

CIFE

Annual Report 2013-14

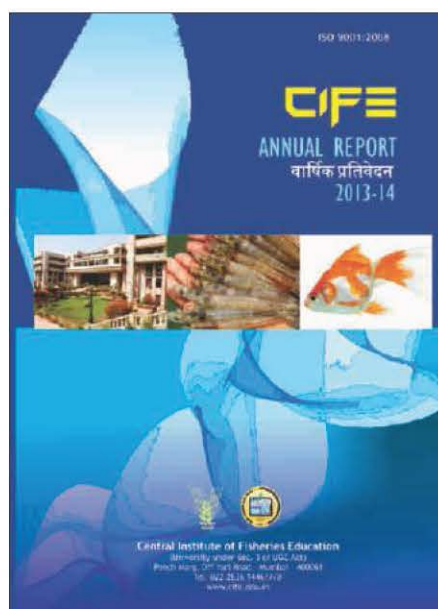


Central Institute of Fisheries Education

(University under section 3 of UGC act)

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





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Preface


It is a matter of great pleasure for me to present the accomplishments of CIFE during the year 2013 pertaining to academics, research, extension and infrastructure development. CIFE has been recognized as one of the top Agricultural Universities of the country, based on careers 360 ratings on the basis of accreditation, publications, citations and patents etc. It is further gratifying to receive the "Academic Leadership Award" for the year 2013 from the Agriculture Today Group through a committee headed by Professor M. S. Swaminathan. We believe in the philosophy where education's purpose is to replace an empty mind with an open one. Hence, a comprehensive syllabus revision of both Master's and Ph.D. programme was completed as one of the major activities. The Eleventh Convocation of the institute was also successfully conducted during this academic year, where 142 M.F.Sc. and 37 Ph.D. students were awarded their degrees. The academic excellence of CIFE has once again been proved by students who captured 88 out of 91 positions in ARS-2012. During the current academic year 2013-14; 13 Ph.D. and 68 M.F.Sc students passed out, while 53 Ph.D. and 78 M.F.Sc. students were enrolled for the next batch. The students from Afro-Asian countries continued to enroll in different academic programmes & our faculties and students have made their global presence by attending different international events and undergoing training in overseas labs of high repute.



The R&D efforts of the institute got further impetus by well-defined and well-structured research projects comprising 35 in-house and 26 externally funded projects along with one consultancy project supported by various agencies including Department of Biotechnology (DBT), Department of Science & Technology (DST), National Fisheries Development Board (NFDB), National Fund for Basic and Strategic Research on Agriculture (NFBSRA), International Foundation for Science (IFS), National Bureau of Agriculturally Important Microbes (NBAIM), Rajiv Gandhi Science & Technology Commission (RGSTC), National Bank for Agriculture and Rural Development (NABARD), Department of Atomic Energy (DAE) etc. The thrust areas of research have been DNA vaccine, nutraceuticals and nano delivery, medicated feed, DNA barcoding and fish taxonomy, ready to eat fish products, ornamental fisheries and inland saline aquaculture. CIFE conducted demonstration trial of white shrimp culture using ground salinewater, a flagship programme of the institute at the farmer's field for the first time. This programme was very much appreciated and attracted the "Partnership Excellence Award" from NABARD. The number of research papers, patents and technology disseminations are consistently increasing year after year.

CIFE has strengthened its linkages with the North-Eastern States for the development of aquaculture and fisheries in that region through capacity building and state specific technology intervention. A Students Research Convention on innovations in fisheries was organized, which was first of its kind, to get the wild ideas from the students all over the country. We attracted at least 100 innovative ideas, which have been well documented for overall development of fisheries and aquaculture. New infrastructure facilities including a Conference Room, Hostel at Kakinada, and ICAR, Guest house at Kolkata were created and furnished as state-of-the-art facility.

An unstinted and motivating support in all our endeavors received from the ICAR HQS especially from Dr S. Ayyappan, Secretary, DARE & DG, ICAR, Shri Arvind Kaushal, Addl. Secretary (DARE) and Secretary, ICAR; Shri P. K. Pujari, FA, DARE is gratefully acknowledged. I am thankful to Dr. B. Meenakumari, DDG (Fy), Dr S. D. Singh, ADG (Inland Fisheries), Dr Madan Mohan, ADG (Marine Fisheries) and other colleagues from the Fisheries Division for their co-operation and support. My sincere thanks are due to the Members of Board of Management, Chairman and Member of Research Advisory Committee, Members of Academic Council for their guidance and support. My special thanks are due to the publication team for bringing out this annual report.


(W.S. Lakra)

Chapter 2

Executive Summary

Executive Summary

CIFE has shown excellent academic performance during the current year. As in the previous year, this year also students of CIFE occupied 88 ARS seats out of 91. The institute was also awarded with "Education Leadership Award" through a committee headed by eminent scientist Dr. M.S. Swaminathan on the occasion of 6th Agricultural Leadership award of Agriculture Today. Complete revision of the syllabus of M.F.Sc. and Ph.D. programme were taken as a major academic activity for this year. The institute also conducted its XI convocation during which 142 M.F.Sc. and 37 Ph.D. degrees were awarded along with 24 Gold Medals to different meritorious students by Dr. S. Ayappan, Secretary DARE & Director General, ICAR. Two eminent scientists were also conferred with Doctor of science (*Honoris Causa*). However, during the current year number of successful candidates for M.F. Sc. and Ph.D. were 68 and 13, respectively. Like previous years 3 overseas students enrolled for Ph.D. (2) and Master programme (1) from the African countries. One Ph.D. scholar won the Fulbright-Nehru Doctoral and professional Research Fellowship for the year 2013-14 sponsored by the USIEF.

Presently the institute has 35 institutional and 27 externally funded projects with a major focus on diversification of species for aquaculture, reservoir development through community participation, testing the viability of *Litopenaeus vannamei* culture, culture of fish and prawn in floating net cages, breeding and colour enhancement of high value ornamental fishes, molecular phylogeny, DNA barcoding, nutraceuticals & nutrient requirement of fish, cell culture, stock assessment, nanodelivery, biofloc technology, bioprocessing of agricultural wastes, bioremediations of aquaculture effluents, development of DNA-vaccines, risk assessment of sea food, ready to cook and ready to eat fish products, development of biosensors for monitoring of genotoxic pollutants, gene silencing and radio-ecology. Some of the projects are also dedicated to address the social issues like responsible fisheries management, reservoir fisheries, modelling and forecasting the marine products etc. CIFE has further marched ahead in its flagship programme for upscaling the technology developed for culturing *Litopenaeus vannamei* in ground saline water in the farmers' fields of Haryana which attracted the "Partner Excellence Award" from NABARD. The

radioecology projects, which are also a major programme, has made tremendous progress by documenting the radio nuclide load of the water bodies and aquatic organisms around the thermal power nuclear plants.

The institute organized various extension education/transfer of technology related programmes and activities. A total of 59 short-term training programmes were organized at the headquarter and the four research centers in which 1273 participants were imparted skill in various aspects of aquaculture. The institute actively participated in 21 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 educational tour programmes for the fishery graduates or entrepreneurs. A mega event "Farmers-Scientists Interaction Meet" was organized at Katihar, Bihar, which was inaugurated by the Hon'ble Minister of State for Agriculture and Food Processing Industries, Govt. of India. About 1000 fish farmers attended the meet and interacted with the scientists. A total of 21 Workshops/conferences and 33 meetings were held during the year. The faculty attended more than 100 workshops/symposia/meetings etc. and 18 summer schools/winter schools/ training programmes. Thirty two guest lectures were given by the faculty at various universities/conferences.

Some of the significant achievements include successful farming of Pangas in brackishwater (10 ppt) with production of 6.8 tonnes/ha; designed column based water filtration units for removal of inorganic and organic wastes from hatchery wastewater; a ready to cook product "FISHPANEER" was recently developed, which has been appreciated and awarded by NAIP/ICAR.

A total of 213 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.

Some state-of-the-art infrastructure was added in this year which include, ICAR guest house facility and museum at Kolkata Centre, and new conference facility at CIFE, Mumbai.



Chapter 3

Introduction

Introduction

CIFE was established with the assistance of UNDP in 1961 to promote fisheries education in the country by training officials from state governments. It was initially under the administrative control of Ministry of Agriculture, Govt. of India and subsequently transferred to ICAR (Indian Council of Agricultural Research) in 1979. The mandate of the institute was widened to include higher fisheries education, research as well as extension education under its functional fold. Recognizing the pivotal role played by the Institute in Human Resources Development in fisheries, the Institute was accorded the status of Deemed-to-be- University in March, 1989. The institute has emerged as a centre of excellence in HRD not only with state-of-the-art facilities and laboratories but by producing competent manpower who have been securing top ARS positions besides joining national and international organizations. The institute has also been deeply engaged in orienting, grooming and preparing the professionals from the Afro-Asian countries in fisheries and aquaculture sector.



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 training programmes in demand-driven and upstream areas for different stakeholders of fisheries sector.
- To provide technical assistance, inputs for policy development and consultancy services.

Mission

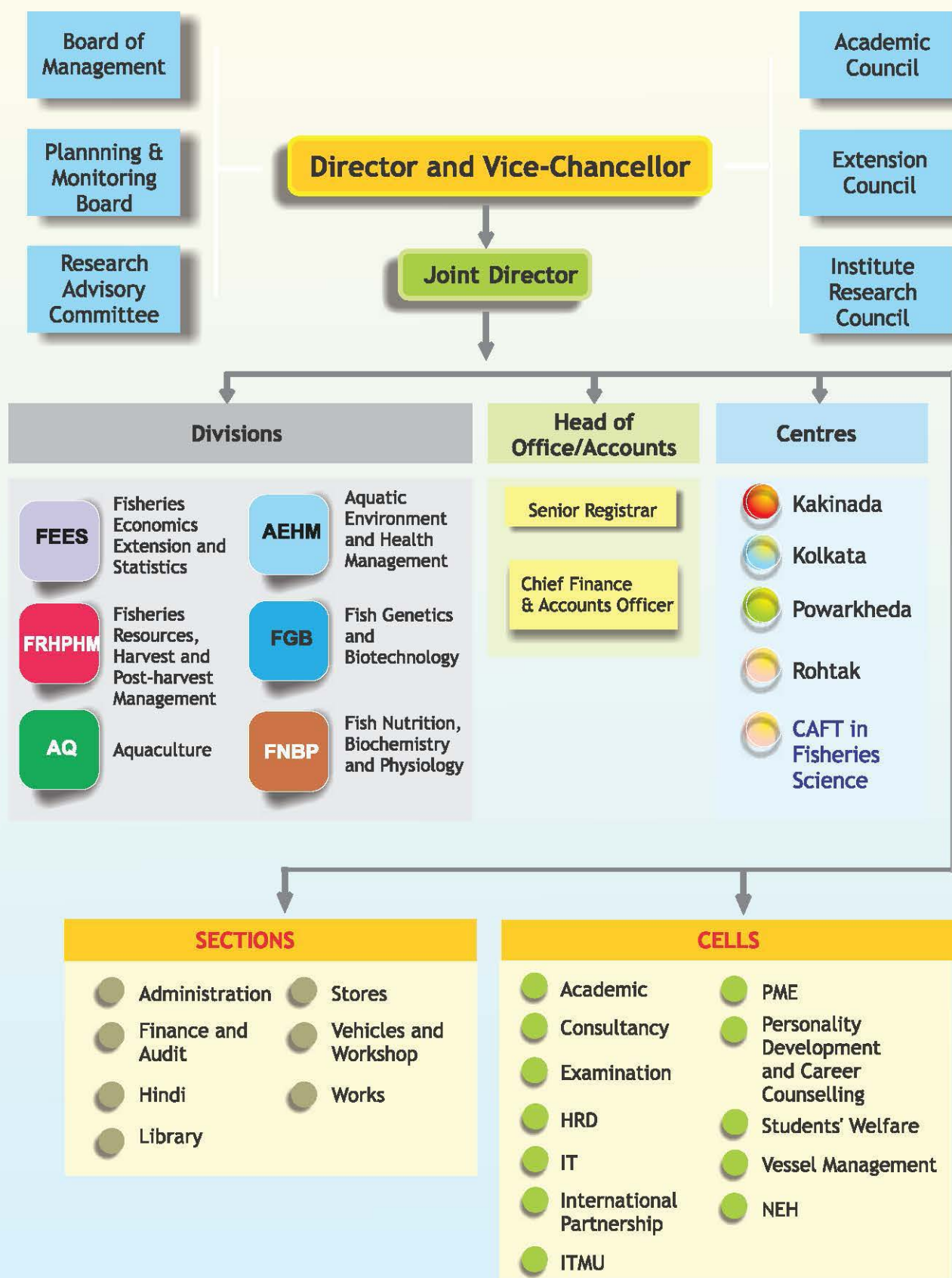
To achieve academic and research excellence

Vision

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



Organogram



Board of Management

Chairman

Dr. W.S. Lakra

Members

Dr. B. Meenakumari
Mr. P.K. Pujari
Dr. A.K. Pal
Dr. V.M. Mayand
Dr. D.P. Ray
Dr. Kisan E. Lawande
Dr. G. Syda Rao
Dr. Vishnu Bhatt
Prof. (Mrs) I. Karunasagar
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Mr. P.V. Tapke
Mr. Rafiq M. Naik
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Dr. Neelam Saharan
Dr. C.S. Purushothaman
Dr. K.K. Jain
Dr. N.K. Chadha
Dr. B.B. Nayak
Dr. B.K. Mohapatra
Dr. A.K. Reddy
Dr. G. Venkateshwarlu
Dr. M. Krishnan
Dr. A.K. Verma

Member Secretary

Mr. G.R. Deshbandhu

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Chairman

Dr. W.S. Lakra

Vice-Chairman

Dr. A.K. Pal

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CEO, NFDB, Hyderabad
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Dr. G. Venkateshwarlu
Dr. P.P. Srivastava
Dr. Neelam Saharan
Dr. S.K. Chakraborty
Dr. M. Krishnan
Dr. N.P. Sahu
Dr. Gopal Krishna
Dr. C.S. Purushothaman
Dr. K.K. Jain
Dr. Kiran Dube
Dr. K.V. Rajendran
Dr. N.K. Chadha
Dr. B.B. Nayak
Dr. B.K. Mohapatra
Dr. A.K. Reddy
Dr. N.R. Kumar
Dr. Latha Shenoy
Dr. K. Pani Prasad
Dr. Aparna Chaudhari
Dr. (Mrs) Paramita Banerjee Sawant
Dr. A. Pawan Kumar
Dr. A.K. Verma
Mr. Chandrakant M.H.
Mr. Suresh Chandra
Dr. S.K. Pandey

Member Secretary

Mr. G.R. Deshbandhu

Extension Council

Chairman

Dr. W.S. Lakra

Members

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Dr. K.D. Kokate
Commissioner of Fisheries, Maharashtra
Dr. B. Vishnu Bhat
Dr. R.K. Singh
Dr. R. Chakraborty
Mr. T. Salwa Kumar
Dr. T.P. Trivedi
Dr. M. Krishnan
Dr. C.S. Purushothaman
Dr. S.K. Chakraborty
Dr. Gopalkrishna
Dr. Neelam Saharan
Dr. N.P. Sahu
Dr. A.K. Reddy
Dr. B.B. Nayak
Dr. Sheela Immanuel
Dr. B.K. Mahapatra
Dr. Arpita Sharma
Dr. Somdutt

Member Secretary

Dr. S.N. Ojha

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Chairman

Dr. K. Gopakumar

Members

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Prof. C. Vasudevappa
Prof. B.C. Mal
Dr. J.K. Batra
Dr. A. D. Diwan
Dr. (Mrs) Krishna Srinath

Member Secretary

Dr. K.V. Rajendran

Planning and Monitoring Board

Chairman

Dr. W.S. Lakra

Members

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Prof. T. Balasubramanian
Dr. A.K. Pal
Dr. C.S. Purushothaman
Dr. M. Krishnan
Dr. S.K. Chakraborty
Dr. A.K. Verma
Mr. Chandrakant M. H.
Mr. Mahesh B. Khubdikar

Member Secretary

Mr. G. R. Deshbandhu

Staff Position (2013-14)

Category Wise

CIFE Staff	Sanctioned	In position
RMP	2	2
Scientific	104	68
Technical	106	89
Administrative	64	48
Skilled Supporting	70	68
Non Ministerial	01	01
Total	347	276

Budget (2013-14)

(Rs. In Lakh)

S. No.	Head	Sanctioned	Received	Expenditure Incurred
1.	Plan	1412.24	1412.24	1395.00
2.	Non-plan	3531.26	3370.26	3468.57
	Total	4943.50	4782.50	4863.57
S.No.	Head	Balance C/f	Received	Expenditure Incurred
3.	CAFT	1.02	13.17	13.81
4.	SDU	0.48	319.53	284.25
5.	Externally Funded Projects	668.76	154.22	278.71
	Total	668.76	486.92	576.77

Revenue generation (Rs. In Lakh)

Target : Rs. 182.70

Achieved: Rs. 205.73

Chapter 4

Educational Achievements





4.1. Results

During 2013-14 number of successful candidates for Ph.D. and M.F.Sc. (2011-13) were 13 and 68 respectively.

Discipline-wise number of passed-out students is as follows:

Name of the Programme	No. of successful candidates
Ph.D.	
Aquaculture (AQC)	02
Fish Biotechnology (FBT)	03
Fish Nutrition and Biochemistry (FNB)	03
Fish Pathology and Microbiology (FPM)	02
Fisheries Resource Management (FRM)	01
Post-Harvest Technology (PHT)	02
Total	13
M.F.Sc. (2013-15)	
Aquaculture (AQC)	11
Aquatic Animal Health Management (AAH)	07
Aquatic Environment and Management (AEM)	06
Fish Biotechnology (FBT)	04
Fish Genetics and Breeding (FGB)*	05
Fish Physiology and Biochemistry (FPB)	04
Fisheries Economics (FEC)	05
Fisheries Extension (FEX)	05
Fish Nutrition and Feed Technology (FNT)	04
Fisheries Resource Management (FRM)	08
Post-Harvest Technology (PHT)	09
Total	68

* One student of 2009-2011 batch

4.2. Enrollments

Doctoral Programmes

A total of 53 students enrolled for the Ph.D. programmes in various disciplines for the year 2013-2016, which includes 2 foreign students.

Post-graduate Programmes

A total of 78 students enrolled for the M.F.Sc. Programmes in various disciplines for the year 2013-2015, which includes 1 foreign student.

Details of enrolled students

S.No.	Name of the programme	No. of candidates enrolled
Ph.D. (Batch-2013-16)		
1	Aquaculture (AQC)	19
2	Aquatic Animal Health Management (AAH)	04
3	Aquatic Environment and Management (AEM)	04
4	Fish Biotechnology (FBT)	01
5	Fish Physiology and Biochemistry (FPB)	01
6	Fisheries Economics (FEC)	01
7	Fish Nutrition and Feed Technology (FNT)	06
8	Fisheries Resource Management (FRM)	09
9	Post-Harvest Technology (PHT)	08
Total		53
M.F.Sc. (Batch-2013-15)		
1	Aquaculture (AQC)	13
2	Aquatic Animal Health Management (AAH)	08
3	Aquatic Environment and Management (AEM)	06
4	Fish Biotechnology (FBT)	06
5	Fish Genetics (FGB)	06
6	Fish Physiology and Biochemistry (FPB)	06
7	Fisheries Economics (FEC)	06
8	Fisheries Extension (FEX)	06
9	Fish Nutrition and Feed Technology (FNT)	06
10	Fisheries Resource Management (FRM)	08
11	Post-Harvest Technology (PHT)	07
Total		78

4.3. List of dissertations submitted by M.F.Sc. students during the year 2013-2014

S. No.	Name of the student	Regn. No.	Title	Major Guide
Fisheries Resource Management (FRM)				
1	Mr. Ravi Kumar	FRM-MA1-01	Taxonomic study of genus <i>Thais</i> (family, Muricidae, class-Gastropoda) of Mollusca from Maharashtra coast	Dr. A.K. Jaiswar
2	Ms. Huirem Bharati	FRM-MA1-02	Study of ecosystem approach in Loktak Lake, Manipur with special reference to Ramsar Convention	Dr. A.T. Landge
3	Ms. Sibina Mol. S	FRM-MA1-03	Stock structure analysis of <i>Johnnieops borneensis</i> (Bleeker, 1851) from Indian coast	Dr. A.K. Jaiswar
4	Mr. Sunil Kumar. S. Ail	FRM-MA1-04	Evaluation of compliance of marine fisheries of Kerala with Article 8 (Fishing Operations) of FAO Code of Conduct for responsible fisheries	Dr. L. Shenoy
5	Mr. Vaisakh G.	FRM-MA1-05	Stock structure analysis of <i>Nemipterus bipunctatus</i> (Valenciennes, 1830) along the Indian coast	Dr. S.K. Chakraborty
6	Mr. Simanku Borah	FRM-MA1-06	Stock structure analysis of <i>Aspidoparia morar</i> (Hamilton, 1822) in selected stretches of River Brahmaputra and Barak, Assam, India	Dr. A.T. Landge
7	Mr. Satish Kumar K.	FRM-MA1-07	Stock structure analysis of <i>Otolithes cuvieri</i> , Trewavas, 1974 from Indian waters	Dr. S.K. Chakraborty
8	Ms. Thangjam N. C.	FRM-MA1-08	Impact of anthropogenic activities on fish diversity of Iril river - a tributary of Chindwin-Irrawaddy river system (Myanmar), Manipur	Dr. A.T. Landge
Aquaculture (AQC)				
9	Mr. Jose Antony	AQC-MA1-01	Effect of salinity and Na ⁺ /K ⁺ ratio on physiological and production parameters of black tiger prawn (<i>Penaeus monodon</i> Fabricius, 1798) reared in inland salinewater	Dr. N. Saharan
10	Mr. Dani Thomas	AQC-MA1-02	Effect of photoperiod and temperature on maturity and gonadal development of sebae clownfish, <i>Amphiprion sebae</i> (Bleeker, 1853)	Dr. Chandra Prakash
11	Mr. Kadtan N. Vilasrao	AQC-MA1-03	Effect of temperature on breeding behavior, hatching rate and larval rearing of neon tetra, <i>Paracheirodon innesi</i> (Mayers, 1936)	Dr. K.D. Rawat
12	Mr. Kaustubh Bhagawati	AQC-MA1-04	Studies on the effect of dietary zinc on growth, survival and physiological response of <i>Tor putitora</i> (Hamilton, 1822) fry	Dr. N.K. Chadha

13	Mr. Joshi H. Datta	AQC-MA1-05	Preparation and characterization of fadrozole loaded nanoparticles for masculinization of <i>Poecilia reticulata</i> (Peters, 1859)	Dr. V.K. Tiwari
14	Mr. Ajay Kumar	AQC-MA1-06	Study on growth and survival of <i>Pangasianodon hypophthalmus</i> (Sauvage, 1878) in inland salinewater	Dr. C.S. Chaturvedi
15	Mr. Tanveer Hussain	AQC-MA1-08	Study on nutrient recycling of fish wastes in aquaponic system	Dr. A.K. Verma
16	Mr. Uthandu Raman. U	AQC-MA1-09	Assessment of growth performances and colour enhancement of Oscar, <i>Astronathus ocellatus</i> (Cuvier, 1829) reared on natural and artificial diets	Dr. Paramita B. Sawant
17	Ms. Pathak M. Shrikant	AQC-MA1-10	Ionic manipulation of inland saline groundwater for growth and survival of <i>Litopenaeus vannamei</i> (Boone, 1931)	Dr. A. K. Reddy
18	Ms. Chirom Archana	AQC-MA1-11	Toxicological effect of Pendimethalin in <i>Cyprinus carpio</i> (L.) fingerlings	Dr. N. Saharan
19	Mr. Tasso Tayung	AQC-MA1-13	Synergistic effects of dietary ascorbic acid and water pH on growth performances and ornamental value of Oscar, <i>Astronathus ocellatus</i> (Cuvier, 1829) juveniles	Dr. N.K. Chadha
Post-Harvest Technology (PHT)				
20	Mr. R. Srinu	PHT-MA1-01	Detection and isolation of microaerophiles of human health significance from fish	Dr. B.B. Nayak
21	Mr. Chongtham B. Singh	PHT-MA1-02	<i>Sous-vide</i> processed ready-to-cook fish steaks: optimization and quality evaluation	Dr. G. Venkateshwarlu
22	Mr. Parmanand P.	PHT-MA1-03	Prevalence of pathogenic <i>Escherichia coli</i> in seafood and its environment	Dr. H. Sanath Kumar
23	Mr. S. Agni Kumar	PHT-MA1-04	Fish oil encapsulates : preparation and their incorporation into bakery products	Dr. G. Venkateshwarlu
24	Mr. Anas. K. K.	PHT-MA1-05	Role of Mannitol Operon in the survival of <i>Vibrio cholerae</i> in sea water	Dr. H. Sanath Kumar
25	Ms. Sushree R. Senapati	PHT-MA1-06	Physical and biochemical changes in Indian mackerel (<i>Rastrelliger kanagurta</i>) during salt fermentation and storage	Dr. B.B. Nayak
26	Ms. Thanker M. H.	PHT-MA1-07	Gelatin based antimicrobial coatings for the shelflife extension of fish in refrigerated storage	Mrs. K. Nagalakshmi
27	Ms. Lekshmi R.G. Kumar	PHT-MA1-08	Occurrence of IMRs gene in <i>Staphylococcus aureus</i> from fish and the environment	Dr. H. Sanath Kumar
28	Mr. Negasi Tsighe	PHT-MA1-09	Studies on fermentation flora of mackerel and their bioactivities	Dr. B.B. Nayak

Fish Genetics (FGB)

29	Ms. Niti Sharma	FGB-MA1-01	Toxicity studies of silver nanoparticle at genomic and cellular level in <i>Labeo rohita</i> (Hamilton, 1822)	Dr. Rupam Sharma
30	Mr. Angom Lenin Singh	FGB-MA1-02	Genome-wide studies of protein and protein-protein interaction of white spot syndrome virus (wssv)	Dr. S. Jahageerdar
31	Mr. Siva C.	FGB-MA1-03	Genetic study on economic traits of guppy (<i>Poecilia reticulata</i>)	Dr. S. Jahageerdar
32	Mr. Dellip Kumar Sahoo	FGB-MA1-04	Growth comparison of different stocks of <i>Clarias batrachus</i> (Linnaeus 1758)	Dr. Gopal Krishna
33	Ms. Rekha M.U.	FGB-45 2009-2011	Promoter sequencing of sodium potassium atpase of <i>Penaeus monodon</i> using genome walking	Dr. A. Chaudhari

Fish Biotechnology (FBT)

34	Mr. Partha Sarathi Swain	FBT-MA1-01	Development of selected tetra nucleotide microsatellite loci in <i>Clarias batrachus</i>	Dr. A. Chaudhari
35	Mr. Aditya Pratap Acharya	FBT-MA1-02	Development of selected tri-nucleotide microsatellite loci in <i>Clarias batrachus</i>	Dr. P. Gireesh Babu
36	Mr. Bamaniya D. Chunilal	FBT-MA1-03	DNA barcoding of selected marine ornamental fishes from west coast of India	Dr. W.S. Lakra
37	Mr. Dhalongsaih Reang	FBT-MA1-04	Molecular cloning of cDNA sequence of <i>C. batrachus</i> involved in reproductive maturation	Dr. A. Chaudhari

Aquatic Animal Health Management (AAH)

38	Ms. Husne Banu	AAH-MA1-01	Development and characterization of monoclonal antibody against recombinant GAPDH of <i>Edwardsiella tarda</i>	Dr. M. Makesh
39	Ms. Praveena Soman	AAH-MA1-02	Cloning and expression of GAPDH gene of <i>Edwardsiella tarda</i> in cell culture	Dr. M.K. Bedekar
40	Ms. Saima Rehman	AAH-MA1-03	White spot syndrome virus (WSSV) replication in <i>Scylla serrata</i> and <i>Penaeus monodon</i> : A comparative <i>in vivo</i> and <i>in vitro</i> study	Dr. K.V. Rajendran
41	Ms. Saloni Shivam	AAH-MA1-04	White spot syndrome virus (WSSV) replication in <i>Macrobrachium rosenbergii</i> and <i>penaeus monodon</i> : A comparative <i>in vivo</i> and <i>in vitro</i> study	Dr. K.V. Rajendran
42	Mr. Praveenraj. J.	AAH-MA1-05	Immunomodulatory and antibacterial effect of anthraquinone derived from <i>Aloe vera</i> on Koi carp (<i>Cyprinus carpio</i> var. koi. L)	Dr. R.P. Raman

