced with *B. subtilis* and this modified consortium Ca (now referred to as Ca\*) was evaluated for activity as well as stability. Of all the crude consortia evaluated, Ca\* has given the best results with higher xylanase activity compared to individual members. Cellulase activity of *B. subtilis* was significantly higher and that of *B. megaterium*, which was slightly higher than that of the consortium. Seven more isolates have been identified as *B.*

*pumilus*, *B. subtilis*, *A. feacalis*, *Micrococcus luteus*, *Moraxella* sp., *P. aeruginosa* and *Pantoea* sp.

### Studies on the likely impact of the proposed Kalpasar project on the ecology, fishery and socio-economic aspects of the coastal community of the Gulf of Khambat.

**Funding Agency:** Ministry of Earth Sciences, Govt. of India (New Delhi)

**Project Duration:**

**Personnel:** C. S. Purushotaman, R. S. Biradar, S. K. Chakroborty, Geetanjali Deshmukhe, Arpita Sharma, A.K.Jaiswar

**Progress:**

The data collected are being analysed. The details have been tabulated and interpretation is in progress. The samples collected by CIFE and GES are also being analysed.

### Potential drugs from selected marine invertebrates and plants from Indian waters

**Funding Agency:** Ministry of Earth Science, Government of India, New Delhi

**Duration:** 2007 -2012

**Personnel:** Subodh Gupta, Geetanjali Deshmukhe and S.G.H. Zaidi

**Progress:**

Samples were collected from the coasts of Maharashtra (Ratnagiri and Mumbai) and Tamilnadu. Collection and identification of sponges (12 Nos), seaweeds and seagrasses (06 Nos) and various extracts of these organisms were made and sent to CDRI, Lucknow for confirmation of preliminary toxicity and other bioactivities of extracts. The chemical fingerprinting (TLC profiling) of twenty six samples were done for collected samples. *Gracilaria folifera*, collected from Colaba coastal area of Mumbai has shown

anti-dyslipidaemic activity and has been included as one of the ingredients in anti-diabetic product, developed by CDRI, Lucknow, and will be commercialized under Ayush mode. The toxicity test on mice model was conducted for four sponges and two sea weeds, collected from Tamilnadu and Mumbai coasts.

### Development of quantitative real-time PCR for four DNA viruses infecting Indian penaeid shrimp

**Funding Agency:** Department of Biotechnology, Government of India

**Project Duration:** 2009-2012

**Personnel:** K.V. Rajendran, M. Makesh and Aparna Chaudhari

**Progress:**

Six latency-associated genes (LAG) of WSSV (*wssv151*, *wssv366*, *wssv403*, *wssv407*, *wssv427* and *wssv332*) and 2 genes coding for structural proteins (*VP28*, *wssv115*) and a non-structural protein (*wssv285*) were targeted to design 9 set of PCR primers. PCR conditions for these primers were standardized. An experimental challenge study was carried out with a known WSSV inoculum and pre-screened *Penaeus monodon* free of WSSV. Gill, pleopod and lymphoid organ tissues were collected from experimentally-injected shrimp at 6, 12, 24, 48 and 72 h post-injection. The samples were tested for WSSV with various primers and found that primers for LAG were sensitive to detect the infection at early stage.

### Development of DNA-based vaccine against *Aeromonas* spp. employing conserved outer membrane porin gene.

**Funding Agency:** Department of Biotechnology, Government of India

**Project Duration:** 2008-2011

**Personnel:** M. Makesh

**Progress:**

About 100 fishes were vaccinated and divided into 10 groups with three different vaccine constructs against *A. hydrophila* and some of the groups were administered protein booster. Serum was collected at periodic intervals for antibody titration. LD<sub>50</sub> was calculated, and subsequently vaccinated and control fishes were challenged with the LD<sub>50</sub> dose of *A. hydrophila*. Vaccinated fish boosted with protein booster survived better than control fish.

**Development and use of fluorescent transgenic zebrafish biosensors for monitoring genotoxic pollutant**

**Funding Agency:** Department of Biotechnology (DBT), Govt. of India

**Project Duration:** - 2007-2010

**Personnel:** Aparna Chaudhari, Gireesh Babu, S.G. S. Zaidi and Sridhar Sivasubbu, Scientist, IGIB (Institute of Genomics & Integrative Biology), New Delhi

**Progress:**

The project aims at developing zebrafish biosensors responsive to genotoxicity and heavy metal toxicity in aquatic environment. F1 generation of MT1 broad spectrum heavy metal biosensor was bred and number and sites of transgene insertion were determined by Southern hybridization and inverse PCR. Results showed 7 insertions in one of the fish tested. Inverse PCR did not yield any conclusive result. Heavy metal induction studies were done using several heavy metals viz., Hg<sup>2+</sup>, Cu<sup>2+</sup>, Cd<sup>2+</sup>, Pb<sup>2+</sup> and Zn<sup>2+</sup> at 4 sub-lethal concentrations. The red fluorescence response of zebrafish embryos was recorded 24 h after exposure to heavy metals using fluorescence microscope. Relative mRNA expression studies done using real time PCR confirmed higher expression of the fluorescent reporter transcript with increasing metal concentration although it was absent in the control. The reporter response to heavy metals was in the order Hg<sup>2+</sup>

> Cd<sup>2+</sup> > Cu<sup>2+</sup> > Pb<sup>2+</sup> > Zn<sup>2+</sup>. The fluorescent response to metals was observed as mosaic fluorescence in other body parts as the embryos were crosses between transgenic and wild type individuals. These fishes can be a simple first level screening method for confirming toxic bio-available concentrations of heavy metals.

**Gene Silencing - A strategy for management of white spot syndrome virus (WSSV)**

**Funding Agency:** National Agricultural Innovation Project, NAIP, ICAR

**Project Duration:** - 2008-2012

**Personnel:** K. V. Rajendran and M. Makesh

**Progress:**

Primary cell culture systems were developed from hemocytes and testis tissue of *Scylla serrata*. Cells from testes cultured in 3X L-15 +1X NEAA + 1% lipids concentrate and crab saline were viable as suspension cultures and could be maintained for 21 days. Cell viability decreased after subsequent subcultures. Cultured hemocytes were exposed to WSSV inoculum. Cells were harvested, DNA and RNA were isolated from the cells and WSSV replication in the cells was analyzed by PCR. Hemocytes exposed to WSSV showed likely cytopathic effects produced by the virus, like pigmentation and detachment from substrate which was not prominent in cells maintained as control. WSSV replication was detected in hemocytes harvested 0, 6, 12, 18, 24, 30, 36, 48 and 72h post-infection as observed by conventional PCR. Increase in the level of transcripts with time, after WSSV infection, was detected by real time PCR. Efficacy of few antisense gene constructs was tested in primary hemocyte cultures infected with WSSV. Transfection with GFP DNA using Lipofectamine LTX, PLUS reagent was detected by observing cells under fluorescence microscope. Real time PCR showed decline in WSSV copies in hemocyte cultures of *S. serrata* transfected with antisense constructs.

### Strengthening of digital library and information management under NARS (e-grant)

**Funding Agency:** National Agricultural Innovation Project, NAIP, ICAR

**Project Duration:** 2009-2012

**Personnel:** N. P. Sahu

**Progress:**

One software module, MARC-21, for Libsys has been purchased and implemented. More than 19,000 records have been uploaded through batch upload in OCLC WORLDCAT. More than 1,500 books have been catalogued and uploaded in WorldCat by using Connexion. Classification and cataloguing of dissertations, theses and foreign journals were done in Connexion. 6,936 records of Libsys corrected through Connexion and create holding in WORLDCAT. About 150 foreign journals have been classified and catalogued in WORLDCAT/AGRICAT through Connexion. KOHA software has been installed to create OPAC under "Indian Agricultural Research Group Catalogue" of all 12 Library resources.

### Bioprospecting of genes and allele mining for abiotic stress tolerance

**Funding Agency:** National Agricultural Innovation Project, NAIP, ICAR

**Project Duration:** 2009-2012

**Project Personnel:** Aparna Chaudhari, P. Gireesh Babu and Gayatri Tripathi

**Progress:**

The project aims at functionally validating the genes involved in salt homeostasis in *P. monodon*. NaKATPase is an important enzyme in salt homeostasis. Real time PCR results showed that NaKATPase transcript levels were elevated at 5 ppt compared to higher salinities. This was further validated and confirmed by specific enzyme assay and immuno-fluorescence studies. Recruitment of NaK-ATPase to the gill membrane increases markedly in dilute environments when the

animal is hyper-regulating and not when it is hypo-regulating at 35 ppt. It indicates that in *P. monodon* this pump is actively involved in uptake of ions at lower salinities as in zebrafish. Other differentially regulated enzymes are arginine kinase and carbonic anhydrase as determined by real time PCR. For functional validation studies, *P. monodon* NaKATPase alpha and beta genes were cloned in pcDNA-HisMax vector and expression was confirmed by Western blot. Transient assay of salinity tolerance was done by microinjecting these constructs in zebrafish embryos and exposing them to various salinities. Although salinity of 4 ppt and above was detrimental to the un-injected embryos beyond 24 h the microinjected embryos showed 30% survival till 48 h. Results of expression studies of recombinant His-tagged NaK-ATPase are awaited.

### Strengthening the statistical computing for NARS

**Funding Agency:** National Agricultural Innovation Project, NAIP, ICAR

**Project Duration:** 2009-2012

**Personnel:** S. Jahageeradar and R.S. Biradar

**Progress:**

Under this project three Researchers' Training Programs were organized.

1. 'SAS: Multivariate Data reduction and Analysis' during 12<sup>th</sup> - 17<sup>th</sup> October, 2011
2. 'SAS: Genetics and Genomics Data Analysis' from 27<sup>th</sup> Feb to 3<sup>rd</sup> March 2012
3. 'SAS: An Overview' during 15-20 March, 2012
4. Installation workshop on 6<sup>th</sup> January, 2012

### Visioning, policy Aanalysis and gender

**Sub-project:** Impact Assessment of Aquaculture technologies.

**Funding Agency:** NAIP, ICAR

**Duration:** 2009-12

**Personnel:** Swadesh Prakash

**Progress:**

Adoption of magur technology influences the yield and profitability of culture significantly. Technology increased the cost of cultivation by Rs 2083/ha (2.26%) and returns over fixed cost by 7.17% and over variable cost 3.69% which increase with decrease in size of water bodies due to better management of small water bodies. Similar trend was found in benefit cost ratio and IRR. The net return was Rs 61,766.00 (84.14) with very little decline in productivity by 9.62%. This high net return is due to high value species and high marketability. At the farm level, adoption of technology was observed to be very remunerative.

### **Development of auto-transgenic Asian catfish, *C. batrachus***

**Funding Agency:** National Agricultural Innovation Project (ICAR-NAIP)

**Project Duration:** 2007-2012

**Project Personnel:** K.C. Majumdar, K. Ravinder, (CCMB, Hyderabad) and S.S.H. Razvi

**Progress:**

Procured *Clarias batrachus* stocks from different locations and raised them till maturity by maintaining water quality, plankton analysis and feed management practices. Fishes were bred successfully for carrying out the transgenic experiments.

### **Studies on the degradation product of both nutrients and anti-nutrients of aqua-feed and their effect on immune physiology of *Labeo rohita* fingerling**

**Funding Agency:** Board of Research in Nuclear Sciences (BRNS), Department of Atomic energy, Govt. of India.

**Project Duration:** 2010-2013

**Personnel:** N.P. Sahu and A.K. Pal

**Progress:**

It is reported that the anti-nutritional factors like tannin, hydrocyanin and phytate are significantly reduced to the extent of 60% at an exposure dose 10KGy of electron beam. Nothing has been reported about the nutrients. Therefore, there is a need to understand the degradation products of both nutrients and anti-nutrients of aquafeed after exposure to E-beam. The breakdown products of both nutrients and anti-nutrients of aquafeed exposed to E-beam using 2D NMR have been studied. The NMR results have shown the structural rearrangement of phytic and tannic acid on exposure to E-beam. Based on the above <sup>1</sup>H and <sup>13</sup>C nmr spectral assignment, further supported by 2D nmr data, it can be concluded that structural rearrangement of sodium phytate is taking place gradually on increasing the E-beam exposure from 5KGy to 15KGy. On exposure of sodium phytate to E-beam of 15KGy, it seems all the phosphate groups become axially oriented leading to the scyllo-conformation. This can also account for the transformation of the doublet peak of H1/H3 proton in <sup>1</sup>H nmr spectrum of sample A to the singlet in the spectrum of sample D. As can be seen in the <sup>13</sup>C nmr spectra of sample D some traces of the initial neo-conformation are also present.

### **Genetic conservation and live gene banking of mahseer fish in Indrayani river**

**Funding Agency:** National Fisheries Development Board, NFDB, Govt. of India

**Project Duration:** 2010-2013

**Project Personnel:** Gopal Krishna, N K Chadha, V K Tiwari, Rupam Sharma and Ogale Mahesh Mahajan (FONA, Talegaon)

**Progress:**

The site for installation of the cages was finalised. The permission of the Gram Panchayat was also sought to install the cages. The ponds were renovated; nursery



constructed and seed is being reared. A pond for stocking and developing the brood stock has been prepared. Yearlings are being stocked in this pond. Cage material has been procured and two cage frames with four cages each (total eight cages) have been installed. Another eight cage frames (32 cages) are in the process of installation. The preliminary testing of rearing the mahseer seed in the cages have been done and approximately 4000 seed has been stocked in the cages in Indrayani river. About 5000 mahseer seed (fry) have been stocked in the nursery at FONAsite. A 60"X30" breeding pond and hatchery have been constructed.



### **Development of community-participated model for chaur (Flood plains) and maun (Ox-bow lakes)**

**Funding Agency:** National Fisheries Development Board (NFDB), Hyderabad

**Project Duration:** 2010-2013

**Project Personnel:** V.K. Tiwari, N.R. Kumar and A.K. Verma

#### **Progress:**

This year, in the last phase of rainy season (September), *chaur* and *maun* received water. The *chaur* was stocked with stunted seed (kept at CoF, Dholi) and good growth of fish was recorded. Farmers have started taking interest. At *maun* also fish catch has improved. Breeding of common carp has been undertaken by the women members of the society. Seed were reared for 2-3 months in the nursery ponds and were stocked in the month of June, 2011. They also stocked the IMC reared in those nursery ponds.

### **Communit- based reservoir fisheries management.**

**Funding Agency:** National Fisheries

Development Board (NFDB), Hyderabad

**Project Duration:** 2010-2011

**Personnel:** Kiran Dube Rawat, Neelam Saharan, V.K. Tiwari, Chandra Prakash, Babitha Rani A.M and K. D. Raju

**Progress:**

During the year, 6,54,000 fingerlings were stocked in the reservoir. Three pens viz Dighad, Kushire and Bhainderwadi of 0.3 ha, 0.7 ha and 0.2 ha, respectively were installed at Dimbhe reservoir in the month of May, 2011. The construction material included ballies, bamboo poles, HDPE knotless webbing, and chicken mesh etc. When sufficient water entered in the pens (2 - 3 m depth), fry of Indian major carps (Catla, Rohu, Mirgal 60:35:5) measuring 45 to 60 mm, (5.7g) were stocked in the pens with a stocking density of 30,000, 70,000 and 20,000 in Digad, Kushire and Bhainderwadi pen, respectively. Pens were regularly checked for any damage or clogging and cleaned. Fish were fed daily twice (Rice bran, GOC, vitamin mix, mineral mix) in the morning and evening. Their growth was checked at monthly interval and also at the end of the culture period.

After rearing the fry in the pens for a period of

65 days, the water was released from the reservoir and the fingerlings were harvested and stocked in the reservoir. Fingerlings attained an average length of 112.45mm (17.77g), 100.60mm, (15.60g), 1114.32mm (16.90g), 103.57 mm (15.43g). Overall, 95,000 fingerlings were harvested from Digad, Kushire and Bhainderwadi pens and were stocked in the same reservoir.

