

ICAR-CIFE

वार्षिक प्रतिवेदन

ANNUAL REPORT

2016-17



ICAR-Central Institute of Fisheries Education
Mumbai-India





ICAR-CIFE is accredited upto 2021

ICAR-CIFE

वार्षिक प्रतिवेदन

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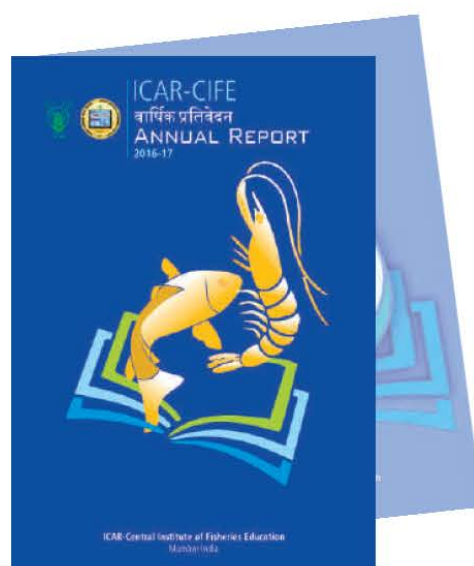


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Preface



Dr. Gopal Krishna
Director/Vice-Chancellor

Preface

ICAR-CIFE is a unique and distinguished academic institution in the field of fisheries science. When I got the honour in September 2016, of leading this hallowed institute, I set a very clear vision for the institute and for myself to make this Deemed University achieve global standards through cutting-edge research, education and technology development in fisheries. I further resolved to direct the activities of the institute towards the national agenda of nutritional security and securing livelihoods through quality human resource development and technology-oriented research. CIFE recognizes its role in harmonizing fisheries education across the country and hence, the very first initiative this year was to hold a National Consultation for “Higher Fisheries Education” which received an overwhelming response and was enriched by the participation of all the Deans of Fisheries Colleges in India along with the Directors of Fisheries Research Institutes of ICAR. A road map was prepared to foster synergy among all concerned with regard to syllabi, teaching quality and course structure. This year, CIFE also went through a critical review of its academic programme by the high-power UGC team followed by the ICAR Central Review Team, and we are committed to implement their valuable suggestions for maintaining our trademark quality education. The XIII Convocation of the University was also conducted during this academic year,

where 151 M.F.Sc and 54 Ph.D. students were awarded their degrees, and 29 gold medals were presented to meritorious students.

Teaching and research go hand in hand to harness academic excellence. A newly constituted RAC team reviewed our research programmes recently and contributed towards strengthening them. Many research projects were completed during this year and new projects have been taken up in different areas catering to the need of the nation. Inland saline water still remains our flagship programme and we seek to spread the area of our activities to benefit a larger number of farmers. It has also been decided to view inland saline water aquaculture research from all possible perspectives with the involvement of all the divisions of CIFE. It is heartening to have received a letter of appreciation from the Hon'ble Chief Minister of Haryana for generating livelihoods and income through imparting new technology to farmers in Haryana. Other significant research areas include scaled-up production trials of WSSV DNA vaccine for shrimps, development of a bicistronic DNA vaccine for protection against *Edwardsiella tarda* infection in carps, nano-diagnostics for betanoda virus infection, LAMP based detection of pathogen, selective breeding of *Clarias magur*, nutraceutical fortified fish products/ restructured fish products, nutrigenomic study for enhancing

carbohydrate utilization, medicated feed, value chain analysis for farmed shrimp, etc. As an outcome around 156 research papers, 11 books, 11 books chapters, 11 extension booklets and 25 training manuals, 6 CAFT manuals have been published during the year 2016-17.

CIFE expanded its presence in the country through the addition of a new centre at Motipur, Bihar. We hope to reach out to the eastern region through this centre in the near future through various training programmes. During this year about 1902 personnel were trained through 92 training programmes. The first batch of newly launched Skill Development Program has been successfully completed at Kakinada and Rohtak centres of CIFE. We take pride in being the first Deemed University of ICAR to take this initiative. We plan to launch other demand-driven programmes soon.

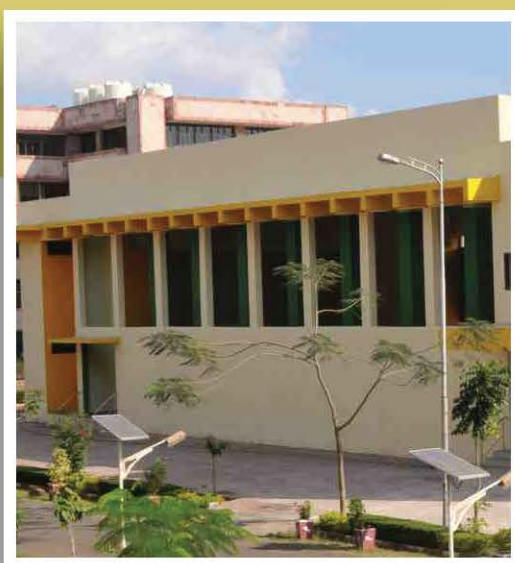
During this year, we were fortunate to have received the guidance of the Hon'ble Director General, ICAR, Dr. T. Mohapatra, who visited CIFE on a number of occasions and interacted with the faculty, staff and students. We are also proud to be among the first few institutions which could set up all cashless transactions and were awarded a cash prize of five lakh rupees by the Hon'ble Minister of Agriculture and Farmer Welfare. We also immensely benefitted from the visit of Sri Radha Mohan Singh, Hon'ble Minister of Agriculture and Farmer Welfare, who reviewed the ongoing

research programmes of the West Zone agricultural institutions in an event hosted by CIFE.

In a first of its kind, CIFE successfully organized a mega event "CIFEWAVE" during the first week of March 2017. This event included the 2nd Student Convention, 13th Convocation, Industry Day, Alumni Meet and Annual Sports and brought together an unprecedented conglomeration of students, academia and industry for furthering the spirit of innovation.

Finally, the constant support, guidance and immense encouragement provided by Dr. Trilochan Mohapatra, Secretary, DARE & DG, ICAR for all our endeavours during this year is gratefully acknowledged. We gratefully acknowledge the constant and prompt support of Dr. J.K. Jena, DDG (Fy). We are also thankful to Dr Sudhir Raizada, ADG (Inland Fisheries), Dr Pravin Puthra, 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, Institute Research Council, Extension Council, Board of Examiners and other institute level committees for their cooperation and support. I especially acknowledge the support of Team CIFE, and congratulate the publication team for bringing out this annual report.

(Gopal Krishna)



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Executive Summary

Executive Summary

The Institute conducted its XIII convocation during which 151 M.F.Sc and 54 Ph.D degrees were awarded along with 29 Gold Medals to different meritorious students by Dr. Trilochan Mahapatra, Secretary DARE & Director General, ICAR. A slew of events during 3-6 March 2017 in the form of CIFE-WAVE 2017 included the Brainstorming sessions on Blue Revolution: Way Forward, Innovations for Excellence in Fisheries Education, Industrial Meet and Alumni Meet. The Second Students' Convention on Innovative Approaches for Academic Excellence in Higher Fisheries and Education was inaugurated in a novel way by releasing fishes into tanks by the dignitaries.

During the current year the number of successful candidates for M.F. Sc and Ph.D were 71 and 22, respectively. Like previous years 3 overseas students enrolled for Ph.D (2) and Master programme (1) from Bangladesh and Sri Lanka.

Presently the institute has 22 institutional and 21 externally funded projects. The institute organized various extension education/transfer of technology related programmes and activities. ICAR-CIFE commercialised Eco-Hatchery for Carp seed production and signed MoU with Hyderabad based TEEWAVE technologies for transfer of its Eco-hatchery technology for carp seed production. A total of 87 short-term training programmes were organized at the headquarter and the four research centers in which 1699 participants were imparted skill in various aspects of aquaculture. The institute actively participated in 10 exhibitions and *kisanmelas* at various locations across the country showcasing the achievements and services being provided to the fishermen community. An Interactive fish farmer's meet-2016 was held at Motihari, Bihar which was inaugurated by Shri Radha Mohan Singh, Hon'ble Union Minister for Agriculture and Farmers Welfare Govt. of India. About 1000 fish farmers attended the meet and interacted with the scientists. Several radio talks were delivered by the scientist for the farmers and several articles were published in newspapers in regional languages to reach out to the farmers.

Major workshops/symposia/meetings etc. held during the year were Third Congress on Social Entrepreneurship in Aquaculture (Pillay Aquaculture Foundation);

International Workshop on Linear Mixed Models in Practice: An As-REML-Oriented Approach; National Workshop on Inland Saline Aquaculture Converting Waste to Wealth and Way Forward; the review meeting of ICAR research institutes and the State Agricultural Universities located in Maharashtra was held at ICAR-Central Institute of Fisheries Education, Mumbai; Review cum Interactive Meet of Directors & Finance Officers of ICAR Institutes (West Zone); National Consultation on Higher Fishery Education and ICAR Education Central Zone Monitoring and Review Meeting. The faculty attended 72 workshops/symposia/meetings etc. and 14 summer schools/winter schools/ training programmes. Four scientists attended international conferences and symposia abroad (USA and UK).

World Education Congress Awarded to Dr. Gopal Krishna, Director, ICAR-Central Institute of Fisheries Education as 100 Most Influential Directors of India (Education). The institute also received the **Best Green Campus Award** and the **Award for Cashless ICAR Institute**.

A total of 155 research papers were published in refereed journals with high impact factor. Apart from this, a number of review papers, popular articles, books, book chapters and bulletins were also published during the year. The meetings of IRC, RAC, BoM, Academic Council and Extension Council were held as per schedule.