43	Mr. Prashant Gangwar	AAH-MA1-06	Isolation of embryonic stem-like cells from <i>Carassius auratus</i> (Linnaeus, 1758)	Dr. G. Tripathi
44	Mr. Ashish Gupta	AAH-MA1-07	Purification and partial characterization of serum immunoglobulin of <i>Etroplus suratensis</i> (Bloch)	Dr. K. Pani Prasad
Aquatic Environment and Management (AEM)				
45	Ms. Prajna R. Behera	AEM-MA1-01	Bioaccumulation of copper, chromium and cadmium in selected biota off Versova Coast	Dr. C.S. Purushothaman
46	Mr. Arvind R.	AEM-MA1-02	Comparison on efficacy of chelating agents in phytoremediation of cadmium using <i>Lemna minor</i> and <i>Spirodela polyrhiza</i>	Mrs. Vidya Shree Bharti
47	Ms. Ramya Raj	AEM-MA1-03	Characterization of phosphorus-mobilizing bacteria in <i>Avicennia marina</i> rhizosphere	Dr. A. Vennila
48	Mr. M. Rajkumar	AEM-MA1-04	Effect of biofloc on the production of <i>Litopenaeus vannamei</i> (Boone, 1931) and characterization of microbial community	Dr. P.K. Pandey
49	Mr. Vivekanand Bharti	AEM-MA1-05	Bacterial communities in biofilm and its effect on production of <i>Cirrhinus mrigala</i> (Ham. 1822)	Dr. P.K. Pandey
50	Ms. Remya. L	AEM-MA1-06	Development and assessment of performance of column based water filtration unit using entrapped adsorbents of algal origin for Cr(VI) removal.	Dr. S.P. Shukla
Fisheries Economics (FEC)				
51	Mr. Abhijeet P. Naohate	FEC-MA1-02	An economic analysis of reservoir fisheries in western Vidarbha region of Maharashtra	Dr. N.R. Kumar
52	Dr. Radhakrishnan K.	FEC-MA1-03	An economic analysis of marine fisheries in Thoothukudi, Tamil Nadu	Dr. Swadesh Prakash
53	Ms. Neha W. Qureshi	FEC-MA1-04	Contingent valuation of multiple stakeholders responses to fish production in major lakes of Kashmir	Dr. M. Krishnan
54	Mr. Raushan Kumar	FEC-MA1-06	An economic analysis of floodplains (Chauris) fisheries in Samastipur district of Bihar	Dr. N.R. Kumar
55	Mr. Rama Chandra Sahu	FEC-MA1-07	Impact assessment of better management practices (BMPs) in shrimp farming in selected districts of Odisha	Dr. Swadesh Prakash

Fisheries Extension (FEX)

56	Mr. Manoj Kumar	FEX-MA1-01	Adoption of scientific aquaculture practices by fish farmers in north Bihar	Dr. S.N. Ojha
57	Mr. Amitava Ghosh	FEX-MA1-02	Effective of fisheries based television programmes in West Bengal	Dr. Arpita Sharma
58	Mr. Arvind Singh C.	FEX-MA1-03	Strategy for empowerment of fishers: A case study of Tehri Dam, Uttarakhand	Dr. S.N. Ojha
59	Mr. Keshave Jitesh Vilas	FEX-MA1-04	Fisheries management and fishers livelihood in selected reservoirs of Vidarbha region Maharashtra	Dr. P.S. Ananthan
60	Ms. Pooja Gautam	FEX-MA1-05	Evaluation of FFDA in fisheries development and fish farmer empowerment in Uttar Pradesh	Dr. P.S. Ananthan

Fish Physiology and Biochemistry (FPB)

61	Mr. Sanal Ebenezer	FPB-MA1-01	Formulation and evaluation of dietary supplements for gonadal development and maturation of <i>Labeo bata</i> (Hamilton, 1822)	Dr. A.K. Pal
62	Mr. Artheeswaran N.	FPB-MA1-02	Effect of different forms of dietary zinc on growth and flesh quality of <i>pangasianodon hypophthalmus</i> (Sauvage)	Dr. S. Gupta
63	Ms. Kamcha Heankhe	FPB-MA1-03	Formulation and evaluation of dietary supplements for gonadal inhibition in <i>Labeo rohita</i>	Dr. G.H. Pailan
64	Mr. Kago Tamang	FPB-MA1-04	Inhibition of spermatogenesis in koi carp (<i>Cyprinus carpio haematopterus</i>), Linn. 1758	Dr. S. Dasgupta

Fish Nutrition and Feed Technology (FNFT)

65	Mr. Manish Jayant	FNT-MA1-01	Dietary protein requirement for growth of <i>Pangasianodon hypophthalmus</i> (Sauvage, 1878) juveniles	Dr. Muralidhar P. Ande
66	Ms. Thongam M. Devi	FNT-MA1-02	Enrichment of fish food organisms to enhance larval growth and survival of <i>Clarias batrachus</i>	Dr. S. Munilkumar
67	Mr. Khinlak Gangmei	FNT-MA1-03	Immunomodulatory effect of some indigenous herbs of North East region of India in the diet of <i>Labeo rohita</i> (Hamilton, 1822)	Dr. N.P. Sahu
68	Mr. Sivaramakrishnan T.	FNT-MA1-04	Dietary lipid requirement of <i>pangasianodon hypophthalmus</i> (Sauvage, 1878) juveniles	Dr. K.K. Jain



4.4. List of Ph.D. students awarded the degree during 1.4.2013 to 31.03.2014

S. No.	Name of the student	Regn. No.	Batch	Title	Guide	Date of Viva-voce
1.	Ms. Madonna T. Thachil	PHT-295	2007-2010	Studies on interactions of fish lipid, Amylose and Protein during extrusion cooking	Dr. G. Venkateshwarlu	20.04.2013
2.	Ms. Sandhya K.M.	FRM-308	2008-2011	Biology and stock assessment of <i>Otolithes cuvieri</i> (Trewavas, 1974) along Ratnagiri coast	Dr. S.K. Chakraborty	10.05.2013
3.	Mr. Srinivasa Rao P.	FB-299	2007-2010	Silencing nodavirus in <i>Macrobrachium rosenbergii</i> using DNA constructs expressing dsRNA against viral proteins	Dr. A. Chaudhari	13.05.2013
4.	Mr. A. Kathirvelpandian	FB-363	2009-2012	Population genetic analysis of golden anchovy <i>Coilia dussumieri</i> (Valenciennes, 1848) along the Indian coast using molecular markers	Dr. A. Gopalkrishnan	08.08.2013
5.	Mohd. Aklakur	FNB-371	2009-2012	Pharmacokinetics and Patho-physiological responses to Ivermectin in <i>Labeo rohita</i> administered through in-feed formulation	Dr. A.K. Pal	19.08.2013
6.	Mr. Gashaw T. Desta	AQ-377	2009-2012	Study of growth, survival and maturity in hybrid of Indian catfish <i>Clarias batrachus</i> (Linnaeus, 1758) and African catfish, <i>Clarias gariepinus</i> (Burchell, 1822) comparing with parents in special reference to hormonal physiology	Dr. Kiran Dube Rawat	20.09.2013
7.	Mr. Neeraj Kumar	FB-326	2008-2011	Organismal and molecular responses of fish to extraneous stressors and its possible remediation	Dr. Gopal Krishna	06.12.2013
8.	Mr. Ashish Kumar Jha	FNB-304	2007-2010	Biochemical, molecular and cellular responses of <i>Labeo rohita</i> fingerlings to hypoxia	Dr. A.K. Pal	10.12.2013

4.6. Guest faculty invited from other institutions

Name of the faculty	Designation and place	Title of the lecture	Date
Dr. M. Srinath	Rtd. Principal Scientist, CMFRI	Fish population dynamics	8-15 Apr, 2013
Dr. G.Gopikrishna	Principal Scientist CIBA, Chennai	Advances in quantitative genetics	16-17 Apr, 2013
Dr. A.Dhandapani	Principal Scientist, NAARM, Hyderabad	Econometrics	22-25 Apr, 2013
Dr. S. Ravichandran	Principal Scientist NAARM, Hyderabad	Econometrics	22-25 Apr, 2013
Ms. Rani J.R.	Assistant Professor Center of Excellence in Bioinformatics, University of Kerala Thiruvananthapuram	Bioinformatics tools for fish geneticist	23-30 Apr, 2013
Dr. Dinesh Kumar	Sr. Scientist, IASRI, New Delhi	Bioinformatics	29-30 Apr, 2013
Dr. KrushnaTajne	Former Dean, Veterinary College Sardarkrishninagar, Gujarat	Estimation of breeding values by BLUP method	6-8 May, 2013
Dr. Imelda Joseph	Principal Scientist and Head, Mariculture Division, CMFRI, Cochin	Integrated coastal zone management Cage aquaculture	16-18 May, 2013
Dr Santhosh Karanth	Eccles Institute of Human Genetics, Utah University, USA	Passing through a ketone body transporter: from a genetic screen for zebra fish hepatic steatosis mutants to identifying "endogenous" inhibitors of cholesterol biosynthesis	27 Sep, 2013
Prof T. J. Pandian	Retired Professor	Does over exploitation lead to disruption in sex differentiation?	2 Oct, 2013
Prof. Volker Gurtler	RMIT University, Melbourne (Australia)	Advances in microbiology	3 Oct, 2013
Dr. S.S. Mishra	Head, Marine Fish, ZSI, Kolkata.	Taxonomy of fish	9 Nov, 2013
Dr.T.K. Sivadas	Rtd. Principal Scientist, CIFT	Fishing technology	11-15 Nov, 2013
Dr Amit K. Bhattacharya	Scientist, Leica Microsystems, New Delhi	Multi colour imaging in confocal microscopy	11 Dec, 2013
Dr Aram Mikaelyan	Post Doctoral Fellow Max Planck Institute for Terrestrial Microbiology, Germany	Ecological and evolutionary factors shaping gut communities	4 Jan, 2014
Mr. G.C. Yadav	Instrumentation Engineer, Merck India Pvt. Ltd., Mumbai		10 Jan, 2014
Mr. Mayur Vacchivora	Principal Consultant, ISO Auditor and Trainer, Mumbai	Alternative aquaculture technologies ISO awareness programme	11 Jan, 2014
Dr. Bhawesh Sawant	Research Officer, Taraporewala Marine Biological Research Station (KKV), Mumbai	Application and advances of principle of aeration in aquaculture	13 Jan, 2014
Dr. V. V. Singh	Principal Scientist, Mumbai Research Centre of CMFRI, Mumbai	Integrated coastal zone management	16 Jan, 2014
Dr Anna Godhe	Professor, University of Gothenburg, Sweden	The implication of genetic diversity among phytoplankton	6 Feb, 2014
Dr. C.L. Dadhich	CGM & Principal. (Retd.) Training College, RBI, Mumbai	Macroeconomics	I Sem, 2013-14
Dr. C. Sundaramoorthy	Scientist, CIRCOT, Mumbai	Environmental economics	I Sem, 2013-14
Dr. K. Gopakumar	Former DDG, ICAR (Fy) and Chairman, RAC	Advances in freezing Technology	24 Mar, 2014

4.7. CIFE Celebrates its XI Convocation on 27th May 2013



Padma Bhushan Dr. R.S. Paroda, Chairman, Haryana Farmers' Commission and Trust for Advancement of Agricultural Sciences (TAAS) & Former Director-General, Indian Council of Agricultural Research (ICAR) was the chief guest and Dr. S. Ayyappan, Secretary, Department of Agricultural Research & Education (DARE), Govt. of India and Director-General, Indian Council of Agricultural Research (ICAR) presided over the function.

In his Convocation address, Dr. Paroda highlighted the crucial role of fisheries and aquaculture in meeting both food and nutritional requirements of our ever growing population and the need for highly trained human resources to achieve this goal.

Dr. Ayyappan, Director General, ICAR, in his presidential address, emphasized on 'Farmers First and Student - READY' initiatives of the ICAR along with the national consortia platform project for quality research and education and improved technology delivery.

During the convocation, 142 M.F.Sc. and 37 Ph.D. degrees were awarded besides presenting 24 Gold Medal Awards to meritorious students. Ms. S. Agnes Daney Angela and Ms. N. Shamna secured the top ranks for the year 2009-10 and 11-12, respectively. The institute conferred Doctor of Science (*Honoris Causa*) to two of the eminent scientists in the field of fisheries and aquaculture, Dr. K. Gopakumar, Former Deputy Director General (Fisheries), ICAR and Dr. S.D. Tripathi, Former Director, CIFE. Dr. B. Meenakumari, Deputy Director General (Fisheries), ICAR and Dr. Arvind Kumar, Deputy Director General (Education), ICAR were the Guests of honour. Dr. A.K. Pal, Joint Director, CIFE proposed the vote of thanks.





4.8. First Students' Research Convention on Innovations in Fisheries

CIFE, Mumbai organized a Students' Research Convention, first of its kind, on the theme 'Innovations in Fisheries' on 10 July, 2013 at CIFE, Mumbai. Objectives of the convention were to document innovations in fisheries sector and to provide in-depth understanding of concepts and techniques inherent in an innovation. This convention provided a platform for youth to assemble, discuss innovations collected from field and share it at a national level convention.

The chief guest of inaugural function, Padma Bhushan Dr. R.B. Singh, President National Academy of Agricultural Sciences (NAAS), Former ADG, FAO addressed the participants of convention and emphasized that innovations have always been an integral part of human beings and evolution of a society mainly depends upon the quality of innovations developed. An exploration for better livelihood options and better quality of life leads to great innovations. Dr. Singh underlined that innovation can not be an outcome of simple science and traditional research; rather it requires great deal of determination, commitment, and above all, an out of box thinking. Therefore, the youth has to play a crucial role in developing innovations that can make difference in the life of future generations.

Dr. W. S. Lakra, Director, CIFE pointed out that there are various ways to develop an innovation. At a glance, a research output may not be innovative, but its application in an appropriate way can lead to innovations. He stressed upon the need for creation of 'Student Innovation Clubs' where the student community can freely interact to develop the innovations.

Dr. M. L. Madan, Former DDG (Animal Sciences), ICAR expressed that an innovation is like hatching of a concept in process of its actualization. Dr. Madan recommended, publication of noteworthy innovations displayed during the convention in the form of a resource book so that it can be widely circulated among the researchers, fishers, farmers, academicians and students.

Dr. S. D. Tripathi, Former Director, CIFE, while expressing his views pointed out that innovations should not be confined to a particular region. He also expressed the hope that this student convention will be a stepping stone in the direction of recognizing grassroots innovations as a national level phenomenon.

This convention was attended by 195 young professionals from 17 states belonging to 20 colleges of India as well as overseas students from Sudan, Eritrea, Nigeria etc. More than 150 innovations were documented highlighting grassroots innovations. A resource book on 'Innovations in Fisheries Sector' was also released on this occasion.

The convention ended on a satisfactory note as it received positive feedback from the participants and the efforts taken by CIFE were appreciated. During poster sessions, there was free exchange of views, ideas and suggestions among the participants, experts, fishers and fish farmers. This has laid a foundation for future collaboration and exchange of information among the participants. It was unanimously recommended that such conventions should be organized regularly at an annual or bi-annual duration.

4.9. Educational cruise on institute's fishing vessel

The institute's fishing vessels M.F.V. Saraswati (OAL-36.57 m) and M.F.V. Narmada (OAL- 11.6 m) support onboard research and training programmes on fishing, navigation, oceanography, etc. M.F.V. Saraswati is equipped with Global Positioning System (GPS), Very High Frequency Radio (VHFR), Radio Telephone (RP), Echo Sounder, Sonar and Trawl eye. The details of the cruises carried out during the year are as follows.

MFV Saraswati sailed for 4 days from 6 to 9 Apr, 2013 in which 2 faculties and 17 students participated.

MFV Narmada made a total of 28 trips (34 days) for students research work and out of these 7 cruises were conducted on hire basis on payment of Rs.10,000/- per day to CMFRI, Mumbai, N.I.O., Mumbai and Institute of Science, Mumbai. Hence, revenue of Rs.70,000/- was generated for CIFE, Mumbai.



4.10. Syllabus revision

A major syllabus review exercise was conducted in the month of Feb-March to be on par with the growing demands of the students requirements and to keep abreast with the latest knowledge. Division-wise meetings were conducted where experts in relevant fields were invited to give their inputs in the syllabus revision process.

4.11. Educational advising services

One day Educational Advising Services for CIFE students was conducted on 22 March, 2013 by United States - India Educational Foundation (USIEF) to orient students for higher studies in United States. USIEF promotes mutual understanding between the nationals of India and US through the educational exchange of outstanding scholars, professionals and students. The program on 22 March, 2013 dealt with Fulbright fellowships.

4.12. Personality development programme

Two days Personality Development Programme was conducted by Quetzal group in March 2013. Trinaer Devashish Chakravarty, an IIM Ahmedabad alumni conducted the sessions inorder to build competence and capabilities through interactions and game sessions so that each trainee discover himself/ herself. The program was attended by 20 participants.

One day program on Public Speaking was conducted by Ms Sadhna Brajesh, from Pune on 18 October, 2013. Forty-hours long training in english communication skill was conducted for 24 students from January to March 2014.

4.13. On-campus selection

Nezami Rekha Sea Foods Pvt Ltd from Kolkata selected 3 Masters students from Post Harvest technology for their factories in West Bengal and Andhra Pradesh.

Orientation program conducted by the General Manager of Indepesca Aquaculture International Co. Ltd led the company seeking 10 Masters Graduates from aquaculture background.

One student has been selected by West coast fisheries for their processing factory at Surat w.e.f. July 2014.

4.14. Fulbright-Nehru Fellowship



Mr. I. Sivaraman, Ph.D Scholar of FEES Division won the Fulbright-Nehru Fellowship sponsored by the USIEF. After a two-round national-level selection process, Mr. Sivaraman made it to the final list of 25 candidates and won the Fulbright-Nehru Doctoral and Professional Research fellowships for the year 2013-14. It helped him to carry out a part of his doctoral research under guidance of Dr Diego Valderrama, Assistant Professor, Food and Resource Economics, University of Florida for nine months from August 2013 to May 2014.





4.15. Memorial Lectures

Dr. P.V. Dehadrai Memorial Lecture

The first Dr. P.V. Dehadrai Memorial Lecture was organized by CIFE and Dr. Ambekar E. Eknath, Director General, Network of Aquaculture Centres in Asia-Pacific, Bangkok delivered the lecture on "Challenges and Opportunities to Sustain Aquaculture Production in the Asia-Pacific Region" on 24th July 2013.

Dr.C.V. Kulkarni memorial lecture & award function

Dr. C.V. Kulkarni Memorial Lecture & Award Function was held on 26 August, 2013. Dr. G. Syda Rao, Former Director, CMFRI, Kochi was the Chief Guest and Dr. A.C. Kulkarni was the Guest of Honour. Dr. G. Syda Rao delivered the Dr. C.V. Kulkarni Memorial Lecture on "Mariculture, Research and Development: Status, Challenges and Potentials."

Name of the award	Winner
Smt. Nirmala C. Kulkarni Best M.F.Sc Girl Student Research Award	Ms. Sarika Kunnath
Dr.C.V. Kulkarni Best M.F.Sc Student Research Award	Mr. Apu Das
Dr.C.V. Kulkarni Best Young Scientist Award	Dr. Kajal Chakraborty

4.16. Prof. K.H. Alikunhi best Ph.D. thesis gold medal for 2011-12 & 2012-13

The winners of the Awards are

Dr. Jayappa Mahalappa Koli (2011-12)

Thesis : Optimization of gel properties of gelatin extracted from *Otolithes ruber* (Block & Schneider, 1801) and *Nemipterus japonicus* (Bloch, 1791).
Guide : Dr. S. Basu

Dr. Annam Pavan Kumar (2012-13)

Thesis : Molecular Biology and DNA barcoding of Elasmobranchs from Indian coast.
Guide : Dr. W.S. Lakra





Chapter 5

Research

Achievements



Institutional Projects - Brief Achievements

Aquaculture

1. Evaluation of biofloc based system for rearing of *Labeo rohita* and *Litopenaeus vannamei*

2013-16

Babitha Rani, A. M., A. K. Reddy, K. Paniprasad, A.K. Verma and V. Harikrishna

- Tapioca flour based biofloc system recorded improved growth parameters in fish
- All the important water quality parameters among the biofloc based rearing units were normal with zero water exchange for 90 days compared to clear water culture control with periodic water exchange



2. Growout culture of table size *Clarias batrachus* and *Macrobrachium rosenbergii* in floating net- cages

2012-15

Kiran Dube Rawat, N. Saharan, A.K. Reddy, C.S. Chaturvedi and Chandra Prakash

- The juveniles of *Macrobrachium rosenbergii* with mean length and weight of 5.15 cm and 2.17 g, respectively were stocked @ 10, 15, 20, 25, 30 and 35 prawns/m² at Powai lake, Mumbai. Best results both in terms of length and weight were recorded in stocking density of 20/m²
- However, when *Macrobrachium rosenbergii* with mean length and weight of 5.15 cm and 2.17 g, respectively were stocked @ 50 no./m² with artificial substrate, the mean length and weight was recorded around 13.5 cm and 12.0 g, respectively during the last sampling. With different units of substrate, best results were observed in T1 (one unit of substrate) followed by T2 (two units of substrate)



Cages installed at Powai Lake

3. Seed production and culture of *Labeo calbasu* (Hamilton, 1822) in weed infested ponds.

2012-2015

N.K. Chadha, Somdutt, Chandra Prakash and Paramita B. S.

- Successful breeding of 3 females out of 6 females and 10 males (*L. calbasu*) and 2.05 lakh spawn out of which 50,000 fry were recovered (25 % survival).
- Treatment of alum at 1000 ppm under highly alkaline conditions (alkalinity 250-350 ppm) for the control of weed did not cause any mortality.
- There was reduction in chlorophyll pigment by 96% - 98%, on application of alum @ 1000 ppm to selected submerged weeds (*Chara* sp. and *Hydrilla* sp.), stocked @ 200 g/100 l of water, at an alkalinity of 50 ppm.





4. Assessment and bioremediation of Pendimethalin toxicity in common carp (*Cyprinus carpio*)

2012-15

N. Saharan, P.P. Srivastava and G. Tripathi

- Histopathological alterations in liver, gill and kidney of fish exposed to pendimethalin revealed discernible damage to the tissues as compared to control.
- Hemorrhage in the primary lamella and hyperplasia of secondary epithelial cells and swollen tip of the primary lamellae and secondary lamellae exhibiting basal hyperplasia were seen in the fish exposed to pendimethalin.
- Necrotic hepatocytes at places and damaged acinar cells and inflammation of liver cell as well as necrotic hepatocytes displacing formation of fibrinous layer around hepatic vein were seen in fish exposed to pendimethalin.
- Kidney section exposed to 3 pendimethalin showed necrotic shrunken glomeruli and oedematous interstitial space and acute renal tubular necrosis with diminish tubules.
- The present study clearly indicates that gill, liver and kidney are important target organs for pendimethalin in the freshwater fish, *Cyprinus carpio* and the significant alterations in these organs indicate stress in *Cyprinus carpio* on exposure to pendimethalin.



5. Breeding, larval rearing and colour enhancement of selected high value tropical ornamental fishes

2012-15

Paramita B.S., N.K. Chadha, Chandra Prakash, P.P. Srivastava and S. Dasgupta

- Quantitative estimation of enhancement of colour with standard colorimetric methods using a Labscan Colorimeter, CIE scale (L^* , a^* , b^*), showed marigold petals to enhance the yellow spectrum ($b^* = 29.03$) more than carrot ($b^* = 19.82$) and Papaya ($b^* = 17.35$).
- Highest absolute growth and gain in weight recorded at (pH 6.5; vit-c 25 mg) and best colour was evident at (pH 6; vit-c 50 mg) and (pH 6.5; vit-c 50 mg) respectively.
- Studies on growth and survival of juveniles of Discus with respect to stocking densities showed 3 juveniles /10l to yield best growth and less mortality.

6. Water budgeting studies on the hatchery, nursery rearing and grow-out practices for carp.

2011-14

A.K. Verma, V.K. Tiwari, C.S. Chaturvedi and Chandra Prakash

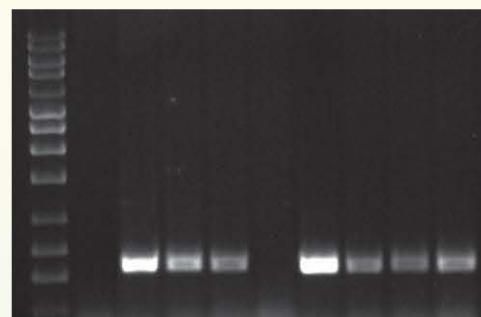
- Experiments on hatching of eggs were carried in a circular Chinese hatchery and FRP jar hatchery (a set of 6 jars) at Arrey State Fish Farm, Goregoan and CIFE, Balbhadrapuram, Andhra Pradesh. The hatching percentage was 93 and 83 in FRP jar hatchery and Chinese circular hatchery respectively.
- The consumption of water recorded was 75.76 and 174.91 litre per thousand of spawns of carp in FRP jar hatchery and Chinese circular hatchery, respectively.

7. Development of bicistronic DNA vaccine construct against *Edwardsiella tarda*

2012-15

M.K. Bedekar, K.V. Rajendran, G. Tripathi and M. Makesh

- A bicistronic vaccine construct against *Edwardsiella tarda* bacteria was developed, the vaccine construct contains antigen of *E. tarda* and IFN gamma gene of *L. rohita*. Successful expression of both the genes in cell line was achieved.
- Monoclonal antibodies and recombinant GAPDH protein of *E. tarda* was developed.
- Successful expression of recombinant Interferon gamma of *L. rohita* in peripheral blood cells was achieved.



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

2011-14

C.S. Purushothaman, V.S. Bharti and V.K. Yadav

- In general, areas of higher relative CDOM corresponded to low phytoplankton contribution.
- In the coastal part (other than Thane Creek samples) the contribution of phytoplankton was higher compared to the creek area where contribution of CDOM and detritus were more pronounced.

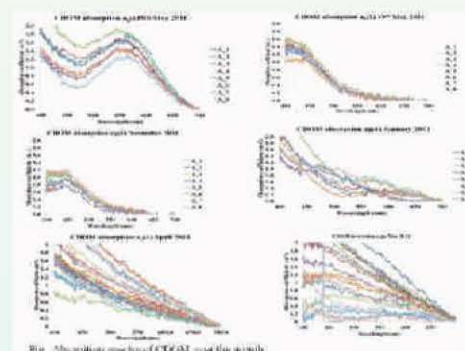


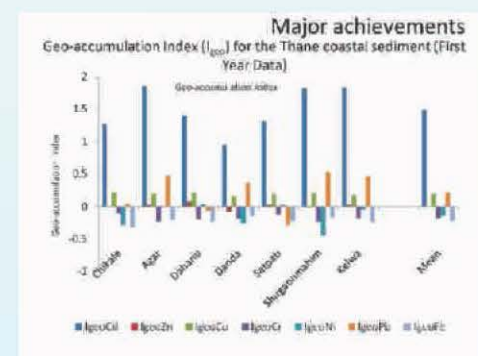
Fig. 8: Absorption spectra of CDOM over the spectrum

9. Monitoring of pollution in a coastal ecosystem and assessment of trophic transfer of persistent pollutants

2012-2015

A. Vennila, C.S. Purushothaman, S.P. Shukla, P.K. Pandey and V. S. Bharti

- Concentration Factor showed very high enrichment for Cd and Pb, and moderate enrichment for Cu and Zn for the Thane coastal sediment.
- Geo-accumulation index of metals of Thane coastal sediment showed that the sediment is moderately polluted (Class 2) with Cd; unpolluted to moderately polluted (Class 1) with Zn, Cu and Pb; and unpolluted (Class 0) with Cr, Ni and Fe.
- Pollution load index varied from 0.82 to 1.20 and Potential Ecological Risk Index ranged from 15.56 to 76.78 and distribution pattern of risk index (RI) for the sediments along the Thane coast was mapped using ArcGIS software. Sediment of coastal area studied showed low risk index with respect to six metals. Among stations, Shirgaon-Mahim and Kelwa showed higher RI than other stations.





10. Designing and testing of column based water filtration units for removal of inorganic and organic waste from hatchery wastewater

2012-15

S.P. Shukla, A. Vennila, P.K. Pandey and V.S. Bharti

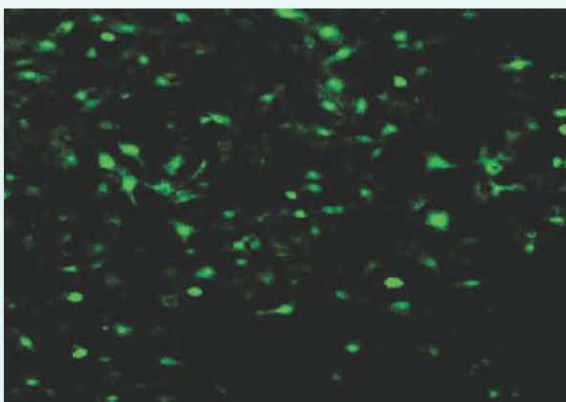
- A column based water filtration unit has been designed for the removal of contaminants from the water.
- The fabrication of up-scaled unit (200 l/ min) has been completed. Experiments on a smaller prototype for Arsenic removal has been completed.
- About 40-50 % removal was observed for As (III) in the concentration range of 50-150 ppb.

11. Enhancement of Indian Major Carp production through Bio-film

2011-14

P. K. Pandey and Somdutt

- The positive impact of baggase based bio-film was observed on catla and rohu in terms of specific growth rate. Increase in production of IMC was recorded during the experiment.
- Predatism by birds was controlled by covering the experimental ponds with nets and due to this, there was a remarkable improvement in survival (>90%) of cultured stock.



12. Development and characterization of embryonic stem- like cells from *Carassius* sp.

2012-2015

G. Tripathi, W. S. Lakra, M. K. Bedekar and Kundan Kumar

- Embryonic stem-like cells were derived from mid-blastula stage embryos of *Carassius auratus* using feeder free method.
- Oct-4, a member of POU transcription factors family, which plays a key role in regulating pluripotency and differentiation has been used for the characterization of undifferentiated pluripotent ES like cells.
- Pluripotency Oct-4 gene from inner cell mass of blastula stage embryo has been partially amplified by PCR, cloned and sequenced. The sequence has been submitted to Genebank (Accession No. KM000856).