Thirty-two new floating net cages (3m x 3m x 3m) have been installed in the reservoir. The cages were made of HDPE knotless webbing. For floating the cages sealed HDPE barrels were used.

Cages were stocked with 1000 number each by the community. After culturing for a period of 75 days, an average length of 106.78 was achieved. The fingerlings so obtained (26,800) were released in the reservoir. Seed is being stocked in the cages.

### **Ornamental fish culture in cages for livelihood of fisherwomen**

**Funding Agency:** National Fisheries Development Board (NFDB), Hyderabad

**Project Duration:** - 2010-2011



**Project Personnel:** Kiran Dube Rawat, Neelam Saharan, V. K. Tiwari, Chandra Prakash, Babitha Rani A.M. and K. D. Raju

**Progress:**

A short-term training program on “Ornamental fish culture in cages” was conducted from 24<sup>th</sup> to 28<sup>th</sup> August 2011, under the capacity building of the fisherwomen. The talks and practical demonstration were given to them on the following aspects: Cage installation, stocking and feeding of fishes, maintenance of cages, fabrication of aquarium, identification of fishes, water quality analysis, monitoring of fish health, packing and transportation of fishes.

Sixteen new cages were installed. Growth of previously stocked goldfish and angels was monitored. Cages and fishes are maintained by women. Ornamental fish and aquaria worth Rs. 12,815 has been sold by the group. Over all, the cages were restocked with 10,000 ornamental fishes (8000 Koi carp and goldfish and 2000 angel fish) in 16 cages by the women for growing them to marketable

size. Since the set of cages were placed at one place and most of the women had to travel 15-20 kms every day, which was very difficult due to poor transport facilities, cages were shifted during December 2011 to three places viz. Phulavade, Ambegaon and Dighad which are closer to their residential cluster.

### Validation of geo-physical products over western coastal region

**Funding Agency:** Space Application Centre (SAC), Ahmedabad

**Project Duration:** 2008-2012

**Personnel:** Latha Shenoy, S. K. Chakraborty, Geetanjali Deshmukhe and S. P. Shukla

**Progress:**

Collection and analysis of water samples from selected eight stations as per the work plan was done. Data for estimation of chl a and TSM was collected. Match-up analysis was done for comparison of in-situ data and satellite data.



## Validation of potential fishing zone (PFZ) advisories along the Mumbai coast, Maharashtra State

**Funding Agency:** Indian National Centre for Ocean Information Centre (INCOIS), (Hyderabad)

**Project Duration:** 2009-2012

**Personnel:** Latha Shenoy, S. K. Chakraborty, S.P. Shukla and Ashok Jaiswar

### Progress:

Validation of PFZ advisories issued by INCOIS, Hyderabad, was done through experimental fishing. Collection of feedback data on PFZ advisories was carried out. Water quality parameters were studied. Analysis of the data collected has been done.

**Project Personnel:** B.B.Nayak, Manjusha L and Indrani Karunasagar (College of Fisheries, Mangalore)

### Progress:

Archaea and its subgroups in samples from various stages of wastewater treatment process were detected. In total, 35 of the 43 samples from 4 different sites have been tested and most of them were positive for the presence of archaea and Euryarcheota. Half of them were positive for Crenarcheota and only one was positive for the presence of ammonia oxidizing archaea. One hundred and nine microbial colonies isolated from ammonia oxidizing archaeal medium were capable of growth using ammonium as sole source of carbon. Most of them turned out to be Eubacteria.

## Capture and removal of ammonia from fish processing waste water using Archaea

**Funding Agency:** NFBSFARA

**Project Duration:**

## Mega Projects on “Aquatic Radioecology” In collaboration with BRNS, Mumbai, BARC, Mumbai and NPCIL, Mumbai

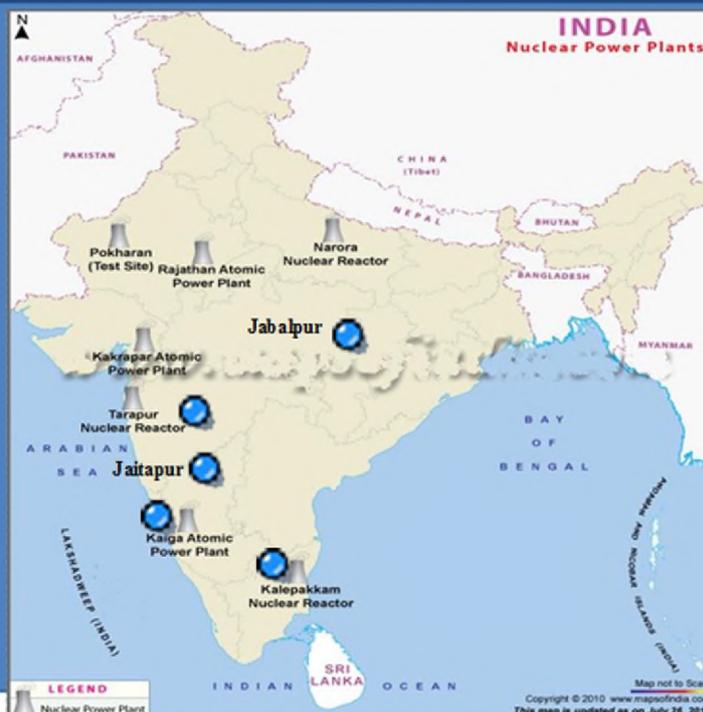
**Funding Agency:** Board of Research in

## NEW PROGRAM ON MAPPING OF RADIONUCLIDES IN MARINE AND FRESHWATER ECOSYSTEM

### NEW INITIATIVES

A mega project on radio-ecological studies in the country in collaboration with BARC & NPCIL

 CIFE's intervention



Nuclear Science/Department of Atomic Energy (GOI)

**Duration:** 2010-2013

**Programme Leader:** W. S. Lakra

**Project Co-ordinator:** A.K.Pal

**Budget:** Rs. 647 lakh

A mission mode mega project constituting four subprojects is aimed to assess the radionuclides in the aquatic environment and how it is being transferred through food chain. This megaproject is conceptualized for mapping radionuclide in the existing and proposed nuclear power plant in and around proposed marine and freshwater eco-system including Tarapur, Kalpakkam (existing) Jaitapur and Jabalpur (proposed). This project is first of its kind in the nuclear power era which has been undertaken by Central Institute of Fisheries Education, Mumbai

**Sub-project: Studies on baseline marine radio-ecology and biodiversity around nuclear power**

**plant site in Jaitapur, Maharashtra.**

**Personnel:** S.K. Chakraborty and A. K. Jaiswar

**Principal Collaborators:** P. M. Ravi, BARC;  
**Co-PC:** B. N. Dilip, ESL, Kaiga

**Budget:** Rs. 68.25 lakh

**Progress:**

After a preliminary survey of coast line around Jaitapur, Sampling sites were selected. GPS co-ordinates of sandy and rocky shores were fixed. co-ordinates were also fixed for offshore sampling stations. Samples of water, sediment and living organisms were taken. Water sample was analyzed for temperature, pH, DO, alkalinity, salinity, chloride. Plankton samples were also analyzed and fish samples were collected and identified.

**Sub-project: Studies on the present status of marine radioecology and biodiversity at Kalpakkam coastal site**

**Personnel:** A. K. Pal, Munil Kumar



**Principal Collaborators:** S. Rajaram, OIC, Kalpakkam & S. Krishnan, ESL, Kalpakkam

**Budget:** Rs. 208.35 lakh

**Progress:**

Sampling points were selected on the south and north side of the Madras Atomic Power Station, MAPS (reference point) Kalpakkam. Seawater samples were collected from different sites and were analyzed for radionuclides such as, Cesium, Strontium, Iodine and Tritium. Biological samples such as planktons, benthos, fish and shellfishes were collected from different sites and identified for making biodiversity studies. Along with the analysis of radionuclides, samples of fishes, mollusc, crustacean, gorgonids and plankton were collected from different sampling sites. Finfishes-41, elasmobranch-2, shrimps-4, crabs/lobster-1, gorgonids-3, gastropods-9 and bivalve-1 were identified.

**Sub-project: Studies on the present status of marine radioecology and biodiversity at Tarapore coastal site**

**Personnel:** S. Dam Roy, Chandra Prakash and Paramita Banerjee Sawant

**Principal Collaborators:** A. Baburajan, OIC, ESL, Tarapore, Co-PC: P. Sudhindran

**Budget:** Rs. 168.5 lakh

**Progress:**

Biological and water samples of the area were collected from the sites and analyzed in the laboratory. The macro-benthos found in the sample was also identified. Subsequently, the project team visited TAPS during March, 2012 and conducted offshore sampling at 1 and 3.5 km distances at 45 degree angle from the discharge points of reactors.

**Sub-project: Baseline riverine radioecology and biodiversity studies around the proposed NPP site in Madhya Pradesh**

**Personnel:** S. Dasgupta, S. P. Shukla  
**Principal Collaborators:** P. M. Ravi, BARC, Co-PC: Manish K. Mishra, SOD, BARC

**Budget:** Rs. 202.35 lakh

**Progress:**

Six locations at 30 km upstream and downstream along the course of Narmada River in respect of Chutaka, the proposed site for NPP, were selected for sample collection. The soil, water, and biological samples were collected, preserved and processed for further analysis. Water samples were analyzed for different physico-chemical parameters. The soil samples were analysed for organic carbon, nitrogen and phosphorus contents. Biological samples *i.e* phytoplankton, zooplankton, benthos, fish and macrophytes were identified for biodiversity studies according to standard literature. Both biological and non-biological samples were preserved for radiochemical analysis.

A total of 60 short-term training programmes on various aspects of fisheries were organized during the year in which 1142 participants attended the programmes.

S No	Title	Venue	Duration	No of participants
1	Ornamental fish culture and breeding	Kolkata centre	30 to 31 May 2011	14
2	Fish culture	Kakinada centre	4 to 10 June 2011	24
3	Fish and prawn culture	Kakinada centre	15 to 24 June 2011	29
4	Freshwater aquaculture	Kolkata centre	21 to 30 June 2011	26
5	Fish breeding and fish seed rearing	Powerkheda centre	11 to 17 July 2011	17
6	Fish breeding and culture of fish seed	Kakinada centre	11 to 19 July 2011	16
7	Breeding and seed rearing of Indian major carps	Kakinada centre	20 to 29 July 2011	4
8	Breeding and seed rearing of Indian major carps	Powerkheda centre	20 to 29 July 2011	4
9	Fish culture	Kakinada centre	26 July to 4 Aug, 2011	29
10	Freshwater aquaculture	Kolkata centre	27 July to 5 Aug 2011	20
11	Carp hatchery management and seed production	Banswara, Rajasthan	31 July to 1 Aug 2011	25
12	Breeding and rearing of magur	Kakinada centre	3 to 7 Aug 2011	12
13	Breeding and seed rearing of magur ( <i>Clarias batrachus</i> )	Powerkheda centre	3 to 10 Aug 2011	12
14	Hygienic handling of fish	Kakinada centre	6 to 8 Aug 2011	9
15	Ornamental fish breeding and culture	Kolkata centre	08 to 12 Aug 2011	25
16	Fish culture	Kakinada centre	16 to 22 Aug 2011	29
17	Ornamental fish breeding and culture	Kolkata centre	16 to 25 Aug 2011	12
18	Brood stock development and management of carps	Kakinada centre	18 to 27 Aug 2011	14
19	Brood stock development and management of carps	Powerkheda centre	18 to 27 Aug 2011	14
20	Ornamental fish breeding and culture	CIFE Mumbai	24 to 28 Aug 2011	22
21	Fish culture	Kakinada centre	24 to 30 Aug 2011	28
22	Freshwater aquaculture	Kolkata centre	30 Aug to 8 Sept 2011	26
23	Fish culture	Kakinada centre	03 to 07 Sept 2011	13
24	Fish culture	Kakinada centre	14 to 23 Sept 2011	36
25	Food fish and ornamental fish breeding and culture	Kolkata centre	15 September 2011	60
26	Vannamei culture	Kakinada centre	15 to 21 Sept 2011	9
27	Carp seed rearing	Banswara, Rajasthan	21 to 23 Sept 2011	20
28	Ornamental fish breeding and culture and post harvest technology	Kakinada centre	12 to 21 Oct 2011	12
29	Ornamental fish breeding and culture and post-harvest technology of fish	Kolkata centre	12 to 21 Oct 2011	12
30	Disease diagnosis control and treatment measures in aquaculture	Kakinada centre	19 to 25 Oct 2011	12

31	Code of conduct of responsible fisheries and sea safety	Kakinada centre	20 to 22 Oct 2011	23
32	Fish and prawn culture	Kakinada centre	10 to 19 Nov 2011	21
33	Raising fingerlings in pens and cages	CIFE, Mumbai	15 to 22 Nov 2011	23
34	Value-added products from low-cost fish	Kakinada centre	21 to 26 Nov 2011	6
35	Fish and prawn culture	Kakinada centre	21 to 30 Nov 2011	19
36	<i>Matsya avam Jhinga palan</i> (Hindi)	Powerkheda centre	21 to 30 Nov 2011	19
37	Fish processing technology and ornamental fish breeding and culture	Kolkata centre	21 Nov to 1 Dec 2011	29
38	Fish processing technology and ornamental fish breeding and culture	Kakinada centre	21 Nov to 1 Dec 2011	29
39	Ornamental fish breeding and culture and post-harvest technology	Kakinada centre	12 to 21 Dec 2011	10
40	Ornamental fish breeding and culture and post-harvest technology	Kolkata centre	12 to 21 Dec 2011	12
41	Carp breeding and ornamental fish breeding and culture	Kakinada centre	12 to 24 Dec 2011	7
42	Ornamental fish breeding and culture and carp breeding	Kolkata centre	12 to 24 Dec 2011	5
43	Training on fish culture	Banswara, Rajasthan	14 Dec 2011	20
44	Fish and prawn culture	Kakinada centre	16 to 25 Dec 2011	29
45	Freshwater fish culture	Kakinada centre	06 to 12 Jan 2012	6
46	Recent advantages in freshwater aquaculture	Kakinada centre	19 to 21 Jan 2012	20
47	Breeding and culture of food and ornamental fish	Kakinada centre	23 Jan to 1 Feb 2012	23
48	Breeding and culture of food and ornamental fish	Kolkata centre	23 Jan to 1 Feb 2012	23
49	Freshwater aquaculture	Kakinada centre	24 Jan to 02 Feb 2012	25
50	Freshwater aquaculture	Kolkata centre	24 Jan to 02 Feb 2012	24
51	Freshwater aquaculture	Kakinada centre	28 to 30 Jan 2012	20
52	Freshwater aquaculture	Kakinada centre	07 to 09 Feb 2012	20
53	Ornamental fish breeding and culture	Kakinada centre	13 to 18 Feb 2012	21
54	Fish nutrition and feed formulation	Kolkata centre	22 to 29 Feb 2012	26
55	Fish nutrition and feed formulation	Kolkata centre	22 to 30 Feb 2012	22
56	<i>Matsya avam Jhinga palan</i> (Hindi)	Powerkheda centre	26 Feb to 01 March 2012	13
57	Common carp breeding and hatchery management followed by one "Kisan Gosthi"	Banswara, Rajasthan	27 to 28 Feb 2012	20
58	Raising fingerlings in cages and pens	CIFE, Mumbai	12 to 17 March 2012	10
59	Water and wastewater treatment and utilization for aquaculture industry	CIFE, Mumbai	13 to 22 March 2012	11
60	Researcher Training Programme on SAS: An overview	CIFE, Mumbai	15 to 20 March 2012	21