The institute had visitors from abroad namely Dr. Arthur Gilmour, Ret. Professor New South Wales Department of Primary Industries (NSW-DPI), Australia and Shri Mahinda Amaraweera, Minister of Fisheries and Aquatic resources development, Government of Sri Lanka. Other distinguished visitors included Shri Radha Mohan Singh, Hon'ble Union Minister for Agriculture and Farmers Welfare, Govt. of India, Shri Giriraj Singh, Hon'ble Minister of State in Ministry of Micro, Small and Medium Enterprises (MSME), Govt. of India, Shri Vijay Deshmukh, Hon'ble State Minister for Fisheries, Maharashtra, Shri Ram Shinde, Hon'ble State Minister of Agriculture and Horticulture, Maharashtra and Shri S. S. Ahluwalia, Hon'ble Minister of State for Agriculture and Farmers Welfare and Parliament Affairs, Govt. of India.

भा. कृ. अनु. प. - के. मा. शि. सं. में दिनांक 30 मार्च 2017 को आयोजित 13 वें दीक्षांत समारोह में **डा. त्रिलोचन महापात्र**, भा. कृ. अनु. प. के महानिदेशक एवं सचिव, कृषि अनुसंधान एवं शिक्षा विभाग (DARE) के कर कमलों से 54 पी.एच.डी, 151 एम.एफ.एस.सी. डिग्री एवं इसके साथ ही उत्कृष्ट शैक्षणिक प्रदर्शन करने वाले 29 छात्रों को स्वर्ण पदक प्रदान किए गए। संस्थान में दिनांक 3 से 6 मार्च 2017 को सी.आई.एफ.ई - वेब 2017 के अंतर्गत नीली क्रांति के उन्नयन पर आधारित कई महत्वपूर्ण सत्र जैसे मात्स्यिकी शिक्षा में नवोन्मेष, औद्योगिक सम्मेलन व भूतपूर्व छात्र सम्मेलन, उच्च मात्स्यिकी शिक्षा में नवोन्मेष पर आधारित सम्मेलन आयोजित किए गए। इस वर्ष एम.एफ.एस.सी. के 71 और पी.एच.डी के 22 छात्र सफल हुए। वर्तमान सत्र में संस्थान में पी.एच.डी के लिए दो और स्नातकोत्तर डिग्री के लिए एक विदेशी छात्र क्रमशः बांग्लादेश एवं श्रीलंका से नामांकित हुए।

वर्तमान में संस्थान में 22 संस्थानिक और 21 बाह्य वित्तीय परियोजनाएं चल रही हैं। संस्थान द्वारा विस्तार शिक्षा और प्रौद्योगिकी स्थानांतरण से संबंधित कई महत्वपूर्ण कार्यक्रम आयोजित किए जाते हैं। संस्थान ने कार्प बीज उत्पादन के लिए इको-हैचरी का व्यावसायीकरण किया और कार्प बीज निर्माण के लिए इको-हैचरी तकनीकी के स्थानांतरण के लिए हैदराबाद की टीवेव टेक्नोलॉजी (TEEWAVE Technology) के साथ एम.ओ.यू. पर हस्ताक्षर किए हैं। जलकृषि के विभिन्न क्षेत्रों में 1699 प्रतिभागियों को संस्थान में और संस्थान के 4 अनुसंधान केन्द्रों में कौशल विकास पर आधारित कुल 87 अल्पकालीन प्रशिक्षण कार्यक्रमों के माध्यम से प्रशिक्षित किया गया। किसानों की उपलब्धियों पर देश के विभिन्न स्थानों में आयोजित 10 प्रदर्शनियों और किसान मेलों में संस्थान ने सक्रिय रूप से भाग लिया। संस्थान द्वारा मत्स्य कृषकों का परिचर्चा सम्मेलन - 2016 को मोतीहारी, बिहार में आयोजन किया गया। सम्मेलन का उद्घाटन **श्री राधा मोहन सिंह** माननीय केन्द्रीय कृषि एवं किसान कल्याण मंत्री द्वारा किया गया। सम्मेलन में लगभग 1000 से अधिक मत्स्य कृषकों व वैज्ञानिकों के साथ महत्वपूर्ण परिचर्चा हुई। संस्थान के वैज्ञानिकों द्वारा कई रेडियो वार्ताओं के साथ ही समाचार पत्रों में क्षेत्रीय भाषाओं के लेखों के माध्यम से किसानों तक सीधे पहुंचने का प्रयास किया गया।

संस्थान में कई प्रमुख कार्यशालाओं/ गोष्ठियों व बैठकों का आयोजन किया गया। ये प्रमुख कार्यक्रम

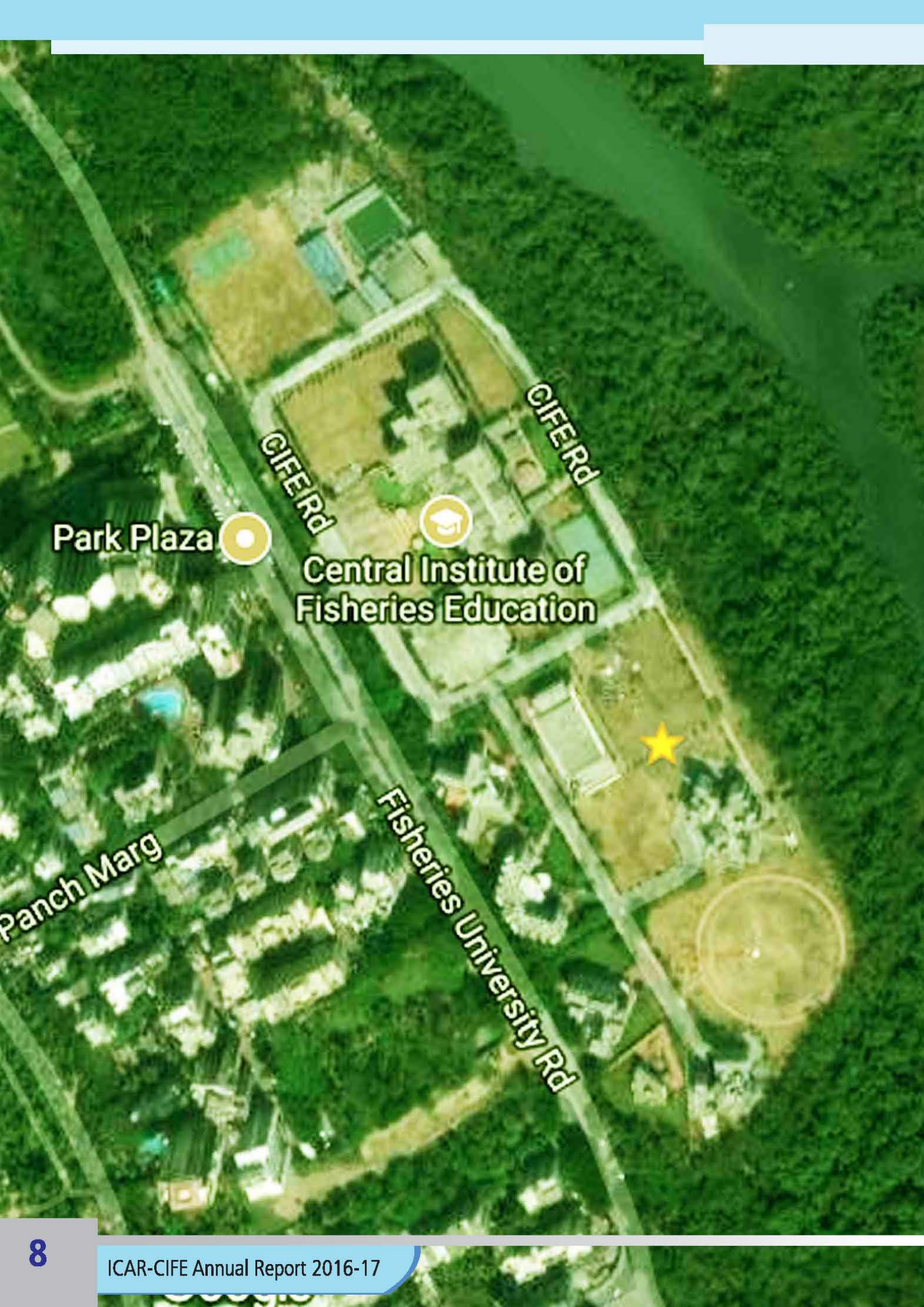
निम्नानुसार थे - जलकृषि में सामाजिक उद्यमिता (पिल्ले एक्वाकल्चर फाउंडेशन), रेखीय मिश्रित प्रतिदर्श अनुशीलन, आर.ई.एम.एल.ओ.भिन्विस्त पद्धति (Liner Mixed Models in Practice : An As - REML oriented approach) पर कार्यशाला, अवशिष्ट को उपयोगी बनाने के लिए अन्तःस्थलीय लवणीय जलकृषि पर कार्यशाला का आयोजन, संस्थान में ही भा.कृ.अनु.प. के महाराष्ट्र राज्य में स्थित राज्य कृषि विश्वविद्यालयों और अनुसंधान संस्थानों की पुनरीक्षण बैठक का आयोजन, भा.कृ.अनु.प. के पश्चिम क्षेत्र के संस्थानों के निदेशकों और वित्त अधिकारियों की पुनरीक्षण सह परिचर्चा बैठक का आयोजन, उच्च मात्स्यिकी शिक्षा पर राष्ट्रीय विचार सभा और भा.कृ.अनु.प. केन्द्रीय क्षेत्र नियंत्रण एवं पुनरीक्षण बैठक का आयोजन किया गया।