13. Assessment of molluscs, crustaceans and algal biodiversity on inter-tidal region of Maharashtra Coast

2012-15

S.K. Chakraborty, G. Deshmukhe, A.T. Landge, S.K. Patil, A. Pavan Kumar, A.K. Jaiswar, A. Dwivedi, R.D. Tandel, S.S. Kamat and Pawan Kumar

- Seventy molluscan, 15 crustaceans and 49 macro-algal species were recorded from all the sites.
- At Bhatkarwada (Ratnagiri), which is rocky shore *Nerita oryzirum*, *Planaxis similes*, *Thias tissoti*, *Trochus radiatus*, *Drupa subnodulosa*, rock oyster *Saccostrea cucullata*, *Onchidium vericulatum* were found dominant.
- Shellless molluscs *Onchidium vericulatum* and *Aplysia* were recorded from Srivardhan and Ratnagiri. *Sargassum* was abundant and dominating in mid littoral and sub-littoral zone. The average biomass of seagrasses was found to be 700 – 900 g m⁻².
- In monsoon period, only *Porphyra* growth was observed at Ratnagiri and some filamentous forms like *Enteromorpha* and *Rhizoclonium* were observed in the supra littoral rocks of Ratnagiri.
- The brown algae were dominant at Srivardhan. The lower inter-tidal zone was dominated by *Sargassum* spp. Molluscan species like *P. sulcatus* and *C. rubus*, *N. oryzam* were found grazing on large *Ulva* thallus. In the mid-littoral and sub-littoral, the brown algal species were dominant at Srivardhan.
- At Alibag, *Ulva* and *Enteromorpha*, *Gracilaria verucosa* were common in post-monsoon and pre monsoon season. Along Wadhvan, (Dahanu) the sandy beach was dominated by small crabs and sometimes *Trochus raditaus* and *Nerita oryzarum* were found. Few grazers like *Cerithidea* and *Nerita* spp were collected.
- *Ulva lobata* was dominant in Wadhvan. In some pockets, *Iyengaria stellata* was observed. In the small tidal pools, the coralline algae were present. *Planaxis sulcatus* and *Nerrita oryzarum* were distributed through the rocky shore and these were found grazing on various types of algae specially *Padina*.



14. Occurrence and dissemination of antimicrobial resistance and virulence factors among Enterobacteriaceae in Seafood

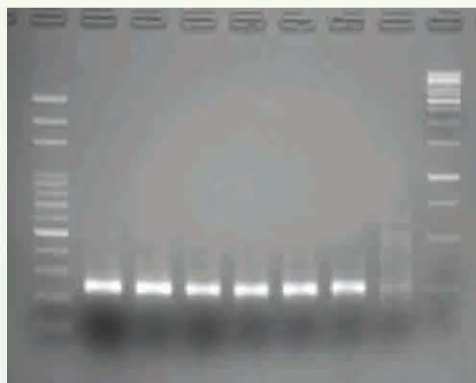
2012-15

H. Sanath Kumar, B. B. Nayak and L. Manjusha

- This study on the prevalence of ESBL-producing enterobacteria has found multidrug resistant (MDR) enterobacteria in fresh seafood.
- A very high percentage of isolates were resistant to extended spectrum cephalosporins, carbapenems and monobactams such as cefotaxime (97.6%), ceftazidime (91%), aztreonam (65%), cefpodoxime (92%), amoxicillin-clavulanic acid (38%), piperacillin/tazobactam (41%), imipenem (11%), ertapenem

(41%), meropenem (31%), cefoxitin (20%), ciprofloxacin (16%). All ESBL⁺ isolates were found to be harbouring one more ESBL genes. Of 170 isolates tested by PCR, 64.11% were positive for *bla*_{CTX}, 18.23% for *bla*_{TEM} and 11.76% for *bla*_{SHV} type ESBL genes.

- Significantly, a multidrug resistant *Escherichia coli* harboring the New Delhi metallo- β -lactamase gene (*bl*_{NDM}) was isolated from fresh fish. The isolate EC-114 was resistant to expanded spectrum cephalosporins, carbapenems and quinolones, but sensitive to aminoglycosides and colistin. Sequencing of the NDM gene identified it as the NDM-5 variant with two amino acid substitutions at positions 88 (Val-Leu) and 154 (Met-Leu). This is the first report of the occurrence of NDM-5 from India.

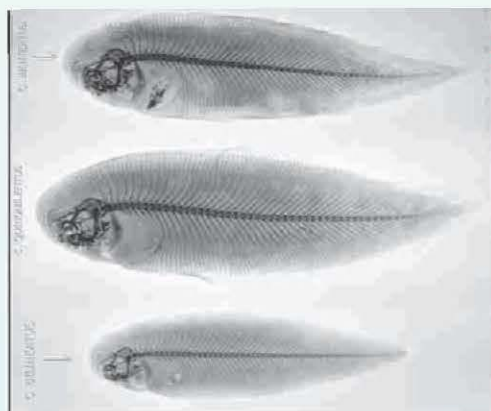


15. Enteric Viral Risk assessment of Seafood

2013-16

B.B. Nayak , H. Sanath Kumar and K.V.Rajendran

- 39 samples which included seafood from retail markets and landing centers in Mumbai and sediment samples were analyzed for the presence of norovirus
- Overall, norovirus was detected in 23% of the samples analyzed.
- Viral RNA extraction procedures, PCR protocols and probe hybridization techniques were standardized.



16. Taxonomic evaluation and phylogenic study of flat fishes occurring in Indian waters

2013-16

A.K. Jaiswar, S.S. Mishra and A. Pavan Kumar

- A total of 269 specimens belonging to 14 species of family Cynoglossidae were collected from Veraval (Gujarat), Versova, New ferry Wharf, Sassoon docks - Mumbai, Mirkarwada - Ratnagiri (Maharashtra) and Digha (West Bengal), Mandappam, Rameshwaram (Tamil Nadu).
- Study on morphological characters has been conducted along with hard parts like scale and otolith.



17. Development of Acetes based value added fish products

2013-16

A.K. Balange, G. Venkateswarlu G., B.B. Nayak, H. Sanath Kumar and Martin Xavier

- Fatty acid profile of dried *Acetes* by GCMS revealed 9,12-Octadecadienoic acid (17.08%), DHA (15.69%), EPA (13.45%) and Docosanoic acid (11.75%) as major fatty acids. From these results, it can be concluded that dried *Acetes* can be a good source of health beneficial omega -3 fatty acids.
- Dried *Acetes* contain 10 % chitin while 3 % chitin was estimated from minced *Acetes* shell waste.D
- Acetes* is a significant source of essential amino acids especially sulphur-containing essential amino acids and lysine.
- Dried *Acetes* can be a good source of health beneficial omega -3 fatty acids.

Fish Genetics and Biotechnology

18. Stock comparison of *Clarias batrachus* (Linnaeus, 1758) for selective breeding

2012-17

W.S. Lakra, S. Jahageerdar, Gopal Krishna, Rupam Sharma, C.S. Chaturvedi, Somdutt and Suresh Babu

- Four stocks of *Clarias batrachus* Viz., Andhra Pradesh, Assam, Chhattisgarh and West Bengal were assembled at CIFE Centre Bhalbhadrapuram/Kakinada.
- PIT Tagging protocol was standardized

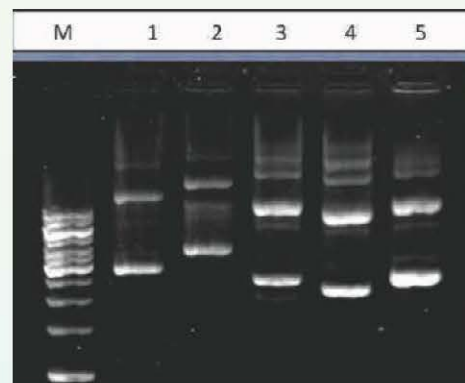


19. SNP mining within reported coding sequences of giant freshwater prawn *Macrobrachium rosenbergii* using next generation sequencing

2012-15

A. Chaudhari, C. G. Joshi, (AAU, Anand), P. Koringa (AAU, Anand), P. Gireesh Babu, A. Pavan Kumar and P. Suresh Babu

- About 200 sequences of *M. rosenbergii* from NCBI GenBank were classified on the basis of their function. Information on expression of selected genes with regard to developmental stage and tissue was collected. The sequences were analyzed for the presence of UTR sequences as these regions are more polymorphic compared to the coding region. At least one primer or primer pair was targeted to the UTR region wherever possible.
- Primers for 40 non-redundant genes were designed to amplify overlapping fragments and PCR conditions were optimized. The amplicons were confirmed by sequencing. There are 25 seqs in the 600-650 bp range and 14 between 200-300 bp (designed in UTR region) for sequencing on different NGS platforms.



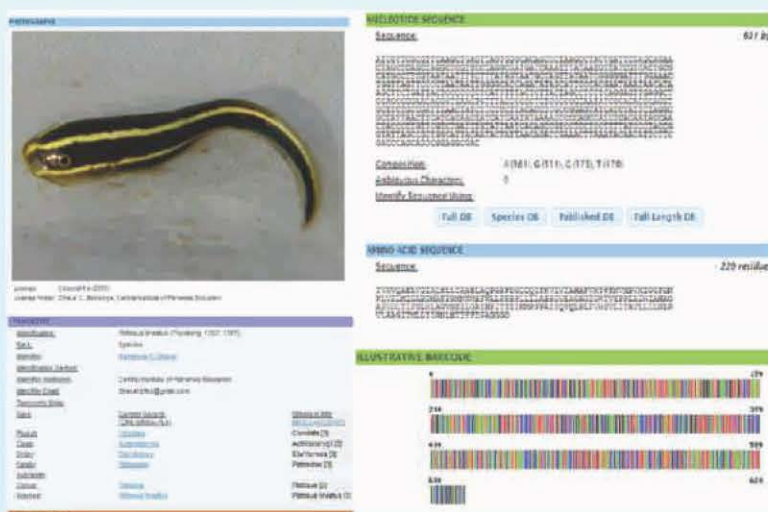
Cloned fragments were confirmed by sequencing

20. DNA barcoding of selected Fishes from Indian coast

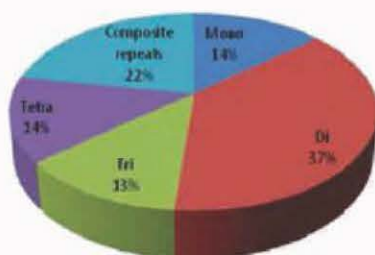
2013-16

W.S. Lakra, A. Pavan Kumar, Nagalakshmi, P. Gireesh Babu, A.K. Jaiswar, A. Chaudhari, Gopal Krishna and S. K. Chakraborty

- DNA barcodes were generated for 30 fish species and the barcodes were submitted to BOLD database.
- Using DNA barcodes, mislabeling of some of the seafood products was identified.



Composition of microsatellite repeats identified



21. Identification and validation of tri and tetra-nucleotide microsatellite loci in *Clarias batrachus*

2012-15

P. Gireesh Babu, A. Chaudhari, Rupam Sharma and A. Pavan Kumar

- Repeat enriched genomic DNA library was developed for *Clarias batrachus*.
- The colonies were screened for the presence of insert by colony PCR. Of the 230 sequences analyzed 87 contained repeat sequences. The repeat sequences observed were mono, di, tri and tetra nucleotide repeats.
- Several composite microsatellites with more than one repeat type were also observed. For validation of the identified microsatellite loci, primers were designed against 30 selected sequences.



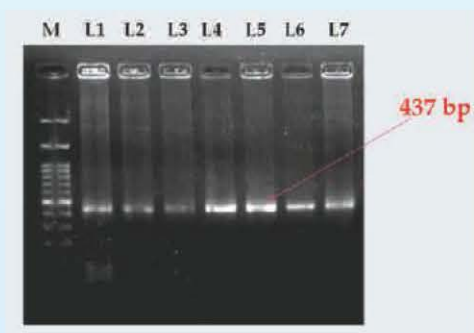
22. Development of technology for breeding, hatchery installation and rearing of riverine cat fishes (*Clarias batrachus*, *Pangasianodon hypophthalmus* & *Ompok Pabda*)

2012-15

C.S. Chaturvedi, Gopal Krishna, N. Saharan, Somdutt V.K. Tiwari, A. Sharma and A. Landge

- Magur breeding was done through stripping method at Powarkheda centre. Total 21 females and 21 males were used for breeding. Nearly 15,000 magur larvae were produced and stocked in round cement tanks (3' dia.) for further rearing.
- About 8,000 fry (15-20 mm) of magur were realized till 12.08.2013. Finally 4,500 advance fry (30-35 mm) were produced in round cement tanks and stocked in nursery pond on for further rearing.
- Procured 6500 fingerlings of magur and 100 pangasius spp. (300-400g) from Raipur and stocked at Powarkheda farm for further rearing.
- Rearing of above stocks of *Clarias batrachus* & *Pangasianodon hypophthalmus* continued under this project. Nearly 600 magur brooders and 100 pangasius brooders were developed from above stock at Powarkheda centre.

Fish Nutrition, Biochemistry and Physiology



23 Nutritional requirement and nutrigenomics studies for growth and flesh quality in *Pangasianodon hypophthalmus* (Sauvage, 1878)

2012-15

A. P. Muralidhar, K.K. Jain, S. Gupta, P. P. Srivastava and S. Sahoo

- The energy requirement of juvenile *Pangasianodon hypophthalmus* was found to be 402 K.cal DE/100g.
- Metabolic enzyme encoding gene (hexokinase-I), digestive enzyme encoding gene (amylase) and flesh quality related gene (calpain), were isolated, cloned and characterized partially.
- The amplicon size of partially sequenced hexokinase-I, amylase and calpain genes were found to be 191, 125, 437 bp, respectively.

Fish Economics, Extension and Statistics

24. Responsible fisheries management along Mumbai Coast: Empowering through information and institutional strategies

2011-14

- S.N. Ojha, A. Sharma, L. Shenoy, P.S. Ananthan, M. Krishnan and S.K. Chakraborty
- It was observed that in the Konkan region of Maharashtra state depicted moderate growth from the period of 1997 – 2006, after which the growth seemed to stagnate. Against this backdrop the state has to take some serious policy measures to conserve fisheries of this region.
- Communication tools in the forms of fliers and leaflets were made to educate fishers on diversified marine fisheries activities. These tools were on fish processing, pen culture, fish culture, mussel culture, seaweed culture, sea safety, etc.
- Awareness programmes were organized through various talks and exhibitions under the banner of Konkan Udyoug Prathishthan and Verova Sea Food Festival on opportunities in Konkan fishery.
- A 'Fisher Leaders Workshop on Responsible Marine Fisheries Management' was organized at Palghar, Thane to sensitize stakeholders on the issues of CCRF, get their feedback on the implementations of CCRF and raise the issues of fisher women. About 100 fishers, that included 50 fisher women, participated in this workshop.



25. Ecology, livelihoods and governance in Indian reservoir fisheries: an ecosystem based approach

2012-15

P.S. Ananthan, M. Krishnan, A. Sharma, A. Landge, A. Vennila, V. Ramasubramanian and Rama Sharma

- The ownership of the reservoirs lies with Irrigation Department while fisheries management/leasing rights are transferred to DoF. The present lease holder is Dimbhe *Jalashay Shramik Adivasi Machhimar Sahakari Sanstha Maryadit*, Digad since 2006 having 196 tribal fisher members.
- DoF estimated fish production (normative) based on which lease value fixed is 366 tons/year with recommended stocking density (Size 50 mm) of 13,71,000 nos. (980/ha) which is unrealistic and devoid of any scientific base. The average seed stocked / year (Size 50-100 mm) during 2009-12 was only 3,67,167 nos. / year i.e. 167 no. /ha. With 157 fishing days / year (2008-11) the fish production was merely 16.4 tons/year (7.44 kg/year/ha and 92 kg / fisher/year), which is very low. The same indicators during 2012-13 improved with 30 tons production, productivity of 24.3 kg / ha and 290 fishing days and 333 kg of catch / fisher.
- Hydrographic and fisheries management profile of Isapur (Yavatmal dist.) and Itiadh (Gondia) reservoirs, that were under

lease to the contractor and the co-op society respectively, indicated that the average fish production (2009-11) was 426.6 in Isapur and 89.5 tons in Itiadoh with fish productivity (kg/year/ha) being 64.05 kg and 18.4 kg and fish productivity / fisher being 1129 kg and 296 kg. The reasons are rather complex with respect to the effectiveness of different management regimes on fish production and productivity though fisheries co-operatives seem to be failing in terms of both fisheries development and equitable development of their members.

26. Modeling & forecasting of fish production & marine product export of India

2011-14

V. K. Yadav, M. Krishnan and Rama Sharma

- Various fuzzy time-series (time variant and invariant) forecasting models for marine product export data (in quantity terms) using BaseSAS programming language were developed.
- These forecasted results obtained by different fitted fuzzy models were compared and interpreted to provide better estimate. It was found that first order time variant fuzzy time series forecasting model (Chen and Su, 2004) gives better estimate (in terms of less average error percentage and Mean square error) on the above said data compared to all developed fuzzy time series models.
- Neuro fuzzy approach (Artificial Neural Network, ANN) Model using Back-propagation Algorithm has also been developed on the above said data. Neuro fuzzy approach (ANN) method provides less good forecast as compared to fuzzy time series as there is less non-linearity in the data

27. A value chain analysis of farmed shrimp in India

2013-16

N.R. Kumar, M. Krishnan and Swadesh Prakash

- Interview schedules for collection of primary data from different stakeholders in shrimp value chain was designed and finalized after pre-testing in the field.
- Sample survey has been initiated in Navsari district of Gujarat. The data from 75 farmers (50 *L. vannamei* and 25 *P. monodon*) were collected.

28. Economic evaluation and livelihood assessment of leased out ponds under panchayati raj system in Northern India

2013-16

Swadesh Prakash, M. Krishnan, N.R.Kumar, A. Sharma and V. Ramasubramanian

- Methodologies has been developed to conduct survey work for data collection from the study area in consultation with experts along with project team.
- Questionnaire and interview schedule has been developed for data collection from the study area for economic evaluation and livelihood assessment of leased out ponds.

29. Documentation of endogenous grass root level innovations in fisheries sector and facilitating patenting of innovations by CIFE scientist

2012-15

A. Sharma, Rupam Sharma, S.P. Sukla, A. Langde, P.S. Ananthan, Rama Sharma, Ram Singh, S. S. Gajbhiye, S.K. Sharma and D. Bhoomaiah

- To facilitate patenting, sensitization workshop on Patent Drafting was organized. Lectures on Patent Drafting and Patent Search arranged.
- Interaction session with ADG, IPR, ICAR New Delhi and CIFE Scientists and students organized.
- Three patent applications filed in Indian Patent Office. One copyright applied to Indian Copyright Office. To document grass root level innovations in fisheries sector, First Student Research Convention on Innovations in Fisheries was conducted on 10th July, 2013. Hundred innovations were documented highlighting grassroots innovations in form of posters.

Kolkata Centre

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

2011-2014

B.K. Mahapatra, S. Munilkumar, S. Datta and Paramita B.S.

- *Channa barca* is nocturnal in habit and preferred food items in order of acceptance were *Anisops sardeus* > tubifex > squid > chicken liver > guppy fry > cuttle fish > snail meat > artificial feed.
- Successful captive breeding of *Channa barca* was recorded in Jhagrasisha Fish Farm, Salt Lake.
- The physio-chemical parameters of pond water and soil at Jhagrasisha Fish Farm during captive natural breeding trial are suitable for gonadal development and successful breeding. The recorded parameters were: Pond size- 0.005 ha, water depth - 2-3 ft., water temperature (°C) - 22.6 - 24.7, water pH - 7.17-7.90, water alkalinity (mg/L) 114-219 and water hardness (mg/L) 136-258. The fishes are also surviving well with water temperature (°C)- 16.50-28.90, Water pH - 7.05-8.70, water alkalinity (mg/L) 114-296 and water hardness (mg/L) 136-316.

31. Utilisation of sewage to culture fish food organisms for ornamental fish

2012-2015

S. Munilkumar, B.K. Mahapatra, G.H. Pailan and S. Datta

- The suitable spp. of live food organisms were identified as *Brachionus calyciflorus*, *Brachionus rubens*, *Tubifex tubifex*, Cyclopoid copepods (*Mesocyclops thermocyclopoides*), *Moina macrocopa*, apart from the green algae *Chlorella*.

- Mass culture of chlorella, moina, rotifer and copepod were initiated in 165 litre FRP tanks.
- Media for tubifex was prepared using a substrate of vermicompost and sand. Tubifex stock culture has been collected and stocked at rate of 40 gm per sq metre.



32. Feeding of high glucosinolates mustard oil meal based diet on nutritional and patho physiological responses of *Labeo rohita* and *Pangasianodon hypophthalmus*.

2012-2015

G. H. Pailan, B.K. Mahapatra, S. Munilkumar and N.P. Sahu

- Incorporation of allyl isothiocyanate (glucosinolates) more than 0.5mg/g diet significantly ($P < 0.05$) reduced the growth, feed intake and nutrient utilization in the fingerlings of *Labeo rohita* and *Pangasianodon hypophthalmus*.
- Decrease of plasma T3, T4 levels and histological changes in the thyroid glands was also evident in both the fish species due to feeding of allyl isothiocyanate containing diets.
- The study indicated that tolerance limit of allyl isothiocyanate in fingerling of pangasius and rohu is 0.5mg/g diet.

33. Identification and isolation of germ cells for transplantation in cyprinids

2012-2015

S. Dasgupta, A.K. Pal, N.P. Sahu, G. Tripathi and B.K. Mahapatra

- The full length cDNA encoding vasa gene was cloned and sequenced in mrigal.
- Relative mRNA expression during annual cycle of reproduction showed maximum expression in preparatory phase of ovary and pre-spawning phase of testes followed by gradual decrease associated with progress of growth of oocytes/ spermatocytes.
- The results indicated the vasa expression was more associated with the presence of oogonial/spermatogonial stages in the gonads.
- Busulfan, a chemotherapeutic drug, at graded dosages inhibited spermatogenesis process and the effects were further augmented in presence of higher ambient temperature.
- Interestingly feed with dietary supplements caused fast recovery of spermatogenesis process from inhibition effects.

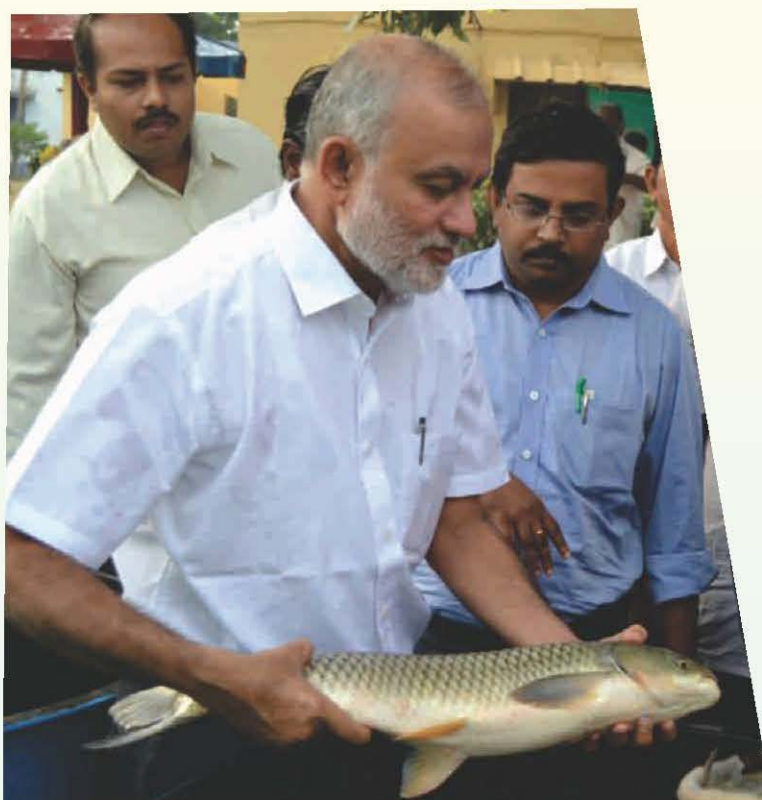
Kakinada Centre

34. Comparative evaluation of growth and reproductive performance of normal and stunted yearlings of Rohu (*Labeo rohita*)

2012-15

P. Suresh Babu, Rupam Sharma and Babitha Rani

- Growth curve for stunted rohu and normal rohu has been evaluated separately for stunting period and the post stunting rearing period.
- Blood was collected from males and females separately from both the groups for serum hormonal analysis.
- 50 fishes each of stunted rohu and normal rohu were tagged with PIT tags and stocked in a single pond in order to find out the individual growth rate.



Rohtak Centre

35. Up-scaling, demonstration and diversification of technologies for finfish and shellfish in inland saline soils

2012 -2015

A.K. Reddy, P. Harikrishna, P.S. Ananthan and W.S.Lakra

- The trials on culture of Pacific white shrimp *Letopenaeus vannamei* have been successfully completed with a production of 10 tonne /ha in 100 days culture duration at a stocking density of 50 no/sq. m in cemented ponds.
- In poly lined ponds a production of 7.5 tonnes/ha in 90 days culture duration at a stocking density of 50 no/sq.mt was achieved.
- A production of 5 tonnes/ha in 75 days culture duration, at a stocking density of 35 no/sq.mt was achieved in earthen ponds.
- Trials on culture of tiger shrimp *Penaeus monodon* in low saline water have been successfully completed with a production 2.5 tonnes/ ha in 120 days.
- Under the winter rearing of freshwater prawn, *Macrobrachium rosenbergii* in poly house ponds, the monthly sampling has shown an average weight of 22.5 grams in 90 days culture duration and maturation had been identified in 10 % of the stock.

Externally Funded Research Projects:



BRNS

**Board of Research in
Nuclear Sciences**

Board of Research in Nuclear Sciences

Programme Leader : Dr. W.S. Lakra

Programme Co-ordinator : Dr. A.K. Pal

Principal Collaborator : Dr. P.M. Ravi

1. Studies on present status of marine radioecology and biodiversity at Tarapur coastal sites, Tarapur, Maharashtra.

Project duration : 2011-2015

Personnel : Chandra Prakash and Paramita B. S.

Budget : Rs. 175 lakh

- The correlation among the environmental parameters and vegetative and animal biodiversity around Tarapur Atomic Power Station was made to observe the impact of water discharge.

BRNS

2. Studies on present status of marine radioecology and biodiversity at Kalapakkam coastal site

Project duration : 2011-2015

Personnel : A. K. Pal and S. Munilkumar

Budget : Rs. 208.35 Lakhs

- Polychaetes, amphipods, branchyuran, nemertine worm, isopods, peneadis, mole crab, gastropods, ostracods and pelecypods were found in all seasons and polychaetes were dominant among them.
- 15 Crustaceans sp. and 54 molluscs sp. were recorded throughout the collection period.
- 80 fish sp. were recorded throughout the collection period. Perciformes was the dominant group.
- The range of radionuclide concentration of various samples were Cs-137 in seawater samples (≤ 0.53 - 3.09 mBq/l), Sr-90 in seawater samples (≤ 1.0 mBq/l), H-3 in seawater Samples (≤ 9 - 13 mBq/l), Cs-137 in seafood samples (≤ 0.09 Bq/kg fresh), Cs-137 in seaweed samples (≤ 0.25 Bq/kg fresh), Cs-137 in sediment samples (≤ 0.9 Bq/kg).

BRNS

3. Studies on the present status of marine radioecology and biodiversity around nuclear plant site in Jaitapur, Maharashtra

Project duration : 2011-15

Personnel : S.K. Chakraborty, B.N. Dilip, A.K. Jaiswar and A. Pawase

Budget : Rs. 68.25 Lakhs

- The samples from 7 intertidal and 9 offshore locations were collected seasonally from Ratnagiri to Sindhudurg district. A total of 54 genera of phytoplankton and 19 genera of zooplankton were recorded.
- The samples for Macro-Benthos were collected from rocky and sandy shores of each 7 intertidal locations. Out of 19 groups were

recorded some of which included porifera, mollusc, crustaceans, annelids, echinoderms.

- Total of 42 species of fin fishes and 27 species of shell fishes were collected and identified during the study period in and around the NPP site.
- Total 71 sediment and 25 biological samples (finfish and shell fish) were collected and pre-processed for the counting of radioisotopes. Radioisotopes like ^{238}U , ^{226}Ra , ^{228}Ra , ^{228}Th , ^{40}K and ^{137}Cs were analysed at BARC Hospital, Mumbai using HPGe Gamma counter. Some of the natural radioisotopes were found from sediment as well as biological samples and activities were calculated in Bq/kg. In case of ^{137}Cs , biological samples having below detectable level and some of the offshore sediment samples showed radioactivity range from 3.4 to 6.7 Bq/kg.