## Exhibitions organised

Programme/Workshop	Venue	Period	Participating centers/HQ
Kisan Mela	Krishi Upaj Mandi,	16 to 19 June, 2011	Powerkheda Hoshangabad
Infish Expo 2010	NFDB, Hyderabad	09 to 11 July, 2011	Kakinada
Evolution of India as a Great Nation in 21th Century”	Bhairab Ganguly College Maidan, Belgharia	07 to 11 Sept, 2011	Kolkatta
Jharkhand Matsya Maha Sammelan - 2011	Vidhan Sabha Ground, Ranchi	16 to 17 Sept, 2011	Kolkata
PONFISH 2010	Yanam, Puducherry,	21 to 22 Nov, 2011	Kakinada
23 <sup>rd</sup> Krishi O Shilpa Banijya Mela	Purba, Medinapur West Bengal	09 to 15 Dec, 2011	Kolkata
Recent Advances in Biological Science, Dept. of Zoology, CDST-FIST-UGC-SAP	Univ of Lucknow	29 to 31 Dec, 2011	Lucknow
Versova Koli Sea Food Festival	Mumbai	20 to 22 Jan, 2012	CIFE, Mumbai
Bharat Nirman Abhiyan organized by press information Beuro, Indore	Garoth, Madhya Pradesh	23 to 25 Jan, 2012	Powerkheda
Fish Festival - 2012 Dept. of Fisheries, Govt. of Chattisgarah	Raipur	27 to 29 Jan, 2012	Powerkheda
Vigyan Yagnya, 2012	Somaiyya College, Chembur	27 to 29 Jan, 2012	Mumbai
Agricultural Exhibition, 2012	Ashram KVK, Nimpith Kolkata RKAKVK, Nimpith	02 to 06 Feb, 2012	Kolkata
<i>Matsya Utsav</i>	Lal Parade Ground Bhopal, M.P.	04 to 06 Feb, 2012	Powerkheda
Fish Festival Matsya Mahotsav	MP State Dept. of Fisheries, Bhopal	04 to 06 Feb, 2012	Bhopal
Bharat Nirman Abhiyan	Dist. Alirajpure, M.P.	13 to 15 Feb, 2012	Powerkheda
Eastern Zone Regional Agricultural Fair	CRRI, Cuttack	21 to 25 Feb, 2012	Kolkata
Silver Jubilee Celebrations	CIBA, Chennai	23 to 24 Feb, 2012	Chennai
Pusa Krishi Vigyan Mela Pusa New-Delhi	IARI Campus,	01 to 03 March, 2012	Rohtak
Mini Kisan Mela and Farmers Meet	Village Bainsi, District Rohtak	12 March 2012	Rohtak
National Conference on Aquaculture: Fish for Billion	CIFA, Bhubaneswar	16 to 17 March, 2012	Kolkata

## Headquarters

### National Fish Farmers' Day

National Fish Farmers' Day was celebrated by Central Institute of Fisheries Education, Mumbai, on 10 July, 2011. This day is celebrated as Fish Farmers' day throughout the country in recognition of the outstanding research contribution by Dr. Hiralal Chaudhuri and Prof. K. H. Alikunhi in induced breeding of carps under controlled conditions. The day is intended to create greater awareness and popularize the potential of aquaculture among farmers through on-field demonstrations. A Farmers' Meet was organized under NAIP sub-project entitled "A value chain on fish production in fragile agricultural lands and unutilized aquatic resources in Maharashtra" to create awareness among the farmers of western Maharashtra about the utilization of salt-affected sugarcane fields for aquaculture. The results obtained in the demonstration programmes undertaken under NAIP sub-project were discussed with the farmers. The farmers involved in the NAIP sub-project shared their experiences and explained the benefits and productivity enhancement in

their fields through the project. A booklet on "Fish Culture at a glance" in Marathi language (*Matsya Sanvardhan Ek Drishtikshep*) was distributed during the meet. Two hundred sixty farmers from different parts of Maharashtra participated in the National Fish Farmers' Day and five progressive fish farmers were felicitated on this occasion.

Fish Farmers' day was also celebrated at Karad, Maharashtra and apart from officers from KVK, Banks, DoF. More than 250 farmers took part in the event and they were briefed about the utilization of fallow saline soil for aquaculture and generation of self employment and livelihood.

**Kisan Mela:** CIFE arranged a fisheries exhibition during Kisan mela at Raipur, Chattisgarh, for live demonstration of *M. rosenbergii*, Singhi, Magur and Pangasius cat fish. The stall put up by CIFE was appreciated by Director of Fisheries, Raipur, Chhattisgarh. This Kisan Mela festival was organized by NFDB during 27 to 29 Feb., 2012.



## Transfer of Technology and Demonstration

A technology for production of “Ready-to-eat fish-based extruded product” was transferred to Vijaya Infra Project (Pvt.) Ltd., 15/A, Kaysons Building, Behind Church, Station Road, Vikhroli West, Mumbai- 400079, on exclusive basis for an amount of Rs. 1,30,000 (Rupees One Lakh and Thirty Thousand only) as the technology transfer fee. Accordingly, a Memorandum of Agreement for Sale of Technology was executed between CIFE, Mumbai, and M/s Vijaya Infra Project Pvt Ltd, on 7<sup>th</sup> Feb., 2012 in respect of transfer of technology.

The technology encompassed utilization of fish mince / fish powder / fish oil to produce fish-based extruded snacks; optimized extrusion process conditions derived based on response surface methodology to produce crispy extruded snacks; and incorporation of natural anti-oxidants into the products to protect the omega-3 fatty acids from oxidation.



## Technical Guidance and Fisheries Advisory Services rendered

During the period under report, 95 persons were given fishery advice under Fisheries Advisory Services and the headquarters had 367 visitors. Technical guidance was given to farmers and entrepreneurs on crab culture and milk fish farming



## Visitors

S.No.	Date of Visit	Name of the organization/university/college etc.	Number of Visitors
1	26.09.2011	Rizivi College Bandra	F.Y.B.Sc. 19 students (Zoology)
2	07.10.2011	K.G. Schools, Versova, Mumbai	177 children
3	13.10.2011	Sir Venkateswara Veterinary University, Nellore	B.F.Sc. IInd year 19 students
4	21.10.2011	College of Agricultural Sciences, GKVK Bangalore	46 final year under graduate students B.Sc.
5	21.10.2011	University of Agricultural Sciences, Bangalore	41 B.Sc. (Ag.) students
6	22.10.2011	University of Agricultural Sciences, Bangalore	42 B.S.c (Ag) students
7	24.10.2011	University of Agricultural Sciences, Bangalore	41 B.Sc. (Ag.) students
8	25.10.2011	University of Agricultural Sciences, Bangalore	43 B.Sc. (Ag.) students
9	22.11.2011	Govind Ballab Pant University of Technology, Pantnagar	24 B.F.Sc. students
10	17.12.2011	Little Explorers, Yari Road, Mumbai	30 children (04-06) age groups.
11	21.01.2012	Mithibai College, Mumbai	30 B.Sc.(Zoo) Students
12	21.01.2012	R.K. Talreja College of Art and Science and Commerce, Ullhasnagar, Thane	30 students of second year and post graduate
13	25.01.2012	Assam Agricultural University, Raha	12 students
14	04.02.2012	College of Fisheries, Ratnagari	06 PG students
15	04.02.2012	Royal College, Mira Road	12 second Year B.Sc. (Zoo) students
16	18.02.2012	Kin Kids, Versova, Mumbai	20 nursery children
17	25.02.2012	Annasaheb Vertak College, Vasai	23 students Third Year B.Sc. (Zoo)
18	20.03.2012	PGIABM, Latur	34 students (Agri Business)



## CIFE, Powarkheda Centre

### TV/Radio talk delivered

A team from 'Bhopal Doordarshan' visited this centre on 16<sup>th</sup> June, 2011 to cover the centre's activities and pre-seasonal preparation of fish culture tanks. Dr. Somdutt, PS & OIC delivered a talk on Powarkheda Centre's activities and Dr. R.K.Upadhyay Tech. Officer delivered a talk on pre-seasonal preparation of fish culture tanks. The same were telecast in the month of June, 2012 by 'Bhopal Doordarshan'.

A Doordarshan team from Bhopal recorded a talk with Dr. Somdutt, OIC & PS and Dr. R. K.

Upadhyay, Tech. Officer on fisheries on 05.02.2012 and it was telecast from Bhopal Doordarshan on 20.02.2012.

### Print media

Exhibitions and technical information rendered by CIFE was given a wide coverage in leading local papers *Dainik Bhaskar, Jan Sarangi, Mandsaur Sandesh, Indore Samachar, Malwa Alakankaran, Malwa Today, Dashpur Darshan, Nai Vidha, Dabang Dunia, Chotha Sansar, Patrika, Nai Dunia* etc.

### Visit Coordination

S.No.	Date of Visit	Name of the organization/university/college etc.	Number of Visitors
1	26.04.2011	B.Sc. Students from Netaji Subhash Chandra Bose Mahavidhyalaya, Sarni Distrct-Betul	17
2	27.09.2011	Fish farmers from Jharkhand state	20
3	17.10.2011	B.Sc. students from Ravindranath Tagore College, Itarsi	05
4	22.11.2011	Govt. Girls Home Science college, Hoshangabad	05
5	20.12.2011	B.Sc. Girl students from NMV College, Hoshangabad	04
6	09.01.2012	Fish farmers (SC & ST) from Ujjain (MP)	25
7	10.02.2012	A team of fish farmers from Asstt. Director, Fisheries Dist. Harda (MP)	24
8	24.02.2012	Private entrepreneurs from Seoni Malwa	02
9	25.02.2012	A team of farmers from Agriculture Dept. Babai, Dist. Hoshangabad	08
10	19.03.2012	Students of M. Sc. Students from Narmada Mahavidhyalaya, Hoshangabad	11
<b>Total</b>			<b>116</b>

### Revenue Generated during 2011-12

S. No	Source of Revenue	Amount (Rs)
1.	Fish seed sale(fish fry and fingerling)	2,69,108
2.	Prawn seed sale	64,035
3.	Conducting short-term training (STP) program	23,44,804
4.	Hostel rent	13,450
5.	Book sale	185
6.	Others	5,500
<b>Total</b>		<b>26,87,052</b>

## CIFE Kolkata Centre

### TV programme

TV programmes on Identification of native ornamental fish and scope of need based training programme during 9.12.2012 to 11.12.2011 and another on breeding and culture of native ornamental fish on 29.2.2012 were aired on ETV Bangla 'Annadata'.

### Radio Talks

Dr. B. K. Mahapatra, Principal Scientist & OIC Kolkata Centre, participated as a Resource Person on AIR, Kolkata for "Recommendation in fish culture for fish farmers of West Bengal affected with heavy rain or flood (in Bengali)" which was broadcast on 30.08.11 in "Krishi Kathar Ashar" at 6.40 PM.

### Print media

An article "Hariye jachchhe machher bahu projati, udweg bingani mahale" covering the discussion on Fish Farmers day held at CIFE, Kolkata Centre on 10<sup>th</sup> July, 2011, was published in the Daily Bengali Newspaper *Sanbad Pratidin* on 14<sup>th</sup> July, 2011.

### Transfer of Technology and Demonstration

Technologies related to ornamental fish breeding and culture, fish processing technology and value added products, fish feed formulation and feeding strategies, culture of small indigenous fish species, integrated fish farming, live feed culture techniques, breeding and larval rearing of magur, aquarium construction and decoration, soil and water analysis techniques were demonstrated to local fish farmers and entrepreneurs at the Centre.

### Visit Coordination

S.No.	Date of Visit	Name of the organization/university/college etc.	Number of Visitors
1	24.06.2011 to 28.06.2011	IFTC, Imphal, Manipur	20
2	23.07.2011 to 25.07.2011	Fisheries Training Institute, Chennai	19
3	19.10.2011	G.B.Pant University of Agriculture & Technology, Pantnagar	24
4	19.11.2011 to 20.11.2011	College of Fishery Science, Nellore District, Andhra Pradesh	13
5	29.12.2011 to 30.12.2011	College of Fisheries, Rajendra Agricultural University, Dholi, Muzzafarpur	26
6	01.01.2012 to 03.01.2012	Tamilnadu Veterinary & Animal Sciences University, Fisheries College & Research Institute, Thoothukudi, Tamilnadu	33
7	02.01.2012	College of Agricultural & Post harvest technology (Central Agricultural University), Ranipool, Gangtok, Sikkim	24
8	27.12.2011 to 06.01.2012	College of Fisheries, Central Agricultural University, Lembucherra, Tripura	20
9	04.02.2012	Madras Christian College (Autonomous), Tambaram, Chennai	37
10	07.02.2012	Govt. of Tripura, Agartala	25

## CIFE, Kakinada Centre

### TV/Radio talk delivered

Dr. P. Ramireddy delivered a radio talk on *L. vannamei* culture in India on 2.5.2011 on All India Radio, (AIR), Visakhapatnam.

Dr. J. Krishna Prasad delivered a radio talk on *Marpu chepala pempakamlo melakuvalu* on 17.7.2011 which was broadcast on AIR, Visakhapatnam.

Mr. R.R.S. Patnaik delivered two radio talks on "*Pangasius chapela pempakan*" and other on "*Palle karula Jeevano padhi kai peethala pempakam*" which was broadcast on AIR, Vishakapatnam

Dr. P. Srinivasa Rao, presented a radio talk on "*Vannamei royyalalo vyadhula nivarana koraku teesukovalasina yajamanya padhatulu-* in Telugu language which was

broadcast on AIR, Visakhapatnam.

Mr. V.N Acharyulu delivered two lectures on "*Vannamei Royala Pempakam pu cheruvullo matti mariyu neetu yajamanyam*" and on "*Aquaculture lo neeti pramukyatha*" in Telugu language which were broadcast on AIR, Visakhapatnam.

Dr. S.S.H Razvi delivered a T.V talk on *Pengba* breeding and seed production which was broadcast on *Eeenadu* TV.

### Technical Guidance

Technical Guidance was given to farmers on freshwater carp farm management, circular hatchery operation, carp hatchery operation, farm construction, water management, disease diagnosis and treatment in catla and rohu

### Visit Coordination

S.No.	Date of Visit	Name of the organization/university/college etc.	Number of Visitors
1	19.04. 2011	M.S. Swaminathan Research Foundation sponsored training programme, Kakinada	36
2	29 .04.2011	In-service Officers of SIFT, Dept. of Fisheries, A.P.	13
3	07.07.2011	CIFENET, Chennai	9
4	11.07.2011	In-service Officers of SIFT, Dept. of Fisheries, A.P.	12
5	01.08. 2011	Final year, Agriculture Science & Rural Development Students, Loyola Academy Degree and PG College, Secunderabad	30
6	21.09.2011	CIFENET -Chennai trainees	9
7	21.09.2011.	B.Sc Students from G.B.R.College, Anaparthi,	29
8	29.11.2011	Assam State Fish Farmers (N.I.R.D Hyderabad trainees)	24
9	05.12.2011	M.Sc., Zoology and M.Sc. Biotechnology students from School of Life and Health Sciences, Adikavi Nannaya University, Rajahmundry	28
10	07.12.2011	III yr. B.Sc. students of S.N.V.M. Vidyalaya, Hyderabad	20
11	18.02.2012	III yr. B.Sc. students of P R Govt. College, Kakinada.	60
12	25.02.2012	Gujarat state fishfarmers	35
13	27.02.2012 to 03.03.2012	Assam state fishfarmers	20
14	06.03.2012	M.Sc Students from Acharya Nagarjuna University.	13

## CIFE,Rohtak Centre

### Technical guidance and fisheries advisory services

Scientists and Officer In-charge of the center visited the Aquaculture Research and Training Institute (ARTI) Hissar, Haryana regularly to deliver lectures to the fisheries officers of Haryana and gave necessary inputs on various technologies of the fish and prawn culture and breeding.