संस्थान के संकाय ने 72 कार्यशालाओं / गोष्ठियों व बैठकों आदि तथा 14 ग्रीष्म स्कूल / शीत स्कूल व प्रशिक्षण कार्यक्रमों (अमेरीका/इंग्लैंड) में आयोजित अंतर्राष्ट्रीय सम्मेलनों एवं गोष्ठियों में भाग लिया।

इस संस्थान के डा. गोपाल कृष्णा, निदेशक, भा.कृ.अनु.प. - केन्द्रीय मात्स्यिकी शिक्षा संस्थान को भारत के शिक्षा क्षेत्र के 100 प्रभावशाली संस्थानों का विश्व शिक्षा कांग्रेस अवार्ड प्रदान किया गया। इस संस्थान को श्रेष्ठ हरित परिसर एवं नगद रहित (कैशलेस) का पुरस्कार भी प्राप्त हुआ।

वर्ष के दौरान जर्नल्स में 155 प्रभावशाली शोध पत्र प्रकाशित हुए। इसके साथ ही समीक्षात्मक पेपर, प्रसिद्ध लेखों, किताबों, किताब पाठ्यांश और बुलेटिनों का भी प्रकाशन हुआ। आई.आर.सी.आर.ए.सी., बी.ओ.एम., एवं शैक्षणिक परिषद की बैठकों का आयोजन भी समयानुसार हुआ।

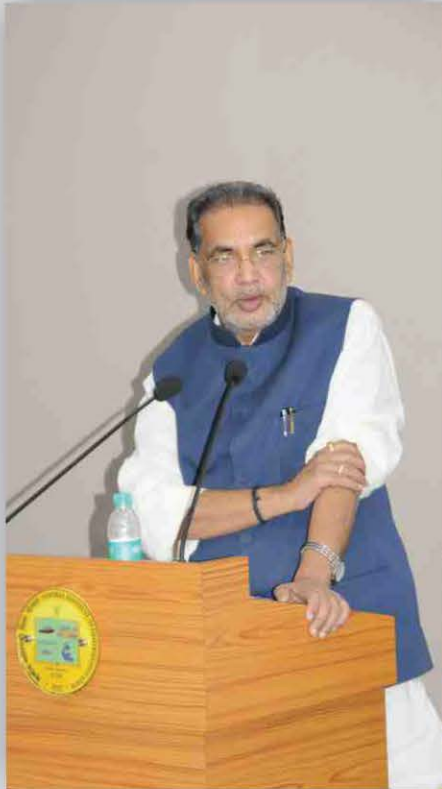
प्राथमिक उद्योग विभाग (NSW-DPI), न्यू साऊथ वेल्स, आस्ट्रेलिया के सेवानिवृत्त प्रोफेसर **डा. आर्थर गिलमौर**, श्रीलंका सरकार के मात्स्यिकी और जलीय संसाधन विकास मंत्री **श्री महेन्द्र अमरवीरा**, केन्द्रीय कृषि एवं किसान कल्याण मंत्री (भारत सरकार) **श्री राधा मोहन सिंह**, सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय के राज्य मंत्री **श्री गिरिराज सिंह**, मात्स्यिकी राज्य मंत्री (महाराष्ट्र सरकार) **श्री विजय देशमुख**, कृषि और उद्यानीकी राज्य मंत्री (महाराष्ट्र सरकार) **श्री राम शिंदे**, केन्द्रीय कृषि एवं किसान कल्याण एवं संसदीय मामलों के राज्य मंत्री **श्री एस. आहुल वालिया** ने संस्थान में आकर अपने अनुभवों एवं दिशा निर्देशों से संस्थान को और भी गौरवान्वित किया।





3

Introduction





3.1. 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

Mission

To achieve academic and research excellence

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 professionals from the Afro-Asian countries in fisheries and aquaculture sector.

Mandate

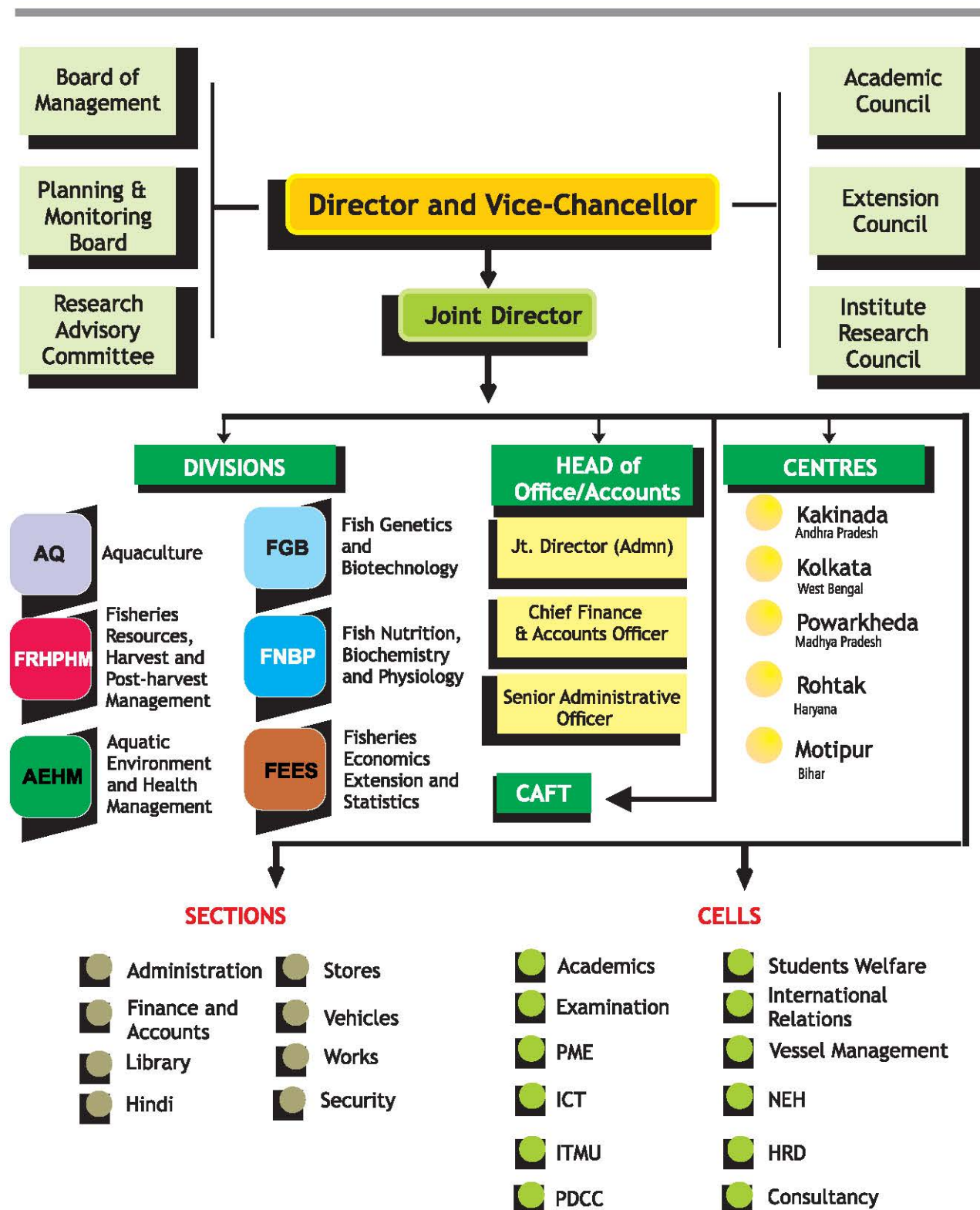
- Conduct post-graduate programmes in fisheries science.
- Basic and strategic research in frontier areas of fisheries science.
- Human Resource Development, capacity building and skill development through training, education & extension

Vision

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

3.2. Organogram

ICAR-CIFE, Mumbai



Board of Management

Chairman
Dr. Gopal Krishna

Members
Dr. A. Gopalkrishnan
Dr. P. Paul Pandian
Mr. Devendra Kumar
Dr. K.K. Vijayan
Dr. N.P. Sahu
Dr. S.N. Ojha

Member Secretary
Mr. Mahesh Khubdikar

Research Advisory Committee

11.12.2013 to 10.12.2016

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. Gaurav Rathore

1.1.2017 to 31.12.2019

Chairman
Dr. E.G. Silas

Members
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Dr. Gopal Krishna
Dr. T.K. Srinivasa Gopal
Dr. P.N. Pandey
Dr. Sridhar Sivasubbu
Dr. Indrani Karunasagar

Member Secretary
Dr. K. Pani Prasad

Academic Council

Chairman
Dr. Gopal Krishna

Members
Dr. M.V. Gupta
Dr. K.M. Bujarbaruah
Dr. N.S. Rathore
Dr. Ravi Shankar C. N.
Dr. A.K. Singh
Dr. B.K. Das

Dr. N.P. Sahu
Dr. N.K. Chadha
Dr. K.V. Rajendran
Dr. Aparna Chaudhari
Dr. B.B. Nayak
Dr. S.N. Ojha
Dr. K.K. Jain
Dr. Kiran Dubey Rawat
Dr. B.K. Mahapatra
Dr. Nalini Ranjan Kumar
Dr. K. Pani Prasad
Dr. P.P. Srivastava
Dr. Ashok Jaiswar
Dr. Rupam Sharma
Dr. Swadesh Prakash
Dr. Subodh Gupta
Dr. Zeba Abidi
Dr. Sanath Kumar
Dr. Ashutosh Deo
Dr. Pavan Kumar
Mr. Hari Krishna
Dr. S.K. Nayak
President, PGSSU
Representative of ACM of PGSSU