4. Baseline riverine radioecology and biodiversity studies around the proposed NPP site in Jabalpur (Madhya Pradesh)

Project duration : 2011-2015

Personnel : S. Dasgupta, S.P. Shukla (CIFE)
P.M. Ravi, M.K. Mishra (BARC)
P.K. Srivastava (NPCIL)

Budget : Rs. 202.2 lakh

- Water quality parameters of Narmada around Chutka found to be within permissible limit in accordance to IS standard for class A.
- Among phytoplanktons, Bacillariophyceae was found to be most dominant class.
- Bray Curtis Cluster analysis revealed that phytoplankton population are more similar in composition during monsoon and post monsoon (94.4 % similarity) followed by winter and summer (85.5 % similarity).
- Among zooplanktons, copepoda (24 %) was identified as most dominant groups followed by rotifer (23 %), cladocera (17 %), bivalve larvae (22 %) and protozoa (14 %).
- Simson index clearly indicated that zooplanktons were more evenly distributed at Bergi followed by Poudi Tatighat and Tewar and were least evenly distributed at Kikra.
- Macrophyte population showed rich diversity with 38 species. Insect larvae of order Diptera and Trichoptera were most dominant component of benthic fauna, whereas the oligochaeta were very common in benthic fauna. Among mollusk, gastropods were outnumbered bivalves. Catla catla and Labeo spp. were the most dominant fish reported.
- Higher diversification in species composition was noticed at Tewar.

BRNS

5. Studies on the degradation products of both nutrients and anti nutrients of aquafeed exposed to E-beam and their effects on immune physiology of fish, *Labeo rohita*

Project duration : 2011-2014

Personnel : N.P. Sahu, A.K. Pal, S. Ganesh
P.V.A. Padmanabhan, BARC, Trombay

BRNS

Budget : Rs 10.72 Lakhs

- NMR study of phytic acid and tannin: Pure phytic acid was irradiated with e-beam either at 5,10 or 15 kGy electron beam radiation and the degradation products were detected in NMR and compared with a control group (0 kGy).
- H1 spectra revealed that the appearance of a singlet instead of doublet for H1/H3 protons in the samples exposed to E-beam of 15 kGy. The intensity of conformational changes was intense at exposure to 15kGy.
- Non-irradiated phytate chelated with amylase exhibited less release of free glucose. But chelating properties of irradiated phytic acid was lost and exhibited more release of free glucose. This results complements the NMR study.
- DPPH radical scavenging activity increased with the increasing irradiation dose from 5 to 15kGy. As compared to non-irradiated tannin, all the irradiated samples showed an increase in its anti-oxidant behavior. Radical scavenging activity against the DPPH radical for tannin corroborates the NMR results.
- Feeding trial of irradiated phytic acid and tannic acid fed group with *Labeo rohita* fingerlings improved the digestibility, absorption and utilization of the nutrients and mineral status, growth performance, Immuno-physiology and enzyme digestive activity as compared to the non-irradiated phytic acid and tannic acid feed group.
- Highest weight gain was obtained when the fish were fed with 1% irradiated phytic acid in the diet, which was almost 28.04% and 60.46% higher in comparison to control (no phytic acid) or 1% non-irradiated phytic acid. Similarly Weight gain (%) of 1% non-irradiated tannin fed group exhibited 26.46 and 52.39 % more weight gain than the control or 1% non-irradiated tannin.

BRNS

6. Optimum utilization of locally available plant-based ingredients for aquafeed through electron beam irradiation

Project duration : 2012-2015

Personnel : P. Sardar, G. H. Pailan and S. Ganesh

Budget : Rs. 18.035 Lakhs

- Phorbol ester (PE) in untreated defatted *Jatropha curcas* kernel meal was found to be 1.20 mg/g. E-beam irradiation reduced the PE with maximum reduction of 37 % at 25 KGy dose.
- Glucosinolate content of mustard oil cake was analysed as 149.80 $\mu\text{mol/g}$, which was reduced after e-beam irradiation with about 54 % reduction at 25 KGy.
- Phytate content in sesame oil cake and hydrocyanic acid in Linseed oil cake was estimated as 2.33 % and 259.80 mg/kg, respectively. There was linear reduction of phytate and hydrocyanic acid with increasing e-beam irradiation dose resulting 66 % and 59 % reduction, respectively in sesame oil cake and Linseed oil cake at 25 Kgy.
- In comparison to e-beam irradiation, water soaking and heat treatment did not give any promising reduction of antinutritional factors (ANF) in sesame oil cake and linseed oil cake but in mustard oil cake water soaking reduced glucosinolate at the level of 55 %.

7. Molecular Characterization of Type-I interferon of Indian Major Carps and its application as an adjuvant for fish vaccination

Project duration : 2011-14

Personnel : M. Makesh and K.V. Rajendran

Budget : Rs. 19.97 Lakh

- Type-I and Type-II interferon of catla, rohu and mrigal have been cloned and sequenced.

8. Development of nanodelivery system of DNA based RNAi vaccine against WSSV in tiger shrimp, *Penaeus monodon*

Project duration : 2012-15

Personnel : Rupam Sharma, A. Chaudhari
and P. Gireesh Babu

Budget : Rs. 64.4 Lakh

- The particle size of sodium alginate nanoparticles was recorded as 96.4 nm.
- The chitosan nanoparticles were conjugated with the DNA and the size of the conjugated particle was measured as 584.6 nm.
- The conjugation was confirmed by gel retardation assay. The stability of the conjugated DNA was assessed by incubating with DNase followed by electrophoresis. The nano-conjugated particle was found to be stable against the nuclease treatment.

9. Development of fluorescent whole cell optical fibre biosensor for heavy metal pollutants

Project duration : 2013-16

Personnel : A. Chaudhari, P. Gireesh Babu, Ramkrishna Sen (IIT-Kharagpur) and P. Roy Chaudhuri (IIT-Kharagpur)

Budget : Rs. 44 Lakh

- The biosensors were revived and induced with heavy metals to confirm expression of fluorescence and sent to IIT-K for immobilization.
- The entire operon of lead resistance derived from *Ralstonia metallodurans* was amplified and cloned. Attempts are on to integrate it into the genome of *E. coli* using the attB/attP machinery of lambda phage.

10. Utilization of detoxified rubber seed cake in aqua feed

Project duration : 2014-17

Personnel : N.P. Sahu

Budget : Rs.32.3 Lakhs

- The project started in March 2014. Recruitment of Senior Research Fellow has been completed.
- Rubber seeds were collected from Tripura.

DBT

DBT

DBT

11. Improvement of safety and quality of transglutaminase mediated restructured fish products by bioactive phenolics and terpenoids (under DBT-Twinning)

Project duration : 2012-15

Personnel : G. Venkateshwarlu, A. K. Balange and K. Nagalakshami

Budget : Rs. 61.11 lakhs

- Gel strength of pink perch surimi sausages prepared with 0.5% MTGase could be increased by 54.38% as compared to the control.
- MTGase at 1.0% improved the textural properties of pink perch mince sausages significantly compared to the control'
- Pink perch mince sausages prepared with 1.0% MTGase along with 0.50% tannic acid and stored at refrigerator temperature showed improved textural, antimicrobial and antioxidant properties



**Department of
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Department of Science and Technology - Science and Engineering Research Board

12. Biochemical composition of Bombay duck fish, and function characterization of its muscle proteins

Project duration : 2014

Personnel : B.B. Nayak and A. Balange

Budget : Rs. 21.8 Lakhs

- Started this year. The total protein has been qualitatively compared with demersal fish and pelagic fish.



**International
Foundation
for Science (IFS)
Sweden**

International Foundation for Science (IFS) Sweden

13. Use of Phenolic compounds as cross-linkers, antioxidant and antimicrobial agents in fatty fish Surimi

Project duration : 2013-15

Project Leader : A.K. Balange

Budget : Rs. 6.33 Lakh

- Fresh seaweed (Sargassum tenerrimum) extract (FSE) contains 0.0903 µg tannin/g of fresh seaweed, on the contrary dried seaweed extracted with water contained 16.24 mg tannin/g
- Gels added with 0.5% fresh seaweed extract had increased in gel strength by 11.11%, compared to the control (without addition of extracts)
- Gels added with 2.0% dried seaweed extract had increased in gel strength by 76.27% in lesser sardine surimi and 32.45% in mackerel surimi compared to the control (without addition of extracts)

National Bank for Agriculture and Rural Development

14. Field demonstration of Tiger shrimp culture using inland saline sub - surface water in Haryana

Project duration : 2013 - 15
Project coordinator : W. S. Lakra
Project personnel : V. Harikrishna and A.K. Reddy
Budget : Rs. 10 Lakh

- The commercial farming of tiger shrimp (*Penaeus monodon*) in the saline affected fields of Haryana has been successfully demonstrated in collaboration with NABARD.
- The technology has been successfully demonstrated with a production of 800 kg from one acre in 120 days culture duration at a survival of 99 % showing a net profit of Rs, 1,31,000 form one acre per crop.



**National Bank for
Agriculture and Rural
Development**

National Agricultural Innovation Project

15. Livelihood and nutritional security of Tribal dominated area through integrated farming system and technology model

Project duration : 2009-14
Personnel : Kiran Dube Rawat, V.K. Tiwari,
P.S. Ananthan, K.D. Raju and M. L. Ojha
Budget : 102.80 Lakh

- 100.5 lakh spawn was produced and distributed to the farmers. Five training programs were proposed and have been conducted at KVK, Banswara, Rajasthan during this period. Three trainings were conducted for Tribal participants.



**National Agricultural
Innovation Project**

16. Developing, Commissioning Operating and Maintaining an online Systems for NET/ARS - Prelim Examination by ASRB, ICAR

Project duration : 2010-15
Personnel : N.K. Chaddha
Budget : Rs. 60.55 lakh

- 120 number PC's, UPS, batteries, CCTV's and 125 KVA gen set were procured & installed and the entire facilities were made functional after test run.
- First complete online examination of NET-2014 exam was successfully conducted in 55 disciplines over a period of 10 days. Total 799 candidates appeared out of 1144 allotted to Mumbai Centre in 55 disciplines with 69.84% attendance.

**National Agricultural
Innovation Project**

17. Strengthening Statistical Computing for NARS

Project duration : 2009-14
Personnel : S. Jahageerdar

National Agricultural Innovation Project

Funding agency : NAIP

Budget : Rs. 65.69 lakh

- One workshop-cum-installation training and nodal officers meet for NAIP consortium 'Strengthening Statistical Computing for NARS' meeting was organized. In this program all the nodal officers from the centres attached to CIFE hub were trained to install the updated version of SAS and they all were provided with the new version for installation purpose at their respective institute/universities.
- One awareness cum-training program on 'Application of SAS for Research Data Analysis' and A National training program on 'SAS for Developing Predictive Models in Agriculture, Animal and Aquaculture Research' was organized. One lecture through the webinar was also organized during this training program.

National Agricultural Innovation Project

18. Strengthening of digital library and information management under NARS (e-GRANTH)

Project duration : 2009 - 14

Personnel : N.P. Sahu and Subhash Chand

Budget : Rs. 33.3 Lakhs

- Two Workshops on Library Software Management: KOHA was conducted. The administration staff from head quarter and subcenter of CIFE were given training on efficient use of library software "KOHA" for their routine work. Another training was conducted exclusively for the students for the efficient use of library and data retrieve.

National Agricultural Innovation Project

19. Implementation of Management Information System (MIS) including Financial Management System (FMS) in ICAR

Project duration : 2010-14

Personnel : Suresh Chandra, S. Jahageerdar and S. Hodge

Budget : Rs. 30.17 lakh

- Coordination of uploading of data for various modules developed
- Uploading of information related to research projects
- Data digitization completed
- Organised and coordinated one workshops and 7 trainings programmes
- The Institute went live for the developed ERP on 1st Feb 2014.

National Agricultural Innovation Project

20. NAIP sub-project: A Value Chain on Fish Production in Fragile Agricultural Lands and Unutilized Aquatic Resources in Maharashtra

Project duration : June, 2008 to June, 2014-07-25

Consortium Leader : Dr. W.S. Lakra

Consortium Principal Investigator: Dr. A.K. Reddy

Budget : Rs. 749.80

- An innovative integrated technology was demonstrated through

aquaculture and sub surface drainage (SSD) system for reclamation of salted affected sugarcane fields in the Western Maharashtra Districts i.e., Pune, Satara, Sangli and Kolhapur.

- The innovative technology enhanced the sugarcane production from the baseline production of 0-15 tons/0.4 ha (1 acre) to an average production of 42.5, 57.5, 64.5 and 67.5 tons/0.4 ha (1 acre) with a net income of Rs. 71,250; Rs. 1,03,750; Rs. 1,16,250 and Rs. 1,23,250 during 2011, 2012, 2013 and 2014 respectively. Additionally, enhanced the production of inter crops such as soybean (1057 to 1836 kg/0.4 ha), wheat (450 to 1900 kg/0.4 ha) and Bengal gram (400 to 800 kg/0.4 ha).
- As the innovative technology needs cluster based approach, the technology has been demonstrated by following farmers' participated co-management approach.
- Each cluster consisted of 5 to 11 farmers. Adoption of this technology enhanced socioeconomic status of 59 marginal and small farmers. The technology has been demonstrated in 9 villages of 4 Districts of Western Maharashtra.
- Additionally obtained a fish production of 850kg/0.20 ha in sub surface drain water collection pond.



National Bureau of Agriculturally Important Microorganisms

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

Project duration : 2006-2014

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

Budget : Rs. 57.45 Lakh

- Bacteria capable of degrading lignocellulose were isolated from the sediment of Mahul mangroves and sugarcane bagasse from Versova.
- The gene sequences were submitted to NCBI-GenBank under accession numbers, KF573632 to KF573639.
- *Bacillus pumilus*, *Bacillus cereus*, *Bacillus subtilis* and *Proteus mirabilis* were found to show higher cellulose and xylanase activities compared to the other isolates.
- Consensus degenerate hybrid oligonucleotide primers (CODEHOP) were constructed using aligned eubacterial protein sequences of betaine aldehyde dehydrogenase (*BetB*) from the NCBI databank.
- Sample from sea and Bhayander saltern showed the presence of *BetB* gene at all salt concentrations at identical intensity on agarose which may be considered as semi-quantitative data. Samples from intertidal zone and Bhayander saltern showed a decline in *BetB* copy number with a rise in NaCl concentration.
- O3 was identified using Sherlock-MIDI GC-FAMES peak profiling as *Bacillus cereus*.
- Ten isolates were analyzed by amplified rDNA restriction analysis (ARDRA) with three restriction enzymes namely, *HaeIII*,



NBAIM

**National Bureau of
Agriculturally
Important
Microorganisms**

MboI and *AluI*. B5 was identified as *Enterobacter hormaechei*, and B6 and B8 as *Pseudomonas alcaligenes*. Eight other isolates were analysed by 16S rDNA gene sequencing. They were found to be *Bacillus licheniformis*, *Enterobacter* sp., *Enterobacter hormaechei*, *Micrococcus* sp., *Alishewanella* sp., *Lysinibacillus fusiformis*, *Kocuria palustris* and *Shewanella* sp.

- *Bacillus cereus* was replaced with *Bacillus subtilis* in Consortium Ca (referred to as Ca*) and was evaluated for activity as well as stability. Of all the crude consortia evaluated till date, Ca* has given the best results with higher xylanase activity compared to the individual members.
- The nitrifying bacteria isolated on solid samples were identified using 16S rDNA sequencing.

NFBSFARA

National Fund for
Basic, Strategic
and Frontier
Application
Research in
Agriculture

22. Defense genes of tiger shrimp (*Penaeus monodon*) with respect to bacteria (*Vibrio harveyi*) and white spot virus (WSSV) infection

Project duration : June 2012 to May 2016

Personnel : K. V. Rajendran and M. Makesh

Budget : Rs.242.20 lakh (CIFE - 71.45 lakh)

- Myeloid differentiation factor 88 (MyD88) and Tumour necrosis factor receptor (TNFR)-associated factor 6 (TRAF6) are key adapter molecules in the innate signalling pathway of shrimp.
- To investigate the role of Toll-pathway in innate immune response of shrimp, *Penaeus monodon*, MyD88 (*PmMyD88*) and TRAF6 (*PmTRAF6*) were identified and characterised.
- Complete sequencing of the two genes (*PmMyD88* and *PmTRAF6*) was accomplished. *PmMyD88* cDNA (1716 bp) and *PmTRAF6* cDNA (2563 bp) encodes ORFs encoding putative proteins of 482 and 594 amino acids, respectively.
- Normal tissue-level expression of *PmMyD88*, *PmTRAF6* and *PmToll* was carried out. In vivo responses of the genes to white spot syndrome virus (WSSV) and the modulation of expression of these genes to WSSV and poly I:C in cultured haemocytes in vitro, were also investigated. The study showed that Toll-pathway in *P. monodon* responds to WSSV.

National Fund for
Basic, Strategic
and Frontier
Application
Research in
Agriculture

23. Capture and removal of ammonia from fish processing wastewater using Archea

Project duration : 2011-16

Personnel : B.B. Nayak

Budget : Rs. 227 lakhs (CIFE share Rs. 135 lakhs)

- The presence of ammonia oxidizing group of archaea has been observed and enrichment in different preliminary reactors has been achieved. The ammonia removal abilities of these reactors are excellent with signature of archaeal presence.
- Many autotrophic ammonia oxidizing bacteria and heterotrophic ammonia oxidizing bacteria which are known to be active in waste water treatment in coordination with archaea have also been isolated in pure culture and enriched in consortium. Their activities were found to be significant in removal of nitrogenous waste from the fish processing effluent. Importantly these groups

unlike archaea could grow well in very high ammonia concentration typically found in fish processing wastewater.

24. Stock characterization, captive breeding, seed production and culture of Hilsa (*Tenualosa ilisha*)

Project duration : 2012-2017

Personnel : S. Dasgupta and G.H. Pailan

Budget : Rs. 139.83 lakh

- Hilsa maintained plasma osmolality levels between 266 and 417 mOsmol/kg during migration from sea mouth to upstream of river.
- Plasma concentrations of sodium, potassium and chloride were in the range of 118.4 to 140.2 mmol/L, 11.2 to 16.0 mmol/L and 118.0 and 163 mmol/L, respectively during migration.
- Higher plasma osmolality and chloride level were recorded in marine environment.
- Wide variation in % GSI values was observed in the migratory Hilsa throughout the year.
- Changes in sex steroids, such as, estradiol, testosterone and 11-KT indicated a possible role of estradiol and 11-keto testosterone in ovarian growth and spermiation, respectively.

National Fund for
Basic, Strategic
and Frontier
Application
Research in
Agriculture

National Fisheries Development Board

25. National surveillance programme for aquatic animal diseases

Project duration : September 2013 to March 2018

Personnel : K.V. Rajendran, K. Pani Prasad
and Gaurav Rathore

Budget : Rs.149.70 Lakhs

- Collected baseline data from shrimp farmers of Raigad (18 nos.) and Thane (5 nos.) district of Maharashtra as well as Valsad (10 nos.) district of Gujarat
- Organised awareness meeting for the shrimp farmers of Raigad district and ~20 farmers attended the meeting
- Samples from 5 shrimp farms of Raigad district have been collected and screened for viruses such as WSSV, HPV, IHNV and MBV



NFDB
National Fisheries
Development
Board

26. Genetic conservation and live gene pool of Mahasheer fish in Indrayani river

Project duration : 2010-2015

Personnel : Gopalkrishna

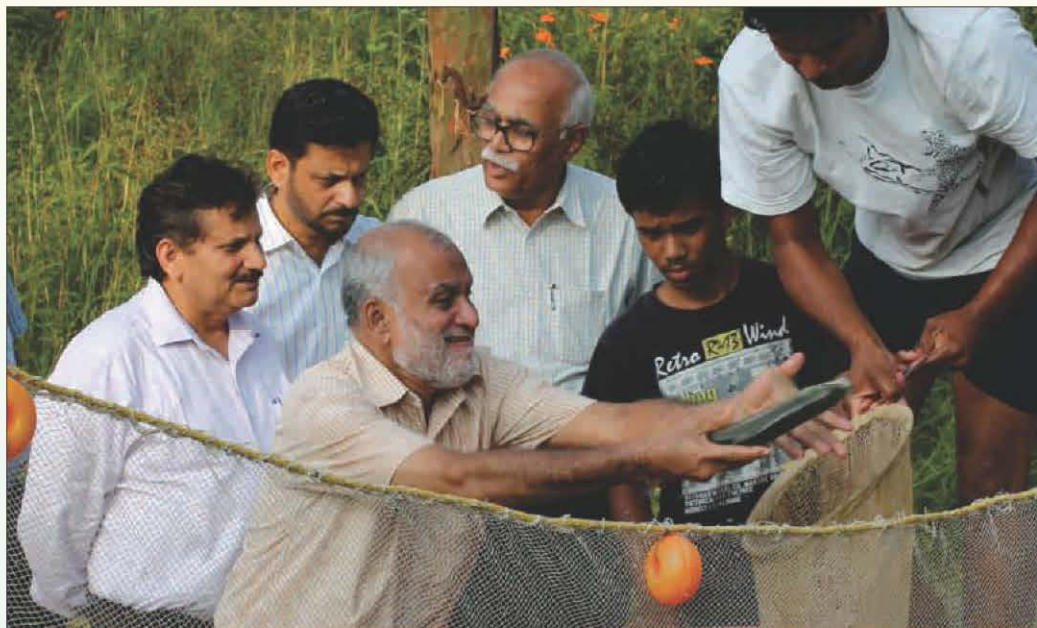
Budget : Rs.139 lakh

- During the period reported, the Mahseer fish seed were reared in the nursery at FONA site, Talegaon and in the river cages at Dehu.
- More than 5000 advance fingerlings were released in the Indrayani river during this period. During July and August, the

NFDB

milt of Mahseer was collected for cryopreservation and was maintained in the divisional laboratory. The farm reared brooders of *Tor putitora* were bred during August, October and December 2013.

- During the reporting period a national workshop on Mahseer: Biology, Genetics and Gene Banking was organized in collaboration with Department of Fisheries, Government of Jammu & Kashmir at Reasi, Jammu.



RGSTC

Rajiv Gandhi
Science &
Technology
Commission

Rajiv Gandhi Science & Technology Commission

27. Accelerated Salt Fermentation of Indian Mackerel *Rastrelliger kanagurta*, through application of fermenting microflora

Project duration : 2013-16

Personnel : B. B. Nayak and L. Manjusha

Budget : Rs. 31 lakhs

- The first experiment on the salt fermentation of Indian Mackerel was carried out with starter cultures obtained from previous fermentation experiment. Halophiles in pure culture and in consortia were used to reduce fermentation time.. The control, consortia inoculated and *Tetragenococcus* sp. inoculated lots lead to stable, non-rancid products with pleasant flavor with maturation happening in 120, 105 and 90 days respectively. This indicates that *Tetragenococcus* is the key halophile in reducing fermentation time.
- Three batch of experiments to reduce salt concentration to further hasten fermentation indicated that , 5, 10, and 15% salt are not enough to restrict spoilage organisms and the key fermentation halophiles failed to overtake the spoilage flora at this salt concentration.



Chapter 6

Extension

Achievements



6.1. Short Term Training Programmes / Special Training Programmes for NE States/ Other States etc. Organized

S. No.	Name of the program	Place / Centre	No. of Participants	Duration	Sponsoring Agency
1	Fish culture in seasonal and irrigation tanks (For MP Fish Farmers)	Powarkheda	22	9-15 Apr, 2013	Under ATMA Dept. of Fisheries, Ratlam, M.P.
2	Value added fish product preparation (For Bihar Fish Farmers)	Mumbai	17	22-24 Apr, 2013	Self-financed
3	Fish and prawn culture (For trainees from Bhopal, Hoshangabad)	Powarkheda	12	1-10 May, 2013	Self-financed
4	Tiger shrimp culture in saline affected soils of Haryana (For Haryana Fish Farmers)	Rohtak	05	5 -11 Jun, 2013	Self-financed
5	Tiger shrimp culture in saline affected soils of Haryana (For Haryana Fish Farmers)	Rohtak	05	1 -6 Jul, 2013	Self-financed
6	Aquarium management techniques	Mumbai	19	2 -11 Jul, 2013	Self-financed
7	Magur breeding and hatchery management (From Chattisgarh, Maharashtra and Pondicherry Fish Farmers)	Powarkheda	06	3-12 Jul, 2013	Self-financed
8	Value added fish product preparation (For Local Fisherwomen)	Mumbai	15	15 -17 Jul, 2013	Self-financed
9	Carp breeding & hatchery management (For MP Fish Farmers)	Powarkheda	22	17-26 Jul, 2013	Self-financed
10	Recent advances in aquaculture technologies	Kolkata	4	23 -29 Jul, 2013	Self-financed
11	Freshwater aquaculture (For in service officers of AP state fisheries)	Kakinada	28	1-15 Aug, 2013	State Fisheries Govt. of A.P.

12	Freshwater fish culture (For Fish Farmers of Katihar, Bihar)	Kolkata	30	12 -14 Aug, 2013	NFDB
13	Freshwater prawn (<i>M. rosenbergii</i>) seed rearing and culture (From MP, AP and Maharashtra)	Powarkheda	12	16-24 Aug, 2013	Self-financed
14	Seed production and culture of Magur (From AP and Maharashtra)	Kakinada	5	21-27 Aug, 2013	Self-financed
15	Entrepreneurship development in ornamental fish breeding & culture	Kolkata	18	21-26 Aug, 2013	Self-financed
16	Breeding and culture of ornamental fisheries	Mumbai	24	21-30 Aug, 2013	Self-financed
17	Ornamental fish culture	Mumbai	34	22- 28 Aug, 2013	Self-financed
18	Fish and prawn culture	Powarkheda	20	29 Aug - 7 Sep, 2013	Dept. of Fisheries, Bihar
19	Freshwater aquaculture (For Fish Farmers of Patna, Bihar)	Kolkata	25	30 Aug - 8 Sep, 2013	Directorate of Fisheries, Govt. of Bihar
20	Ornamental fish breeding & culture (For West Bengal Entrepreneurs	Kolkata	20	9-13 Sep, 2013	MPEDA
21	Carp culture practices and recent advances	Powarkheda	20	10-19 Sep, 2013	Self-financed
22	Management of soil, water and fish diseases in aquaculture (From West Bengal and Gujarat)	Kolkata	18	17-23 Sep, 2013	Self-financed
23	Freshwater aquaculture recent advances (For Fish farmers from Patna)	Kolkata	25	25 Sep - 4 Oct, 2013	Directorate of Fisheries, Govt. of Bihar





24	Fish and prawn culture (For Fish farmers from MP)	Powarkheda	15	27 Sep-5 Oct, 2013	Dept. of Zoology & Fisheries, Holker Science College, Indore
25	Freshwater aquaculture recent advances (For Fish farmers from Patna)	Kolkata	25	17- 26 Oct, 2013	Directorate of Fisheries, Govt. of Bihar
26	Fish and prawn culture (For Fish farmers from Bihar)	Powarkheda	19	17-26 Oct, 2013	Dept. of Fisheries, Bihar
27	Disease diagnosis, prevention and control measures in aquaculture (For AP Fish Farmers)	Kakinada	6	22 -28 Oct, 2013	Self-financed
28	Fish and prawn culture (For Fish farmers from Bihar)	Kakinada	29	18- 27 Nov, 2013	Self-financed
29	Fish processing and value added fish products (For Fish farmers from West Bengal)	Kolkata	17	19-25 Nov, 2013	Self-financed
30	Value added fish product preparation from freshwater fish (For Fish farmers from Punjab and Haryana)	Rohtak	21	20-24 Nov, 2013	Self-financed
31	Fish and prawn culture (For Fish farmers from Bihar)	Powarkheda	20	20-29 Nov, 2013	Dept. of Fisheries, Bihar
32	Culture of brackishwater finfish and shellfish (For in service officers of AP State Fisheries)	Kakinada	24	25-30 Nov, 2013	Self-financed
33	Freshwater fish culture (For Fish farmers from Katihar, Bihar)	Kolkata	30	28-30 Nov, 2013	NFDB, Hyderabad
34	Raising of fingerlings in pen and cages	Mumbai	13	29 Nov-5 Dec, 2013	Self-financed
35	Freshwater fish culture (For Fish farmers from Katihar, Bihar)	Kolkata	32	3-5 Dec, 2013	NFDB, Hyderabad
36	Fish and prawn culture (For Fish farmers from Bihar)	Kakinada	30	3 -12 Dec 2013	Dept. of Fisheries, Bihar
37	Fish and prawn culture (For Fish farmers from Bihar)	Powarkheda	19	4-13 Dec, 2013	Dept. of Fisheries, Bihar