### Visit coordination

Date of Visit	Name of the organization/university/college etc.	Number of Visitors
24.04.2011	Farmer from Udham Singh Nagar, U.P	26 farmers
25.05.2011	Students from GADVASU, Ludhiana	10 students
21.06.2011	Govt P. G College, Jind	20 Students
09.06.2011	Farmers from Bhagpat, U.P	22 farmers
09.11.2011	B.SC. III J.VM.G.R.R College, Charki Dadri Haryana	30 students

### Transfer of technology and demonstration

**Name of the Technology:** Commercial shrimp cultivation using inland saline water

**Place of demonstration:** CIFE Rohtak Centre

Live harvesting demonstrations were organized on “Tiger shrimp farming using inland saline water” at the centre. Prof. Yoram, from Israel had graced one of the live harvesting demonstrations. The demonstrations received good response from farmers and state government fisheries officials. Many farmers have shown keen interest for the adoption of tiger shrimp culture in the coming years. The on-site (farmer's fields) demonstrations would be taken up in the next season in collaboration with NABARD.

### Revenue Generation

A total amount of Rs. 3,31,687/- (Rupees Three lakh thirty one thousand six hundred and eighty seven only) was realized as revenue on account of receipts from sale of fish, prawn seed, books, rent from guest house & hostel and misc receipts during 2011-12. The details of this are as follows:

S. No	Source of Revenue	Amount (Rs)
1	Sale of tiger shrimps and fish	Rs 2,58,568/-
2	Sale of prawn seed	Rs 48,800/-
3	Hostel receipts	Rs. 1,900/-
4	Misc	Rs. 22,419/-
	<b>Total</b>	<b>Rs. 3,31,687/-</b>

## Honours and awards



**Dr. W. S. Lakra**, Director/Vice-Chancellor, was honoured with Vividhlaxi Audyogik Samshodhan Vikas Kendra Industrial Research Award (VASVIK) in the category of Agricultural Science & Technology from the Hon'ble Chief Minister of Gujarat for his outstanding contribution in Agricultural Science & Technology.

**Dr. W. S. Lakra**, Director/Vice-Chancellor, CIFE, Mumbai, was honoured with Dr. S. Z. Qasim Medal by Bioved Research Society.

**Dr. S. Dam Roy**, HOD, Aquaculture Division received Dr. Rajendra Prasad award 2010 for his book in Hindi entitled "*North Bay Andaman Munga Chattano Ke Jaiva vividhita*" under the category technical book in Hindi in Agricultural and allied sciences. He received the award during ICAR day, 16 July, 2011.



**Shri Dasari Bhoomaiah**, Technical Officer, PME Cell was honoured as Volunteer-Designer by Aquaculture without Frontiers, USA, for his outstanding contributions to the organization. The appreciation certificate

was given on 6 June, 2011 on the occasion of CIFE's Golden Jubilee function by the Chief Guest Dr. S. Ayyappan, Secretary DARE and DG, ICAR.



**Shri Dasari Bhoomaiah**, Technical Officer, PME Cell, was honoured by "Outstanding Services to ICAR" for designing the logo for The Agriculture Centre, New Delhi. He was felicitated by Dr. S. Ayyappan, Secretary, DARE and DG, ICAR on 15 July, 2011 at New Delhi

**Dr. K.V. Rajendran**, Principal Scientist, was awarded the Fulbright-Nehru Senior Research Scholarship by the United States-India Educational Foundation for the year 2010-11. He was on deputation (15th February to 14th October, 2011) to carry out the research under the Fulbright programme at the Fish Molecular Genetics and Biotechnology Laboratory, Department of Fisheries and Allied Aquacultures and Program of Cell and Molecular Biosciences, Aquatic Genomics Unit, Auburn University, Auburn- USA.

First prize was awarded for the best poster presentation on 'Ready to eat crab sandwich spread in retortable pouches', (authored by Sreelakshmi, K.R., Manjusha, L., Nagalakshmi, K. and Venkateshwarlu, G., presented in the First Indo-US International Conference on Polymers for Packaging Applications (ICPPA-2012) held at Mahatma Gandhi University, Kottayam, Kerala during 31 March -2 to April 2012.

First prize was awarded for the best poster

presentation on 'Comparative evaluation of latency-associated genes of white spot syndrome virus (WSSV) for developing PCR test to detect latent infection' authored by Reshma K. J, Reena Yadav, **M. Makesh, C. S. Purushothaman** and **K. V. Rajendran**. at the 8th Symposium on Diseases in Asian Aquaculture, 21-25 Nov. 2011, Mangalore.

Second prize was awarded for the poster presentation on Investigations for bioactive compounds of sea anemone, *Anthopleura midori* off Mumbai coast (Authored by M.U. Shivappa, G.B. Purushottama, **K. Pani Prasad** and **Nalini Poojary**) during the 9<sup>th</sup> Indian Fisheries Forum held during 19-23 December, 2011 at Chennai.

**Dr. Suresh Babu, P. P.**, Scientist received the best poster award for 'Observations on black gill discoloration in farmed *Litopenaeus vannamei* and its mitigation using a pond sanitizer' during the 9<sup>th</sup> Indian Fisheries Forum held during 19-23 December, 2011 at Chennai.

**Mrs. Vidyashree Bharti**, Senior Scientist received the INRIA best paper award in International conference on Geospatial Technologies and Applications held from 26th to 29th February, 2012 at Indian Institute of Technology Bombay (IITB).

**Dr. Shrinivas Jahageerdar**, Sr. Scientist of Fish genetics and biotechnology division was awarded Fellowship by the Zoological Society of India (ZSI), in recognition of his contribution to research and education in Fish Genetics and Breeding during the 22<sup>nd</sup> All India Congress of Zoology held at University of Lucknow, Lucknow on 29<sup>th</sup> December, 2012.

**Dr. V. K. Tiwari** was honoured with the Prof.



**B. N. Pandey**, Gold Medal by Zoological Society of India .

**Dr. K. Pani Prasad** was awarded the Fellowship from Bioved Fellowship, 2012 during 14<sup>th</sup> Indian Agricultural Scientists and Farmers Congress on 18.2.2012 at Allahabad.

**Dr. K. Pani Prasad** was honoured with Fellow of ZSI from Zoological Society of India, Bodh Gaya at Barrackpore

### Others

**Dr. W. S. Lakra**, Director/Vice-Chancellor has been nominated as Member of High Power Committee of Association of Indian Universities.

**Dr. W.S. Lakra**, Director/Vice-Chancellor has been nominated as a member of the Sectional Committee on Fisheries Sciences, NAAS, New Delhi.

**Dr. W.S. Lakra**, Director/Vice-Chancellor has been nominated as a Member, Maharashtra Coastal Zone management Authority (MCZMA), Government of Maharashtra.

**Dr. M. Krishnan**, Head and Principal Scientist, FEES Division, elected unanimously as Member of Editorial Board of the Journal, Agricultural Economics Research Review, New Delhi

**Dr. A.K. Pal**, Head and Principal Scientist, FNBP Division was nominated as the Member, Expert Committee constituted by Govt. of India for Kudamkulam Nuclear Power Station.

**Dr. K. V. Rajendran**, Principal scientist was nominated as the Member, Expert Committee constituted for selection of projects to be funded by the National Fund for Basic Strategic and Frontier Application Research in Agriculture (NFBSFARA), ICAR.

**Dr. K. V. Rajendran**, Principal scientist, was nominated as a Member, Institute Management Committee, Central Institute of Brackishwater Aquaculture (CIBA), Chennai

**Dr. N. K. Chadha** received appreciation letter from Chairman, ASRB, New Delhi, for coordinating and conducting Asstt. Grade Main Exams at Mumbai Centre.

**Dr. V. K. Tiwari** became Fellow of Zoological Society of India (FZSI).

**Dr. C. S. Chaturvedi** got Fellowship of Academy of Science, Engineering and Technology, Bhopal (M.P) and a Letter of appreciation from DoF, Government of Chhattisgarh.

### **Institutional awards**

Based on the recommendations of the Evaluation Committee constituted for the purpose, the following staff members of the Institute have been adjudged as Awardees in different categories for Annual Awards (2010-11) of the Institute.

<b>Award Name</b>	<b>Award winner</b>
1 Best Scientist	Dr. B. B. Nayak
2 Best Young Faculty	Dr. A. K. Verma
3 Best Teacher	Dr. Chandra Prakash
4 Best Extension Scientist/Worker	Dr. Appidi Krishna Reddy
5 Best Division/Section/Centre/Unit	Fisheries Resources, Harvest and Post Harvest Management Division
6 Best Research Team	Dr. M. P. Singh Kohli & Team
7 Best Technical Staff	Mr. Pulagam Rami Reddy, Kakinada
8 Best Administrative Staff	Ms. Kaberi Biswas, Kolkata
9 Best Skilled Supporting Staff	Mr. Vishnu Lal, Powarkheda
10 Award for Institutional Building	Dr. K. Pani Prasad
11 Award for Hindi Work	Mr. J. Krishna Prasad, Kakinada
12 Award for Publication of the year (Highest Impact Factor)	Dr. K. Dhanapal, Mr. Neeraj Kumar
13 School Children - Highest scorer in Class X	Miss Harshali R. Wadhavkar D/O Mrs. Sandhya Wadhavkar
14 Best M.F.Sc. Thesis	
Aquaculture Division	Ms. Srijila C. K.
Fish Genetic and Biotechnology	Mr. Trivesh Suresh Mayekar
Fisheries Extension Division	Ms. Banti Debnath
Fish Pathology and Microbiology	Mr. Anutosh Paria
Aquatic Environment Management	Ms. Maimekalai D.
Post Harvest Technology	Ms. Jesmi Debbarma

## ICAR Zonal Sports Tournament

CIFE, Mumbai participated in the ICAR Zonal Sports Tournament (2012) held at CAZRI, Jodhpur, Rajasthan during 13 to 17 February, 2012. A team of 60 participants (49 Men + 11 Women) participated in various events.

Events	Person	Place
100 M Race	Mr. Kishore Bose	III
	Deepak Bhokse	IV
200 M Race	Mr. Kishore Bose	II
	Mr. Deepak Bhokase	II
400 m Race	Mr. Ninad Kandalgaonkar	II
800 m Race	Mr. Kantaram Shinde	I
1500 M Race	Mr. Kantaram Shinde	III
Relay Race	Mr. Kishore Bosel	
	Mr. Ninad Kandalgaonkar	
	Mr. Sambaji Shelke	
	Mr. Deepak Bhokase	
High Jump	Mr. Kishore Bose	I
	Mr. Anil Kulsange	III
Chess (M)	Mr. A.N. Mahadik	III
Carrom	Mr. Devendra Raorane	III
Chess (W)	Ms. Revati Dhongde	III
Carrom (W)	Mrs. S.M. Bagwe	I
TT single (W)	Ms. Chandrarekha Kundol	I
	Mrs. F.G. Fernandes	Runner-up
TT Doule (W)	Mrs. F.G. Fernandes	I
	Ms. Chandrarekha Kundol	
Badminton (W)	Ms. Chandrarekha Kundol	Runner-up
	Smt. Vandana Tambe	
Kabaddi		Winner
Best March Past		Trophy



## Linkages

### Government of India Organizations

Integrated Fisheries Project, Kochi  
 Central Institute for Coastal Engineering for Fishery, Bangalore  
 Central Institute of Fisheries Nautical and Engineering Training, Kochi  
 Fishery Survey of India, Mumbai  
 Marine Products Export Development Authority, Kochi  
 National Institute of Nutrition, Hyderabad  
 Zoological Survey of India, Kolkata  
 Indian Institute of Technology, Kharagpur  
 Department of Earth Sciences, Government of India  
 Department of Science and Technology, Government of India  
 Department of Biotechnology, Government of India  
 Indian National Center for Ocean Information Services (INCOIS), Hyderabad  
 Satellite Application Centre, Ahmedabad in the utilization of OCEANSAT II  
 Bhaba Atomic Research Centre, Mumbai  
 Tata Cancer Research Center, Mumbai  
 Indian Institute of Foreign Trade, Kolkata

### ICAR Institutes

Central Marine Fisheries Research Institute, Kochi  
 Central Institute of Brackishwater Aquaculture, Chennai  
 Central Institute of Freshwater Aquaculture, Bhubaneswar  
 Central Inland Fisheries Research Institute, Barrackpore  
 Central Institute of Fisheries Technology, Kochi  
 National Bureau of Fish Genetic

Resources, Lucknow  
 Directorate of Coldwater Fisheries Research, Bhimtal  
 ICAR Research Complex for Goa, Goa  
 ICAR Research Complex for Eastern Region, Patna  
 IARI, New Delhi

### CSIR Institutes

Industrial Toxicology Research Centre, Lucknow  
 Central Drug Research Institute, Lucknow  
 Central Institute of Medicinal and Aromatic Plants, Lucknow  
 Central Food Technological Research Institute, Mysore  
 National Institute of Oceanography, Goa  
 Centre for Cellular and Molecular Biology, Hyderabad  
 National Botanical Research Institute, Lucknow  
 Institute of Genomics and Integrative Biology, Delhi  
 Indian Institute of Integrative Medicine, Jammu

### Universities

Banaras Hindu University, Varanasi  
 Cochin University of Science and Technology, Kochi  
 Annamalai University, Chidambaram  
 Adikavi Nannaya University, Rajahmundry  
 University of Goa, Goa  
 Acharya N.G. Ranga University, Guntur  
 B.S. Konkan Krishi Vidyapeeth, Dapoli  
 Maharana Pratap University of Agriculture and Technology, Udaipur

Jawaharlal Nehru University, New Delhi  
Microtron Centre, Mangalore University,  
Mangalore  
Bhartiyar University, Coimbatore  
West Bengal University of Animal &  
Fishery Sciences, Kolkata  
Mumbai University, Mumbai  
Bidhan Chandra Krishi Viswa Vidyalaya,  
Nadia, West Bengal  
Kalyani University, Kalyani West Bengal  
University of Delhi, Delhi  
HNB Garhwal Central University,  
Garhwal  
Pune University, Pune

### State Governments

Department of Fisheries of the following  
states:

Haryana  
Uttar Pradesh  
Bihar  
Tamil Nadu  
Andhra Pradesh  
Tripura  
Arunachal Pradesh  
Meghalaya  
Nagaland  
Assam  
Manipur  
Mizoram  
Sikkim

### Other Organizations

State Institute of Fisheries Technology,  
Kakinada  
Tata Power Company, Lonavala &  
Mumbai  
Action Aid International, Port Blair  
M. S. Swaminathan Research  
Foundation, Chennai  
The Seafood Exporters Association of  
India, Kolkata

Nezami Rekha Sea Foods Pvt. Ltd.,  
Kolkata  
IFB Agro Industries Ltd., Aquatic &  
Marine Products Div., Kolkata  
Shimpo Exports, Kolkata  
Coreline Exports, Kolkata  
Digha Sea Food Exports, Kolkata  
NSZA Sea Food Pvt. Ltd, Kolkata  
Central Calcutta Science and Culture  
Organization for Youth  
APC Nutrient, Mumbai  
Godrej Agrovvet Pvt. Ltd., Vijayawada.  
IICB, Kolkata

### NGOs:

Interactive Research School in Health  
Affairs, Pune  
SHASHWAT, Manchar, District Pune  
Yusuf Meherally Centre, Kutch, Gujarat  
United Artists' Association, Ganjam,  
Orissa  
FONA , Talegaon , Maharashtra

### Collaborations

Collaborative project with Department of  
Microbiology, College of Fisheries(  
Mangalore), Karnataka Veterinary Animal  
Science and Fisheries University, Bidar.

Memorandum of Understanding with Arnala  
Fishermen cooperative society for  
development of a fish drying demonstration  
facility.

National Centre of Nanomaterials and  
Nanotechnology, University of Mumbai.

Board of Research on Nuclear Sciences,  
(BRNS), Department of Atomic Energy,  
Mumbai.

### Research Publications in Refereed Journals

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- Dabas Anurag, Nagpure N. S., Kumar Ravindra, Kushwaha B., Kumar Pavan, Lakra, W. S., 2012. Assessment of tissue-specific effect of cadmium on antioxidant defense system and lipid peroxidation in freshwater murrel, *Channa punctatus* *Fish Physiology Biochemistry* 38:469-482. DOI10.1007/s10695-011-9527-7.
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Breeding and culture of food and ornamental fish, CIFE, Mumbai, 2012, 96pp.