Member Secretary
Mr. Mahesh Khubdikar

Extension Council

Chairman
Dr. Gopal Krishna

Members
Dr. Paul Pandian
Mr. Madhukar Gaikwad
Dr. P. Jayasankar
Dr. A.K. Singh
Mr. Vinod Naik
Dr. N.P. Sahu
Dr. N.K. Chadha
Dr. K.V. Rajendran
Dr. B.B. Nayak
Dr. S.N. Ojha
Dr. S. Jahageerda
Dr. V.K. Tiwari
Dr. Ashutosh Deo
Dr. Amjad Balange
Dr. Swadesh Prakash
Dr. Ananthan P.S.
Dr. Hari Krishna

Member Secretary
Dr. Arpita Sharma

3.3. Staff Position (2016-17)

Category Wise

CIFE Staff	Sanctioned	In position	Vacant
RMP	02	01	01
Scientific	104	87	17
Technical	106	77	29
Administrative	64	45	19
Skilled Supporting	69	57	12
Non Ministerial	01	01	00
Total	346	268	78

3.4. Budget (2016-17)

(Rs. in Lakh)

S. No.	Head	Sanctioned	Received	Expenditure Incurred
1.	Plan	833.50	833.50	824.45
2.	Non-plan	4368.74	4368.74	4335.26
	Total	5202.24	5202.24	5159.71
S.No.	Head	Balance C/f	Received	Expenditure Incurred
3.	CAFT	-	12.15	7.49
4.	SDU	-	463.92	307.65
5.	Externally Funded Projects	203.37	231.23	166.27
	Total	203.37	707.30	481.41

Revenue generation (Rs. in Lakh)

Target : Rs. 248.53

Achieved: Rs. 70.58



4

ACADEMIC ACHIEVEMENTS



CIFE XIII Convocation



ICAR-Central Institute of Fisheries Education (CIFE), Mumbai, the premier organization in the country involved in human resources development in the field of fisheries and aquaculture, celebrated its XIII convocation on 3rd March, 2017. Dr. Trilochan Mohapatra, Secretary, Department of Agricultural Research & Education (DARE), Govt. of India and Director-General, Indian Council of Agricultural Research (ICAR) was the Chief Guest of the function. Shri Mahadev Jagannath Jankar, Minister of Animal Husbandry, Dairy Development and Fisheries Development, Govt. of Maharashtra, Mumbai, Shri Gajanan Kirtikar, Member of Parliament, North-West, Goregaon, Mumbai, Dr. J.K. Jena, DDG (Fisheries), ICAR and Dr. Bharti Lavekar, MLA, Versova, Mumbai, Maharashtra Assembly were the Guests of Honour. Dr. Gopal Krishna, Director and Vice Chancellor, CIFE, in his welcome address, highlighted the salient academic and research achievements of the institute. He also underlined the research and thrust areas and the achievements in the flagship programmes taken up and new academic initiatives taken by the institute. Dr. Lavekar emphasized on the need for Blue Revolution. Shri Kirtikar stressed that a Certificate Course on Skill Development Programme on fisheries for the fishermen of Maharashtra should be started at the institute. Dr. J.K. Jena emphasized the importance of fisheries for food and nutritional security and underlined the role of young graduates to achieve this goal. The Chief Guest Dr. Mohapatra urged the students to work towards the goal of bringing in blue revolution in the country and to double the farmers' income. He also stressed upon the need for entrepreneurship development to make the graduates as 'job providers' rather than 'job seekers'. He also reiterated the Government's commitment to achieve 'Blue Revolution' and other initiatives and to increase farmers' income. During the convocation, 151 M.F.Sc. and 54 Ph.D. degrees were awarded, besides presenting 29 Gold Medal Awards to meritorious students. Ms. Sampa Pal and Mr. Shyam, K.U. secured the top ranks for the years 2013-15 and 2014-16, respectively.



Degrees with security features

ICAR-Central Institute of Fisheries Education is the first institute to award degrees with security features in the physical certificate such as QR code containing six digitized information, Bar Code, Invisible signature of the Vice-Chancellor, Water mark, void/copy on taking photocopy and many other features during the XIII Convocation on 3rd March, 2017, which is also a first among the Deemed Universities of ICAR.

4.1. Enrollments

A total of 79 students have enrolled for the Masters programmes which includes one foreign student from Bangladesh. Out of the 52 students enrolled for the doctoral programmes, two students are from Sri Lanka and Bangladesh.

(Batch 2016-2018)

Sr.No.	Name of the Programme	No. of students enrolled
1.	Aquaculture (AQC)	13
2.	Aquatic Animal Health Management (AAHM)	08
3.	Aquatic Environmental Management (AEM)	06
4.	Fish Biotechnology (FBT)	06
5.	Fish Genetics and Breeding (FGB)	06
6.	Fish Physiology and Biochemistry (FPB)	06
7.	Fish Nutrition and Feed Technology (FNFT)	06
8.	Fisheries Resource Management (FRM)	09
9.	Post Harvest Technology (PHT)	07
10.	Fisheries Economics (FEC)	06
11.	Fisheries Extension (FEX)	06
Total		79

(Batch 2016-2019)

Sr.No.	Name of the Programme	No. of students enrolled
1.	Aquaculture (AQC)	10
2.	Aquatic Animal Health Management (AAHM)	05
3.	Aquatic Environmental and Management (AEM)	04
4.	Fish Biotechnology (FBT)	03
5.	Fish Genetics and Breeding (FGB)	03
6.	Fish Physiology and Biochemistry (FPB)	03
7.	Fish Nutrition and Feed Technology (FNFT)	04
8.	Fisheries Resource Management (FRM)	09
9.	Post Harvest Technology (PHT)	06
10.	Fisheries Economics (FEC)	03
11.	Fisheries Extension (FEX)	02
Total		52

4.2. Results

Discipline-wise number of students passed-out during 2016-2017 as follows

Name of the Programme	No. of successful students
Ph.D.	
Aquaculture (AQC)	06
Aquatic Animal Health Management (AAHM)	01
Aquatic Environmental Management (AEM)	02
Fish Biotechnology (FBT)	01
Fish Nutrition and Feed Technology (FNFT)	01
Fish Nutrition and Biochemistry	02
Fisheries Resource Management (FRM)	04
Post Harvest Technology (PHT)	04
Fisheries Extension (FEX)	01
Total	22
M.F.Sc. (2014-16)	
Aquaculture (AQC)	12
Aquatic Animal Health Management (AAHM)	07
Aquatic Environmental and Management (AEM)	05
Fish Biotechnology (FBT)	06
Fish Genetics and Breeding (FGB)	05
Fish Physiology and Biochemistry (FPB)	05
Fish Nutrition and Feed Technology (FNFT)	06
Fisheries Resource Management (FRM)	08
Post Harvest Technology (PHT)	07
Fisheries Economics (FEC)	05
Fisheries Extension (FEX)	04
M.F.Sc. (2013-2015)	
Aquatic Animal Health Management (AAHM)	01
Total	71

Ph.D.

4.3. List of dissertations submitted by M.F.Sc. students

Sr. No	Name of the student	Registration No.	Title	Major Guide
Aquaculture				
01.	Jess Maria Wilson	AQC-MA4-01	Studies on maturatrion of <i>Astronotus ocellatus</i> (Cuvier, 1829) through dietary manipulations	N.K.Chadha
02.	Sherry Abraham	AQC-MA4-02	Comparative effect of microalgae and artificial media enriched live feed for the growth and survival of <i>Amphiprion spp.</i> during first feeding period	Neelam Saharan
03.	Saikat Kumar Das	AQC-MA4-03	Influence of different feeds on growth and digestive enzyme activities of <i>Symphysodon aequifasciatus</i> (Pellegrin, 1904) larvae	P. Banerjee Sawant
04.	P. Nageswari	AQC-MA4-04	Evaluation of growth and immune response of <i>Etroplus suratensis</i> (Bloch 1790) in biofloc based system supplemented with different strains of probiotic bacteria	Neelam Saharan
05.	R. Dinesh	AQC-MA4-05	Effect of Tobacco (<i>Nicotiana tabacum</i>) leaf dust as Sedative for Rohu, <i>Labeo rohita</i> (Hamilton, 1822) Fingerlings Transport	Chandra Prakash
06.	Iffat Jahan	AQC-MA4-06	Growth and survival of <i>Litopenaeus vannamei</i> (Boone, 1931) fed with different dietary potassium (K ⁺) and magnesium (Mg ²⁺) levels and reared in inland ground saline water	A.K. Reddy
07.	V. Ezhilarasi	AQC-MA4-07	Evaluation of growth and survival of Amur carp, <i>Cyprinus carpio haematopterus</i> (Martens, 1876) under biofloc system in inland saline groundwater	A.K. Verma
08.	R. Vivek	AQC-MA4-08	Evaluation of periphyton based cage aquaculture on growth performance of <i>Labeo rohita</i> (Hamilton, 1822) fingerlings	Kiran Dube Rawat
09.	R. Siju	AQC-MA4-09	Effects of photoperiod on growth and survival of <i>Clarias batrachus</i> (Linnaeus, 1758) larvae	V.K. Tiwari
10.	Sanitha Saseendran	AQC-MA4-10	Effect of stocking density on growth and production performance of grow out culture of <i>Labeo rohita</i> (Hamilton, 1822) in floating net cages	Kiran Dube Rawat
11.	Shyam Kumar	AQC-MA4-11	Evaluation of growth and physiological responses in <i>Labeo rohita</i> (Hamilton 1822) supplemented with different protein diets in biofloc system	Babita Rani