37	Freshwater fish culture (For Fish farmers from Katihar, Bihar)	Kolkata	32	10-12 Dec, 2013	NFDB, Hyderabad
38	Freshwater aquaculture (For Fish farmers from Nalanda, Bihar)	Kolkata	25	12 - 21 Dec, 2013	Directorate of Fisheries, Govt. of Bihar
39	Freshwater aquaculture (For Fish farmers from Katihar, Bihar)	Kolkata	25	3 - 12 Jan, 2014	Directorate of Fisheries, Govt. of Bihar
41	Freshwater pisciculture (For Fish farmers from Samstipur, Bihar)	Kolkata	11	3 - 12 Jan, 2014	DFO, Samastipur, Bihar
42	Unutilised and underutilised land and water resources for aquaculture industry (For Fish farmers from Bihar)	Mumbai	24	7 - 16 Jan, 2014	Self-financed
43	Fish and prawn culture (For Fish farmers from Bihar)	Kakinada	28	16-25 Jan, 2014	Self-financed
44	Fish and prawn culture (For Fish farmers from Bihar)	Powarkheda	20	18-27 Jan, 2014	Dept. of Fisheries, Bihar
45	Fish nutrition and feeding strategies (For Fish farmers from West Bengal, Assam and Bihar)	Kolkata	34	21-27 Jan, 2014	Self-financed
46	Freshwater pisciculture (For Fish farmers from Bodoland and Assam)	Kolkata	21	30 Jan - 4 Feb, 2014	NEH fund
47	Freshwater aquaculture (For Fish Farmers from Munger, Bihar)	Kolkata	24	6 - 15 Feb, 2014	Self-financed
48	Fish and prawn culture	Powarkheda	20	12-21 Feb, 2014	Dept. of Fisheries, Bihar
49	Freshwater pisciculture (For Fish farmers from Bodoland and Assam)	Kolkata	29	24 -28 Feb, 2014	Self-financed
50	Fish and prawn culture (For Fish farmers from Bihar)	Kakinada	28	24 Feb- 5 Mar, 2014	Dept. of Fisheries, Bihar
51	Value added fish products preparation from freshwater fish (Special program for NE states)	Imphal	33	3-6 Mar, 2014	Directorate of Fisheries, Imphal, Manipur
52	<i>Mithe Pani ki Machli se Matsya Padhartha</i> -Manipur	Mumbai	20	3-6 Mar, 2014	Self-financed



53	Fish and prawn culture (For Fish Farmers of Bihar)	Powarkheda	19	3-12 Mar, 2014	Dept. of Fisheries, Bihar
54	<i>Mithe Paniki Machli se Matsya Padharth-Mizoram</i>	Mumbai	20	8-11 Mar, 2014	Self-financed
55	Value added fish products preparation from freshwater fish (Special program for NE states)	Aizawl	20	10-11 Mar, 2014	Directorate of Fisheries, Aizawl Mizoram
56	Value added fish products and freshwater prawn culture from Bali Island, Sunderban, W.B.	Kolkata	26	11-13 Mar, 2014	TSP Fund
57	Freshwater fish culture (For Fish farmers from Wardha, Maharashtra)	Kolkata	21	18 -20 Mar, 2014	ATMA
58	Integrated fish farming (From Haringhata, Nadia, W.B.)	Kolkata	25	21- 25 Mar, 2014	TSP Fund
59	Fish and prawn culture (For Fish Farmers from Bihar)	Kakinada	16	22-31 Mar, 2014	Self-financed

6.2. Educational Tour Programmes /In-plant training/ Exposure Visits etc.

S. No.	Name of program	Place / Centre	No. of participants	Duration
1	Educational tour programme of B.F.Sc. second year students	Kolkata	23	8-10 Jul, 2013
2	Educational tour programme of one year trainees	Kolkata	25	30 Jul-1 Aug, 2013
3	In-plant training program for B.F.Sc. students	Mumbai	12	1 Aug-27 Nov, 2013
4	Fisheries work experience Programme for B.F.Sc. Fourth year students	Kolkata	27	17-19 Aug, 2013
5	Farmers interest group programme on Ornamental fish breeding and culture	Kolkata	7	28 Aug, 2013
6	Farmers interest group programme on Ornamental fish breeding and culture	Kolkata	20	27 Sep, 2013
7	Field exposure visit of fourth year B.F.Sc. students of college of fisheries, Mangalore	Kolkata	39	10-11 Dec, 2013
8	Farmers Interest group programme for fish rearing farmers of Burdwan Dist.W.B.	Kolkata	14	10 Jan, 2014
9	In plant training program	Mumbai	24	12-17 Jan, 2014
10	Field exposure visit of fourth year B.F.Sc. students fisheries college	Kolkata	28	14-15 Jan, 2014
11	Field study tour programme of B.F.Sc. final year students of College of Fisheries	Kolkata	16	18-20 Jan, 2014
12	Inter-state field study tour programme of 16 th batch in-service trainees	Kolkata	25	20-22 Jan, 2014
13	Field exposure visit for the fish seed producers & growers from Directorate of Fisheries, Government of Assam	Kolkata	25	23-27 Jan, 2014
14	Field exposure visit of M.Sc. final year students of Department of Zoology	Kolkata	14	31 Jan, 2014
15	Capacity building program for SMS of KVKs North Eastern Region	Mumbai	30	11-15 Feb, 2014
16	Field exposure visit for the fish seed producers & growers from directorate of fisheries, Government of Assam	Kolkata	25	21-25 Mar, 2014
17	Exposure visit for the fish farmers from Bongaigaon District, Assam sponsored by NABARD organized by Azad Club & Library	Kolkata	20	26-28 Mar, 2014
18	Field exposure visit for the fish seed producers & growers from directorate of fisheries, Government of Assam	Kolkata	25	28 Mar-2 Apr, 2014

6.3 Exhibitions organized

S. No	Events	Venue	Duration
1	Tamil Nadu fish festival	Tamil Nadu	9-12 May, 2013
2	Greening fisheries - towards green technology in fisheries	Kochi	21-23 May, 2013
3	Farmer's scientist interaction	Kathihar	3 Jul, 2014
4	Fish genomics research in India: A way forward	Lucknow	2 Aug, 2013
5	Kisan Mela	Nimpith	6 Sep, 2013
6	17 th National exhibition - The Indian advancing towards a world power	Bolpur W.B.	6-10 Sep, 2013
7	Animal & dairy tech Asia 2013	Gandhinagar, Gujarat	9-11 Sep, 2013
8	17th National exhibition - Central calcutta science and culture organization for youth	Ramkrishna Mission Vidyamandir, Belur Math	21-25 Sep, 2013
9	Kishan mela organised by eastern regional station of IVRI, ICAR, Kolkata in collaboration with Ramakrishna ashram, KVK, Nimpith	KVK, Nimpith, W. B.	6 Sep, 2013
10	International trade fair Pragati maidan	Rohtak Centre	14-17 Nov, 2013
	Arunachal meen mahatsav 2013 organized by Dept. of Fisheries, Arunachal Pradesh	I.G. Park, Itanagar, Arunachal Pradesh	21-22 Nov, 2013
11	25 th Krishi Shilpa 'O' Mela	Chandipur	9-15 Dec, 2013
12	10 th Jatiya sanhati utsav -O-Bharat mela-2013	Kolkata	11-17 Dec, 2013
13	Global Konkan festival	Navi Mumbai	13-17 Dec, 2013
14	Exhibition of fisheries	Gondia, Nagpur	27 Dec, 2013
15	19 th Agriculture-Industry tourism & science festival	Baruipur, Purba Medinipur, W.B.	6-12 Jan, 2014
16	National agriculture fair cum exhibition	Nagpur	15-19 Jan, 2014
17	Vice Chancellor conference exhibition	Baramati	18-20 Jan, 2014
18	Versova koli food festival	Mumbai	24-26 Jan, 2014
19	Krishi vigyan mela organized by office of collector, Hoshangabad (M.P.)	Krishi Upaj Mandi, Hoshangabad	5-7 Jun, 2013
20	Krishi vasant 2014	Nagpur	9-13 Feb, 2014
21	Bharat nirman-jan suchana abhiyan' organized by Press information beuro, Indore	Mandi Pragan Tah. Manawar, Dist. Dhar (M.P.)	26-28 Feb, 2014
21	Agricultural exhibition cum technology week on the occasion of annual celebration of Sri Ramkrishna ashram	RAKVK, Nimpith, W. B.	5-9 Feb, 2014

6.4. Farmers' meet/Awareness Programmes etc. organised

Events	Venue	Duration	Number of farmers attended
Farmers' meet (Awareness campaign on shrimp culture in saline affected areas)	CIFE Rohtak	19 Nov, 2013	200
Farmer's scientist interaction- Kathihar	Kathihar	3 Jul, 2014	1000
National Fish Farmers' Day	CIFE, Kolkata Centre	10 Jul, 2013	60
Awareness Programme on 'National surveillance of aquatic animal diseases' for shrimp farmers of Raigaad district, Maharashtra	Roha, Raigad district, KVR	14 Feb, 2014	20

Shri Tariq Anwar inaugurated Fish Farmers' Meet at Kathihar

Sri Tariq Anwar, Hon'ble Minister of State for Agriculture and Food Processing Industries, Govt. of India, inaugurated one day awareness programme and Farmers-Scientists Interaction Meet at Kathihar, Bihar on 3rd July 2013. The meeting was organized by Central Institute of Fisheries Education, Mumbai in collaboration with Bihar Agricultural University and Department of Fisheries, Government of Bihar on Inland



Fisheries and Aquaculture. The Hon'ble Minister urged that the fish farmers and fishers of Kathihar need to be trained at CIFE Centres in order to achieve higher productivity from the vast water resources available in the district. He stressed that Kathihar fishermen and fish farmers should lead the entire Bihar state. Dr. M.L. Choudhary, Vice Chancellor of Bihar Agricultural University, emphasized that fisheries require a movement in the form of community-mobilization to transfer the technologies in Inland Fisheries and Aquaculture. Shri Nishat Ahmed, Director, Department of Fisheries, Bihar explained about different schemes of the Centre and State. Dr. A.K. Pal, Joint Director, informed that 500 fish farmers from Kathihar district will be trained at three different centers of the Institute under the training programme funded by NFDB.

6.5. National Fish Farmers' Day

National Fish Farmers' Day was celebrated on 10 July 2013. The function was presided over by Padma Bhushan Prof. R.B. Singh, President, NAAS and was attended by several fish farmers and entrepreneurs from various parts of the country and local fishers. Dr. M.L. Madan, Former VC and DDG (Animal Sciences), ICAR and Dr. S.D. Tripathi, Former Director, CIFE, graced the occasion as Guests of Honour.

Prof. Hiralal Chaudhuri Fish Farmer Awards were conferred upon six farmers/entrepreneurs engaged in aquaculture, processing and pearl culture in different states. Three young scientists were awarded with Prof. Hiralal Chaudhuri Young Scientist Awards for their significant contribution to research in this sector.

On this occasion Dr. W.S. Lakra, Director, CIFE welcomed the esteemed guests and emphasized on the need, for innovations and quality research and teaching with a focus on newer skills. The Chief Guest, Prof. R.B. Singh stressed on the importance of entrepreneurship for addressing employment issues of the country. He also highlighted the need to bridge the gap between acquired and required knowledge for generating qualified human resource. Dr. M.L. Madan highlighted the pressing issues that need to be addressed by the fisheries scientists. Dr. S.D. Tripathi congratulated the award winners on being able to translate the knowledge acquired from the training programmes into successful ventures. The award winners narrated their success stories and urged the students to become employment generators rather than job seekers

6.6. Transfer of Technology and Demonstration/Product Development

6.6.1 Successful dissemination of technology for commercial farming of tiger shrimp (*Penaeus monodon*) in saline affected soils of Haryana

CIFE Rohtak Centre successfully demonstrated commercial farming of tiger shrimp (*Penaeus monodon*) in the saline affected fields of Haryana. Tiger shrimp can not survive in raw inland salinewaters due to ionic difference with seawater. However, the technology for the commercial farming of Tiger shrimp (*Penaeus monodon*) using inland salinewater has been successfully developed and standardized through research innovation at CIFE Rohtak Centre. Field trials have been conducted for the last 5 years at CIFE Rohtak Centre and after thorough investigations standardized package of practices have been developed for the cultivation of Tiger shrimp in the saline affected soils. Observing the results obtained for the last few years, a project was submitted under NABARD's Rural Innovation Fund (RIF) with a grant assistance of Rs. 7.11 lakh for the technology demonstration in the saline affected farmers field at 2 locations Baniyani and Bainsi in the Rohtak District, Haryana, taking the farmer beneficiaries under Joint Liability Groups (JLG) mode. Each JLG has 5 members who in collaboration with Haryana Gramin Bank enable the farmers to get credit support. The technology has been successfully demonstrated at both the sites proving the viability of the technology. A programme to showcase the technology was arranged at CIFE Rohtak on 19 Nov, 2013 at Lalhi centre. Maj. Gen. Shri Kant, Vice Chancellor of LLRVASU, Hissar and Shri Yudhveer Singh, prominent farmers leader were Guests of Honour, Dr D. V. Deshpande, CGM, NABARD, RO Haryana along with Shri B Naik, DGM, NABARD, Shri Praveen Jain, Chairman HGB, senior officers from various public sector banks, line departments, Government officials, NGOs, media and the fish farmers from various zones of Haryana participated in the event. Live harvesting of Tiger shrimp was organized at one of the demonstration ponds located at Baniyani village of Rohtak district, Haryana showcasing the results obtained, to the attendees at the event. The demonstration was accorded a very good response from the farmers and many farmers have shown keen interest in the adoption of the technology in the coming years. There was an overwhelming response from all the bankers and most of them have agreed to provide loans for shrimp culture in the saline affected soils. Since saline soil is not fit for growing of any agricultural crops, the present technology developed by CIFE is a boon to the farmers. The technology had been successfully demonstrated with a production of 800 Kg from one acre in 120 days culture duration at a survival of 99% showing a net profit of Rs. 1, 31, 000 from one acre per crop.

6.7. TV/Radio Talk delivered

S.No	Name	Title of the talk	Date	Programme
1	B.K. Mahapatra	Glass aquarium (Bengali)	22 Jul, 2013	ETV Bangla Annadata Programme
2	B.K. Mahapatra	Breeding of Angel fish (Bengali)	28 Jul, 2013	ETV Bangla Annadata Programme
3	B.K. Mahapatra	Krishi Kathar Ashar for significance of Fish Farmer's Day (Bengali)	21 Aug, 2013	Radio programme
4	B.K. Mahapatra	Krishi Kathar Ashar for sustainable fishing (Bengali)	22 Aug, 2013	Radio, MPEDA programme
4	B.K. Mahapatra	Food of Aquarium Fish (Bengali)	8 Sep, 2013	ETV Bangla Annadata Programme
5	Somduitt	Powarkheda Centre's activities & programs	23 Oct, 2013	<i>Krishi Darshan</i> - Bhopal Door-Darshan
6	R.K. Upadhyay	Post stocking pond management and prawn culture activities	23 Oct, 2013	<i>Krishi Darshan</i> - Bhopal Door-Darshan
7	W.S. Lakra	Shrimp culture in inland saline areas	19 Nov, 2013	Media conference after the successful demonstration of tiger shrimp culture in saline affected soils
8	P. Srinivasa Rao	<i>Manchi neeti lo Vennami Royyala Utpathi</i> (Telugu)	Nov 2013	All India Radio Visakhapatnam
9	R. Ravisankar Patnaik	<i>Chepapilla utpathi lo melakuvlu</i> (Telugu)	Nov 2013	All India Radio Visakhapatnam
10	J. Krishna Prasad	<i>Pangasius Chepala Pempakam</i> (Telugu)	Nov 2013	All India Radio Visakhapatnam
11	J. Krishna Prasad	<i>Marpu chapipillau utpathi</i> (Telugu)	Nov 2013	All India Radio Visakhapatnam
12	J. Krishna Prasad	<i>Marpu chapalu pempakm vidhanalu</i> (Telugu)	Nov 2013	All India Radio Visakhapatnam
13	B.K. Mahapatra	Breeding of Cory cat fish (Bengali)	18 Dec, 2013	ETV Bangla Annadata Programme

6.7.2. Successful farming of Pangus in Brackishwater

The centre was successful in rearing *Pangasionodon hypophthalmus* in Brackishwater (up to 10 ppt) which was stocked at 0.4 / m² and reared for 14 months. Production of 6.8 tonnes / ha with survival 87 % was achieved. The efforts were appreciated by Dr. S. Ayyappan, DG, ICAR and Shri M.V.S. Nagi Reddy, Member, ICAR Governing Body.

6.7.3 Technology transfer

- A design and know how was transferred to Blueplanet Urban Agro Services Pvt Ltd, Kolkata to develop a prototype of recirculatory system to conduct experiments
- Technology for Planning and designing of recirculating aquaculture system was extended to the centre to the officers of State Fisheries, Uttar Pradesh
- Technology for Raising carp fingerlings in cages and pens was demonstrated in Talab with community participation at each step of operation at Banswara.
- Technology for ornamental fish culture in cages was demonstrated at Dimbhe reservoir and at Taloja Talab, Sagwadia village, Rajasthan
- Due to transfer of technology, by CIFE seven Magur hatcheries have been developed in Chattisgarh State and two Pangasiadon hatcheries (vertical jar and circular model) in state Govt. Fish farm at Samera, Dhantari, Raipur.

6.7.4. Technology developed

- Seed production of *C. batrachus* and larval rearing under 'Three tire system' was developed at Raipur.
- Breeding technique of *Ompok pabda*, without sacrificing the male fish was developed.
- Developed FRP jar hatchery
- Designed column based water filtration units for removal of inorganic and organic waste from hatchery wastewater

6.7.5. Product development

A method for making FishPaneer™ which can be utilized for making various products was developed. Ready-to-eat FishPaneer™ curry was prepared by retorting process and it was launched on CIFE-Industry day on 28 Feb 2014. It has nutritional quality of fish and textural quality of milk paneer.

6.8. Technical Guidance and Fisheries Advisory Services Rendered

Technical guidance on pond construction, construction of cage, pen culture, operation of FRP jar hatchery etc. was given to the farmers at CIFE, Mumbai.

Rohtak centre provided technical guidance and advisory services to a number of farmers from the states of Haryana, Punjab and Rajasthan.

Kakinada centre provided technical guidance on fish farming, fish feed, freshwater fish disease diagnosis and treatment, fish culture, Vannamei farming, diagnosis and treatment of diseases in rohu, carp seed production and rearing, artemia and tubifex culture for *L.vannamei*, catfish culture and breeding to the farmers.



6.9. Fish/Prawn Seed Production, Sale and Revenue Generated

Powarkheda

Sr. No.	Species	Spawn/PL/Juveniles produced (lakh)	Fry/fingerlings/ Prawn PL sale/ supplied (lakh)	Revenue generated (Rs.)
1	Catla	18.20	1.73	3,22,440
2	Rohu	181.45	11.83	
3	Mrigal	5.75	0.45	
4	Grass carp	0.55	-	
5	Prawn PL	1.60	0.395 (sold) 0.330 (CIFE Rohtak& Mumbai)	62,180
6	Prawn Juveniles	0.205	0.175 (sold) 0.030 (CIFE Mumbai)	
			Total	3,84,620

II. Revenue Generation:

S. No	Source of Revenue	Amount (Rs)
1.	Fish and prawn seed	3,84,620
2.	Fish and prawn sale	0,19,160
3.	Hostel rent	1,15,000
4.	STP fees	1,23,652
5.	Book sale	0,03,910
6.	Tender sale	0,03,000
	Total	6,49,342

Rohtak

Revenue Generation (Rs)

Farm Produce (shrimp)	34,46,985
Miscellaneous	11,370

Total 34,58,355

Kakinada

Fish and Prawn seed production at FWFF Balabhadrapuram

Fish / prawn Spawn/Fry/PL	produced in Lakhs
Catla	49.00
Rohu	15.00
Mrigal	06.25
Pengba	0.10
Magur	0.05
Scampi	0.20
Total	70.60

Chapter 7

Honours and Awards

Honours and Awards/ Appreciations/ Fellowships



Dr. W.S. Lakra, Director CIFE, Mumbai received Honour from NABARD for Partnership Excellence from the Additional Secretary, Govt. of Haryana for the successful demonstration of Tiger shrimp culture in saline affected soils of Haryana carried out by CIFE Rohtak Centre.



Dr. W.S. Lakra, Director & Vice Chancellor receiving Academic Leadership Award, for the institute, from the Hon'ble Governor, U.P. Shri Banwari Lal Joshi and Dr M.S. Swaminathan on the occasion of 6th Agriculture Leadership Award of Agriculture Today, New Delhi.

Dr. W.S. Lakra, Director & Vice Chancellor served in the following committees, panels, boards etc.

1. **Chairman**, Review of ICAR's Niche Area of Excellence (NAE) on Inland Aquaculture at GADVASU, Ludhiana.
2. **Chairman**, ICAR National Committee for Fisheries Science.
3. **Member**, Advisory Committee for establishing a Centre for Marine Studies at University of Mumbai.
4. **Member**, Expert Panel for Indo-UK bilateral programs in Animal Health & Biotechnology, London, U.K.
5. **Member**, Selection-cum-Standing Committee for Emeritus Scientist Scheme of ICAR, New Delhi.
6. **Member**, Editorial Board, Journal Agriculture & Food Security, BioMed Central, UK.
7. **Member**, Academic Council of the Banaras Hindu University, Varanasi.
8. **Member**, Maharashtra Coastal Zone Management Authority (MCZMA), Government of Maharashtra.
9. **Convener**, Western Chapter of National Academy of Agricultural Sciences.
10. **Member**, National Committee on Agro-Biodiversity, NBA, MOEF, Government of India.
11. **Member**, Scientific Steering Committee, International Barcode of Life Project, University of Guelph, Canada.
12. **Member**, Editorial Board, Asian-Australasian Journal of Animal Sciences, Korea.
13. **Research Editor**, Editorial Board, Journal of Environmental Biology.
14. **Member**, Editorial Board, Indian Journal of Fisheries.
15. **Referee** of Leading International Journals including Journal of Fish Biology, Aquaculture Research, Fish Physiology and Biochemistry, Molecular Biology Report etc.



Millennium Plaques of Honour

The Indian Science Congress Association conferred the Millennium Plaques of Honour award on Dr. A. K. Pal. The Millennium Plaque of Honour instituted by Indian Science Congress Association, is given to eminent scientists every year for their contribution in science.

Fellowship

Dr. A.K. Pal received the Fellowship of Maharashtra Academy of Sciences, on 5th Dec 2013, at NCL, Pune from Prof. G. D Yadav, President of The Academy & VC, ICT Mumbai.

Life Time Achievement Award

Dr. A.K. Pal was conferred with the Life Time Achievement Award by CLFMA OF INDIA. He received the prestigious award from Sri Tariq Anwar, Hon'ble

Minister of State for Agriculture and Food Processing Industries, Govt. of India on 26 September 2013.

Bivek Sanman Award

Dr. Subhendu Datta, Principal Scientist received the Bivek Sanman Award 2014 from the *Sunderban Purba Jamtala Samaj Sebak Society* on 14 March, 2014.

Young Scientist Award

Mr. V. Harikrishna received Young Scientist award from Bioved Research Institute of Agriculture and Technology for the year 2014.

Scientist of the Year

Dr. C.S. Chaturvedi was awarded the Scientist of the Year from The Society of Biological Sciences & Rural Development, Allahabad U.P. for the year 2013.



Excellence from The Indus Foundation, Hyderabad.

K.H. Alikunhi Award

Dr. Annam Pavan Kumar bagged the Prof. K.H. Alikunhi Award for overall Best Ph.D. thesis for the year 2012-13



Fellowship

- Dr. P.K. Pandey, Principal Scientist received the Fellowship, Zoological Society of India, Gaya
- Dr. B.K. Mahapatra, Principal Scientist, received the Fellow of Zoological Society of India (F.Z.S.I.) on 23 Nov, 2013

Award for exhibition

CIFE Centre, Powarkheda was awarded third position in the exhibition under 'Bharat Nirman-Jan Suchana Abhiyan' organized by Press Information Bureau, Indore at Mandi Pragan Tah. Manawar, Dist. Dhar (M.P.) held during 26-28 February, 2014.

Award for Teaching Excellence

Dr. K. Pani Prasad received award for Teaching



Letter of Appreciation

Dr. A.K. Balange received letters of appreciation from the Director of Fisheries, Mr. M.A. Razvi, Govt of Mizoram, Director of Fisheries, Mr K. Saratkumar Singh, Govt of Manipur and Secretary, *Akhil Maharashtra Machimar Kriti Samiti*, Mumbai for conducting a training program on Value added fish products.

Others

Dr. K. Pani Prasad has been recognized as a Guide in Applied Zoology by Mangalore University, Mangalore.

Dr. V. Ramasubramanian was appointed Joint Secretary, Executive Council in the Society of Statistics, Computer and Applications, New Delhi for the year 2014-15.

Dr. V. Ramasubramanian has been nominated as Associate Editor for the Journal Statistics and Applications.

Dr. C.S. Chaturvedi has been appointed as a Fisheries consultant for Chattisgarh State.

Dr. Nalini Ranjan Kumar - worked as member of editorial board of Potato Journal published by Indian Potato Association, CPRI, Shimla

Dr. S. Dasgupta received Cash Award in connection with commercialization of formulated feed on 29 August 2013.

Dr. Swadesh Prakash was invited as an expert of RCM, Birsa Agricultural University, Ranchi.



Best Paper

Mrs. Vidya Shree Bharti, Scientist bagged the JSPRS (Japan Society of Photogrammetry and Remote Sensing) award for outstanding Paper on Cdom-Indicator of eutrophication in the Case-2 water of Mumbai marine environment at the 34th Asian Conference on Remote Sensing at Bali, Indonesia held during 20-24 October 2013.



Award for Logo designing

Mr. Dasari Bhomaiah was felicitated with an appreciation award for designing the logo for AgrInnovate India Ltd. New Delhi by Dr. Abhijit Sen, Member, Planning Commission on 19 October 2013, their foundation day.



Mr. Dasari Bhomaiah was felicitated with an appreciation award for designing the logo for NRC Meat, Hyderabad by Dr. M.V. Gupta, World Food Prize Laureate & ADG, World Fish Center (Retd) on 28 February 2014.



Literary award

Dr. R.P. Uniyal received *Pradnya* a national award for his story entitled '*Khandwar*'

Institutional Awards 2012-13

Best Scientist Award	:	Dr. A.K. Reddy
Best Division/Centre Award	:	Fish Nutrition, Biochemistry and Physiology Division
Best Extension Scientist	:	Dr. Kiran Dube Rawat
Best Cell/Unit Award	:	Works Section and Examination Cell
Best Young Faculty Award	:	Shri V. Harikrishna
Best Technical Staff Award	:	Dr. K. Murali Mohan and Shri Chandrakant M.H.
Best Administrative Staff Award	:	Mrs. Anagha U. Joshi
Award for Institutional Building	:	Dr. A.K. Verma
Best Publication of the Year Award	:	Shri Mohd Ashraf Rather
Best M.F.Sc. Student (2012-13) Award	:	Ms. Shilta M.T.
Best Ph.D Student (2012-13) Award:	:	Dr. A. Jeyakumari
Highest Scorer in Class X	:	Master Sachin Gopal S/o Dr. Gopal Krishna
Highest Scorer in Class XII	:	Ms. Saumya Chaudhari D/o Dr. Aparna Chaudhari



Chapter 8

Linkages

And Collaborations

8.1. Linkages

The Institute maintains linkages and collaborations with various national and international institutions and agencies for educational, research and development.