Breeding and seed rearing of Indian major carps. CIFE, Mumbai, 2011, 88 pp.

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# 10 Participation in Workshops/ Conferences/ Symposia/Meetings/ Farmers Meet etc.

## Participation in Workshops/ Conferences/Symposia/Meetings/ Farmers Meet etc.

Date	Programme	Organized by	Participants
7 - 9 April 2011	TPDM on Radiation biology and environmental radiation studies	BRNS, DAE, Govt. of India	A. K. Pal
14 - 15 May 2011	Workshop on 'Creation and maintenance of aquarium'.	Career College, Bhopal	R. K. Upadhyay
9 June 2011	BOBLME (Bay of Bengal Large Marine Ecosystem)-India TDA Consultation Workshop	National Coordinator, BOBLME Project, Kolkata, WB	B. K. Mahapatra and Subhendu Datta
10 June 2011	One day workshop on ' <i>Maysya Palan Ek Arthunik Gatividhi- Chunotiyay Avam Samadhan</i> '	Academy of Administration, Bhopal.	Somdudd and R. K. Upadhyay
13 June 2011	Annual Review Meeting of INCOIS projects	INCOIS, Hyderabad	Latha Shenoy
14 - 15 June 2011	Meeting cum workshop of Heads of Division and Regional Stations of ICAR institutes.	CIAE Bhopal	Somdudd and Archana Sinha
13 - 16 June 2011	The meeting of the HODs/OIC Regional Centers of all ICAR Institute convened by secretary DARE and DG ICAR for developing the second line of leadership and discussing various administrative, financial Scientific and technical issues.	CIAE, Bhopal	All HOD's and OIC's of centers
17 June 2011	59 <sup>th</sup> meeting of the Institute Management Committee of Central Institute of Fisheries Technology Kochi	CMFRI, Kochi	C.S.Purushothaman
2 July 2011	Recent trends in Finfish and crustacean grow-out practices	Kakdwip Research Centre of CIBA, Kakdwip	B. K. Mahapatra
7 July 2011	Workshop on Marine fisheries in India	World Bank, New Delhi	Latha Shenoy
11 - 12 July 2011	Third meeting of ICAR Working Group on Agricultural Research and Education	NIRJAFT, Kolkata	B. K. Mahapatra
15 - 16 July 2011	Gauruda-NKN Partners Meet at Bangalore	CDAC, Bangalore	S. Jahageerdar
17 July 2011	Meeting of Subgroup on 'Fisheries-Improving Production and Productivity and value Addition' of the working group on Agricultural Research and Education (DARE) for the XII Five Year Plan of the Planning Commission, Govt. of India.	Organised by CIFE at KAB-II, Pusa, New Delhi	S. Jahageerdar
23 July 2011	Third Meeting of the coordination committee for ICAR Deemed Universities	ICAR, New Delhi	C.S.Purushothaman
24 July 2011	Indo Norway committee (DBT) Meeting at Annamalai University	Annamalainagar, Tamil Nadu	C.S.Purushothaman

26 July 2011	Farmer's Meet on "Eco Friendly & Sustainable Aquaculture"	MPEDA, Sub Regional Centre (Aqua), Kolkata	B. K. Mahapatra
27 July 2011.	Scientific Advisory Committee (SAC) meeting of the Ramkrishna Ashram Krishi Vigyan Kendra (KVK),	Krishi Vigyan Kendra, Nimpith	B. K. Mahapatra
7 - 10 Aug 2011	International Conference on Mangrove Area Management	M. S. Swaminathan Research Foundation, Chennai	Geetanjali Deshmukhe
8 - 10 Aug 2011	Workshop on Gender Perspective	Directorate of Women Bhubaneswar	Neelam Saharan
12 -14 Aug 2011	Second Deans' Consultative Meeting	T Sardarkrushinagar Daantiwada Agriculture Universities, Sardarkrushinagar	C.S. Purushothaman
10 - 15 Aug 2011	9th International Symposium on Reproductive Physiology of Fish	Thrissur, Kerala	S. Dasgupta
18 Aug 2011	XII plan working committee meeting	Chennai	M. Krishnan
18 - 20 Aug 2011	Review and Monitoring meeting of the NFDB funded project	CIFE, Mumbai and Govt. of Bihar, Patna	B. K. Mahapatra
18 - 20 Aug 2011	2nd Deans' committee meeting	Sardar Patel Agri. Univ., Dantiwada, Gujarat -	A.K. Jaiswar
23 Aug 2011	Meeting on biodiversity conservation plan for Jaitapur Nuclear Plant at Bombay Natural History Society, Mumbai	DAE, Govt. of India	A. K. Pal
25 - 27 Aug 2011	Work shop on Financial Econometric Modeling	Christ University, Bangalore	Swadesh Prakash
28 Aug 2011	One day Seminar on "Climate Change and Fisheries in Andhra Pradesh" Conducted by Integrated Coastal Zone Management Kakinada	Kakinada	S.S.H Razvi, P. P. Suresh Babu and P. Rami Reddy
7 - 9 Sep 2011	Three days training programme on "L. vannamei culture"	SIFT, Kakinada	S.S.H Razvi and P. Rami Reddy
18 - 20 Sep 2011	Stake holder meeting for XII five year plan	CRIDA, Hyderabad	A. K. Pal
17 Oct 2011	Meeting on biodiversity conservation plan for Jaitapur	Nuclear Plant at Bombay Natural History Society, Mumbai	A. K. Pal
17 - 19 Oct 2011	Meeting on ICAR water platform concept note presentation	NBFGR, Lucknow	A. K. Pal
8 Nov 2011	Interaction meeting between ICAR scientists, Hon'ble Agriculture Minister, Govt. of India and Hon'ble Secretary DARE & D. G, ICAR	ICAR, New Delhi	A. K. Pal and M. Krishnan
22 & 23 Nov 2011	ICAR - outreach programme on fish feed	CIFA, Bhubaneswar, Odisha	N. P. Sahu
28 Nov 2011	BOBLME (Bay of Bengal Large Marine Ecosystem) - India 2 <sup>nd</sup> National level meeting on Experts	National Coordinator, BOBLME Project,	B. K. Mahapatra

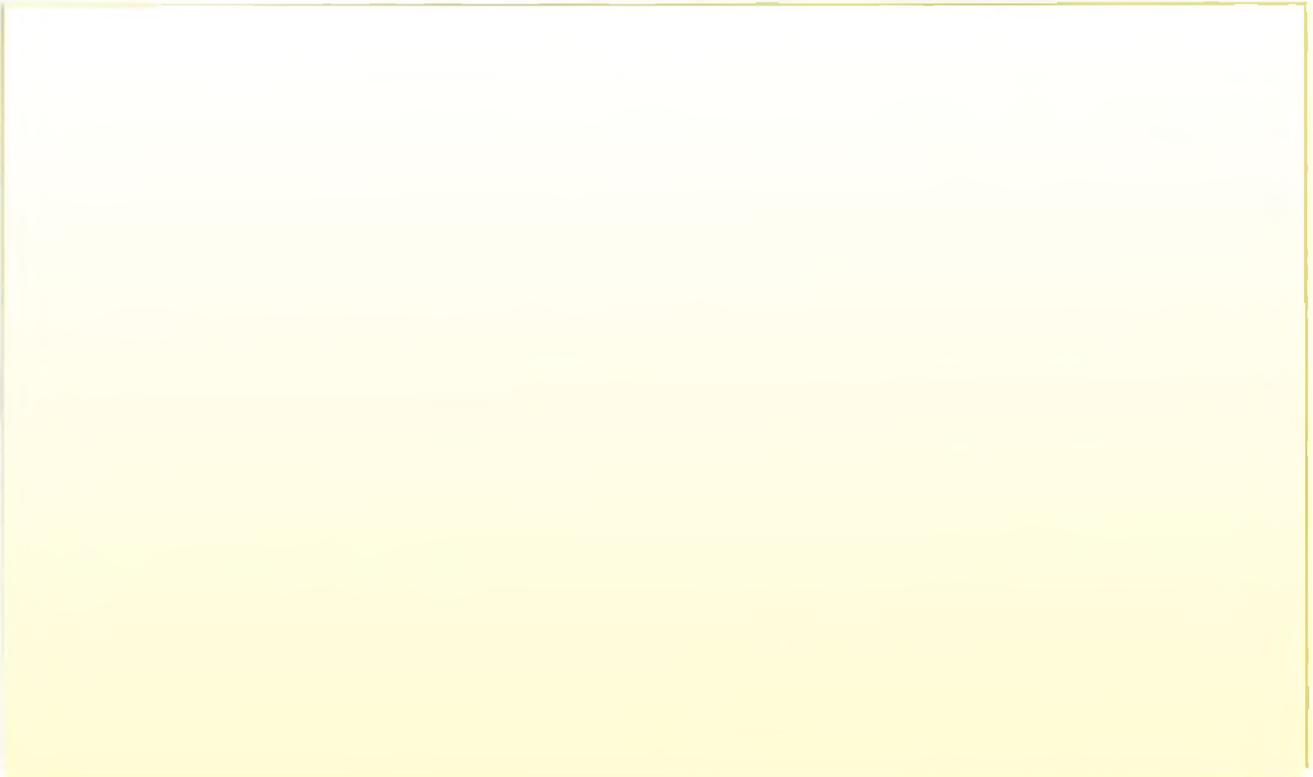
	and Stakeholders	Sundarban, WB	
7 Nov 2011	Expert committee meeting on nuclear power as a member of expert group constituted by Govt. of India	DAE, Govt. of India	A. K. Pal
11 Nov 2011	Stakeholder meeting for preparation of XII plan for coastal areas	CSSRI, RRS, Canning town, B. K. Mahapatra W.B.	
9 - 12 Nov 2011	The international conference on innovative Approaches for Agriculture Knowledge Management: Global Extension Experience	National Agriculture Science Center Complex, Dev Prakash Shastri Marg, New Delhi	S.N. Ojha
16 Nov 2011	ICAR Genomics Platform Consultation Meeting of Experts and Stakeholders	NBPGR New Delhi	R.S. Rana
18 Nov 2011	Expert committee meeting on nuclear power as a member of expert group constituted by Govt. of India	DAE, Govt. of India	A. K. Pal
24 Nov 2011	Meeting of the central Marine Fisheries Research Institute Management Committee, Kochi	CMFRI, Kochi	C.S. Purushothaman
26 Nov 2011	Indo-Norway (DBT) Committee meeting	College of Fisheries, Mangalore	C.S. Purushothaman
28 - 30 Nov 2011	Meeting on Evaluating the Impact of Foreign Training under NAIP	NAIP (ICAR)	Aparna Chaudhari Rupam Sharma Arpita Sharma N.P. Sahu
1 Dec 2011	Meeting on biodiversity conservation plan for Jaitapur Nuclear Plant at BNHS, Mumbai	DAE, Govt. of India	A. K. Pal
19 - 21 Dec 2011	International Conference on Advances in Ecological Research	Maharaja Ganga Singh All Aquaculture Staff University; Bikaner, Rajasthan	
19 - 23 Dec 2011	9th Indian Fisheries Forum	CMFRI, Chennai.	W.S. Lakra, M. Krishnan, A.K. Pal, P.K. Pandey, Rupam Sharma, Das Gupta, Subodh Gupta, A.K. Jaiswar, Nalini Ranjan, Swadesh Prakash, Parmita Banarjee, Rama Sharma, Suresh Babu, Kundan Kumar, Nalini Poojary, Naglakshmi P. Rami Reddy, J. Krishna Prasad, Asha T. Landge
28 Dec 2011	6 <sup>th</sup> Expo AquaTech 2011	Bhimavaram	S.S.H Razvi, Suresh Babu, P. P., P. Rami Reddy, J. Krishna Prasad and R.R.S. Patnaik

28 Dec 2011

Stake holder meeting on ornamental fisheries

NFDB, Hyderabad  
& CIFE, Mumbai

K. K. Jain



## Training programmes/summer schools/winter schools attended

Period	Programme	Organized by	Name of participants
21 April - 04 May 2011	NAIP sponsored National Training Programme on “Molecular markers for genetic diversity assessment and tools for genetic resources conservation”	NBFGR Lucknow	R.S.Rana
23 April - 6 May 2011	National Training on Nanotechnology: Concepts and Applications in Basic and Strategic Research for Livestock Improvements	NDRI, Karnal	Rupam Sharma
23 April - 6 May 2011	National Training programme on” Nanotechnology-concepts and applications in basic and strategic research in livestock improvement”	NDRI, Karnal	Subodh Gupta
2-07 May 2011	Training program on “Holistic Foundations for Assessment and Regulation of Genetic Engineering and Genetically Modified Organisms”	Centre for Environment Education (CEE), Hyderabad	Gireesh Babu P.
26-28 May 2011	National Workshop on Changing the Paradigm: Valuing life	TISS Mumbai	Sheela Immanuel
20-25 June 2011	Data Analysis of Natural Resource Management Research using SAS	IASRI, New Delhi	Geetanjali Deshmukhe
8-10 July 2011	Research Methodology and Predictive Analytics (Statistics)	Jawaharlal Nehru Technological University, Hyderabad	Rama Sharma
18-22 July 2011	Sustainable Agricultural Marketing Management	IIM Lucknow	Swadesh Prakash
22-23 July 2011	Administrative and Accounts matter	National Institute of Research on Jute & Allied Fibre Technology, Kolkata	C.N. Sahani, P.K. De and R.M. Singh
1-12 Aug 2011	Data Mining & GIS for decision support in Agriculture	NAARM Hyderabad	Vinod Kumar Yadav
15 Sep- 5 Oct 2011	ICAR sponsored summer school on Advances in Aquaculture Nutrition and Feed Processing Technology	CIBA, Chennai	Muralidhar. P. Ande
12-17 Oct 2011	SAS Multivariate data reduction and analysis	CIFE, Mumbai	P. Sardar
12-17 Oct 2011	Research’s training programme on “SAS for Multivariate Analysis and Data Reduction”	CIFE, Mumbai	Suresh Babu, P.P. Nagalakshmi K Manjusha L. A. Vennila Vidyashree Bharti
12- 22 Oct 2011	Training on “Computational tools for Genome Resource data analysis in fisheries domain”	NBFGR, Lucknow	A. Pavan Kumar

31 Oct - 11 Nov 2011	Science for Rural Societies	LBSNAA, Missouri	Swadesh Prakash
1-21 Nov 2011	Management program on leadership development (a pre-RMP program)	NAARM, Hyderabad	K. K. Jain
12-16 Dec	DST-NIAS Training on Paradigm Shift in Science and Technology	National Institute for Advanced studies, Bangalore	C.S. Purushothaman
16-29 Nov 2011	Nanotechnology and its applications in agriculture	CIRCOT, Mumbai	Nagalakshmi K
10 -30 Jan 2012	CAS training on “Diagnostics in Fish Health Management”	CIFE Mumbai	Paramita B.Sawant and Kundan Kumar
17-21 Jan 2012	JIFSAN training programm on “Train-the trainers Good Aquaculture Practices”	Coastal Aquaculture Authority, Chennai	Suresh Babu, P. P. J. Krishna Prasad
02-07 Feb 2012	Management Development programme in agricultural research management	NAARM, Hyderabad	A. K. Pal
05-26 Feb 2012	The Application of ocean colour remote sensing in Primary Productivity and Ecosystem Modeling”	INCOIS, Hyderabad NIO/ Andhra University, Visakhapatnam	
8-28 Feb 2012	21 days CAFT Training programme on “Development of Brood and Gene Banks For Aquaculture Production and Genetic Conservation	CIFE Mumbai	Suresh Babu, P. P. P. Rami Reddy J. Krishna Prasad Gireesh Babu P., A. Pavan Kumar
13-22 March 2012	STP titled 'Water and Wastewater treatment and utilization for aquaculture industry'	CIFE, Mumbai	Hasan Javed
15-20 March 2012	Researcher Training Programme on “ SAS:An overview”	CIFE Mumbai	R.S.Rana
18-22 July 2012	Training program on Agribusiness Sustainability	IIM, Lucknow	M.Krishnan
01-03 Aug 2012	Training On “Creativity and Innovations	IIM Lucknow	S.N.Ojha