12.	M. Menaga	AQC-MA4-12	Evaluation of relative efficacy of aerobic microbial floc (AMF) driven raceways and lined ponds for the nursery rearing of pacific white shrimp, <i>Litopenaeus vannamei</i>	N.K.Chadha
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Aquatic Animal Health Management

01.	Shyam K. U.	AAH-MA4-01	Screening of culture shrimps for the presence of infectious myonecrosis virus (IMNV)	K. Pani Prasad
02.	Riya P. Albin	AAH-MA4-02	<i>In vitro</i> assessment of chitosan conjugated Bicistronic DNA nano particles	Gayatri Tripathi
03.	Ankit Sharma	AAH-MA4-03	Evaluation of selected herbal bioactive molecules (HBMs) against common ectoparasite(s) of freshwater ornamental fish	R.P. Raman
04.	Kirti Komal	AAH-MA4-04	Development of LAMP assay for detection of <i>Flavobacterium columnare</i> in fish	Gaurav Rathore
05.	Biswajit Das	AAH-MA4-05	Evaluation of immunostimulatory action of PLGA nanoparticle encapsulated <i>Edwardsiella tarda</i> antigen in <i>Pangasianodon hypophthalmus</i>	K. Pani Prasad
06.	Shameena S.S.	AAH-MA4-07	Pathogenicity evaluation of <i>Aeromonas veronii</i> isolated from infected freshwater ornamental fish	Kundan Kumar
07.	Bharath Kumar V.	AAH-MA4-08	Screening of common ectoparasites of ornamental fish and <i>in vitro</i> antiparasitic efficacy of curcumin	R.P. Raman

Aquatic Environmental Management

01.	G. Kantharajan	AEM-MA4-02	Determination of conservation value of mangroves in Mumbai suburban district of Maharashtra	P.K. Pandey
02.	Sagar Kumar Ram	AEM-MA4-03	Upscaling of <i>Spirulina</i> (Arthrospira) <i>platensis</i> biomass production in inland saline water for atmospheric carbon sequestration	S.P. Shukla
03.	V. Santhana Kumar	AEM-MA4-04	Fate of nitrogenous waste in periphyton and biofloc based <i>Litopenaeus vannamei</i> shrimp culture systems	P.K. Pandey
04.	B.N. Shashikumar	AEM-MA4-05	Effect of temperature on malathion toxicity in <i>Pangasianodon hypophthalmus</i>	P.K. Pandey
05.	Benson K.	AEM-MA4-06	Evaluation of performance of a column mode filtration unit for chlorine free disinfection of water	S.P. Shukla

Fish Biotechnology

01.	Abdulla Al. Masud	FBT-MA4-01	Studies on scalable purification and environmental transmission of WSSV DNA vaccine	Aparna Chaudhari
02.	Angela Mercy A.	FBT-MA4-02	Pharmacokinetic studies on WSSV DNA vaccine in shrimp	P. Gireesh Babu
03.	Chandan Haldar	FBT-MA4-03	Genotyping of growth selected <i>Macrobrachium rosenbergii</i> using SNP's from expressed sequences	Aparna Chaudhari
04.	Atmaprasanthi T.	FBT-MA4-04	Delineating the stocks of <i>Mystus seenghala</i> (Skyes, 1839) using morphometric and molecular markers	Gopal Krishna
05.	Raju Ram	FBT-MA4-05	Identification of ichthyoplankton by DNA barcoding from selected mangrove zones of Maharashtra Coast	A. Pavan Kumar
06.	Tushar P. Kumar	FBT-MA4-06	Full length cDNA cloning and expression on analysis of selected reproductive gene of <i>Clarias magur</i>	P. Gireesh Babu

Fish Genetics and Breeding

01.	Aishwarya Sharma	FGB-MA4-01	Development of KISS-10 nano formulation for induced maturation in <i>Catla catla</i> (Hamilton, 1822)	Rupam Sharma
02.	Amritha Johny	FGB-MA4-02	A genetics study on orange type coloration in various strains of Guppy	S. Jahageerdar
03.	K.S. Wisdom	FGB-MA4-04	Effect of nano-conjugated aromatase inhibitors on gonadal development in <i>Clarias batrachus</i> (Linnaeus, 1758)	Rupam Sharma
04.	Nesnas E.A.	FGB-MA4-05	Genetic stock characterization of <i>Labeo calbasu</i> (Hamilton, 1822) using mitochondrial markers	Gopal Krishna
05.	Payal P.S.	FGB-MA4-06	Modelling of potential drug targets in <i>Aeromonas hydrophila</i> and its virtual screening for a successful inhibitor	S. Jahageerdar

Fish Physiology and Biochemistry

01.	Arunava Chatterjee	FPB-MA4-02	Induction of Cytochrome P450 mediated detoxification mechanism for benzimidazole compound in <i>Labeo rohita</i> (Hamilton, 1822)	Subodh Gupta
02.	Garima Anand	FPB-MA4-03	Gene expression study of IL-8 and NFkB in <i>Labeo rohita</i> (Hamilton, 1822) fingerlings on high carbohydrate diet	Sujata Sahoo

03.	Siva Guru Nathan U.	FPB-MA4-04	Calcemic responses of intra-peritoneal vitamin-D ₃ on corpuscles of stannius gland and Gene expression of stanniocalcin in <i>Labeo rohita</i> (Hamilton, 1822) reared in calcium enriched water	P.P. Srivastava
04.	Da-U-Ruhi Pde	FPB MA4-05	Effect of chitosan nano encapsulated trypsin on utilization of plant protein based diets in <i>Labeo rohita</i> (Hamilton, 1822)	Subhod Gupta
05.	Hafeef Roshan K.T.	FPB MA4-06	Insulin like growth factor binding protein (IGFBP) gene and its protein expression in <i>Labeo rohita</i> (Hamilton, 1822) fed with graded levels of carbohydrate	Sujata Sahoo
Fisheries Economics				
01.	Green Sea K.	FEC-MA4-01	Assessment of career choice among fisheries graduates of India	M. Krishnan
02.	Ubair Nisar	FEC-MA4-03	Production and supply chain analysis of carps in Jammu and Kashmir	Nalini Ranjan Kumar
03.	Dhande Kranthi Kumar	FEC MA4-04	An analysis of socio economic parity of fishers and primary producers in coastal India	V. Ramasubramanian
04.	Bikash Debbarma	FEC-MA4-05	An assessment of cross border fish trade between Bangladesh and Tripura	Rama Sharma
05.	Ravi Shankar Kumar	FEC MA4-06	Estimation of demand for fish in Delhi and NCR	Swadesh Prakash
Fisheries Extension				
01.	Sagolsem Anamika Devi	FEX-MA4-01	Documentation and adoption of indigenous practices of Phumdhi (Athaphum) fish culture in Loktak Lake, Manipur	S.N. Ojha
02.	Suman Dey	FEX-MA4-02	Market-led extension strategies for fish farmers and fish marketing agents of Nadia District, West Bengal	S.N. Ojha
03.	Nandini J.	FEX-MA4-03	Vulnerability of fisher livelihood to climate changes in Bhadra reservoir, Karnataka: A gender analysis	Arpita Sharma
04.	Rumi Swarnakar	FEX-MA4-04	Fish seed entrepreneurs of Naihati, West Bengal: A case study	P.S. Ananthan

Fish Nutrition and Feed Technology

01.	Ratul Ghoshal	FNFT-MA4-01	Studies on interaction of dietary fucoidan and probiotic on growth and immunity of <i>Labeo rohita</i> (Hamilton, 1822)	N.P. Sahu
02.	Aprajita	FNFT-MA4-02	Effect of dietary carbohydrate on gene and protein expression of insulin like growth factor (IGF-1) in <i>Clarias batrachus</i> (Linnaeus, 1758)	K.K. Jain
03.	Zishan Ahmad	FNFT-MA4-03	Utilisation of sweet potato leaf meal as an ingredient in the diet of <i>Labeo rohita</i> (Hamilton, 1822)	Ashutosh D. Deo
04.	P. Shanthanna	FNFT-MA4-04	Utilization of papaya leaf meal in the diet of <i>Labeo rohita</i> (Ham.) fingerlings for growth performance	Murlidhar P. Ande
05.	Sajina K. A.	FNT-MA4-05	Utilization of dietary carbohydrate in <i>Labeo rohita</i> (Hamilton, 1822) fingerlings fed with fucoidan rich seaweed extract	N.P. Sahu
06.	Avinash Talukdar	FNFT-MA4-06	Effect of dietary carbohydrate on the gene expression of MyoD and Myo5 in <i>Clarias batrachus</i> (Linnaeus, 1758)	K.K. Jain

Fisheries Resource Management

01.	Vikas	FRM-MA4-01	Taxonomic evaluation of family Platycephalidae from Indian waters	A.K. Jaiswar
02.	Ajina S.M.	FRM-MA4-02	Morphological and molecular taxonomy of freshwater prawns and shrimps of families Palaemonidae and Atyidae in the upper stretches of Neyyar river system, Kerala, India	Asha T. Landge
03.	Dhanya M. Lal	FRM-MA4-03	Comparative ecomorphological and histological studies of the dual jaw structures in durophagous & non-durophagous teleost fishes of Indian waters in relation to phylogeny	Zeba Jaffer Abidi
04.	Rupam Samanta	FRM-MA4-04	Trawl net selectivity using square mesh cod end along the Mumbai coast	Latha Shenoy
05.	Garima	FRM-MA4-05	Spatio-temporal variations in productivity and ichthyofaunal diversity of Dharamtar creek along Maharashtra coast	Geetanjali D.