Government of India Organizations

- Fishery Survey of India, Mumbai
- Central Institute of Fisheries Nautical and Engineering Training, Koch
- Marine Products Export Development Authority, Kochi
- National Institute of Nutrition, Hyderabad
- Zoological Survey of India
- 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, 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
- Tata Institute of Fundamental Research
- Krishi Vigyan Kendra, Banswara, Rajasthan
- Nuclear Power Corporation of India Limited, Mumbai
- National Bank for Agriculture and Rural Development, Maharashtra

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
- ICAR Research Complex for North Eastern Hill Region, Barapani
- IARI, New Delhi
- Central Institute of Agricultural Engineering, Bhopal

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
- Indian Institute of Chemical Biology, Kolkata

Universities

- 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
- Mangalore University, Mangalore

- Bhartiya 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
- Barkhatullah University, Bhopal
- Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur
- Chhattisgarh Kamdhenu Vishwavidyalaya
- Babasaheb Bhimrao Ambedkar University, Lucknow

State Governments

Department of Fisheries of the following states:

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

Other Organizations

- Haryana Kishan Ayog, Punjab
- 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 Agrovet Pvt. Ltd., Vijayawada
- Maharashtra Machimar Kriti Samiti, Mumbai
- Akhil Bhartiya Machimar Sanghatna, Mumbai
- Madhya Pradesh Fish Federation
- CPWD, Bhopal
- CPWD, Hoshanagabad
- Telecom Department, M.P.
- State Electricity Board, M.P.
- Saguna Baugh farm, Neral
- Tata Power co. Mahseer farm, Lonavla
- Govt. Fish Farm, Khopoli
- Arrey Fish Farm, Goregaon
- *Shramajivi Janata Sahayak Mandal Mahad*, Raigad, Maharashtra

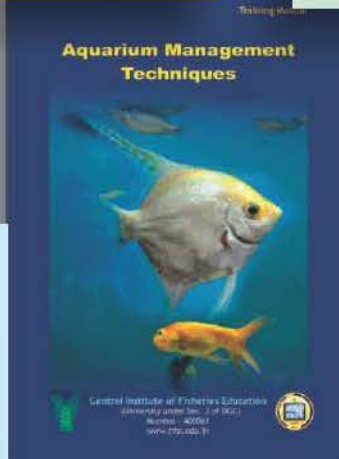
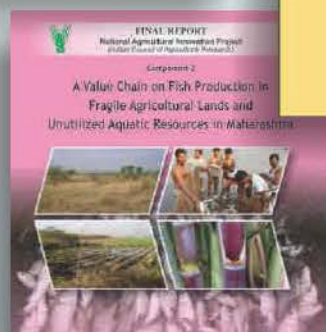
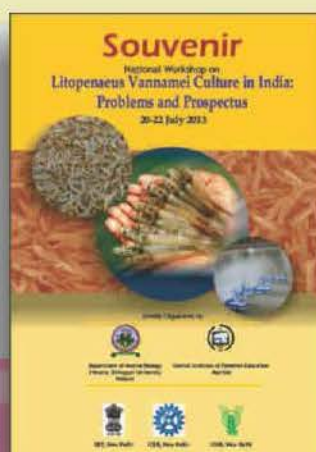
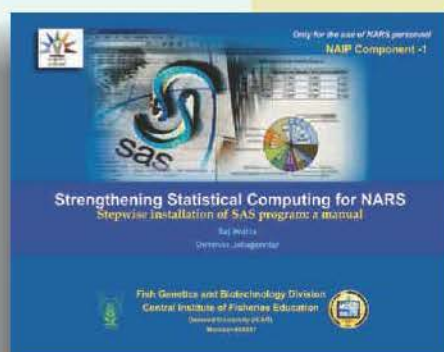
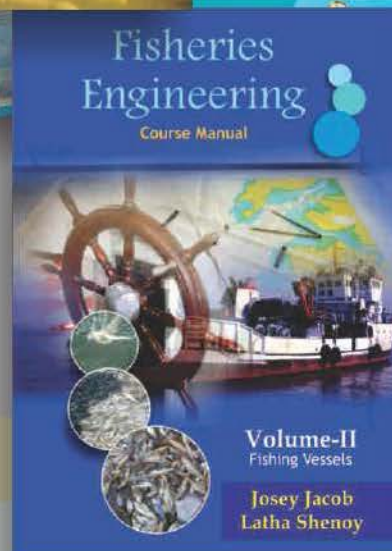
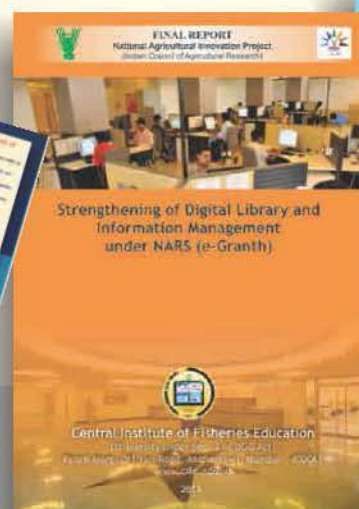
NGOs:

- Interactive Research School in Health Affairs, Pune
- Shashwat, Manchar, District Pune
- Yusuf Meherally Centre, Kutch, Gujarat
- United Artists' Association, Ganjam, Orissa
- Friends Of Nature Association, Talegaon, Maharashtra

International

- University of Idaho, Moscow, Idaho, USA
- University of Kentucky, Lexington, KY, USA

Chapter 9 Publications



9.1 Research publications in refereed journals

- Absar Alam, Chadha, N.K., Joshi, K.D., Chakraborty, S.K., Banerjee Sawant, Paramita, Tarkeshwar Kumar, Srivastava, Kalpana, Das, S.C.S. and Sharma, A.P., 2014. Food and Feeding Ecology of the Non-native Nile Tilapia *Oreochromis niloticus* (Linnaeus, 1758) in the River Yamuna. *Proc. Natl. Acad. Sci., India, Sect. B Biol. Sci.* DOI 10.1007/s40011-014-0338-3.
- Agni, S., Manjusha, L., Venkateshwarlu, G., Chouksey, M.K. and Tripathi, G., 2014. Delivery of omega-3 fatty acids into cake through emulsification of fish oil-in-milk and encapsulation by spray drying with added polymers. *Drying Technology*, ID - LDRT-2014-0134.
- Ahanger, S.H., Priyanka, S., Deepika, A., Mani, M. K., Ravinder, K., Reddy, C. S., Makesh, M., Rajendran, K.V., Majumdar, K. C. and Mishra, R. K., 2014. Protection of shrimp, *Penaeus monodon* from WSSV infection using antisense constructs. *Marine Biotechnology*, 16(1): 63-73.
- Akhtar, M.S., Pal, A.K., Sahu, N.P. and Ciji A., 2013. Hemato-immunological responses of *Labeo rohita* juveniles to temperature and salinity stress: Effect of dietary L-tryptophan. *Israeli Journal of Aquaculture-Bamidgeh*, 65: 892-901.
- Akhtar, M.S., Pal, A.K., Sahu, N.P., Ciji, A. and Mahanta P. C., 2013. Thermal tolerance, oxygen consumption and haemato-biochemical variables of *Tor putitora* juveniles acclimated to five temperatures. *Fish Physiology and Biochemistry*, 39 (6): 1387-1398.
- Akhtar, M.S., Pal, A.K., Sahu, N.P., Ciji, A., Meena, D. K. and Das P., 2013. Physiological responses of dietary tryptophan fed *Labeo rohita* to temperature and salinity stress. *Journal of Animal Physiology and Animal Nutrition*, 97 (6): 1075-1083.
- Arun Sudhagar, S., Pani Prasad, K., Makesh, M., Bhuvaneswari R. G. and Jeena, K., 2013. Characterization and production of polyclonal antisera against pangasius (*Pangasianodon hypophthalmus*) serum immunoglobulin IgM derived from DEAE cellulose based ion exchange chromatography. *Aquaculture Research*: doi:10.1111/are.12295.
- Asimi, O.A., Sahu, N.P. and Pal A.K., 2013. Antioxidant activity and antimicrobial property of some Indian spices. *International Journal of Scientific and Research Publications*, 3(3):1-8.
- Asimi, O. A. and Sahu, N.P., 2013. Herbs/spices as feed additive in aquaculture. *Scientific Journal of Pure and Applied Sciences* 2(8): 284-292.
- Awasthi, A., Rathore, G., Sood, N., Khan, M.Y. and Lakra, W.S., 2013. Establishment of a leukocyte cell line derived from peritoneal macrophages of fish, *Labeo rohita* (Hamilton, 1822). *Cytotechnology*. DOI: 10.1007/s10616-013-9660-5.
- Badhe, M.R., Kumar, P.A., Gireesh Babu P., Nandanpawar, P., Chaudhari, A., Jaiswar A. K., Krishna, G. and Lakra W.S., 2013. DNA barcoding of selected cephalopods from Indian coast. *Indian Journal of Animal Sciences* 83(8): 862-866.
- Basha, K.A., Raman, R.P., Pani Prasad, K., Kundan Kumar, Nilavan, E. and Saurav Kumar., 2013. Effect of dietary supplementd andrographolide on growth, non-specific immune parameters and resistance against *Aeromonas hydrophila* in *Labeo rohita* (Hamilton), *Fish and shelfish Immunology*. Vol. 35:1433-1441.
- Bhatnagar, A., Dayal, R., Chowdhary, S., Lakra, W.S., Raizada, S., Yadav, A.K. and Srivastava, P.P., 2013. Cellular changes in the gill of saul (*Channa striatus*) grow-out fed with various dietary fats. *International Journal of Fisheries and Aquatic Studies* 1(2): 45-49.
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9.6. Reports

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9.7. Training/practical manuals

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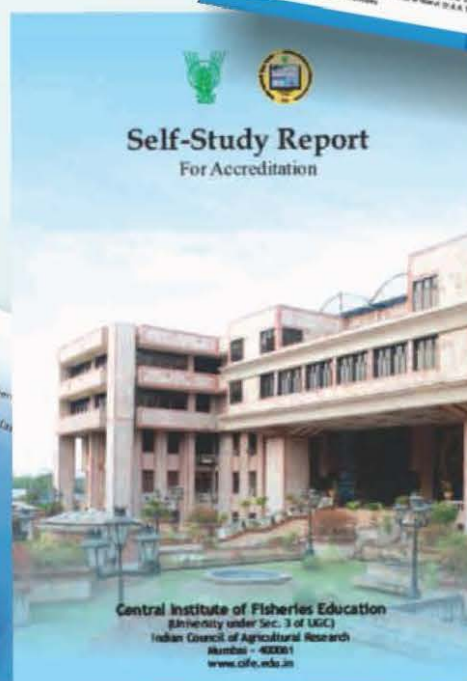
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9.8. Magazines

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Matsya Darpan Six monthly magazine, April-Sept 2013, Vol. 17, No. 54, 8pp.

Sahu, N.P., Poojary, N. and Dasari, B. (Eds.)
Matsya Darpan Six monthly magazine, April-Sept 2013, Vol. 18, No. 54, 8 pp.



Chapter 10

Participation

in Conferences, meetings, training etc.



10.1. Participation in Workshop/Conferences/Symposia/ meetings/Farmers' meet

Dr. W.S. Lakra, Director, CIFE

In Abroad

- Leadership Decision Making Course at Harvard Kennedy School, USA during 22-28 June 2013.
- BBSRC - DBT expert panel meeting Seminar on Bilateral Projects in London (UK) during 5-6 September 2013.

In India

- Visited DBT, New Delhi on 2 April 2013 for a discussion seminar on HRD in Molecular Biology.
- XXI Meeting of ICAR Regional Committee No.II at Assam Agricultural University, Jorhat during 17 - 18 April 2013.
- Brainstorming Session on Agriculture, Research and Education at IARI, New Delhi on 18 May 2013.
- 6th Agricultural Leadership Summit 2013 at New Delhi from 19-20 September 2013.
- Meeting at Bali Island, Sundarbans, organized by ICAR, New Delhi on 2 October 2013.
- Meeting of Scientific Panel of Fish and Fish Products at FDA Bhawan, New Delhi on 15 October 2013.
- Meeting of Agrinnovate India Ltd., at NASC Complex, New Delhi on 19 October 2013.
- Stakeholders seminar & meeting chaired by DG, ICAR, New Delhi on 16 November 2013.
- Consultative Meeting on Fisheries Development in the State of West Bengal at CIFE, Kolkata Centre on 23 November 2013.
- Fish Mela/Exhibition in Gondia District of Maharashtra State on 27 December 2013.
- Annual Vice Chancellor's Conference held at Baramati during 18-20 January 2014.
- Seminar organized by NABARD at Chandigarh on 30 January 2014.
- Delivered a Plenary lecture on 101st Indian Science Congress at University of Jammu, Jammu on 7 February 2014.
- Delivered an invited talk at Punjab Agriculture Summit, Chandigarh on 18 February 2014.

Name of the Programme	Venue	Period	Name of the person who participated
Meeting of Expert Committee set up to develop standards for declaring SPF status for shrimp species breeding and farming	CAA, Chennai	2 Apr, 2013	G. Rathore
National Workshop on Capacity Building for Skill Development & Self-Employment in Livestock and Fisheries Sector	TANUVAS, Chennai	12-13 Apr, 2013	M. Krishnan
National Surveillance Programme for Aquatic Animal Diseases	NBFGR, Lucknow	27-28 May, 2013	K. Pani Prasad
User Acceptance Testing of ERP Solution for Implementation of Management Information System (MIS) including Financial Management System (FMS) in ICAR	IASRI, New Delhi	8-9 May, 2013	S. Jahageerdar
International Conference on Impact of Technological Tools on Food Security under Global Warming Scenario (ITTFS 2012)	SVPUA&T, Meerut	11-13 May, 2013	Swadesh Prakash
Meeting with D.G., ICAR	CIBA, Kakdwip	15 May, 2013	B.K. Mahapatra
International Symposium on Greening Fisheries-Towards Green Technologies in Fisheries	CIFT, Cochin	21-23 May, 2013	A.K. Balange
Brainstorming Session on Improving Fisheries Higher Education: Constraints and Opportunities	CIFE, Mumbai	27 May, 2013	All scientists and technical officers of CIFE
National Surveillance Programme for Aquatic Animal Diseases	NBFGR, Lucknow	28-29 May, 2013	G. Rathore
Scientist Advisory Committee' of KVK	CIAE, Bhopal	11 Jun, 2013	R.K. Upadhyay
Brainstorming Session on Sanitary and Phytosanitary Measures in Fisheries	NAAS, New Delhi	27 Jun, 2013	B.B. Nayak
Stakeholders' Meeting on Formation of Producer Company of Ornamental Fish Farmers/breeders	Kudal, Sindudurg Maharashtra	3-4 Jul, 2013	M. Krishnan P.S. Ananthan
International Conference on Electron Microscopy and XXXIV Annual Meeting of the Electron Microscope Society of India (EMSI)	Saha Institute of Nuclear Physics, Kolkata	3-5 Jul, 2013	G. Tripathi
Scientific Advisory Meeting (SAC)	KVK, Powarkheda	10 Jul, 2013	R.K. Upadhyay
Students' Research Convention on Innovations in Fisheries	CIFE, Mumbai	10 Jul, 2013	All scientists and technical officers of CIFE
Seminar on <i>Litopenaeus vannamei</i> culture in India: Problems and Prospects	VSU, Nellore	20-21 Jul, 2013	G. Rathore K. Pani Prasad A.K. Reddy
Meeting of Hilsa project	CIFRI, Barrackpore	27 Jul, 2013	S. Dasgupta G.H. Pailan

State Level Consultancy Workshop towards sustainable fishing in Maharashtra	MPEDA Mumbai	31 Jul, 2013	L. Shenoy
Line Departments Meeting, Reliance Foundation	Kakinada	5 Aug, 2013	S.S.H. Razvi P. Rami Reddy K. Murali Mohan and R. Ravisankar Patnaik
The meeting of Scientific Advisory Committee	KVK, Nimpith	24 Aug, 2013	B.K. Mahapatra
MPEDA and NETFI Programme on Towards Sustainable Fishing	CIFE, Kolkata	16 Aug, 2013	B.K. Mahapatra
Fish Farmer's Day celebration by Govt. of W.B.	Meen Bhawan, Salt Lake	21 Aug, 2013	B. K. Mahapatra
Management Development Program for Pre RMP	NAARM Hyderabad	26 Aug - 6 Sep, 2013	Gopal Krishna
Meeting with MPEDA	MPEDA, Kolkata	29 Aug, 2013	B. K. Mahapatra
National Workshop on Outscaling Farm Innovation	ICAR, TAAS & APAARI at New Delhi	4-5 Sep, 2013	A. Sharma P.S. Ananthan
National Workshop on Recent Advances in Animal Science Research	Karnatak University, Dharwad	5-6 Sep, 2013	K. Pani Prasad
Farmers Scientist Interaction Meet	Bali Island, Sundarban	13 Sep, 2013	B.K. Mahapatra
21 st National Conference on Agricultural Economics Research Association	SKUAST-K, Srinagar	8- 15 Sep, 2013	M. Krishnan
Consultancy meeting of Hilsa project	CIFRI, Barrackpore	17 Sep, 2013	S. Dasgupta G. H. Pailan
Partners meet of the NAIP sub-project Strengthening statistical computing for NARS	IASRI, New Delhi	17-18 Sep, 2013	S. Jahageerdar
Workshop on All India survey for higher education	Pune	19 Sep, 2013	Vinod Kumar
The 5 th National R&D Workshop in Food Processing Sector organized by CODEX, MOFPI and FICCI	Hotel Lalit, Mumbai	23-24 Sep, 2013	M.K. Chouksey B. B. Nayak A.K. Balange
Awareness workshop on National Fund for Basic, Strategic and Frontier Application Research in Agriculture (NFBSFARA)	CIFE Mumbai	27-28 Sep, 2013	All scientists and technical officers of CIFE
Meeting on the fish seed act of A.P.	Hyderabad	30 Sep, 2013	P.P. Suresh Babu P. Srinivasa Rao
Workshop on Mahseer biology, genetics and gene banking	Jammu	28 Sep, 2013	K. Pani Prasad
Assessment meeting of Hilsa Project	Godakhali, Sundarban	3 Oct, 2013	S. Dasgupta G. H. Pailan
Second NKN Annual Workshop	IISc, Bengaluru	17 -19 Oct, 2013	S. Jahageerdar

International Conference on Advanced Trends in Computer Science and Engineering	IJATCSE, Mysore	21 Oct, 2013	Vinod Kumar
Advisory Committee Meeting of Hilsa project	CIFRI, Barrackpore	22-23 Oct, 2013	S. Dasgupta and G.H. Pailan
<i>Nagar Rajbhasha Karyanvan Samiti ki baitak Kapas Nigam</i>	Belapur	24 Oct, 2013	P.K. Das
The 34 th Asian Conference on Remote Sensing (ACRS)	Bali, Indonesia	20 - 24 Oct, 2013	V.S. Bharti
Stakeholders Meeting	CIFE Kakinada Centre	16 Nov, 2013	K. Pani Prasad
Interface meeting of Line Departments in Agriculture and Allied Sector	ANGRU, Bapatla,	17 Nov, 2013	P.P. Suresh Babu
54 th Annual Conference of Association of Microbiologists of India (AMI-2013) and International Symposium on Frontier Discoveries and innovations in Microbiology and its Interdisciplinary relevance	MDU, Rohtak	17-20 Nov, 2013	B.B. Nayak
Arunachal <i>Meen Mahatsav</i> 2013	Itanagar	21-22 Nov 2013	S. Munilkumar
National Seminar on Recent Trends in Aquaculture for Sustainable Environment	Eluru	22-23 Nov, 2013	K. Pani Prasad
24 th All India Congress of Zoology	University of Kalyani, Nadia	23-25 Nov, 2013	B.K. Mahapatra
International Trade Fair (IITF, 2104)	New Delhi	14-27 Nov, 2013	Ashok Kumar S. Singh Lokesh Kumar Gyani Ram
National Symposium on Remote Sensing and GIS for Environment with special emphasis on Marine and Coastal Dynamics	AU, Visakhapatnam	4-6 Dec 2013	Vinod Kumar V.S. Bharti
National Stakeholders Meet on Sustainable Fisheries Development	CIFE	6-8 Dec, 2013	All scientists and technical officers of CIFE
83 rd Annual Session of The National Academy of Sciences, India	Goa University	7 Dec, 2013	W.S. Lakra, P.P. Srivastava B.S. Paromita
Meeting of Scientific Advisory Committee	KVK, Nimpith	10 Dec, 2013	B.K. Mahapatra
Scientist Advisory Committee' of KVK	CIAE, Bhopal	11 Dec, 2013	R.K. Upadhyay
The Workshop on Big Fish (IMC) Production	Mani Square, Kolkata	12 Dec, 2013	B.K. Mahapatra
National Seminar on New Agricultural Technology and Challenges to Indian Agriculture (<i>In Hindi</i>)	CIFE, Mumbai	14-15 Dec, 2013	All scientists and technical officers of CIFE

Hindi meeting of Nagar Rajbhasha Karyavan Sammittee	SPM, Hoshangabad	17 Dec, 2013	Somdudd
Meeting on Subject Matter Specialist- Fisheries for KVK, Narendrapore	Belur Math	16 Dec, 2013	B.K. Mahapatra
Assessment Panel of Expert for Assessment of F& FP Establishment in the Jurisdiction of EIA-Kolkata	EIA, Kolkata	17 Dec, 2013	B. K. Mahapatra G.H. Pailan
Assessment Committee for Technical Officials	CIFRI, Barrackpore	19 Dec, 2013	B.K. Mahapatra
67 th Annual Conference of the Indian Society of Agricultural Statistics (ISAS)	Banaras Hindu University (BHU) Varanasi	18-20 Dec, 2013	V. Ramasubramanian
International Conference on Biology of Natural Toxins	BITS Pilani, Goa Campus, Goa	19-21 Dec, 2013	K. Pani Prasad
Workshop on Integrated and Digital Library Management	CIFRI, Barrackpore	21 Dec, 2013	G. H. Pailan A. Biswas
Scientific Advisory Committee (SAC) Meeting	KVK, JNKVV, Powarkheda	26 Dec, 2013	Somdudd
National Fish Workers Forum	CIFE, Mumbai	6-8 Jan, 2014	All scientists and technical officers of CIFE
National Symposium on Emerging Trends in Biotechnology	Cochin University of Science and Technology	22-23 Jan, 2014	K.V. Rajendran
Midterm Review Meeting of ICAR Regional Committee- II	CIFRI Barrackpore	24 Jan, 2014	B. K. Mahapatra P.P. Suresh Babu
Workshop on Prioritization Climatic Smart Agriculture Interventions	BAIF, DRFZAC(JNKVV) Powarkheda	30 Jan, 2014	Somdudd
Self-sufficient and sustainable aquaculture in North Eastern Region	Pragyan Bhavan, Agartala, Tripura	5 Feb 2014	S. Munilkumar
International Workshop on Coastal and River Zone (CRZ) Management: Regulations and Development	IIT Delhi	6-7 Feb, 2014	G. Deshmukhe
Social security of fishes FISHCOPFED	CIFE, Kolkata	7 Feb, 2014	All scientists of Kolkata Centre
Aquaculture America 2014	Seattle, USA	9-12 Feb, 2014	M. Makesh
Capacity Building Programme for KVKs SMS in NE States at CIFRI, Guwahati	Assam	11-15 Feb, 2014	B. K. Mahapatra S. Munilkumar
Meeting for review of research projects under radiation & environment sub-committee, NRFCC, BRNS	AERB, Mumbai	19 Feb, 2014	Chandra Prakash
Progressive Punjab Agriculture Summit	Chapparchiri, Mohali	16-19 Feb, 2014	W. S. Lakra V. Harikrishna Ashok Kumar S. Singh



Meeting on Review of the BRNS funded Project on Studies on present status of marine radioecology and biodiversity at Kalpakkam coastal site	BARC, Mumbai	19 Feb, 2014	S. Munilkumar
16 th Annual Conference of the Society of Statistics, Computer and Applications (SSCA)	BPSMV Sonapat	24-26 Feb, 2014	V. Ramasubramanian
Sensitization Workshop on Migration from IPv 4.0 to IPv 6.0 in DARE/ICAR	NASC Complex, IASRI, New Delhi	27 Feb, 2014	S. Jahageerdar
PUSA Kisan Mela	IARI Ground, New Delhi	26-28 Feb, 2014	Ashok Kumar Lokesh Kumar Gyani Ram
Meeting with Director General, ICAR regarding XII Plan EFC of CIFE	ICAR HQ, New Delhi	3 Mar, 2014	K. Pani Prasad
Meeting with Planning Commission chaired by Dr. Kasturirangan, Member, Planning Commission regarding XII Plan EFC of CIFE	Yojana Bhawan New Delhi	4 Mar, 2014	K. Pani Prasad
Biotechnological Approaches to Challenges in Animal Health and Production	CVSc, Mathura	6 - 7 Mar, 2014	Gopal Krishna
National Symposium of Recent Advances in Fishery Sciences	D.M. College, Imphal, Manipur	7 - 8 Mar,, 2014	S.K. Chakraborty
Workshop cum Farmers' meet on Research and HRD needs for Fisheries Development in Sikkim	Gangtok, Sikkim	8 Mar, 2014	A.K. Reddy P.P. Srivastava S. Munilkumar P. Gireesh Babu P.
Fisher Leaders Workshop on Responsible Fisheries Management	Dahanu	26 Mar,2014	L. Shenoy
National seminar on Impact of Climate Change on Aquaculture and Mitigation Options for Food Security	University of Kalyani, West Bengal	26 Mar, 2014	S. Munilkumar
Board of Examination Meeting	Mangalore University	7 Mar, 2014	A.K.Pal



10.2. Training Programmes\Summer schools/Winter schools attended

Name of the Programme	Duration	Organized by	Faculty
Deploying predictive models using Analuo and R language	6-7 Sep, 2013	CIFE, Mumbai IARF, Karnal IFA, Mumbai	V. Ramasubramanian
SPSS, Analog and R	6-7 Sep, 2013	CIFE, Mumbai	Vinod Kumar
National Surveillance Programme for Aquatic Animal Diseases	17-20 Sep, 2013	NBFGR, Lucknow	K.V. Rajendran Gaurav Rathore K. Pani Prasad
CAPT training programme on Aquatic Animal Health Management	11 Oct- 1 Nov, 2013	CIFE, Mumbai	A. Biswas Nalini Poojary
Library Software Training cum Workshop-KOHA under NIAP e-Granth	24 Oct, 2013	CIFE, Mumbai	Hasan Javed R. R. Patnaik A. Biswas
Value Addition and Secondary Agriculture with Special Reference to Fish and Fishery Products	21-24 Oct, 2013	CIFT, Cochin	A.K. Balange
Training on Finance, HRMS Modules of ICAR-ERP System	25-28 Nov, 2013	CIFE, Mumbai	Administrative Staff of CIFE
Training on Finance and HRMS Module of ICAR-ERP System	25-30 Nov, 2013	CIFE, Mumbai	Administrative Staff from HQ & Centres
Digitalization purpose	25 Nov- 5 Dec, 2013	CIFE, Mumbai	C.N. Sahani P. K. De
Leadership Development (Pre-RMP Cadre)	26 Nov - 7 Dec, 2013	NAARM, Hyderabad	K.V. Rajendran P.K. Pandey



Pre-Symposium Tutorial on Geoinformatics in Marine & Coastal Environment in National Symposium on Remote Sensing and GIS for Environment	2-3 Dec, 2013	AU, Vishakhapatnam	Vinod Kumar
Training on Payroll and Pension Module of ICAR-ERP System	2-3 Dec, 2013	CIFE, Mumbai	Administrative Staff from HQ & Centres
Hands on Advanced Instruments of Water Quality Testing	2-6 Dec, 2013	NIH, Roorkee	Chandra Prakash
Training on Purchase and Store Module of ICAR-ERP System	4-5 Dec, 2013	CIFE, Mumbai	Administrative from HQ & Centres
Training on Project Management of ICAR-ERP System	6-12 Dec, 2013 9-10 Dec, 2013 11-12 Dec, 2013	CIFE, Mumbai	Scientific
Technical measures as tools for fisheries management in the Indian scenario	12 Feb, 2014	CIFT, Kochi	L. Shenoy
Digital Library	17-19 Feb, 2014	CIFRI,	A. Biswas Chandra Prakash
Computational Aspect for NGS Data Analysis: A Sojourn from Lab to Field	4-13 Mar, 2014	AAU, Anand Gujarat	A. Pavan Kumar
Remote Sensing of Potential Fishing Zones and Ocean State Forecast	24-29 Mar, 2014	INCOIS	Vinod Kumar

10.3. Visits Abroad

Faculty	Programme	Funded by	Place	Period
A.K. Reddy	International Academic Exchange Programme on 'Larval rearing of endangered freshwater prawn species <i>Macrobrachium carcinus</i> (Pigua)	UJAT, Villahermosa, Tabasco, Mexico	Mexico	11-31 August, 2013
Vidya Shree Bharti	Asian Conference on Remote Sensing (ACRS), 2013 organized by Indonesian Society for Remote Sensing (ISRS/MAPIN)	IITB, Mumbai	Bali, Indonesia	20-24 Oct, 2013
A. Pavan Kumar	NAIP sponsored International Training programme	NAIP	Department of Biological Sciences, University of Andes, Bogota, Colombia	8 Oct-31 Dec, 2013
P. Gireesh Babu	NAIP international training on 'Marker Assisted Selection'	NAIP	Dept. of Biology, University of Kentucky, Lexington, USA	17 Oct 2013 - 16 Jan, 2014
M. Makesh	Mucosal Immune Response in Fish	DBT	University of Idaho, Moscow, USA	17 Oct 2013 - 14 Feb, 2014
G.Venkateshwarlu	As a Visiting Professor to partake in European M.Sc. program in Food Science, Technology and Nutrition	Erasmus Mundus European Commission	Dublin Institute of Technology Ireland, Dublin	14-31 Jan, 2014
K.V. Rajendran	Workshop on Multi-Disciplinary Approaches to Fish Health and Disease Research organized by UK's (BBSRC)	DBT, Govt. of India & Research Councils, UK (RCUK)	Birmingham, UK	18-19 Mar, 2014

10.4. Invited Lectures delivered in other Universities/institutes

Dr. A. K. Pal, Joint Director, CIFE

Attended Brain storming session on Application of nanotechnology in Agriculture organized by NAAS at NASC, New Delhi and gave a presentation on Nanotechnology : Fisheries Perspective on 22-24 April, 2013

Attended a Annual review meeting on Agromet Advisory Services at MPUAT, Udaipur and made a presentation on Agromet Advisory Services for Inland Fisheries on 19-21 November, 2013

Chaired a session in a National seminar on Climate Change and delivered key note address on Climate Change Challenges for Food Security: Strategic Approach for Sustainable Aquaculture on 26 March, 2014

Title	Date	Place	Faculty
Lecture delivered on Farmer's meet at exhibition at Hoshangabad	5 Jun, 2013	Dept. of Agriculture, Hoshangabad	Somdudd
Lecture delivered on Farmer's meet at exhibition at Hoshangabad	6 Jun, 2013	Dept. of Agriculture, Hoshangabad	R. K. Upadhyay
Agricultural Marketing Management under new era	25 Jun, 2013	GBPUA&T, Pantnagar, Uttarakhand	Swadesh Prakash
Producers Company for Ornamental Fish farmers	2-4 Jul, 2013	MPEDA, Mumbai	M. Krishnan
Case studies on Producer Companies in India - Stakeholder meeting on Formation of Producer Company of Ornamental Fish Farmers / Breeders	3-4 Jul, 2013	Kudal, Sindugurg District, Maharashtra	P.S. Ananthan
Responsible Marine Capture Fisheries of Maharashtra- Options and Challenges	31 Jul, 2013	MPEDA/NETFISH	Latha Shenoy
Fishery and stock assessment - for Master's student	8 Sep, 15 Sep and 22 Sep, 2013	L.B.S. College of Marine Sciences	S.K. Chakraborty
Sanitation and Hygiene Practices during Handling and Transportation of Fish and Shellfish	1 - 5 Oct, 2013	College of Fisheries, Ratnagiri	G. Venkateshwarlu
SAS Genetics and Its Application to Animal Sciences - CAFT training program on Advances in Statistical Methods for Animal Experiments	11 Oct, 2013	Indian Agricultural Statistical Research Institute, New Delhi	S. Jahageerdar
Advances in Aquatic Animal Health Management and Vaccines and Vaccination in Fish National Seminar on Recent Trends in Aquaculture for Sustainable Environment	22-23 Nov, 2013	CH.S.D.St.Theresa's Autonomous College, Eluru, AP	K. Pani Prasad
Marine Biodiversity of Maharashtra Coast and Community Role - National Conference on Biodiversity Status and Challenges in Conservation: FAVEO 2013	29-30 Nov, 2013	B. N. Bandodkar College of Science Thane	Geetanjali Deshmukhe
Prioritization, Adaptation and implementation of CCRF	6 Dec, 13	NFF and CIFE	L. Shenoy
Fish Nutrigenomics - Diet and Gene Expression Concepts and Fish Biodiversity, Sustainable Fisheries, Biotechnology and Fish Nutrition for Future Aquaculture in 83rd Annual Session of The National Academy of Sciences, India.	7 Dec, 2013	Goa University and NIO, Goa	P.P. Srivastava
Marketing Management with Special Reference to Competitive Dynamics and Pricing	10 Dec, 2013	R.V.S.K.V.V, Gwalior (M.P.)	Swadesh Prakash
Activity of Epidermal Secretions of Certain Marine Flat Fishes	19-21 Dec, 2013	BITS Pilani, Goa	K. Pani Prasad

Value Added Fish Products- A new Source of Revenue Generation for Fisher Folks	20 Dec, 2013	FISHCOPFED, CIFE, Mumbai	A .K. Balange
Human Genome Project - In-service Course for PGT Biology	23 Dec 2013 -3 Jan 2014	ZIET(KVS), Mumbai	A. Chaudhari
Invited talk during National Symposium on Emerging Trends in Biotechnology	22-23 Jan, 2014	CUST, Kochi	K.V. Rajendran
Lecture during the Capacity Building Programme for SMS's of KVK in NE India	11-15 Feb, 2014	CIFRI, Guwahati	M. Krishnan
Non-conventional Culture Systems- Orientation training programme for newly recruited state fisheries officers	17 Feb, 2014	Bhopal	Somdutt
Common diseases of freshwater fish and their treatment - Short term model training course on Freshwater fish culture	18 Feb, 2013	College of Fisheries, Latur, Maharashtra	G. Rathore
Lecture during Farmer's meet at exhibition 'Bharat Nirman-Jan Suchana Abhiyan'.	27 Feb, 2014	PIB, Indore	R. K. Upadhyay
National scenario of aquaculture, fish culture practices and integrated fish farming system	7 Mar,2014	Sarojini Naidu Govt. Girls Post Graduate College, Bhopal	R. K. Upadhyay
Stock Assessment and Management of Fishery Resources- Key note address during Symposium on Recent advances in Fisheries Research	7-8 Mar, 2014	D.M. College, Imphal	S.K. Chakraborty
Aquatic Biodiversity and its conservation, MOEF, Maharashtra	10-11 Mar, 2014	CIFE, Mumbai	A.K. Jaiswar G. Deshmukhe
Biostatistics	13 Mar, 2014	Mithibai College of Arts, Mumbai	V. Ramasubramanian
Identification of fishes, fish culture practices and integrated fish farming system	14 Mar, 2014	Dept. of Zoology, Govt. Holkar Science College, Indore	R. K. Upadhyay
Invited talk - Workshop on multidisciplinary approaches to fish health and disease research UK's Biotechnology and BBSRC	18-19 Mar, 2014	Biotechnology and Biological Sciences Research Council Birmingham, UK	K.V. Rajendran
Fresh water fish harvesting, storage transportation and marketing management	25 Mar, 2014	Khar Land Research Station, Panvel	A.K. Balange
Responsible marine fisheries of Maharashtra: Challenges and way forward	26 Mar, 2014	Dahanu Fish Co-op.Society	L. Shenoy

Chapter II Organized

Meetings, Workshops, Seminars Etc.