## Lectures delivered by the faculty at other Institutes

Date	Name of lectures	Venue	Delivered by
22 Sep 2011	Genomics Data Analysis Using 'SAS Genetics'	IASRI, New Delhi	S. Jahageerdar
23 Sep 2011	"Nutraceutical use in Aquaculture" and "Electron Beam Radiation: a noble method for reducing anti-nutritional factors from plant feed ingredients"	CIBA, Chennai	N. P. Sahu
2 - 4 Nov 2011	Climate Impacts in Fish: Prediction from Physiological Responses in Simulation Models of Micro-environment	SAPI, India	A. K. Pal
11 Nov 2011	Distinguishing fresh fish from spoiled ones by physical examination, procedures involved in fin fish & shell fish processing, icing methods	District Library, Howrah	G. H. Pailan
21 Nov 2011	Pathogen recognition receptors (PRRs) in teleost fish: An overview'	8th Symposium on Diseases in Asian Aquaculture, Mangalore	K.V.Rajendran
13 - 14 Dec 2011	"Amelioration of Antinutritional Factors " and "Feed Additives for Enhancing Nutrient Utilization in Fish"	CIBA, Chennai	N. P. Sahu
24 - 28 Dec 2011	Hypoxia tolerance in carps - an insight into mechanism	Visva Bharati University, Santiniketan, W.B	S. Dasgupta
16 Jan 2012	'Pond management'	Career College, Bhopal	R. K. Upadhyay
4 - 6 Feb 2012	Fish Feed Formulation	Dept. of Fisheries, M.P	K. K. Jain
07 Feb 2012	Effect of climate change in fisheries and its strategies for mitigation	State Agricultural Management & Extension Training Institute (SAMETI), W.B., Ramakrishna Mission Ashram	B. K. Mahapatra
17 Feb 2012	Genomics Data Analysis Using SAS 'SAS Genetics'	Dept. of Ag. Stats and Appl. Maths, UAS, Bangalore	S. Jahageerdar
22 - 24 Feb 2012	Role of quality, Safety and technology in aquaculture for food security	VIV/ILDEX, India	A. K. Pal
23 Feb 2012	Futuristic Research Needs in Fish Nutrition: Second look to Feed Formulation"	CLEFMA, India	A. K. Pal
16 March 2012	Vaccination in fish - Frontier Lectures in Recent Trends in Zoology Immunodiagnosics in fish health management - Frontier Lectures in Recent Trends in Zoology	Dharwad University	K. Pani Prasad
17 and 18 Mar 2012	Aquaculture for Food Security: Challenges ahead	Raja Narendralal Khan Women's College, West Bengal	A. K. Pal

# Workshops/ Conferences/Symposia/ Meetings etc. organized

## Workshops/ Conferences/Symposia/Meetings etc. organized

Date	Programme	Venue
30 April 2011	Mini symposium on Farmers' as Stakeholders in Commercial Aquaculture	CIFE, Mumbai
19 May 2011	Mini symposium on Recent Advances in Indian Aquaculture	CIFE, Mumbai
21 May 2011	Mini symposium on Genetics in Aquaculture and Fisheries Management	CIFE, Mumbai
28 May 2011	Mini symposium on Aquatic Biodiversity	CIFE, Mumbai
31 May 2011	Mini symposium on Recent Research in Fish Nutrition and Physiology	CIFE, Mumbai
02 June 2011	Mini symposium on Aquatic Environment and Health Management: Status and Challenges	CIFE, Mumbai
4-6 June 2011	Interactive 'Workshop for Farmers, Fishermen and Entrepreneurs' and other Programme held on the occasion of CIFE's Golden Jubilee celebrations	CIFE, Mumbai
05 June 2011	Fishermen -Farmers first - interaction meet	CIFE, Mumbai
30 June 2011	One Day Workshop on Networking of Fisheries Cooperatives and Insurance organized by National Federation of Fishermen's Cooperative Limited (FISHCOPFED), New Delhi in Collaboration With New India Assurance and CIFE	CIFE, Kolkata
30 July 2011	Workshop on Higher Fisheries Education & Human Resource Planning organized by CIFE	CIFE, Rohtak
22 October 2011	One day hands on training workshop on Project Evaluation Techniques	CIFE, Mumbai
25 October 2011	One Day Workshop on Networking of Fisheries Cooperatives and Insurance organized by National Federation of Fishermen's Cooperative Limited (FISHCOPFED), New Delhi in Collaboration With New India Assurance and CIFE	CIFE, Kolkata
27 December 2011	Seminar on "Awareness on <i>L. vannamei</i> and <i>P. monodon</i> Culture" Organized by Lions club Tallarevu and CIFE	CIFE Kakinada
28 December 2011	Launching cum awareness workshop of NFDB funded project of CIFE at Talegaon (Pune)	Talegaon, Pune
14 January 2012	National Consultation on Prioritization of Academics, Plan of CIFE 2012-2017	CIFE Mumbai
14 January 2012	Stakeholders' Meet on Ornamental Fisheries jointly organized by CIFE & NFDB	CIFE, Mumbai
1-2 February 2012	National Workshop on Creation of awareness of CCRF and capacity building for effective implementation in India	CIFE, Mumbai
28 February 2012	ICAR- CIFE-Industry meet	CIFE Mumbai

## Meetings Conducted

Date	Programme	Venue
08 April 2011	Academic Council Meeting	CIFE, Mumbai
15 April 2011	Program monitoring committee (PMC) meeting on coordinated research project entitled Aquatic/ marine radioecology	CIFE, Mumbai
10-11 June 2011	Planning Commission Sub Group Meeting on Policy and HRD & Extension	CIFE, Mumbai
19-20 August 2011	Meeting of DBT Taskforce on 'Aquaculture and Marine Biotechnology' meeting at CIFE	CIFE, Mumbai
08-09 October 2011	National Dialogue on Nanotechnology	CIFE, Mumbai
14 <sup>th</sup> January 2012	The National Consultation Meeting regarding finalization of XII Plan proposals.	CIFE, Mumbai
23 January 2012	Meeting of the Sansadiya Rajbhasha Samiti	CIFE, Mumbai
13 October 2012	Program monitoring committee (PMC) meeting on coordinated research project entitled Aquatic/ marine radioecology	CIFE, Mumbai
9 November 2012	A bipartite meeting between CIFE and WBUA&FS	CIFE, Kolkata
21 November 2012	Half-yearly Institute Research Council Meeting of the institute	CIFE, Mumbai
09 December 2012	XIX Extension council meeting	CIFE, Mumbai
24-25 March 2012	Annual Institute Research Council Meeting	CIFE, Mumbai

### Centre of Advance Faculty Training program /Summer/ winter schools etc organized

January 10-30, 2012

Centre of Advance Faculty Training program on “Diagnostics in Fish Health Management”

February 8-28, 2012

Centre of Advance Faculty Training program on “Development of Brood and Gene Banks for Aquaculture Production and Conservation”.

## List of Distinguished visitors at CIFE, Mumbai &amp; its Centers

Date of Visit	Visitor	Name of Position/Address
23 <sup>rd</sup> April, 2011	Shri Nurzamal Sarkar	Hon'ble Minister, Fisheries Govt. of Assam
04 <sup>th</sup> May, 2011	William Sander Pijl	Zeast, The Netherlands University, Amsterdam, Netherlands
12 <sup>th</sup> May, 2011 University	Prof. H.R. Singh	Former Vice-Chancellor, Allahabad
21 <sup>st</sup> May, 2011	Prof. T.P. Singh	DBT Distinguished Fellow, All India Institute of Medical Sciences, New Delhi
06 <sup>th</sup> June, 2011	Dr. S. Ayyappan	Hon'ble Secretary, DARE & DG, ICAR, New Delhi
10 <sup>th</sup> July, 2011	Dr. Samir Baneerjee	Hiralal Choudhuri Professor, Calcutta University, Kolkata
10 <sup>th</sup> July, 2011	Dr Ajoy Kumar Ghosh	Former Director, CIFRI, Barrackpore
10 <sup>th</sup> July, 2011	Dr. Subhankar Sengupta	Regional Director, Forest Survey of India
30 <sup>th</sup> August, 2011	Prof. N. C. Dutta	Former Head, Department of Zoology, Calcutta University
30 <sup>th</sup> August, 2011	Prof. Nihar Chatterjee	Former Head, Department of Aquaculture, Faculty of Fishery Sciences, WBUA&FS, Kolkata
09 <sup>th</sup> September, 2011	Prof. Yoram	Professor, Israel
09 <sup>th</sup> November, 2011	Dr C. S. Chakrabarti	Vice-chancellor, W.B. University of Animal Husbandry & Fisheries
22 <sup>nd</sup> November, 2011	Dr. P. Das	Ex-Director, NBFGR, Lucknow
02 <sup>nd</sup> December, 2011	Dr.Charan Das Mahant	Hon'ble Minister of State for Agriculture & Food Processing Industries, Govt. of India
14 <sup>th</sup> December, 2011	Prof.M.J. Modayil	Hon'ble Member, ASRB, New Delhi
30 <sup>th</sup> December, 2011	Dr. Madhumita Mukherjee	Executive Director (Tech.), <i>NFDB</i> , Hyderabad
30 <sup>th</sup> December, 2011	Dr. P. Das	Former Director, NBFGR, Lucknow
06 <sup>th</sup> January, 2012	Dr.P.G. Chengappa	Former VC, University of Agricultural Sciences, Bengaluru and National Professor (ICAR)
11 <sup>th</sup> January, 2012	Prof. Amallesh Choudhury	Secretary, S.D. Marine Biological Research Institute, Sagar Island, W.B.
11 <sup>th</sup> January, 2012	Mr. Taj Mahamad	President, The Seafood Exporter Association of India West Bengal Region
11 <sup>th</sup> January, 2012	Dr. Asha C. P.	Dy. Director, MPEDA
08 <sup>th</sup> February, 2012	Dr. M.V. Gupta	World Food Prize Laureate and

		Ex ADG, World Fish Centre, Penang, Malaysia
11 <sup>th</sup> February, 2012	Dr. R.S. Paroda	Chairman, HFC, President, TAAS and Former Secretary, DARE & DG, ICAR
11 <sup>th</sup> February, 2012	Dr. A.K. Srivastava	Director, NDRI, Karnal
11 <sup>th</sup> February, 2012	Dr. D.K. Sharma	Director, CSSRI, Karnal
11 <sup>th</sup> February, 2012	Dr. M. P. Yadav	Former Director, IVRI, Izatnager
11 <sup>th</sup> February, 2012	Dr. K.K. Vass	Former Director, CIFRI and Member Working Group on Fisheries, HKA
11 <sup>th</sup> February, 2012	Dr. S.D. Singh	ADG(Inland Fisheries), KAB- II, Pusa, New Delhi
11 <sup>th</sup> February, 2012	Mr. S.N. Sharma	Dy.General Manager, Gramin Vikas Bank
11 <sup>th</sup> February, 2012	Dr. Vineetha Shukla	H. O. D, Dept of Zoology, M. D. U, Rohtak
11 <sup>th</sup> February, 2012	Dr. Thirunavukarasu	Principal Scientist, CIBA
11 <sup>th</sup> February, 2012	Dr. Asha Dhawan	Dean, College of Fisheries, Ludhiana
11 <sup>th</sup> February, 2012	Dr. Sangwan	Joint Director, DoF, Haryana
21 <sup>st</sup> February 2012	Mr. Naoki Yamaguchi Mr. Takaaki Ohara	Scientific Officers, Kaneka Corporation, Japan
22 <sup>nd</sup> February, 2012	Prof. B. B. Jana	International Ecological Centre for Ecological Engineering, Dept. of Zoology, Kalyani University
09 <sup>th</sup> April, 2012	Dr.M.S. Swaminathan	Hon'ble Member of Parliament and Chairman, M.S. Swaminathan Research Foundation
09 <sup>th</sup> April, 2012	Dr. Anil Kakodkar	Chairman, Rajiv Gandhi Science and Technology Commission and Former Chairman Atomic Energy Commission, Govt. of India
30 <sup>th</sup> June, 2011 and 25 <sup>th</sup> October, 2011	Dr. D. Chaudhury	DDG (Fy. Admn. & Statistics) Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, Govt. of India
10 <sup>th</sup> July, 2011 and 29 <sup>th</sup> February, 2012	Mr. Bharat Chandra Saha	Director, Dept. of Fisheries, Govt. of W.B. Kolkata

### Golden Jubilee Celebrations



The Golden Jubilee function of CIFE was celebrated on 6th June, 2011. Dr. W. S. Lakra, Director/Vice-Chancellor, while welcoming the guests, recalled the contributions of all previous directors and staff members in shaping the institute to its present status. Dr. S. Ayyappan, Secretary, Department of Agricultural Research and Education Government of

India and Director General, ICAR, while rededicating the Central Institute of Fisheries Education, Mumbai, on the completion of 50 years of its existence, emphasised on the journey from a simple beginning as a training Institute in 1961 to a vibrant, premier national research and educational institute in fisheries sector in the country. He emphasised upon the great advances made by the Institute not only in the area of education, but also in fisheries research and extension, particularly in bringing about aquaculture revolution in Andhra Pradesh, shrimp farming in inland saline waters and reclamation of degraded land in Maharashtra through aquaculture.

### The second meeting of the Planning Commission Sub-Group



The second meeting of the Planning Commission Sub-Group on 'Improving Production and Productivity and Value Addition in Fisheries' of the 'Working - Group on Agricultural Research and Education for XII Plan' was held at the Central Institute of Fisheries Education, Mumbai, on 24th September, 2011. The meeting was chaired by Dr. W.S. Lakra, Director/Vice-Chancellor, CIFE, Mumbai. The meeting was attended by World Food Laureate, Dr. M.V. Gupta, Dr. K.K. Vass, Ex-Director, CIFRI,

Barrackpore, Dr. N. Sarangi, Ex-Director, CIFA, Bhubaneswar and several other experts in the field of aquaculture and fisheries. The meeting was aimed to further consolidate and prioritize the research activities and strategies to enhance the production and productivity of the sector.

## Expert consultation cum farmers meet on sustainable development of perspectives for inland saline aquaculture in Haryana

CIFE has organized an Expert consultation-cum-farmers meet on “Sustainable development of perspectives for inland saline aquaculture in Haryana” at CIFE Rohtak Centre on 11 Feb., 2012 under the chairmanship of Dr. W.S. Lakra, Director, CIFE. Dr. R.S. Paroda, Chairman, HFC, President, TAAS and Former Secretary, DARE & DG, ICAR was the Chief Guest of the function. Several farmers from

across Haryana and scientists from CIFE (in all about 150 participants) gathered at the CIFE Rohtak Centre. Chief Guest unveiled stone and declared open the newly established Catfish Research Unit at the CIFE Rohtak Centre in the presence of Director, CIFE and other dignitaries and farmers. Dr. R. S. Paroda released the fingerlings of *Pangasius sutchi* and Singhi, *Heteropneustes fossilis* in the newly constructed “Catfish Research Unit”. Scientists and several progressive farmers from Haryana participated in an informal discussion.



## Online system for NET/ ARS - Prelim Examination inaugurated

For developing, commissioning, operating and managing an online system for NET / ARS - Prelim Examination of ASRB, ICAR, online facilities were inaugurated on 14<sup>th</sup> December 2011 by Prof. M. J. Modayil, Hon'ble member ASRB, New Delhi. There will be three halls with capacity of 120 candidates. This will be one of the 23 centres in India for the purpose of online examination of NET / ARS - Prelim Examination of ASRB. .

## Infrastructure Development

The infrastructure development of the institute is being carried out at fast pace. The following infrastructure was developed in this financial year.