06.	R. Bavithra	FRM-MA4-06	Cichlid Pharyngognathus: Morphological and histomorphometric studies of tooth and tooth bearing ventral pharyngeal bone	Zeba Jaffer Abidi
07.	Jaspreet Singh	FRM-MA4-07	Study on the participatory GIS (PGIS) in Trawl fisheries along Ratnagiri coast	Latha Shenoy
08.	Vijaya Krishna Meenige	FRM-MA4-08	Taxonomic differentiation of selected species of genus <i>Sardinella</i> (Family: Clupeidae) from Indian waters	A.K. Jaiswar

Post Harvest Technology

01.	Kahiakgailiu Gonmei	PHT-MA4-01	Extraction and characterization of muscle proteins from <i>Acetes</i> spp. and paste product development.	A.K. Balange
02.	Deepitha R.P.	PHT-MA4-02	Effect of alginate on storage characteristics of <i>Pangasius hypophthalmus</i> mince	K.A. Martin Xavier
03.	Uday Narayan Das	PHT-MA4-03	Characterization of multidrug resistant enterobacteria from seafood	H. Sanath Kumar
04.	Jadhav Madhurima A.	PHT-MA4-04	Evaluation of viscosity as an index of freshness of rohu (<i>Labeo rohita</i>)	B.B. Nayak
05.	Sahna Don	PHT-MA4-05	Shelf-life prediction and identification of potential spoilage organisms in <i>Litopenaeus vannamei</i> during storage	K. Nagalakshmi
06.	Vignaesh D.	PHT-MA4-06	Studies on bioactive properties of protein hydrolysate from <i>Acetes</i> spp.	Martin Xavier
07.	Sukham Tuni Devi	PHT-MA4-07	Development of smart packaging with dye-based sensor for monitoring fish spoilage	K. Nagalakshmi

Aquatic Animal Health Management

2013-2015

01.	Biswajit Sukla Das	AAH-MA3-05	Pathogenicity evaluation of <i>Aeromonas</i> spp. isolated from freshwater ornamental fishes	Kundan Kumar
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4.4. List of Ph.D.Thesis submitted

Sr. No.	Name of the student	Topic of the thesis	Major Advisor	Date of viva-voce
2009-2012				
1	Manas H.M. FRM-338	Seasonal distribution, abundance and nutritional profile of <i>Caulerpa</i> species along Northwest Coast of India	Geetanjali D.	07.04.2016
2	Chaudhari Ajhit Keshav AQC-354	Evaluation of piscicidal effect of selected plant extracts on Tilapia, <i>Oreochromis mossambicus</i> (Peters, 1852)	S. Dam Roy	13.05.2016
3	Anupama T.K. PHT-360	Bacterial flora in surimi wastewater during different stages of treatment	B.B. Nayak	12.5.2016
4	Ranjith L. AEM-376	A study on the species diversity of trawl bycatch along Thoothukudi coast and its economic valuation	S.P. Shukla	12.08.2016
5	Indira Divipala FRM-345	Role of primary producers in tropic cascade of fished populations	Geetanjali D.	19.12.2016
2010-2013				
6	Sangeeta Mandal FRM-384	Stock characterization of silond catfish, <i>Silonia silondia</i> (Hamilton, 1822) through nuclear and mitochondrial DNA markers	J.K. Jena	18.07.2016
7	Swatipriyanka Sen Das FRM-381	Biology and stock assessment of <i>Scoliodon Laticaudus Muller and Henle, 1838</i> and <i>Rhizopri onodonacutus</i> (Ruppell, 1837) from Gujarat coast	S.K. Chakraborty	12.08.2016
8	Mukesh Kumar Bairwa AQ-389	Study on physiological responses of Koi carp, <i>Cyprinus carpio</i> (Linnaeus, 1758) exposed to different light spectra and photoperiod cycles	V.K. Tiwari	14.10.2016
9	J. Raymond Jani Angel AQ-392	Effect of handling on the hormonal profile and reproductive performance of <i>Pengba, Osteobrama belangeri</i> (Valenciennes, 1844)	V.K. Tiwari	22.10.2016
10	Pankaj Kumar FNB-413	Effect of dietary synbiotic and organic acid on growth and immuno-physiological responses to <i>Cirrhinus mrigala</i> (Ham.)	K.K. Jain	28.10.2016
11	Remya S. PHT-402	Development of active packaging for shelf-life extension of fish stored in chilled condition	C.N. Ravishankar	23.01.2017

12	I. Sivaraman FEX-421	A critical analysis of better management practices in shrimp farming in Andhra Pradesh	M. Krishnan	30.01.2017
13	Aritra Bera AQC-391	Effect of hypoxia on sex-steroids regulation in Koi Carp, <i>Cyprinus carpio</i> (Linnaeus, 1758)	N. K. Chadha	07.02.2017
14	Charan R. AQC-390	Comparative evaluation of reproductive performance of Asian Catfish, <i>Clarias batrachus</i> collected from wild and captive conditions	Kiran Dube Rawat	14.02.2017
15	Himadri Saha FNB-411	Pharmacokinetics and patho-physiological responses to Fluconazole based medicated feed in <i>Labeo rohita</i> (Hamilton)	A.K. Pal	23.02.2017
16	Saravanan K. AAHM-423	Characterization ontogeny and expression analysis of adaptive humoral immune system in rohu, <i>Labeo rohita</i> (Hamilton, 1822)	M. Makesh	29.03.2017
2011-2014				
17	Naresh Kumar Mehta PHT-PA1-04	Comparative studies on the functional and rheological properties of myofibrillar proteins from finfish and shellfish during storage	B. B. Nayak	30.04.2016
18	Himanshu Priyadarshi FB-PA1-05	Effect of knockdown and augmentation of insulin-like androgenic gland hormone on morphotypes of <i>Macrobrachium rosenbergii</i> (De Man, 1879)	Aparna Chaudhari	19.11.2016
2012-2015				
19	Neha Saxena AQC-PA2-10	Gonadal development and captive breeding of hill stream fish, <i>Barillius bendelisis</i> (Hamilton, 1807)	Kiran Dube Rawat	14.07.2016
2013-2016				
20	Femi John Fawole FNFT-PA3-05	Nutritional evaluation of protein isolate from selected non-edible seeds in the diets of <i>Labeo rohita</i> (Hamilton, 1822)	N.P. Sahu	27.09.2016
21	Malachy Nwigwe Ajima AEM-PA3-04	Impact of some pharmaceutical drugs on Nile Tilapia, <i>Oreochromis niloticus</i> (Linnaeus, 1758)	P.K. Pandey	30.09.2016
22	Mohmad Tariq Hussain Bhat PHT-PA3-08	Comparative Studies on Physical and Chemical Properties of Pacific White Shrimp, <i>Litopenaeus vannamei</i> processed at different state of Rigor	B. B. Nayak	27.03.2017

4.5. Invited lectures delivered in other institutes by the faculty

Title	Date	Place	faculty
Fish culture in rural areas	20 Apr, 2016	Dept. of Agriculture extension and training centre at Powarkheda	R. K. Upadhyay
Workshop on Fish production, processing & Marketing	12 May, 2016	Dr Vitthalrao Vikhe Patil operative Institute of Co-Management, Pune	A.K. Balange
Composite fish culture	23-26 Jun, 2016	Department of Fisheries, G.H. Pailan Govt. of West Bengal	
Seed production, larval rearing and grow-out technologies of Pengba fish in the Workshop on <i>Culture of Lesser Known Fish Species with Commercial Importance of NE India</i>	16 Jul, 2016	NE Regional Centre of NIRD, Guwahati	S. Munilkumar
Collection of indigenous freshwater ornamental fish from wild in the Workshop on <i>Best Management Practices</i>	25 Jul, 2016	NFDB, Hyderabad	B. K. Mahapatra
Conditioning and packaging of ornamental fish for transportation in the Workshop on <i>Best Management Practices</i>	26 Jul, 2016	NFDB, Hyderabad	B.K. Mahapatra
Brain Storming Session on WSSV/EHP	5 Aug, 2016	Department of Biotechnology, Govt. of India	K.V. Rajendran
How to stay self-motivated- Experience sharing	23 Aug, 2016	NAARM, Hyderabad	D. Bhoomaiah
Bioactive peptides from muscle sources and their impact on human health in the <i>International Symposium and IMSACON-VII</i>	10 Nov, 2016	GADVASU, Ludhiana	A.R. Sen
Statistical Modelling and Technology Forecasting in the Training programme on <i>Basic Statistical Techniques for Textile Research</i>	17 Nov, 2016	ICAR-CIRCOT, Mumbai	V. Ramasubramanian
Importance of fish culture, Integrated fish farming and Govt. schemes and policies for youth	17-21 Dec, 2016	Dept. of Agriculture extension and training centre at Powarkheda	R.K. Upadhyay
Consortia on Indigenous Ornamental Fishes of NER in the Brain Storming discussions on <i>Fish Diseases & Ornamental Fishes</i>	21 Dec, 2016	DBT, New Delhi at College of Fisheries, (CAU), Agartala	S. Munilkumar