11.1. Seminars/Workshops/Symposia/ Trainings organised

Name of the Programme	Venue	Date
UNICODE Workshop in Hindi	CIFE, Mumbai	20 Apr, 2013
Brainstorming Session on Improving Fisheries Higher Education: Constraints and Opportunities	CIFE, Mumbai	27 May, 2013
UNICODE Workshop in Hindi	CIFE, Mumbai	27 Jun, 2013
First Student Research Convention on Innovations in Fisheries	CIFE, Mumbai	10 Jul, 2013
UNICODE Workshop in Hindi	CIFE, Mumbai	25 Jul, 2013
<i>Timahi pratedan online se bhijwana-special workshop</i>	CIFE, Mumbai	12 Jul, 2013
Workshop on <i>Litopenaeus vannamei</i>	VS University, Nellore	20-21 Jul, 2013
Awareness workshop on National Fund for Basic, Strategic and Frontier Application Research in Agriculture	CIFE Mumbai	27-28 Sep, 2013
UNICODE Workshop in Hindi	CIFE, Mumbai	23 Sep, 2013
Workshop on Mahseer: Biology, Genetics and Gene Banking	Reasi, Jammu	28 Sep, 2013
UNICODE Workshop in Hindi	CIFE, Mumbai	8 Nov, 2013
Consultative Meet on Fisheries Development in W. Bengal	CIFE, Kolkata	23 Nov, 2013
National Stakeholders Meet on Sustainable Fisheries Development	CIFE, Mumbai	6-8 Dec, 2013
Hindi workshop on <i>Agriculture ki adhunik pradyogiki ki uplabhadiyon ki adhunik uplabhdiya evam chunoutiyan</i>	CIFE, Mumbai	14-16 Dec, 2013
National Fish Workers Forum	CIFE, Mumbai	6-8 Jan, 2014
Hindi Workshop	CIFE, Powarkheda	6 Feb, 2014
One day workshop on Social Security of Fishes FISHCOPFED	CIFE, Kolkata	7 Feb, 2014
CIFE-Industry Day	CIFE, Mumbai	28 Feb, 2014
Workshop-cum-Farmers' Meet on Fisheries and Aquaculture Development in Nagaland	Kohima-Dimapur Nagaland	14 Feb, 2014

National Symposium on Recent Advances in Fishery Sciences	D.M. College, Imphal, Manipur	7-8 Mar, 2014
Workshop cum Farmers meet on Research and HRD needs for Fisheries Development in Sikkim	Gangtok, Sikkim	8 Mar, 2014
UNICODE Workshop in Hindi	CIFE, Mumbai	11 Mar, 2014

11.2. Meetings organized

Name of the Programme	Date
RFD meeting	3-4 April, 2013
Science club meeting	5 April, 2013
Research Advisory Council	25 April, 2013
Institute Research Committee	29-30 April, 2013
<i>Rajya Bhasha Meeting</i>	6 May, 2013
<i>Rajbhasha karyanvin samiti ki 72nd Baithak</i>	6 May, 2013
47 th Academic Council Meeting	14 May, 2013
Special Academic Council Meeting	26 May, 2013
VII Meeting of Board of Examinations	30-31 May, 2013
Core Committee Meeting	18 July, 2014
Board of Management	25 July, 2013
Science Forum Meeting	17 August, 2013
BRNS Meeting	9 September 2013
Core Committee Meeting	17 September, 2013
<i>Rajbhasha karyanvin samiti ki 73rd Baithak</i>	9 October, 2013
Meeting for Skill development Program	9 October, 2013
Institute Research Council	28-29 October, 2013
Stakeholders Meeting (Kakinada Centre)	16 November, 2013
<i>Rajbhasha karyanvin samiti ki 74th Baithak</i>	27 November, 2013
48 th Academic Council Meeting	21 December, 2013
National Fish Workers Forum	6-8 January, 2014
Core Committee Meeting	22 January, 2014
Meeting of Board of Examination	29 January, 2014
Core Committee Meeting	15 February 2014
Meeting of Board of Examination	22 March, 2014
Senior officers meeting	22 March, 2014
Annual Research Advisory Committee Meeting	25 March, 2014
Board of Management Meeting	27 March, 2014
Raj Bhasa 'Hindi samiti' meetings Powarkheda	6 June, 2013 11 September, 2013 18 December, 2013 27 January, 2014



National Seminar on New Agricultural Technologies and Challenges to Indian Agriculture (in Hindi)

A National seminar on New Agricultural Technologies and Challenges to Indian Agriculture (*Krishi ki adhunik Pradyogi ki Uplabdhayan aur Chunotiya*) was organized during 14-15 December, 2013. Around 400 scientists from all over the country along with students and researchers attended the event. About 75 research papers were presented. A.S. Faroda, Director of Vijayraje Scindia Agricultural University, Dr. A.K. Singh, Director of the Central Agricultural University, Dr. S. N. Puri along with distinguished scientist were present in the seminar. On this occasion the Director urged the young scientists to move along with the global trends and work towards developing new technologies to meet the present challenges faced by the Indian farmers

SAS Programme

A National Training program on 'SAS for Developing Predictive Models in Agriculture, Animal and Fisheries Science' was conducted from 18-23 November, 2013 as part of NAIP (component-I) Project 'Strengthening Statistical Computing for NARS'. A total of 24 trainees from all over India attended the training program.

KOHA training programme

Two Workshops on "Library Software Management: KOHA" were conducted under the NAIP project, e-Granth on 24 October, 2013 and 30 November, 2013. A total number of 30 participants attended the programme. The administration staff from headquarter and subcenter of CIFE were given training on efficient use of library software "KOHA" for their routine work. Another training was conducted exclusively for the students. Besides "KOHA" the ethics of research paper writing and plagiarism was appraised to them. Mr. Hemant Shetye (OSS Lab, Koha) and Ms. Jyoti Bhabal (Professor, SNT) delivered the lecture about the KOHA software and made a presentation on Installation of KOHA software.

Centre of Advanced Faculty Training



Programme	Duration	No.of Participants
Advances in Aquatic Animal Health Management in Finfish and Shellfish	11-31 October, 2013	17
Development and Nano-sizing of Biotechnological Products for Fisheries and Aquaculture	5-25 February, 2014	15

Chapter 12

Distinguished Visitors



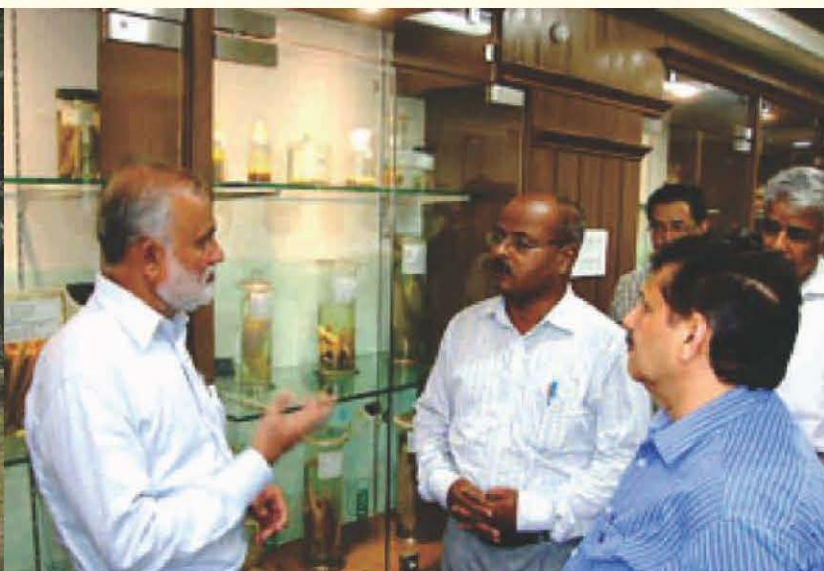
12. Distinguished visitors at CIFE, Mumbai & its Centres

Name of the Visitor	Name Position/Address	Date of Visit
Mr. Manash Choudhury	Deputy Adviser (Fy), Agriculture Division, Planning Commission	24 Apr, 2013
Mr. V. B. Singh	Director, Planning Commission	24 Apr, 2013
Dr. KrushnaTajne	Former Dean, Veterinary College Sardar Krishninagar, Gujarat	6-8 May, 2013
Dr. Brij Bharuah	VC, AAU, Gujarat	13 May, 2013
Dr. Imelda Joseph	Principal Scientist and Head, Mariculture Division, CMFRI, Cochin	16-18 May, 2013
Padma Bhushan Dr. R.S. Paroda,	Chairman, Haryana Farmers' Commission and Trust for Advancement of Agricultural Sciences (TAAS)	25 May, 2013
Dr. S. Ayyappan	Secretary, DARE and DG, ICAR	25 May, 2013
Dr. K. Gopakumar	Former DDG (Fisheries), ICAR	25 May, 2013
Dr. S.D. Tripathi	Former Director, CIFE	25 May, 2013
Dr. B. Meenakumari	DDG (Fisheries), ICAR	25 May, 2013
Dr. Arvind Kumar	DDG (Education), ICAR	25 May, 2013
Dr. S. Ayyappan	Secretary, DARE and DG, ICAR	27 May, 2013
Dr. Panjab Singh	Former DG, ICAR	6 Jun, 2013
Sri Pramod Hindurao	Chairman CIDCO Ltd	
Dr. J.C.Katyal	Former Vice-Chancellor, CCS Haryana Agricultural University	6 Jun, 2013
Shri Tariq Anwar	Hon'ble Union Minister of State for Agriculture & Food Processing Industries	6 Jun, 2013
Dr. S. Ayyappan	Secretary, DARE and DG, ICAR	27 Jul, 2013
Dr A.E. Eknath	Director General, NACA, Bangkok	24 Jul, 2013
Dr.G. Syda Rao	Former Director, CMFRI, Kochi	26 Aug, 2013
Dr. A.C. Kulkarni	Mumbai	26 Aug, 2013
Shri Mahendra Singh	General Manager, BSNL Itarsi	4 Sep, 2013
Mr. O. P. Mishra	DDG (Fy), Dept. of Animal Husbandary, Dairying & Fisheries, Krishi Bhavan	14 Sep, 2013

Shri Mohana Pai	Assistant Commissioner (Fy), Dept. of Animal Husbandary, Dairying & Fisheries , Krishi Bhavan	14 Sep, 2013
Dr. Gürtler Volker	Editor of Journal of Microbiological Methods	3 Oct, 2013
Dr. S.K. Bandyopadhyay	Member, ASRB, DARE, ICAR, Govt. of India	20 Oct, 2013
Dr. S. Ayyappan	Secretary, DARE and DG, ICAR	16 Nov, 2013
Shri M.V.S. Nagi Reddy	Member, ICAR Governing Body	16 Nov, 2013
Shri Tariq Anwar	Hon'ble Union Minister of State for Agriculture & Food Processing Industries	17 Nov, 2013
Professor R. S. Deshpande	Former Director, ISEC and ICSSR National Fellow, Bangalore	18 Nov, 2013
Dr. D. V. Deshpandey	CGM, NABARD, Chandigarh	19 Nov, 2013
Major Gen. Shri Shrikanth	VC, LLRUVAS, Hisar	19 Nov, 2013
Dr. L. Kannan	Prof. Emeritus Annamalai University, Tamilnadu	1 Feb, 2014
Padma Bhushan Dr. M. Mahadevappa	Bengaluru	28 Feb, 2014
Shri Anoop Tandon	General Manager, Triton Group	22 Mar, 2014
Dr. K. Gopakumar	Former DDG, ICAR (Fy) and Chairman, RAC	24 Mar, 2014
Dr. Saradha	ASRB Member	5 Apr, 2014
Foreign visitors		
Delegates	USA	4 Feb, 2014
Dr Santhosh Karanth	Eccles Institute of Human Genetics, Utah University, USA	27 Sep, 2013
Prof. Volker Gurtler	RMIT University, Melbourne (Australia)	3 Oct, 2013
Dr Aram Mikaelyan	Post Doctoral Fellow Max Planck Institute for Terrestrial Microbiology, Germany	4 Jan, 2014
Dr Anna Godhe	Professor, University of Gothenburg, Sweden	6 Feb, 2014
Delegation	Republic of Mozambique Republic	10 Mar, 2014

Chapter 13

Others



13. Others

13.1. Library

The library of Central Institute of Fisheries Education, Mumbai is the national facility for Fisheries and Allied Sciences. Library has a rich collection of about 36686 books, 8141 Foreign Journals, 3454 Indian Journals, 212 Ph.D. thesis, 2000 reports and other serial publications.

Consortium for e-Resources in Agriculture (CeRA) facility is available or online journals through Wi-Fi in the campus where more than 3561 journals are available for accessing the full text. A dedicated digital section is available to retrieve the literature or access the e-books in the library. On-line Public Access Catalogue (OPAC) and KOHA, a self-guiding software is available for the users for searching the books in the library. Besides this Library also extends the Document delivery service to send the research paper on request basis.

13.2. Infrastructure development

Fish Museum at CIFE Kolkata Centre

Dr. S. Ayyappan, Secretary, DARE and Director General, ICAR, New Delhi inaugurated the Fish Museum at the Salt Lake, Kolkata Centre of Central Institute of Fisheries Education, Mumbai on 27 July, 2013. The Director General highlighted the importance of fish museum for students and researchers. He remarked that many of us today talk about gene and molecular level research in fisheries and aquaculture but may not have seen the fish which is ultimately leading to wrong identification and research in many cases. Establishment of fish museum can provide and enrich information and knowledge on fish taxonomy which is need of the hour.

Guest House at Kolkata centre

Dr. Mangala Rai, Agriculture Advisor to Chief Minister of Bihar and Former Secretary, DARE & DG, ICAR, New Delhi, inaugurated the Common Guest House at CIFE Campus Salt Lake, Kolkata on 14 April, 2013. Dr. Rai emphasized that in future, this Common Guest House will act as a gateway to facilitate development of science especially for the North-Eastern and eastern region. Dr. S. Ayyappan, Secretary, DARE and DG, ICAR appreciated the ambience, tasteful furnishing and the scenic beauty of the guest house. Dr. N.K. Krishna Kumar, DDG (Horticulture), Dr. A.K. Sikka, DDG (NRM), Directors of the partner institutes and senior officials of ICAR were present on the occasion. The Guest House was constructed in partnership mode wherein the Kolkata regional centre of Central Institute of Fisheries Education, Mumbai provided the land, other ICAR Institutes viz. Central Inland Fisheries Research Institute, Barrackpore; ICAR research Complex for NEH region, Barapani; Central Agriculture Research Institute, Port Blair and Central Agriculture University, Imphal provided funds for the construction of the Guest House. The Guest House will serve the needs of the ICAR staff of the North-Eastern states, Andaman and Nicobar Islands and other states of eastern region. Central Inland Fisheries Research Institute, Barrackpore played the lead role in the construction and furnishing of the Guest House. The Guest House, comprising two



VIP suites and six deluxe rooms, has been equipped with facilities of Wi-Fi, computers and all other necessary infrastructure. At the end of the inaugural programme, the Guest House was handed over to the Director, CIFE.

New Conference Room

The new conference room of the Institute was inaugurated on 25 March, 2014. Dr. GopaKumar, Former DDG (Fy) and Chairman, Research Advisory Committee of the Institute inaugurated the conference. Dr. W.S. Lakra, Director and Vice Chancellor and honorable members of RAC were also present during the occasion. The conference room is having 110 seating capacity and is equipped with the state-of-the-art audio visual system.

Outdoor Games Facility

The outdoor games facility for foot ball and basket ball was inaugurated on 27 May, 2013 on the occasion of the XI convocation of CIFE. Thus CIFE ensured that the students got a holistic education by giving opportunity to engage themselves in sports activities also.

Development of live feed culture facilities for Magur seed production

The Kakinada centre has developed facilities for continuous supply of Tubifex worms for rearing the magur seed at the Freshwater Fish farm Balabhadrapuram. Tubifex is well accepted by the fry and fingerlings of magur and the survival and growth of magur fry and fingerlings has been improved significantly after introducing tubifex as a live feed for magur.

13.3. ICAR ERP 'Implementation of Management Information System (MIS) including Financial Management Information System (FMS)'

CIFE, Mumbai went live for Management Information System (MIS) including Financial Management Information System (FMS). Dr. W.S. Lakra, Director/Vice Chancellor inaugurated the online ERP System on 1 Feb 2014. On the occasion he stated importance of adopting new technologies in managing the institute's finance and resources. He called upon all officials to use the system fully to optimize the resource utilization. On the occasion Mr. Suresh Chandra, CF&AO and CCPI of the project and Dr. ShrinivasJahageerdar, Principal Scientist and CCCPI and Mr. G.S. Deshbandhu, Senior Registrar were also present. IBM India Pvt. Ltd provided onsite support from February 1st to 31 March, 2014.

13.4. Celebrations

Annual day/Foundation Day

The institute celebrated Annual Day on 6 June, 2013 which coincided with 52nd Foundation Day, on 6 June 2013. Dr. Panjab Singh, Former DG, ICAR graced the occasion as the Chief Guest. Sri Pramod Hindurao, Chairman CIDCO Ltd., presided over the function. Dr. J.C.Katyal, Former Vice-



Chancellor, CCS Haryana Agricultural University was the Guest of Honour. Dr. Panjab Singh highlighted the need for quality research and a higher agricultural education policy to improve the quality of education. He emphasized the fact that large investment should go in the development of intellectual quality of faculty rather than investing heavily on infrastructure development. He also underlined the significance of private partnership in improving the quality of higher education. Sri Pramod Hindurao in his presidential address, offered CIFE and its staffs all kinds of facilities including establishing infrastructure in Navi Mumbai. He urged CIFE to take up some aquaculture related developmental activities in the tribal areas of Maharashtra. Dr. J.C. Katyal in his address highlighted the national and global scenario of higher education and significance of right to education. He stated that in the globalised economy, information and education, the focus is shifting from education for classes to education to masses. Earlier, Dr. W.S. Lakra, Director/Vice-Chancellor, CIFE, while welcoming the guests stated that the institute has emerged as a leader in the higher fisheries education not only in the country but also in the Afro-Asian region with the distinction of being the first fisheries university in the country. The dignitaries presented the awards to students who won Dr. Jalihal Gold Medal for the best Master's dissertation and Prof. K.H. Alikunhi Gold Medal for the best Ph.D. thesis. Various other prizes, awards and certificates were also distributed to students, staff and children of staff members.

Hindi week celebrations

Hindi Pakhwada

Hindi week was celebrated from 14-29th September, 2013. On Mahila Diwas celebrated as a part of hindi week celebrations Mrs. Nirmala Samant Prabhavalkar, Member, The National Commission for Women and former Mayor of Mumbai and chairperson of Maharashtra State Womens' Commission delivered a talk on "देश में महिलों की सुरक्षा : सरकारी पहल एवं महिलाओं से अपेक्षा". The talk sensitized not only women but also the other staff members. Another talk on 'महिला सुरक्षा के लिए मुंबई पुलिस के प्रयास' was delivered by Mrs. Kusum Waghmare, Police inspector, Mumbai. In association with the science club a lively lecture on "कोलेस्ट्रॉल: आपका शत्रु या मित्र" was also delivered by Dr. N. P. Sahu, Principal Scientist.

Other celebrations

Agricultural Education Day	: 5 September, 2013
International Day of Non-Violence	: 2 October, 2013
Vigilance week	: 28 October - 2 November 2013



13.5. Science Club of CIFE

The Science Club of CIFE organized the following talks during April 2013 to March 2014.

1. Bugs in food- Ignorance is not bliss by Dr. Sanath Kumar, Senior Scientist, FRHPHM, 26 Apr, 2013
2. Aquaponics and Spirulina: Urban and rural agriculture for food, nutrition and livelihood security' by Dr. Subhrankar Mukherjee, Project Manager: Aquaponics and Spirulina Eco Park Project, Mumbai on 17 Aug, 2013
3. Cholestrol: *Aap ka mitra athva shatru* (In Hindi) by Dr. N. P. Sahu, PS & Head, FNBFT Division, CIFE on 23 Sep, 2013
4. Fisheries education in Nigeria: An Overview' by Dr. Adercolu Zaid, Visiting Professor at FNBFT Division, CIFE on 26 Oct, 2013
5. CDOM-Indicator of Eutrophication in Case-2 water of Mumbai marine environment by Vidyashree Bharti, Scientist, AEHM Division, CIFE on 23 Nov, 2013
6. Metagenome analysis using ion torrent sequencing platform by Dr. A. Pavan Kumar, Scientist, FGB, Division on 31 Jan, 2014
7. Biosafety Issues and Regulations in Scientific Research by Dr. Sharmila Majee, Associate Professor, Bombay Veterinary College, Mumbai on 28 Feb, 2014
8. SNP Mining and Applications by Dr. Gireesh Babu P., Scientist, FGB Division on 22 Mar, 2014.

13.6. Participation in ICAR sports

Nineteen staff members of CIFE sports team participated in the ICAR Zonal Final Sports Tournament during the period 17-20 December 2013 at NAARM, Hyderabad. The team was headed by Mr. Alkesh Dwivedi as Chief - de - Mission.

13.7. Staff Welfare Activities

CIFE Co-operative society

The CIFE Co-operative society has been in operation from 18 years and it caters to the financial needs of the staff. Regular loans, fixed deposit, emergency loans etc. are disbursed from time to time. It also honours bright students by giving cash awards.



13.8. Institute Joint Staff Council

The Institute Joint Staff Council which is in operation in CIFE looks after the grievances of the staff related to official matters

Institute Joint Staff Council's members of CIFE for the period 2013-2016

Dr. W.S.Lakra

Chairman/Director

Official Side

1	Shri G. R. DeshBandhu	Senior Registrar	Member
2	Dr. B.B. Nayak	Principal Scientist	Member
3	Dr. Asha Landge	Senior Scientist	Member
4	Shri Suresh Chandra	C.F.&A.O.	Member
5	Mrs.Valsa Pavithran	Administrative Officer	Secretary (Official Side)

Staff Side

6	Shri Ashok G. Kolambkar	Administration	Secretary (Staff Side)
7	Shri Mahesh B. Waghela	Administration	Member (CJSC/FAC)
8	Shri Arun Puri Gosavi	Technical	Member
9	Shri Suryakant L. Koli	Technical	Member
10	Shri Surajbal R. Jaiswar	Skill Support Staff	Member
11	Shri Ashok R. Shingade	Skill Support Staff	Member

Chapter 14

Personalia

Personalia

CIFE Head Quarters, Mumbai

RMP

Director

Dr W.S. Lakra

Joint Director

Dr A.K. Pal

Scientific Staff

Head of Division

Dr C.S. Purushothaman

Dr S.K. Chakraborty

Dr Gopal Krishna

Dr M. Krishnan

Dr N.P. Sahu

Head of Division (Acting)

Dr (Mrs) Neelam Saharan

Principal Scientist

Dr K.K. Jain

Dr (Mrs) Kiran Dube Rawat

Dr S.N. Ojha

Dr K.V. Rajendran

Dr G.Venkateshwarlu

Dr N.K.Chadha

Dr (Mrs) Sheela Immanuel

Dr Nalini Ranjan Kumar

Dr B.B. Nayak

Dr Geetanjali Deshmukhe

Dr P.K. Pandey

Dr (Mrs.) Aparna Chaudhari

Dr S. Jahageerdar

Dr V.K. Tiwari

Dr Arpita Sharma

Dr K. Pani Prasad

Dr A.K. Reddy

Dr P.P. Srivastava

Dr Gaurav Rathore

Dr Ramasubramanian V.

Dr R.P. Raman

Dr C.S. Chaturvedi

Senior Scientist

Dr (Mrs) Latha Shenoy

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 Asha T. Landge

Dr Zeba Jaffer Abidi

Dr S. Das Gupta

Dr A. Vennila

Dr Sanath Kumar H.

Dr Megha Bedekar Kadam

Dr P.S. Ananthan

Dr Rama Sharma

Dr A.K. Balange

Dr Ajit Kumar Verma

Scientist (Sr. Scale)

Dr Suryakant Patil

Dr Paramita Banerjee Sawant

Scientist

Mrs Vidyashree Bharati

Dr Babita Rani A.M.

Dr A. Pavan Kumar

Dr Gireesh Babu Pathakota

Dr Kundan Kumar

Dr Muralidhar P. Ande

Mr Vinod Kumar Yadav

Dr Martin Xavier

Ms K. Nagalaxmi

Mrs L. Manjusha

Dr Sujata Sahoo

Technical Staff

Chief Technical Officer (T-9)

Mr Josey Jacob

Mr Alkesh Dwivedi

Dr S.G.S. Zaidi

Mr R.D. Tandel

Mr G.K. Rao

Dr S.K. Pandey

Mr S.L. Kotian

Asstt Chief Technical Officer (T-7/8)

Mr S.S. Kamat

Dr M.K. Chouksey

Mr Chandrakant M.H.