1. Main academic building (3<sup>rd</sup> and 4<sup>th</sup> Floor)
2. Boys' Hostel (Stilt+4 Floors),
3. International Guest House (Stilt +4Floors),
4. Housing Type-V: 12 Nos. (Stilt + 4 Floors) and
5. Directors' Residence



## Science club activity

The Science club aims to organize scientific lectures, debates and discussion on emerging and popular thematic/research areas. This initiative was taken on the behest of Director General, ICAR. The Science Club since January 2011 has been organised various lectures.

During 2011-2012 the following lectures were organised:

Sr. No.	Date	Topic	Delivered By
1.	02.04.2011	Deteriorating Inland Aquatic Environment: River Godavari in Maharashtra	Dr. Purushothaman (Head, AEHM Division)
2.	30.04.2011	Mangrove Biodiversity	Dr. Dam Roy (Head, Aquaculture Division)
3.	30.05.2011	Biotechnologies being developed at CIFE and their commercial potential	Dr. Aparna Chaudhari (Senior Scientist, FGB Division)
4.	27.07.2011	Socio-Economics of seaweed farming In India	Dr. Krishnan (Head, FEES Division)
5.	13.09.2011	Nanotechnology: A new frontier in smart delivery systems	Dr. Venkateshwarlu (Principal Scientist, FRHPHM Division)
6.	22.10.2011	Commercially important molecules from microbes	Dr. Zarine Bathena (Associate Professor, Microbiology, Bhavans College, Mumbai University)
7.	08.11.2011	Pathogen recognition receptors in channel catfish	Dr. K.V. Rajendran (Principal Scientist, AEHM Division)
8.	29.12.2011	4 <sup>th</sup> International Barcode of Life Conference, Australia	Dr. W.S. Lakra (Director & VC, CIFE)
9.	29.12.2011	FAO consultancy program on fish processing in Iran	Dr. B.B. Nayak (Principal Scientist, FRHPHM)
10.	30.01.2012	mKrishi Fisheries Services	DR. V.V. Singh (Principal Scientist, CMFRI Centre, Mumbai)
11.	16.03.2012	Convergent extension education governance model for India	Dr. S.N. Ojha (Principal Scientist, FEES Division)

**Details of Present Staff Members****Director and Vice-Chancellor**

Dr W.S. Lakra

**Joint Director**

Dr. R.S. Biradar

**Head of Division**

Dr. C.S. Purushothaman

Dr. A.K. Pal

Dr. Gopalkrishna

Dr. S.K. Chakraborty

Dr. Dam Roy

Dr. M. Krishnan

**Principal Scientist**

Dr. M.P. Singh Kohli

Dr. K.K. Jain

Dr.(Mrs.) Neelam Saharan

Dr.(Mrs.) Kiran Dube Rawat

Dr. S.N. Ojha

Dr. K.V. Rajendran

Dr. G. Venkateshwarlu

Dr. N.K. Chadha

Dr. Sheela Immanuel

Dr. Nalini Ranjan Kumar

Dr. B.B. Nayak

Dr. P.P. Srivastava

**Sr. Scientist**

Dr. Latha Shenoy

Dr. Geetanjali Deshmukhe

Dr. Aparna Choudhary

Dr. P.K. Pandey

Dr. N.P. Sahu

Dr. V.K. Tiwari

Dr. S. Jahageerda

Dr. Arpita Sharma

Dr. K. Pani Prasad

Dr. R.P. Raman

Dr. Parimal Sardar

Dr. Ashok Kumar Jaiswar

Dr. Subodh Gupta

Dr. Chandra Prakash

Dr. Rupam Sharma

Dr. Gayatri Tripathi

Dr. Satya Prakash Shukla

Dr. Swadesh Prakash

Dr. Makesh M.

Dr. Zeba Jaffer Abidi

Dr. Subrata Dasgupta

Dr. Asha T. Landge

Dr. A. Vennila

Dr. C.S. Chaturvedi

Dr. Sanath Kumar H.

Dr. Megha Kadam Bedekar

Dr. Rama Sharma

**Scientist (Sr.Scale)**

Dr. Suryakant Patil

Dr. S.B. Jadhao

Dr. P.S. Ananthan

Dr. Ajit Kumar Verma

**Scientist**

Mrs. Paramita Banerjee Sawant

Mrs. Vidyashree Bharati

Dr. Suresh Babu P.P.

Dr. Babitha Rani A.M.

Mr. Annam Pawan Kumar

Mr. Gireesh Babu Pathakota

Mr. Kundan Kumar

Dr. Muralidhar P. Ande

Mr. Vinod Kumar Yadav

Ms. Nagalaxmi K.

Mrs. Manjusha L.

Ms. Pavitra Srinivasa Murthy

**Technical Staff****T - 7-8**

Mr. R.D. Tandel

Mr. S.G.S. Zaidi

Mr. G.K. Rao

Dr. S.K. Pandey

Mr. Alkesh Dwivedi

Mr. S.S. Kamat

Dr. M.K. Chouksey

Mr. Chandrakant M.H.

**T-6**

Mr. A.K. Padmanabhan  
 Mr. D.R. Khogare  
 Mr. S.K. Sharma  
 Mr. D. Bhoomaiah  
 Mr. P.K. Das  
 Dr. Nalini Poojary  
 Mr. Ram Singh  
 Mr. Subhash Chand

**T-5**

Mrs. Madhavi Pikle  
 Mrs. Rajani H. Khandgale  
 Mrs. S.M. Bagwe  
 Mr. S.M. Shinde  
 Mr. R.G. Kudale  
 Mr. Bhagat Singh Rawat  
 Mr. C.B. Kareer  
 Mr. B.G. Mandhare  
 Mr. J.M. Koli  
 Mrs. S.S. Gajbhiye  
 Mrs. S.P. Nalawade  
 Ms. Revati B. Dhongde  
 Mrs. Rekha Nair

**T-4**

Mr. S.R. Bandkar  
 Mrs. Bharati Ghagare  
 Mr. N.K. Aglave  
 Mr. B.J. Rathod  
 Mr. Avinash Sable  
 Mr. Baburam Jaiswar  
 Mr. Suryakant L. Koli  
 Mr. B.T. Phande

**T-3**

Mr. Anil Kumar D. Kulsange  
 Mr. Sagar Suresh Sawant (Civil Engineer)  
 Mr. Rajarshee Moitra (Computer Technician)  
 Mr. Yogesh Jadhao (Lib. Technician)  
 Mr. Vijay Kumar Gupta  
 Mr. Pawan Kumar  
 Mr. K. Dhana Raju  
 Mr. Sikandar Shaikh Hussain  
 Mr. A.L. Kokane  
 Mr. V.G. Dhindore

**T-2**

Mr. Arun Anand Puri Gosavi  
 Mr. R.D. Deshmukh  
 Mr. Dhanpat Singh Rawat  
 Mr. V.K. Bhave  
 Mr. A.N. Mahadik  
 Mr. Mohd. Baqar  
 Mrs. Shahila Iftekhar

**Vessel Staff****T-9**

Mr. K. Satyanarayana  
 (Skipper-Till 27.09.2011)  
 Mr. Josey Jacob (Engineer FTV)

**T -7-8**

Mr. S.L.Kotian

**T-5**

Mr. S.K.Chodankar (Engine Driver)  
 Mr. S. Maity (Bosun)

**T-3**

Mr. K.V. Rajendran (Deckhands)  
 Mr. A.P. Dhawade (Deckhands)

**Cook**

Mr. S. Kamaraju

**Skilled Support Staff**

Mr. B.N. Sukur  
 Mr. G.G. Zendekar  
 Mr. V.M. Patil  
 Mr. S.B. Padyal  
 Mr. A. Lavande  
 Mr. Fakirmayan U.Mullaji

**Administration and Finance  
Chief Administrative Officer**

Mr. Suresh Kumar

**Chief Finance & Accounts Officer**

Mr. Suresh Chandra

**Dy. Director (Official Language)**

Dr. R.P. Uniyal

**Assistant Administrative Officer**

Mrs. Valsa Pavithran  
Mrs. Swati S. Parab  
Mr. B.L. Kokkula  
Mrs. N.Y. Raorane  
Mrs. Sushma Singh  
Mrs. D.N. Behl

**Private Secretary**

Mr. G.S. Fernandes

**Personal Assistant**

Mrs. S.R. Arutla  
Mr. P.R. Ninawe

**Stenographer (Grade - III)**

Mrs. Pragati R. Gadre

**Assistants**

Mrs. S.R. Wadhavkar  
Mrs. A.A. Shukla  
Mrs. D.S. Naik  
Mrs. F.G. Fernandes  
Ms. Chandrarekha S. Khundol  
Mr. Dilip S. Ingale  
Mr. R. R. Kadam  
Mrs. Swati .S. Koli  
Mr. V.S. Kuveskar

**Upper Division Clerk**

Mr. D.V. Raorane  
Mrs. S.V. Pawar  
Mrs. A.U. Joshi  
Mr. A.G. Kolambkar  
Mrs. Sanyuja S. Parab  
Mr. B.P. Chauhan  
Mr. P.G. Angne  
Mr. N.L. Ghane  
Mr. M.B. Waghela

**Lower Division Clerk**

Mrs. C.C. Raut  
Mrs. Anu Grover  
Mr. S.H. Bhosale  
Ms. N.A.Sawant  
Mr. Shirish P. Malvankar  
Mr. R.N. Kamble  
Mr. Kantaram Anantha Shinde

Mr. Prasenjit Popat Sonawane  
Mr. Kishore Bose

**Skilled Support Staff**

Mr. B.N. Sukur  
Mr. N.A. Bijali  
Mr. Madhu Wasnik  
Mr. G.G. Zendeekar  
Mr. Surajbali R. Jaiswar  
Mr. V.M. Patil  
Mr. B.S. Tamankar  
Mr. Ashok R. More  
Mr. D.B. Gaikwad  
Mr. Sitaram B. Padyal  
Mrs. V.J. Tambe  
Mrs. K.R. Ahire  
Mr. Tulsiram G. Gaikwad  
Mr. J.K. Makhwana  
Mr. Bandu R. Chavan  
Mr. Ankush R. Dore  
Mr. M.P. Kotian  
Mr. G.B. Kamble  
Mr. Ashok R. Shingade  
Mr. Jagdish N. Dhanu  
Mr. Vasant N. Ondkar  
Mr. Arvind M. Lavande  
Mrs. R.H. Chavan  
Mr. Ganesh N. Zendeekar  
Mr. Ankush N. Joyashi  
Mr. Anil Dyanoboba Sonawane  
Mr. Sambhaji Shelke  
Mr. Ninad V. Kandalgaonkar  
Mr. Deepak M. Bhokse  
Mrs. Reshma Naik

## CIFE Kakinada Centre

**Scientist (Selection Grade) (Officer-in-charge)**  
Mr. S.S.H. Razvi

**Scientist**  
Dr. Suresh Babu

**T-7/8**  
Mr. P. Rami Reddy  
Mr. V.N. Acharyulu  
Mr. K. Murli Mohan

**T-6**  
Mr. K.B.S. Murthy  
Mr. P. Srinivas Rao  
Mr. J.K. Prasad

**T-5**  
Mr. K.R.K. Reddy  
Mr. R.R.S. Patnaik  
Mr. P. Satyanarayana

**T-I-3**  
Mr. Y.S. Murty  
Mr. M. Satyanarayana

**T-1**  
Mr. A. Gurraiah

**Assistants**  
Mr. B. Laxman Rao

**Lower Division Clerk**  
Ms. M. Rama Mani

**Skilled Support Staff**  
Mr. M. Krishna  
Mr. M.Ch. Appa Rao  
Mr. K. Satyanarayana  
Mr. K. Niranjana  
Mr. N. Venkata Ramana  
Mr. K. Prasad  
Mr. V. Shivaji  
Mr. O. Veera Raju  
Mr. T. Satyanarayana  
Mr. P.V.K. Reddy  
Mr. P.D. Reddy  
Mr. S. Valisha  
Mr. A.L. Reddy  
Mr. S.S. Reddy  
Mr. Y. Buchilingam  
Mr. M. Govindu  
Mr. M.A. Rao  
Mr. G.V.V. Satyanarayana  
Mr. S.N. Saheb

## CIFE Kolkata Centre

**Principal Scientist (Officer Incharge)**  
Dr. B.K. Mahapatra

**Senior Scientist**  
Dr. G.H. Pailan  
Dr. Shubendu Dutta  
Dr. Sumanta Kumar Mishra  
Dr. Sukham Munil Kumar

**T-9**  
Dr. Ashok Biswas

**T-5**  
Mr. R.K. Mondal

**T-4**  
Mr. P.K. Patra

**T-3**  
Mr. S.K. Das  
Mr. Prakash Kumar Behera  
Mrs. G. Aruna Devi

**T-2**  
Mr. T.K. Ghosh

**T-1**  
Mr. Dhiraj Kumar

**Personal Assistant**  
Ms. Kaberi Biswas

**Assistant**  
Mr. C.N. Sahani

**Upper Division Clerk**  
Shri P.K. De

**Lower Division Clerk**  
Mr. Ram Milan Singh

**Skilled Support staff**  
Mr. B.D. Mondol  
Mr. T.C. Balmiki  
Mr. R.N. Das  
Mr. R.N. Prasad  
Mr. Ramesh Chowdhary

## CIFE Powerkheda Centre

**Principal Scientist (Officer Incharge)**  
Dr. Somdutt

**T(7-8)**  
Dr. R.K. Upadhyay

**T-5**  
Mr. L.P.Bamalia  
Mr. Hassan Javed

**T-4**  
Mr. Gurubachan Singh

**T-2**  
Mr. Anup Singh

**T-1**  
Mr. Raghuvir Prasad

**Assistant**  
Ms. Asha Dhurve

**Lower Division Clerk**  
Mr. Hari M. Potpose

**Skilled Support staff**  
Mr. Hari Singh  
Mr. Lallu Prasad  
Mr. Vishnu Lal  
Mr. Mangli Prasad  
Mr. Surendra Kumar  
Mr. Ram Keval Prasad  
Mr. Shambhu Dayal  
Mr. Manoharlal  
Mr. Ram Swaroop  
Mr. S. Prajapati

## CIFE Rohtak Centre

**Principal Scientist (Officer Incharge)**  
Dr. A.K. Reddy

**Scientist**  
Mrs. Thankam Teresa Paul  
Mr. Hari Krishna

**T-5**  
Mr. Ashok Kumar

**T-4**  
Mr. Sanjeevan Kumar

**T-3**  
Mr. Satyendra Kumar Singh  
Mr. Lokesh Kumar

**T-2**  
Mr. Krishan Kumar

**Assistant**  
Mr. V.K. Sinha

**Skilled Support Staff**  
Mr. Gyani Ram  
Mr. Gyani Chand  
Mr. Lavesh Kumar

## Retirement list from 1<sup>st</sup> April, 2011 to 31<sup>st</sup> March, 2012

Sl. No.	Name & Designation	Date of retirement
1	Dr. R.C. Das, Principal Scientist	31.05.2011
2	Mr. B.K. Rao, Technical Officer (T-5)	31.08.2011
3	Dr. V.K. Sharma, Principal Scientist	30.11.2011
4	Mr. B.K. Mishra, Technical Officer (T-9)	30.11.2011
5	Mr. K. Malliah, T-2	31.12.2011
6	Mr. Shivram Kale, Skilled Support Staff	31.12.2011
7	Mr. B. Veera Raju, Assistant	31.01.2012
8	Dr. P.K. Roy, Principal Scientist	28.02.2012
9	Mrs. V.D. Misale, T-2	31.03.2012

## Selection/New joining\*

1	Dr. A.K. Reddy, Principal Scientist	18.06.2011
2	Ms. Pavitra, Scientist*	22.12.2011
3	Dr. Sanath Kumar H., Sr. Scientist*	28.12.2011
4	Dr. Megha Kadam Bedekar, Sr. Scientist*	28.12.2011
5	Dr. P.P. Srivastava, Principal Scientist*	23.02.2012
6	Dr. Rama Sharma, Sr. Scientist	16.03.2012