Feed based aquaculture and role of nutrition in aquaculture	30 Dec, 2016	Kisan mela - for Aquaculture famers, Motihari	Sikendra Kumar
Application of bleaching powder in aquaculture practices	07 Jan, 2017	Grasim Industries Ltd. Surat, Gujarat	Chandra Prakash
Good management practices in Aquaculture in the <i>Bengal Fish Fest 2017</i>	7 Jan, 2017	Department of Fisheries, Govt. of WB	B. K. Mahapatra
Statistical models for technology forecasting in agriculture and fisheries sectors in CAFT Training Programme on <i>Advances in Statistical Modeling and Forecasting in Agriculture, 2017</i>	12 Jan, 2017	ICAR-IASRI, New Delhi	Ramasubramanian V.
Fish and Fisheries in the <i>12th Konnagar Science Fair, 2017</i>	13 Jan, 2017	Juktiman, Konnagar	B. K. Mahapatra
Improvement of fresh water ecosystem services for livelihood development through community participation in the <i>Training of IFS officers</i>	17 Jan, 2017	IBRAD, Prafulla Kanan, Kestopur	B. K. Mahapatra
Water and wastewater management in aquaculture	18 Jan, 2017	Dept. of Aquaculture, G.B. Pant Univ. of Sci. & Tech. Pantnagar, Uttarakhand	Chandra Prakash
Tank based fish culture and management practices	06 Feb, 2017	KVK, Rampachudavaram, East Godavari District, A.P.	P. Srinivasa Rao R.R.S. Patnaik
Low cost fish feed production technologies	14-17 Feb, 2017	Sasya Shyamala KVK, South 24 Parganas, West Bengal, sponsored by NABARD	G.H. Pailan
Science Academy's Lecture Workshop	9-10 Mar, 2017	Indian Academy of Sciences, Indian National Science Academy and The National Academy of Sciences	Rajendran K.V.
Biodiversity of ornamental fish in India: Issues of sustainability and livelihood security in the national seminar on <i>priorities in fisheries & aquaculture</i>	11 Mar, 2017	ICAR-CIFRI, Barrackpore	B. K. Mahapatra

4.6. Guest faculty invited from other institutions

Name of the faculty	Designation and place	Title of the lecture	Date
Ms. Archana N Panche	Asst. Professor Dept. of Bioinformatics MGM Institute of Biosciences and Technology Aurangabad	Bioinformatics and computer applications in fish breeding	10-12 Jun, 2016
Dr. Gopinath Nagaraj	Principal Consultant	FanLi Marine and Consultancy Malaysia	16 Jul, 2016
Dr. Ravi Fotedar	Prof. Sustainable Aquaculture Curtin University, Australia	Interaction meeting with CIFE students and faculty	29 Aug, 2016
Dr. Rajeev Raghvan	Associate Professor IISc	Principles of taxonomy with special reference to freshwater catfishes and IUCN categorization	15-17 Nov, 2016
Dr. A.D. Diwan	Ex. ADG (M.Fy.)	Reproductive physiology of crustaceans	13 Dec, 2016 14 Dec, 2016
Dr. Atul Jain	Director, Ornamental Fisheries Training and Research Institute Udaipur, Rajasthan	Entrepreneurship development for ornamental fish	23 Dec, 2016
Dr. Pravin Puthran	ADG (M.Fy.) ICAR	By-catch reduction in marine fisheries	13 Jan, 2017
Dr. K.V. Jaichandran	Director Research KUFOS	Crustacean taxonomy	05 Feb, 2017
Dr. K.P. Ramesh	Head, SRS, NDRI Bengaluru	Strategic use of intellectual property rights in livestock And fishery sector for value extraction Impact of modern intellectual Property rights regime and Technology management on Entrepreneurship development In animal and fishery science sector	06 Feb, 2017
Dr. Rajendra Parab	Marketing Manager, Grasim Industries, Aditya Birla Group	Application of poly-aluminum chloride in water quality management	24 Mar, 2017
Dr. G.C. Yadav	Marketing Manager, Lovibond India Ltd	Instrumentation in water and wastewater analysis	24 Mar, 2017
Dr. E. Vivekanandan	Emeritus Scientist	Climate change effect on fisheries	25 Mar, 2017
Dr. Sanjeev Gupta	Head, R & D Grasim Industries, Aditya Birla Group Bharuch, Gujarat	Water and wastewater management in aquaculture	25 Mar, 2017

4.7. Student Achievements

CIFE won the First Prize at Alltech Innovation Competition-India

Mr. Santhana Kumar, V. Jerusha S. and Saurav Kumar won the First Prize at Alltech Innovation Competition-India, at Bengaluru, November 18, 2016. They were awarded the first prize of Rs. 1,00,000 for their outstanding competition entry entitled 'Aquaculture made cleaner and greener'. The concept was based on the fact that conventional intensive shrimp farming can deteriorate adjacent coastal areas when effluent waste is released.



Best Oral Presentation Award

Ms. Sahna Don won the Best oral presentation award for her paper titled "Shelf life determination and identification of potential spoilers in *Litopenaeus vannamei* during spoilage" authored by Sahna Don, K.A. Martin Xavier, Sukham Tuni Devi, B.B. Nayak and K. Nagalakshmi, during the International Conference on Science and Technology for National Development, held at Kerala University of Fisheries and Ocean Studies (KUFOS), Cochin.

Best Poster Award

Ms. Sreepriya Prakasan won the Best



Poster award for the paper titled "Characterization of potentially pathogenic *Escherichia coli* isolated from seafood in Mumbai" authored by Prakasan S., Lekshmi M., Nayak B.B., Kumar S. during the EIQUAFISH'16: International

Conference on Emerging Issues in Quality and Safety of Fish and Shellfish. August 11-12, 2016 held at Tamil Nadu Fisheries University, Chennai, Tamil Nadu.

Ms. Jerusha S. won the Best Poster award for the paper titled "Isolation of Lytic Bacteriophages Against Histamine-producing *Morganella morganii*" authored by Jerusha S, Dipin K.M., Lekshmi, M., Nayak B.B., Kumar S. during the FOODOMICS'17: National Conference on Advances in Food Processing, Nutrition & Safety. February 16-17, 2017 at SRM University, Chennai, Tamil Nadu.

Mr. Raju Ram received the third best poster award for the paper titled "Molecular identification of ichthyoplankton from mangroves of Maharashtra coast" authored by Raju Ram, Pavan Kumar, A., Gireesh Babu, P., Krishna, G. and Chaudhari, A. during the National Seminar on *Approaches to Clean and Sustainable Development in Coastal Zones of India- Present Status and Future Needs*, held on 25-26 August, 2016 at NIO, Mumbai

Mr. Arun V. V. Received Best Paper Award in 'International Conference on Aquatic Exotics - Trends, Challenges and Policies' at University of Kerala, Thiruvananthapuram.

Others

Mr. Amit Ranjan has received Student Scholarship from WAS-APC (World Aquaculture Society-Asia Pacific Chapter)

to attend APA 2016 (Asian Pacific Aquaculture, April 26-29) at Surabaya, Indonesia.

Mr. Chinmay Nanda has received aquaculture times best paper award for his scientific paper innovations in the aquaculture: way forward.

Mr. Arun V. V. received All India Gold medal from Shri C. R. Chaudhary, Hon'ble Union Minister of State for Consumer Affairs,

Food and Public Distribution, on the occasion of 2nd National Youth Convention 2017 jointly organized by AIASA, ICAR and UAS Raichur at UAS campus-Raichur on 20.2.2017

Mr. Rahul Krishnan received 'Dr. K C Naik award' for the Best Fisheries Graduate of India 2015 at RIFE 2016 held at FCRI, Tuticorin.



Rahul Krishnan



Arun V. V

Participation in AGRUNIFEST 2017 at RAJUVAS, Bikaner

Students of ICAR-CIFE participated in the 17th AGRUNIFEST at Rajasthan University of Veterinary & Animal Sciences (RAJUVAS), Bikaner from 23-25 February 2017. The team comprising of 15 girls and 10 boys, displayed their talents in various cultural events. The team was led by Shri Angom Lenin Singh, Scientist, Fish Genetics & Biotechnology Division, ICAR-CIFE.

Participation in XVII All India Inter Agricultural Universities Sports & Games Meet, 2016-17

ICAR-CIFE, Mumbai has participated in the XVII All India Inter Agricultural Universities

Sports & Games Meet, 2016-17 conducted from March 25-29, 2017. The events of sports & games in the Men's and Women's section included basket ball, kabaddi, volleyball, football, athletic events and Indoor games such as badminton and table tennis. The men's team of ICAR-CIFE team participated in volleyball, badminton, table tennis, football and basketball whereas the girl's team participated in volleyball and badminton. Men's team of CIFE reached the pre-quarter final in table tennis. Girls' Badminton team also gave a good performance & reached the quarter final. The event gave a good opportunity to students of ICAR-CIFE to share their experiences with sports persons from other agricultural universities.