Mr S.K. Sharma

Mr D.R. Khogare

Mr Dasari Bhoomaiah

Mr Ram Singh

Mr P.K. Das

Dr (Mrs) Nalini Poojary

Senior Technical Officer (T-6)

Mr A.K. Padmanabhan

Mr Subhash Chand

Ms Revati B. Dhongde

Mrs Rekha Nair

Technical Officer (T-5)

Mr S.K. Chodankar

Mrs Madhavi Pickle

Mrs S.M. Bagwe

Mr S.M. Shinde

Mr R.G. Kudale

Mr Bhagat Singh Rawat

Mr C.B. Kareer

Mr B.G. Mandhare

Mrs S.S. Gajbhiye

Mr J.M. Koli

Mrs S.P. Nalawade

Mrs Rajani H. Khandgale

Mr S. Maity

Sr. Technical Assistant (T-4)

Shri Sanjeevan Kumar

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

Technical Assistant (T-3)

Mr Anil Kumar Kulsange

Mr Sagar Suresh Sawant

Mr Rajarshee Moitra

Mr Yogesh Jadhao

Mr Vijay Kumar Gupta

Mr Pawan Kumar

Mr K. Dhana Raju

Mr Sikandar S. Hussain

Mr A.L. Kokane

Mr V.G. Dhindore

Mr K.V. Rajendran

Mr A.P. Dhawde

Mr Arun Puri Gosavi

Mr R.D. Deshmukh

Mrs Reshma Raje

Sr. Technician (T-2)

Mr Dhanpat Singh Rawat

Mr V.K. Bhawe

Mr A.N. Mahadik

Mr Mohd. Baqar

Technician (T-1)

Mr Dhiraj Prakash

Mr Mohd Sadiq M. Mulla

Mr V. Shivaji

Mr Abhijeet V. Jadhav

Mr Nisha A. Lade

Administrative Staff

Sr. Registrar

Mr G.R. Desh Bandhu

Chief Finance & Accounts Officer

Mr Suresh Chandra

Sr. Administrative Officer

Mr Mahesh B. Khubdikar

Dy. Director (Official Language)

Dr R.P. Uniyal

Administrative officer

Mrs Valsa Pavithran

Asstt. Admn .Officer

Mr. B.L. Kokkula

Mrs N.Y. Raorane

Mrs Sushma Singh

Mrs Poonam N. Behl

Mrs. S.R. Wadhavkar

Mrs. Asha Dhurve

Private Secretary

Mr. G.S. Fernandes

Personal Assistant

Mrs. S.R. Arutla

Mr. P.R. Ninawe

Stenographers (Grade - III)

Mrs. Pragati R. Gadre

Assistant

Mrs F.G. Fernandes

Ms C.S. Khundol

Mr D.S. Ingale

Mr R.R. Kadam

Mrs Swati S. Koli

Mr V.S. Kuveskar

Mr Suraj Gupta

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 N.L. Ghane

Mr P.G. Angne

Mr M.B. Waghela

Lower Division Clerk

Mrs. C.C. Raut

Mrs. Anu Grover

Mr. S.H. Bhosale

Mr. Shirish P. Malvankar

Mr. R.N. Kamble

Mr. Kantaram A. Shinde

Mr. Prasenjit P.Sonawane

Mr. Kishore Bose

Mr. Kunal Maan

Skilled Support Staff

Mr B.N. Sukur

Mr Madhu Wasnik

Mr G.G. Zendekar

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 T.G. Gaikwad

Mr J.K. Makhwana

Mrs Kamala Jai Kishore

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

Mr Vinod Kumar Yadav

Mrs R.H. Chavan

Mr Ganesh N .Zendekar

Mr Ankush N. Joyashi

Mr Anil D. Sonawane

Mrs Reshma Naik

Mr Sambhaji Shelke

Mr Ninad V. Kandalgaonkar

Mr Deepak M. Bhokase

Mr Fakirmayan U. Mullaji

Mrs Revati Venkateshvaran

Ms. Ujjwala V. Tiwari

CIFE Kakinada Centre

Officer Incharge/Scientist (S.G.)

Dr S.S.H. Razvi

Scientist

Dr Suresh Babu

Chief Technical Officer (T-9)

Dr P. Rami Reddy

Asstt. Chief Technical Officer (T-7/8)

Mr V.N. Acharyulu

Mr K. Murli Mohan

Sr. Technical Officer (T-6)

Mr K.B.S. Murthy

Mr P. Srinivas Rao

Mr J.K. Prasad

Mr R.R.S. Patnaik

T-I-3

Mr M. Satyanarayana

Technician (T-1)

Mr A. Gurraiah

Cook

Mr Kamaraju

Assistant

Mr B. Laxman Rao

Lower Division Clerk

Mrs M. Rama Mani

Skilled Support Staff

Mr M. Krishna

Mr K. Satyanarayana

Mr K. Niranjan

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

CIFE Kolkata Centre

Officer Incharge/Principal Scientist

Dr B.K. Mahapatra

Principal Scientist

Dr G.H. Pailan

Senior Scientist

Dr Parimal Sardar

Dr Shubendu Dutta

Dr S. Munil Kumar

Technical Officer (T-7/8)

Dr Ashok Biswas

Technical Officer (T-5)

Mr R.K. Mondal

Sr. Technical Assistant (T-4)

Mr P.K. Patra

Technical Assistant (T-3)

Mr S.K. Das

Mr Prakash Kumar Behera

Mrs. G. Aruna Devi

Sr. Technician (T-2)

Mr T.K. Ghosh

Personal Secretary

Ms Kaberi Biswas

Assistant

Mr C.N. Sahani

Upper Division Clerk

Mr P.K. De

Lower Division Clerk

Mr Ram Milan Singh

Skilled Support Staff

Mr B.D. Mandol

Mr T.C. Balmiki

Mr R.N. Das

Mr R.N. Prasad

Mr Ramesh Chowdhary

Mrs Suman Pandey

CIFE Powarkheda Centre

Officer Incharge/Principal Scientist
Dr Somdutt

Asstt Chief Technical Officer

Dr R.K. Upadhyay

Technical Officer (T-5)

Mr L.P. Bamalia

Mr Hasan Javed

Mr Gurubachan Singh

Technical Assistant (T-3)

Mr Anup Singh

Technician (T-1)

Mr Raghuvir Prasad

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 Manohar Lal

Mr Ramswaroop

Mr Satyendra Prajapati

Mr Gyan Chand

CIFE Rohtak Centre

Officer Incharge/Scientist
Mr V. Hari Krishna

Technical Officer (T-5)

Mr Ashok Kumar

Technical assistant (T-3)

Mr Satyendra Kumar Singh

Mr Lokesh Kumar

Sr. Technician (T-2)

Mr Krishan Kumar

Assistant

Mr V.K. Sinha

Skilled Support Staff

Mr Gyani Ram

Mr Lavesh Kumar

Appointments

S.No	Name	Designation	Date
1.	Ms Ujjwala Tiwari	Skilled Supporting Staff	16.05.2013
2.	Mr V. Shivaji	Technician (T-1)	15.06.2013
3.	Dr Ramasubramanian V.	Principal Scientist	19.07.2013
4.	Mr Abhijeet Jadhav	Technician (T-1)	19.08.2013
5.	Mrs Reshma Raje	Technical Assistant (T-3)	29.08.2013
6.	Mr Kunal Maan	Lower Division Clerk	18.09.2013
7.	Mrs Nisha Lade	Technician (T-1)	01.10.2013
8.	Dr N.P. Sahu	Head of Division	28.12.2013
9.	Dr A.K. Verma	Sr. Scientist	21.04.2014

Retirement

Sl. No.	Name	Designation	Date of retirement
1.	Mr A.N. Mahadik	T-2	31.05.2013
2.	Mr G. K. Rao	T-9	30.06.2013
3.	Mr S.S.H. Razvi	Scientist (SG) (Kakinada)	31.07.2013
4.	Mr K.B. Sreerama Murthy	T-9 (Kakinada)	30.09.2013
5.	Mr B.D. Mandal	S.S.S. (Kolkata)	30.11.2013
6.	Mr R.N. Das	S.S.S. (Kolkata)	31.01.2014
7.	Mrs D.S. Naik	Assistant	31.03.2014

Transfer

S.No.	Staff	From	To	Date
1.	Mrs Asha Dhurve	Powarkheda	Mumbai	06.10.2013
2.	Mr Vijay Gupta	Mumbai	Jhansi	31.08.2013
3.	Mr K. Kamaraju	Kakinada	Mumbai	31.03.2014

Promotion

S.No.	Staff	From	To	w.e.f
1.	Dr Geentajali Deshmukhe	Sr. Scientist	Principal Scientist	01.01.2009
2.	Dr Aparna Chaudhari	Sr. Scientist	Principal Scientist	01.01.2009
3.	Dr P.K. Pandey	Sr. Scientist	Principal Scientist	01.01.2009
4.	Dr R.P. Raman	Sr. Scientist	Principal Scientist	01.01.2009
5.	Dr S. Jahageerdar	Sr. Scientist	Principal Scientist	25.07.2009
6.	Dr V.K. Tiwari	Sr. Scientist	Principal Scientist	01.01.2010
7.	Dr G.H. Pailan	Sr. Scientist	Principal Scientist	30.12.2010
8.	Dr Arpita Sharma	Sr. Scientist	Principal Scientist	22.03.2011
9.	Dr Pani Prasad	Sr. Scientist	Principal Scientist	01.06.2011
10.	Dr A.K. Reddy	Sr. Scientist	Principal Scientist	18.06.2011
11.	Dr P.S. Ananthan	Sr. Scientist	Principal Scientist	18.10.2011
12.	Dr A. K. Verma	Scientist	Sr. Scientist	26.06.2012
13.	Mr V. Shivaji	S.S.S.	Technician (T-1)	15.06.2013
14.	Mrs Asha Dhurve	Assistant	Asstt. Admn. Officer	05.10.2013
15.	Mr D.V. Raorane	U.D.C.	Assistant	28-11-2013

Chapter 15

हिन्दी का प्रगति प्रतिवेदन



राष्ट्रीय संगोष्ठी

केन्द्रीय मात्स्यिकी शिक्षा संस्थान में भारतीय कृषि अनुसंधान समिति, करनाल, इंडियन फिशरीज एसोसिएशन एवं केन्द्रीय मात्स्यिकी शिक्षा संस्थान के संयुक्त तत्वावधान में दिनांक 14 से 16 दिसम्बर 2013 तक कृषि की आधुनिक प्रौद्योगिकी की उपलब्धियां एवं चुनौतियां विषय पर एक राष्ट्रीय संगोष्ठी का आयोजन किया गया, जिसमें देश के कृषि क्षेत्र से आए लगभग 208 वैज्ञानिकों/उद्यमियों/विशेषज्ञों/प्राध्यापकों एवं शोध छात्र-छात्राओं आदि ने भाग लिया, जिसमें 9 विशेष व्याख्यान एवं 52 पेपर प्रस्तुत किए गए।

संगोष्ठी का उद्घाटन दिनांक 14 दिसम्बर 2013 को सभागृह में उपस्थित के. मा. शि. सं. के कुलपति एवं निदेशक डा. वजीर एस. लाकड़ा के साथ ही भारतीय कृषि अनुसंधान समिति, करनाल के संस्थापक श्री आर. डी. गोयल, उज्जैन विश्वविद्यालय के पूर्व कुलपति डा. एस. पी. एस. अहलावत, के. मा. शि. सं. के पूर्व कुलपति एवं निदेशक डा. एस. डी. त्रिपाठी, राजमाता विजयराजे सिंधिया कृषि विश्वविद्यालय, ग्वालियर के कुलपति डा. ए. के. सिंह, भा. कृ. अनु. प. के पूर्व उप महानिदेशक, डा. गोपाकुमार, केन्द्रीय कृषि विश्वविद्यालय, इफाल के कुलपति डा. एस. एन. पुरी आदि के कर कमलों से दीप प्रज्ज्वलित कर किया गया। संस्थान के कुलपति एवं निदेशक महोदय डा. वजीर एस. लाकड़ा ने अपने स्वागत भाषण में सभी का ध्यान आकर्षित करते हुए कहा कि इस संगोष्ठी का मुख्य उद्देश्य कृषि के विभिन्न क्षेत्रों में आनेवाली समस्याओं व चुनौतियों को जानना तथा इस संगोष्ठी के माध्यम से उनका निदान प्राप्त करना है। डा. एस. एन. पुरी, कुलपति, केन्द्रीय कृषि विश्वविद्यालय, इफाल ने समारोह की अध्यक्षता की। मुख्य अतिथि डा. ए. एस. फरोदा जी के कर कमलों से संगोष्ठी स्मारिका का विमोचन किया गया। यह संगोष्ठी कुल चार सत्रों में आयोजित की गई। दिनांक 14 दिसम्बर 2013 को पहला सत्र "कृषि की आधुनिक प्रौद्योगिकी की उपलब्धियां एवं चुनौतियां" विषय का था। इसके अध्यक्ष डा. ए. क. सिंह, कृषि विश्वविद्यालय, ग्वालियर तथा उपाध्यक्ष, डा. गोपालकृष्ण, विभागाध्यक्ष, के. मा. शि. सं. थे।

दूसरा सत्र "पशुपालन" डेयरी एवं पर्यावरण पर आधारित था, जिसकी अध्यक्षता डा. शिव पाल सिंह अहलावत ने निभाई तथा उपाध्यक्षता डा. गोपालकृष्ण, विभागाध्यक्ष, के. मा. शि. सं. मुंबई ने की।

दूसरे दिन अर्थात् 15 दिसम्बर 2013 को संगोष्ठी का तीसरा सत्र - मात्स्यिकी विज्ञान की आधुनिक प्रौद्योगिकी एवं चुनौतियां विषय का था। इस सत्र के अध्यक्ष के. मा. शि. सं. के पूर्व कुलपति एवं निदेशक डा. एस. डी. त्रिपाठी तथा उपाध्यक्ष के. मा. शि. सं. के संयुक्त निदेशक डा. ए. के. पाल थे।

चौथा सत्र - संस्तुतियां एवं समापन का था। इस सत्र के अध्यक्ष डा. एस. डी. त्रिपाठी, पूर्व कुलपति एवं निदेशक, के. मा. शि. सं. एवं उपाध्यक्ष डा. ए. के. पाल, संयुक्त निदेशक, के. मा. शि. सं. थे। सभी सत्रों की संस्तुतियों को डा. अहलावत, पूर्व कुलपति, उज्जैन विश्वविद्यालय, डा. गोपालकृष्ण, विभागाध्यक्ष, के. मा. शि. सं. एवं डा. ए. के. पाल, संयुक्त निदेशक, के. मा. शि. सं. ने पढ़ा तथा इन संस्तुतियों पर गंभीर विचार विमर्श किया गया। केन्द्रीय मात्स्यिकी शिक्षा संस्थान के निदेशक एवं कुलपति डा. वजीर एस. लाकड़ा ने सभा के सम्मुख महत्वपूर्ण संस्तुतियों को प्रस्तुत किया एवं सर्वसम्मति से 17 संस्तुतियां दी गईं।

अंत में डा. एस. एस. अग्रवाल, समिति संरक्षक के धन्यवाद प्रस्ताव के साथ संगोष्ठी का समापन किया गया।

पुरस्कार

- प्रज्ञा कहानी पुरस्कार - डा. राजेश्वर उनियाल, उप निदेशक (राजभाषा) को उनकी खंदवार कहानी हेतु राष्ट्रीय स्तर का प्रज्ञा कहानी पुरस्कार प्राप्त हुआ।

हिन्दी पखवाड़ा

संस्थान में प्रतिवर्ष की भांति इस वर्ष भी दिनांक 13 से 30 सितंबर 2013 तक हिन्दी पखवाड़ा -2013 का आयोजन किया गया, जिसके अंतर्गत संस्थान के अधिकारियों, कर्मचारियों के साथ ही छात्र-छात्राओं एवं परिवारजनों हेतु भाषण, गीत, काव्य एवं चित्रकला आदि विभिन्न प्रतियोगिताएं आयोजित की गईं। विशेषरूप से दिनांक 21 सितंबर 2013 को आयोजित व्याख्यानमाला के अंतर्गत संस्थान के डा. एन. के. साहू, प्रधान वैज्ञानिक ने "कॉलेस्ट्रॉल आपका मित्र या शत्रु" विषय पर अपना रोचक व्याख्यान प्रस्तुत किया। इसके बाद महिला दिवस के अंतर्गत महिला पुलिस निरीक्षक, श्रीमती कुसुम वाघमारे ने महिला सुरक्षा के लिए "मुंबई पुलिस के प्रयास" विषय पर चर्चा करते हुए अपने अनुभवों को सभी उपस्थितों के समक्ष प्रस्तुत किया। अपने अध्यक्षीय भाषण में "देश में महिलाओं की सुरक्षा : सरकारी पहल एवं महिलाओं से अपेक्षा" विषय पर चर्चा करते हुए राष्ट्रीय महिला आयोग की सदस्या माननीय एडवोकेट श्रीमती निर्मला सामंत प्रभावकर ने महिला सुरक्षा के महत्वपूर्ण बिन्दुओं पर चर्चा की।

प्रकाशन

- संस्थान की वार्षिक गृहपत्रिका "जलचरी अंक -21" (जनवरी-दिसम्बर 2012) के पूर्वोत्तर विशेषांक का मुद्रण किया गया।
- संस्थान के 52 वें वार्षिक दिवस के उपलक्ष्य में दिनांक 6 जून 2013 को संस्थान के डा. चन्द्रप्रकाश एवं डा. नीलम सहारन द्वारा लिखित "मत्स्य पालन हेतु मिट्टी की जांच तथा प्रबंधन" नामक पुस्तक का विमोचन समारोह के मुख्य अतिथि श्री प्रमोद हिंदुराव, चेयरमन सिडको के करकमलों से किया गया।
- केन्द्रीय मात्स्यिकी शिक्षा संस्थान, मुंबई में भारतीय कृषि अनुसंधान समिति, इंडियन फिशरिज एसोशिएशन एवं केन्द्रीय मात्स्यिकी शिक्षा संस्थान, मुंबई के संयुक्त तत्वावधान में दिनांक 14-16 दिसम्बर 2013 तक "कृषि की आधुनिक प्रौद्योगिकी की उपलब्धियां एवं चुनौतियां" विषय पर आयोजित राष्ट्रीय संगोष्ठी की स्मारिका का मुद्रण कार्य किया।

राजभाषा कार्यान्वयन / कार्यशाला

संस्थान के पवारखेड़ा, कोलकाता एवं काकिनाडा केन्द्र को भारत सरकार के गजट में राजभाषा नियम 10(4) के अंतर्गत अधिसूचित कर दिया गया है।

- संस्थान के समस्त अधिकारियों/कर्मचारियों को कम्प्यूटर पर हिन्दी में कार्य करना आसान हो, इस हेतु संस्थान में यूनिकोड कार्यशाला की शृंखला आयोजित की गई। इस शृंखला के अन्तर्गत दिनांक 26 अप्रैल 2013, 27 जून 2013, 25 जुलाई 2013 एवं दिनांक 11 मार्च 2014 को क्रमशः निजी सचिव एवं प्रशासनिक सहायक, वरिष्ठ/कनिष्ठ लिपिकों, समस्त विभागाध्यक्षों एवं प्रधान वैज्ञानिकों के साथ ही समस्त तकनीकी कर्मियों, समस्त अधिकारियों तथा समस्त वरिष्ठ वैज्ञानिकों/वैज्ञानिकों हेतु कार्यशाला आयोजित की गई।
- राजभाषा कार्यान्वयन समिति की 72 वीं, 73 वीं एवं 74 वीं बैठक संस्थान के निदेशक महोदय की अध्यक्षता में क्रमशः दिनांक 6 मई 2013, 9 अक्टूबर 2013 एवं दिनांक 27 नवम्बर 2013 को संपन्न हुई। बैठक में लिए गए निर्णयों पर अनुवर्ती कार्रवाई की गई।

शिक्षण - प्रशिक्षण (जलवाणी)

संस्थान के एम. एफ. एस. सी. सत्र 2013-15 के प्रथम वर्ष के छात्र-छात्राओं हेतु हिन्दी जलवाणी एक क्रेडिट कोर्स की कक्षाएं नियमित रूप से संचालित की गईं। इस पाठ्यक्रम में हिन्दी जानने वाले, हिन्दी का ज्ञान नहीं रखने वाले छात्रों के साथ ही विदेशी छात्रों के लिए भी कक्षाएं संचालित की गईं।

- संस्थान के पी. एच. डी. एवं एम. एफ. एस. सी. छात्र-छात्राओं के शोध निबंधों का सारांश हिन्दी में अनुवाद कर प्रस्तुत किया।
- संस्थान के छात्र-छात्राओं को हिन्दी यूनिकोड में प्रशिक्षित करने हेतु दिनांक 8 नवम्बर 2013 को एक दिवसीय विशेष कार्यशाला आयोजित की गई, जिसमें 12 छात्र-छात्राओं ने भाग लिया।

हिन्दी पुस्तकालय

संस्थान के हिन्दी पुस्तकालय में उपलब्ध समस्त पुस्तकों को विषयानुसार आकर्षक ढंग से सजाकर पुस्तकालय को सुचारु रूप से संचालित किया गया।

साहित्यिक गतिविधियां

दिनांक 30 सितम्बर 2013 को केन्द्रीय मात्स्यिकी शिक्षा संस्थान एवं राष्ट्रीय पत्रकारिता मोर्चा के संयुक्त तत्वावधान में संस्थान के सभागृह में हिन्दी कवि सम्मेलन का आयोजन किया गया।

आकाशवाणी वार्ता

डा. राजेश्वर उनियाल, उप निदेशक (राजभाषा) ने दिनांक 6 मार्च 2014 को "सामुदायिक सौहार्द और फाग" विषय पर आकाशवाणी वार्ता प्रसारित की।

प्रतिनिधित्व

संस्थान के सहायक मुख्य तकनीकी अधिकारी, श्री प्रताप कुमार दास ने दिनांक 23 सितम्बर 2013 को कपास निगम, बेलापुर में आयोजित नगर राजभाषा कार्यान्वयन समिति की बैठक में भाग लिया।

निरीक्षण

दिनांक 23-24 दिसम्बर 2013 को संस्थान के डा. राजेश्वर उनियाल, उप निदेशक (राजभाषा) एवं श्री प्रताप कुमार दास, सहायक मुख्य तकनीकी अधिकारी ने पुणे स्थित राष्ट्रीय अंगूर अनुसंधान केन्द्र एवं प्याज एवं लहसून निदेशालय में परिषद के आदेशानुसार हिन्दी प्रगति के संबंध में निरीक्षण कर प्रतिवेदन प्रस्तुत किया।

नराकास, उ. मुं. (का.)

दिनांक 30 अगस्त 2013 को संस्थान के निदेशक महोदय की अध्यक्षता में नराकास, उ. मुं. (का.) की 14 वीं छमाही बैठक का आयोजन किया गया।

संस्थान में दिनांक 12 जुलाई 2013 को नगर राजभाषा कार्यान्वयन समिति, उत्तर मुंबई (कार्यालय) के तत्वावधान में नराकास उत्तर (कार्यालय) के समस्त सदस्य कार्यालयों हेतु "तिमाही प्रगति प्रतिवेदन आनलाईन से भिजवाना" विषय पर एक विशेष कार्यशाला आयोजित की गई, जिसमें विभिन्न सदस्य कार्यालयों से 41 प्रतिनिधियों ने भाग लिया।

नगर राजभाषा कार्यान्वयन समिति, उत्तर मुंबई (कार्यालय) के तत्वावधान में समिति के सदस्य कार्यालयों में कार्यरत अधिकारियों/कर्मचारियों हेतु केन्द्रीय मात्स्यिकी शिक्षा संस्थान, मुंबई में बुधवार, दिनांक 5 मार्च 2014 को

1) राजभाषा कार्यान्वयन में चुनौतियां एवं समाधान

2) कम्प्यूटर पर यूनिकोड में कार्य एवं

3) तिमाही प्रतिवेदन को आनलाईन से भिजवाना

विषय पर एक दिवसीय कार्यशाला आयोजित की गई, जिसमें 30 सदस्य कार्यालयों में से 48 प्रतिभागियों ने भाग लिया।

ACRONYMS

AAU	Anand Agricultural University	ICT	Information and Communications Technology
AIIMS	All India Institute of Medical Sciences	IFS	International Foundation for Science
AMAAS	Alberta Media Arts Alliance Society	IIT	Indian Institute of Technology
ANGRU	Acharya N. G. Ranga Agricultural University	IIT-K	Indian Institute of Technology Kanpur
ANI	Asian News International	IJATCSE	International Journal of Advanced Trends in Computer Science and Engineering
ANN	Artificial Neural Networks	IPR	Intellectual Property Right
APAARI	Asia Pacific Association of Agricultural Research Institutions	IRC	Institute Research Council
ARS	Agricultural Research Service	IT	Information Technology
ASRB	Agricultural Scientists Recruitment Board	ITMU	Institute Technology Management Unit
ATMA	Agricultural Technology Management Agency	ITMU	Institute Technology Management Unit
AU	Andhra University	IVRI	Indian Veterinary Research Institute
BARC	Bhabha Atomic Research Centre	JNKVV	Jawaharlal Nehru Krishi Vishwa Vidyalaya
BBSRC	Biotechnology and Biological Sciences Research Council	ISEC	Institute for Social and Economic Change
BHU	Banaras Hindu University	KVK	Krishi Vigyan Kendras
BITS	Birla Institute of Technology & Science	LLRUASU	Lala Lajpat Rai University of Veterinary & Animal Sciences
BOLD	Barcode of Life Data	MDR	Multi Drug Resistant
BoM	Board of Management	MDU	Maharshi Dayanand University
BPSMV	Bhagat Phool Singh Mahila Vishwavidyalaya	MFV	Mechanized Fishing vessel
BRNS	Board of Research in Nuclear Sciences	NAARM	National Academy of Agricultural Research Management
BSNL	Bharat Sanchar Nigam Limited	NAAS	National Academy of Agricultural Sciences
CAA	Coastal Aquaculture Authority	NABARD	National Bank for Agriculture and Rural Development
CAFT	Centre for Advanced Faculty Training	NAIP	National Agricultural Innovation Project
CCRF	Code of Conduct for Responsible Fisheries	NAR	Nucleic Acids Research
CCS	Chaudhary Charan Singh	NASC	National Agricultural Science Centre Complex
CDOM	Colored Dissolved Organic Matter	NBAIM	National Bureau of Agriculturally Important Microorganisms
CGM	Chief General Manager	NBFR	National Bureau of Fish Genetic Resources
CIAE	Central Institute of Agricultural Engineering	NCBI	National Center for Biotechnology Information
CIBA	Central Institute of Brackishwater Aquaculture	NDM-1	New Delhi metallo-beta-lactamase-1
CIDCO	City and Industrial Development Corporation	NEH	North Eastern Hill
CIFT	Central Institute of Fisheries Technology	NETFISH	Network for Fish Quality Management & Sustainable Fishing
CIRCOT	Central Institute for Research on Cotton Technology	NFBSRA	National Fund for Basic, Strategic and Frontier Application Research in Agriculture
CMFRI	Central Marine Fisheries Research Institute	NFDB	National Fisheries Development Board
CPWD	Central Public Works Department	NFF	National Farmers' Federation
CVsc	College of Veterinary Science	NGS	National Geodetic Survey
DAE	Department of Atomic Energy	NIO	National Institute of Oceanography
DARE	Department of Agricultural Research and Education	NMR	Nuclear Magnetic Resonance
DBT	Department of Biotechnology	NPCIL	Nuclear Power Corporation of India Limited
DDG	Deputy Director General	Oct-4	Octamer-binding transcription factor 4
DG	Director General	PCR	Polymerase Chain Reaction
DGM	Deputy General Manager	PFZ	Potential Fishery Zone
DHA	Docosa-hexaenoic acid	PIT	Passive Integrated Transponder
DPPH	2,2-diphenylpicrylhydrazyl	PME	Priority Setting, Monitoring and Evaluation
DST	Department of Science and Technology	RAC	Research Advisory Committee
EPA	Eicosapentaenoic Acid	RAKVK	Ramakrishna Ashram Krishi Vigyan Kendra
ERP	Enterprise resource planning	RBI	Reserve Bank of India
ES	Embryonic Stem	RGSTC	Rajiv Gandhi Science and Technology Commission
ESBL	Extended-Spectrum Beta-Lactamases	RIF	Rural Innovation Fund
FA	Financial Adviser	RVSKVV	Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya
FFDA	Fish Farmers' Development Agency	SPM	Security Paper Mill
FISHCOPFED	National Federation of Fishermen's Cooperatives LTD	SVPuat	Sardar Vallabhbhai Patel University of Agriculture and Technology
FRP	Fiberglass Reinforced Plastic	TAAS	Trust for Advancement of Agricultural Sciences
GAPDH	Glyceraldehyde 3-Phosphate Dehydrogenase	TIFR	Tata Institute of Fundamental Research
GADVASU	Guru Angad Dev Veterinary and Animal Sciences University	TNUVAS	Tamil Nadu Veterinary and Animal Sciences University
GBPUAT	Govind Ballabh Pant University of Agriculture and Technology	UNDP	United Nations Development Programme
GCMS	Gas Chromatography Mass Spectrometry	USIEF	United States-India Educational Foundation
GIS	Geographic Information System	VSU	Vikram Simhapuri University
GIS	Geographical Information System	WSSV	White Spot Syndrome Virus
GSI	Gonado Somatic Index	ZIET	Zonal Institute of Education & Training
HRD	Human Resource Development	ZSI	Zoological Survey of India
HRMS	Human Resources Management System		
IARI	Indian Agricultural Research Institute		
IASRI	Indian Agricultural Statistics Research Institute		
IASRI	Indian Agricultural Statistics Research Institute		
ICSSR	Indian Council of Social Science Research		