## Promotion

S.No.	Staff	From	To
1.	Mr. K. Murali Mohan	T-6	T-7-8
2.	Mr. V. N. Acharyulu	T-6	T-7-8
3.	Mr. B.R. Jaiswar	T-3	T-4
4.	Mr. Suryankant L. Koli	T-3	T-4
5.	Mr. B.T. Phande	T-3	T-4
6.	Mr. Mr. Sikandar Shaikh Hussain	T-1	T-2
7.	Mr. A.L. Kokane	T-1	T-2
8.	Mr. V.G. Dhindore	T-1	T-2
9.	Mr. K.V. Rajendran	T-1	T-2
10.	Mr. A.P. Dhawde	T-1	T-2
11.	Mr. Anup Singh	T-1	T-2
12.	Mr. M. Satyanarayana	T-1	T-2
13.	Mrs. Sushma Rani	Assistant	AAO
14.	Mrs. Deepika N. Behl	Assistant	AAO

## Deaths

S. No.	Name & Designation	
1	Mr. K. Satyanarayan, Skipper (T-9)	27.09.2011
2	Mrs. Y.S. Dhatavkar, Upper Divisional Clerk	02.09.2011
3	Dr. M. Ali, Technical Officer (T-9)	30.12.2011



इस वर्ष संस्थान ने हिन्दी के क्षेत्र में कई महत्वपूर्ण उपलब्धियां प्राप्त की हैं। विशेष रूप से संस्थान के वरिष्ठ अधिकारियों को कम्प्यूटर पर हिन्दी में सरलता से कार्य करने हेतु यूनिकोड कार्यशाला, व्याख्यानमाला श्रृंखला आदि का आयोजन किया गया। विश्वविद्यालय स्तर पर छात्रों में हिन्दी की गतिविधियों को बढ़ावा देने हेतु हिन्दी जलवाणी पाठ्यक्रम के साथ-साथ शिक्षा दिवस समारोह का भी आयोजन किया गया जिसके अन्तर्गत छात्रों ने कई प्रतियोगिताओं में भाग लिया। इसी के साथ, नराकास कार्यालय हेतु हिन्दी कार्यशाला, नराकास प्रतियोगिता आदि का आयोजन किया गया।

माननीय संसदीय राजभाषा समिति का राजभाषा निरीक्षण माननीय संसदीय राजभाषा समिति की दूसरी उपसमिति ने दिनांक 23 जनवरी 2012 को इस संस्थान का निरीक्षण किया। इस अवसर पर संस्थान के निदेशक एवं कुलपति डा. वजीर एस. लाकड़ा, ने संस्थान में हिन्दी प्रगति का स्लाइड शो प्रस्तुत किया जिसे देखकर समिति ने प्रसन्नता व्यक्त करते हुए संस्थान की हिन्दी की उपलब्धियों की सराहना की। संस्थान ने समिति को 12 आश्वासन दिए जिनपर कार्रवाई की जा रही है। इस निरीक्षण कार्यक्रम में परिषद मुख्यालय, नई दिल्ली से सहायक महानिदेशक, डा. एस. डी. सिंह एवं उप निदेशक (राजभाषा) श्री पी. एस. राव ने भी भाग लिया।

इसी के साथ सी-डैक एवं राइटस कार्यालय का भी निरीक्षण किया गया जिसके समन्वयन का दायित्व इस संस्थान ने वहन किया।

### विशेष व्याख्यानमाला का आयोजन

हिन्दी की प्रगति की दिशा में एक कदम आगे बढ़ाते हुए संस्थान ने विशेष व्याख्यानमाला श्रृंखला का आयोजन किया जिसके अंतर्गत कुल चार व्याख्यान प्रस्तुत किए गए।

- डा. एस. दाम राय, विभागाध्यक्ष ने अंडमान-निकोबार का जनजीवन
- डा. एम. कृष्णन, विभागाध्यक्ष ने दक्षिण भारत की हिन्दी - समस्या और समाधान
- डा. जियालाल जैसवार, प्रधान वैज्ञानिक, राष्ट्रीय समुद्र विज्ञान संस्थान ने समुद्रीय जलीवन एवं
- डा. गायत्री त्रिपाठी, वरिष्ठ वैज्ञानिक ने कामकाजी महिलाओं का व्यक्तिगत जीवन विषय पर व्याख्यान प्रस्तुत किया गया।

उपरोक्त व्याख्यानमाला को अधिकारियों एवं कर्मचारियों ने काफी लाभप्रद बताया तथा ऐसे कार्यक्रमों की सराहना की गई।

## हिन्दी कार्यशाला का आयोजन

संस्थान में हिन्दी पखवाड़ा के अंतर्गत एक दिवसीय कम्प्यूटर कार्यशाला आयोजित की गई जिसमें संस्थान के विभागाध्यक्ष एवं वरिष्ठ अधिकारियों ने भाग लिया। इस कार्यशाला का उद्देश्य वरिष्ठ अधिकारियों को कम्प्यूटर में यूनिकोड के प्रयोग से हिन्दी में काम करने हेतु प्रोत्साहन देना था।

## जलचरी का राजभाषा विशेषांक

वर्ष 2010 में राजभाषा एवं वैश्वीकरण विषय पर एक कार्यशाला का आयोजन किया गया था जिसमें भा.कृ.अनु.प. के सभी राजभाषा अधिकारियों को आमंत्रित किया गया था। इस कार्यशाला में प्रस्तुत लेखों को संकलित कर संस्थान की राजभाषा कार्यान्वयन समिति की रजत जयंती के उपलक्ष में संस्थान की गृहपत्रिका जलचरी को राजभाषा विशेषांक के रूप में प्रकाशित किया गया।

## शिक्षा दिवस समारोह

दिनांक 11 नवम्बर 2011 को भारत के प्रथम शिक्षा मंत्री मौलाना अबुल कलाम आजाद की जन्मतिथि के उपलक्ष में संस्थान में छात्र दिवस मनाया गया। इसके अंतर्गत छात्र प्रश्नमंच, निबंध, भाषण एवं गीत-कविता प्रतियोगिता आयोजित की गई। इस प्रतियोगिता में संस्थान के समस्त छात्र-छात्राओं ने भाग लिया।

## हिन्दी प्रकाशन

वर्ष 2011-12 के अन्तर्गत हिन्दी की दो महत्वपूर्ण पुस्तकें प्रकाशित की गईं।

- जलचरी अंक- 19 (राजभाषा विशेषांक)
- हिन्दी की उपलब्धियां (बुलेटिन)
- टेलीफोन डायरेक्टरी - 2011 (द्विभाषी में प्रकाशन हेतु उपलब्ध)

## हिन्दी पखवाड़ा 2011 का आयोजन

संस्थान में दिनांक 13 सितम्बर 2011 से 28 सितम्बर 2011 तक हिन्दी पखवाड़ा मनाया गया। हिन्दी पखवाड़ा का उद्घाटन दिनांक 13 सितम्बर 2011 को श्रीमती आभा सिंह, निदेशक, डाक विभाग के कर कमलों से दीप प्रज्वलित कर किया गया। इस अवसर पर संस्थान

के निदेशक महोदय डा. वजीर एस. लाकड़ा ने सभी उपस्थितजनों का स्वागत करते हुए कहा कि हमें हिन्दी के प्रति सकारात्मक वातावरण का निर्माण करना होगा, ताकि हिन्दी सहजता व सरलता से अपनाई जा सके। डा. राजेश्वर उनियाल, उप निदेशक (राजभाषा) ने हिन्दी पखवाड़ा के आयोजन का विस्तृत विवरण प्रस्तुत किया तथा मंच पर विराजमान श्रीमती सुनीता लाकड़ा, सहित उपस्थित अन्य अतिथियों का अभिवादन किया। संस्थान के संयुक्त निदेशक डा. आर.एस. बिरादर ने धन्यवाद ज्ञापन दिया। इस बार निदेशक महोदय के आदेशानुसार इस उद्घाटन समारोह का मंच संचालन संस्थान के छात्रों द्वारा किया गया।

हिन्दी पखवाड़ा-2011 के अन्तर्गत लेखन, भाषण, गीत व कविता एवं चित्रकला प्रतियोगिता के साथ ही संस्थान के विभागाध्यक्षों एवं प्रभारी अधिकारियों के लिए कम्प्यूटर पर यूनिकोड की सहायता से हिन्दी में कार्य हेतु यूनिकोड कार्यशाला का आयोजन किया गया। इसी के साथ विशेष व्याख्यानमाला भी आयोजित की गई जिसमें डा. एस. दाम राय, विभागाध्यक्ष, डा. एम. कृष्णन, विभागाध्यक्ष, डा. जियालाल जैसवार, प्रधान वैज्ञानिक एवं डा. गायत्री त्रिपाठी, वरिष्ठ वैज्ञानिक ने व्याख्यान प्रस्तुत किया गया।

इसी के साथ, डा. नीलम सहारन, प्रधान वैज्ञानिक की अध्यक्षता एवं श्रीमती सुनीता लाकड़ा जी के मार्गदर्शन में विशेष रूप से दो सत्रों में आयोजित महिला दिवस के अन्तर्गत प्रथम सत्र में विभिन्न प्रतिभागिताओं का आयोजन किया गया जिसमें संस्थान की महिला कर्मचारियों एवं परिवारजनों के साथ-साथ पुरुष अधिकारियों/कर्मचारियों ने भी सक्रिय रूप से भाग लिया। इसमें फूलों की रंगोली



तथा पाक प्रतियोगिता आयोजित की गई थी। दूसरा सत्र स्वतंत्रता रूप से संस्थान के महिला अधिकारियों / कर्मचारियों तथा महिला परिवारजनों के लिए आयोजित किया गया था। जिसमें श्रीमती सुनीता लाकड़ा जी के मार्गदर्शन एवं संवादन में विभिन्न मनोरंजनात्मक खेल आयोजित किए गए थे, जिसमें उपस्थित सभी महिलाओं ने सक्रिय रूप से भाग लेकर इस कार्यक्रम को सफल एवं यादगार बनाया।

### **राजभाषा कार्यान्वयन समिति की बैठक का आयोजन**

संस्थान में राजभाषा हिन्दी की प्रगति एवं विकास हेतु निदेशक महोदय की अध्यक्षता में राजभाषा कार्यान्वयन समिति गठित है। इस समिति की प्रत्येक तिमाही में बैठक आयोजित की जाती है। इस वर्ष संस्थान के निदेशक महोदय की अध्यक्षता में कुल 4 बैठकों का आयोजन किया गया---

65 वीं बैठक	- 05 मई 2011
66 वीं बैठक	- 27 अगस्त 2011
67 वीं बैठक	- 27 दिसम्बर 2011
68 वीं बैठक	- 04 जनवरी 2012

### **हिन्दी जलवाणी पाठ्यक्रम**

संस्थान में एम.एफ.एस.सी. के छात्रों हेतु हिन्दी जलवाणी नामक एक क्रेडिट पाठ्यक्रम संचालित किया जाता है। इसके तहत सत्र 2011-13 के छात्रों हेतु हिन्दी जलवाणी पाठ्यक्रम संचालित किया गया। इस पाठ्यक्रम में हिन्दी जानने वाले एवं हिन्दी का ज्ञान नहीं रखने वाले छात्रों के लिए अलग-अलग वर्ग बनाए गए हैं।

### **पुरस्कार**

★ संस्थान के कुलपति एवं निदेशक डा. वजीर एस. लाकड़ा को राजभाषा हिन्दी को बढ़ावा देने हेतु मुंबई नगर की सुप्रसिद्ध साहित्यिक संस्था आशीर्वादि ने "आशीर्वादि राजभाषा गौरव पुरस्कार" से सम्मानित किया।

★ मुंबई स्थित केंद्रीय सरकार के कार्यालयों में हिन्दी में सर्वाधिक काम करने पर इस संस्थान को "आशीर्वादि चल वैजयंती" प्रथम पुरस्कार प्रदान किया गया।

### **नगर राजभाषा कार्यान्वयन समिति की बैठक का आयोजन**

यह संस्थान नराकास उत्तर मुंबई कार्यालयों का अध्यक्षीय कार्यालय है। राजभाषा विभाग गृह मंत्रालय के आदेशानुसार प्रत्येक वर्ष इसकी दो बैठकें आयोजित की



जाती है। इस वर्ष अगस्त 2011 में समिति को बैठक आयोजित की गई इसी के साथ, नराकास सदस्य कार्यालय हेतु एक कम्प्यूटर कार्यशाला तथा हिन्दी प्रतियोगिता जिसके अंतर्गत निबंध, भाषण, गीत-कविता आदि का भी आयोजन किया गया।

### **अनुवाद एवं अन्य कार्य**

संस्थान में प्रचलित सभी मानक प्रपत्रों का अनुवाद कर द्विभाषी में उपलब्ध कराया गया तथा परिषद द्वारा प्रेषित तकनीकी अनुवाद के भी लगभग 60-पृष्ठों का अनुवाद उपलब्ध कराया गया। इसी के साथ एम.एफ.एस.सी. एव. पी.एच.डी. के छात्रों द्वारा शोध प्रबंधों व शोध निबंधों के सारांशों का हिन्दी अनुवाद भी प्रस्तुत किया गया। संस्थान के वार्षिक प्रतिवेदन 2010-11 में कार्यकारी सारांश आदि का हिन्दी अनुवाद सहित अन्य नियमित अनुवाद कार्य सम्पन्न किए गए। इन कार्यों के साथ ही संस्थान के वार्षिक दिवस, स्वर्ण जयंती दिवस समारोह, संगोष्ठियों, बैनर आदि द्विभाषी कार्यों में भी योगदान दिया गया।

### **विशिष्ट आगुत्तकों का संस्थान दौरा**

दिनांक 2 दिसम्बर 2011 को केन्द्रीय कृषि राज्यमंत्री डा. चरण दास महंत जी ने संस्थान के हिन्दी पुस्तकालय का दौरा किया एवं उन्होंने हिन्दी पुस्तकालय में उपलब्ध पुस्तकों में विशेष रुचि प्रदर्शित की।

### **प्रतिनिधित्व**

इस संस्थान के तकनीकी अधिकारी टी-6, श्री प्रताप कुमार दास ने महात्मा गांधी अंतरराष्ट्रीय विश्वविद्यालय, वर्धा में दिनांक 1-2 मार्च 2012 को 21 वीं सदी में “राजभाषा हिन्दी” विषय पर आयोजित राष्ट्रीय कार्यशाला में भाग लिया।

### **रेडियो वार्ता**

संस्थान के उप निदेशक (राजभाषा) डा. राजेश्वर उनियाल ने दिनांक 12 सितम्बर 2011 को सरकारी कार्यालयों में “राजभाषा कार्यान्वयन” विषय पर एक रेडियो वार्ता प्रस्तुत किया।

## उपकेन्द्रों में हिन्दी प्रगति

संस्थान के चारों उपकेन्द्र क्रमशः रोहतक, कोलकाता, काकिनाड़ा एवं पवारखेड़ा ने हिन्दी के प्रगामी प्रयोग को बढ़ाने हेतु महत्वपूर्ण कदम उठाए गए हैं। सभी मानक मसौदों का हिन्दी अनुवाद कर उपलब्ध करा दिया गया। बैठकें नियमित रूप से आयोजित की जा रही हैं। इसी के साथ, हिन्दी पखवाड़ा, कार्यशाला, हिन्दी प्रतियोगिता आदि का भी आयोजन किया गया।

## अन्य

संस्थान के स्वर्ण जयंती वर्ष के उपलक्ष्य में दिनांक 5 जून को हास्य महोत्सव का आयोजन किया गया तथा मुंबई की चुप्रसिद्ध साहित्यिक संस्था “आशीर्वाद” एवं “जीवंती” संस्था के तत्वावधान में साहित्यिक कार्यक्रम आयोजित किए गए।

इसी के साथ संस्थान एवं इसके उपकेन्द्रों में आयोजित होनेवाले दीक्षांत समारोह, वार्षिक दिवस एवं अन्य समारोहों व संगोष्ठियों आदि का संचालन राजभाषा हिन्दी के माध्यम से किया जाता है।