4.8. List of medals received by students during the convocation

Dr. Hiralal Chaudhuri Gold Medal (2013-15)

Discipline-wise Topper

S.No	Discipline	Name of the Student	Regd. No
1	AQC	Harsha Haridas	AQC-MA3-11
2	FRM	Gladston Y.	FRM-MA3-07
3	PHT	Sreepriya Prakasan	PHT-MA3-06
4	AAH	Sampa Pal	AAH-MA3-02
5	AEM	Ananya Ashok	AEM-MA3-01
6	FGB	Manu Kumar G.	FGB-MA3-02
7	FBT	Nilav Aich	FBT-MA3-01
8	FEX	Balkam R. Sangma	FEX-MA3-03
9	FEC	Jamuna Debbarma	FEC-MA3-02
10	FNFT	Amrutha Gopan	FNT-MA3-03
11	FPB	Showkat Ahmad Dar	FPB-MA3-02

Dr. Hiralal Chaudhuri Gold Medal (2014 - 16)

Discipline-wise Topper

S.No	Discipline	Name of the Student	Regd. No
1	AQC	Jess Maria Wilson	AQC-MA4-01
2	FRM	Dhanya M. Lal	FRM-MA4-03
3	PHT	Sahna Don	PHT-MA4-05
4	AAH	Shyam K.U.	AAH-MA4-01
5	AEM	Santhana Kumar V.	AEM-MA4-04
6	FGB	Payal P.S.	FGB-MA4-06
7	FBT	Angela Marcy A.	FBT-MA4-02
8	FEX	Suman Dey	FEX-MA4-02
9	FEC	Ubair Nisar	FEC-MA4-03
10	FNFT	Ratul Ghosal	FNT-MA4-01
11	FPB	Arunava Chatterjee	FPB-MA4-02

Dr. C.V. Kulkarni Gold Medal (2013-15 and 2014-16)

S.No	Discipline	Name of the Student	Regd. No
1	AAH	Sampa Pal	AAH-MA3-02
2	AAH	Shyam K.U.	AAH-MA4-01

Shri B.N. Sharma Gold Medal (2013-15 and 2014-16)

S.No	Discipline	Name of the Student	Regd. No
1	FEX	Balkam R. Sangma	FEX-MA3-03
2	FEX	Suman Dey	FEX-MA4-02

Shri M.A. Upare Gold Medal (2013-15 and 2014-16)

S.No	Discipline	Name of the Student	Regd. No
1	FEC	Jamuna Debbarma	FEC-MA3-02
2	FEC	Ubair Nisar	FEC-MA4-03

Prof. Ravindranath Krothapalli Gold Medal (2014-16)

S.No	Discipline	Name of the Student	Regd. No
1	AAH	Shyam K.U.	AAH-MA4-01

Smt. Nirmala Kulkarni Best Girl Student Award (2013-15)

S.No	Discipline	Name of the Student	Regd. No
1.	AQC	Dorothy M.S.	AQC-MA5-01



5

Research Achievements



Institutional Projects

Zero water exchange model for carp seed production

2016 -2019

A.K. Verma, V.K. Tiwari, Nalini Ranjan Kumar, Chandra Prakash and Babitha Rani A.M



Recirculating carp hatchery was designed and developed using bio filters. Experiments were conducted to produce spawn of carp for optimizing rate of filtration. Three sets of experiments with zero water exchange were carried out. In the first set of experiment, three densities (i.e. 0.5, 1.0 and 1.5 Lakh) of eggs were loaded in the CIFE-Eco hatchery. The percentage of fertilized eggs was 81. The survival percentages of spawn were 86.42, 84.42 and 90.53 with 0.5, 1.0 and 1.5 Lakh of eggs respectively. In the second set of experiment, 2.5 Lakh eggs were loaded with 89% of fertilized eggs. The average survival percentage of spawn in all the

three CIFE-Eco hatcheries was 86.98. In the third set of experiment, 4.0 lakh eggs with 50% of fertilized eggs were loaded in CIFE-Eco hatchery and the survival percentages of spawn was 95%. The average flow rate in CIFE-Eco hatchery for all the three sets of experiments was set at 20 litres per minute. An aquaponic system having 12 separate sets was designed for conducting experiments to optimize fish and plant component ratio for production of carp seed. An experiment using carp spawn and lemon grass was carried out for sixty days. Water parameters were analyzed and were found in the optimum range.

Studies on host pathogen interactions and development of nano based diagnostics for Betanoda virus infection in *Lates calcarifer*

2016 -2019

K. Pani Prasad, Jeena K, Mujahid Khan Pathan and Husne Banu

Primer designing

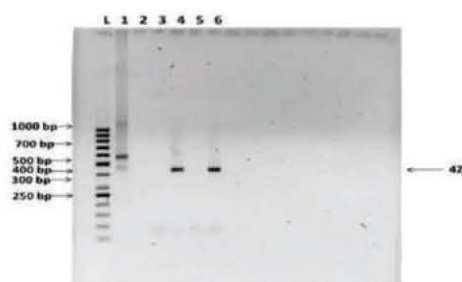
Primers for single step PCR to detect betanodavirus and the downstream cloning experiments were designed using Gene Runner V 5.0. Primers from previously reported studies were procured for nested PCR reactions for confirmation of the presence of virus in the fish samples.

Screening of the fish samples for NNV

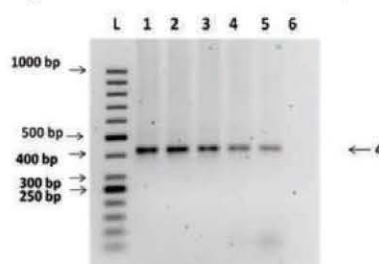
Total RNA was extracted from fish head samples using Trizol reagent (Invitrogen, USA) following the manufacturer's instructions. cDNA was synthesised using First strand cDNA synthesis Kit and was used for PCR reactions. Single step as well as nested PCR was carried out for all the samples using the designed sets of primers. The conditions of PCR are as follows: initial denaturation of 94°C for 4 min, 94°C for 30 sec, annealing at 57°C for 20 sec, extension at 72°C for 1 min and final extension at 72°C for 2min. The PCR amplicons of 420 bp were visualised using 1.5% agarose gel. The ornamental fishes screened proved negative for the presence of Nervous Necrosis Virus.

Coat protein expression studies

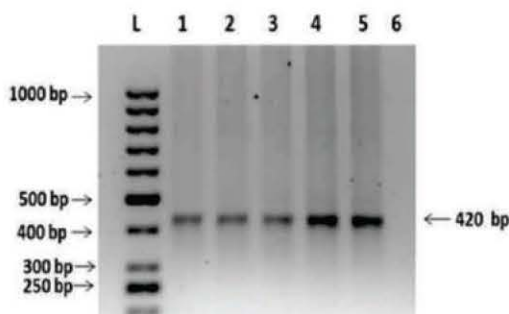
For the purpose of recombinant production, betanoda viral coat protein was amplified using the set of primer with the restriction sites. The amplified product of 1017 bp was excised and purified from the agarose gel. The coat protein amplicon was introduced and cloned into the prokaryotic expression vector pRSET A (Invitrogen, USA) plasmid downstream to the T7 promoter and in frame with the N-terminal His tag with the help of Xho I and Hind III restriction enzymes and transformed into (DH5α) cells. The plasmid was isolated and has been sent for sequencing for the confirmatory studies.



Agarose gel electrophoresis of RNA2 nested PCR amplification for fish sample from West Bengal. Lane 1: Positive control, Lane 2: Negative control, Lane 3-6: West Bengal pooled sample, Lane L: DNA marker 50 bp



Agarose gel electrophoresis of RNA2 nested PCR amplification for fish sample from Maharashtra. Lane 1-4: pooled samples, Lane 5: Positive control, Lane 6: Negative control; Lane L: DNA marker 50 bp



Agarose gel electrophoresis of RNA2 nested PCR amplification for fish sample from Odisha. Lane 1-4: pooled samples, Lane 5: Positive control, Lane 6: Negative control; Lane L: DNA marker 50 bp

Development of vaccine delivery system using nanoparticles against *Edwardsiella tarda*

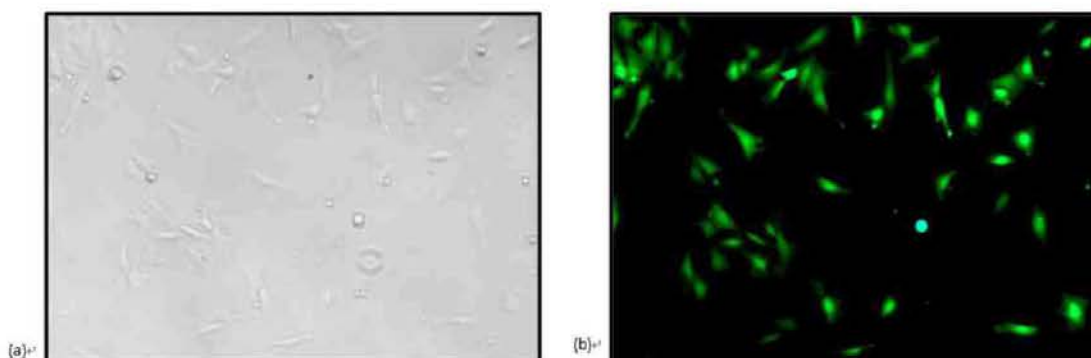
2015-18

Megha Kadam Bedekar, Gayatri Tripathi, Rupam Sharma, Saurav Kumar and Dhamotharan K.

Five different sizes of chitosan nanoparticles conjugated with pDNA were prepared consisting of bicistronic pDNA (plasmid DNA) concentration viz. 50, 75, 100, 125 and 150 ng μL^{-1} . The size of the conjugated nanoparticles was observed in range from 284.9 to 597.2 nm. The particles were successfully delivered *in vitro* in LRG cell line and cell viability, cytotoxicity, morphological alterations and transgene expression studies were assessed. After 48 hrs of transfection, the cell viability was found to be highest at 50 ng μL^{-1} whereas toxicity was found to be highest (43.35%) at 150 ng μL^{-1} . The present study reveals that concentration upto

50ng/ μL of pDNA conjugated chitosan nanoparticles can be considered as safe in terms of highest viability and lowest toxicity.

In continuation under *in vivo* study, the significant high relative percent survivability (81.82%) was noticed in oral mode of vaccination of 10 μg per fish DNA construct conjugated with chitosan NPs (196.7 nm having +24.4 mV zeta potential) conjugated with 50-150 ng μL^{-1} of bicistronic pDNA (284.9-597.2 nm) in comparison to i.p. injection (63.64%) and immersion (72.73%) in *L. rohita* against *E. tarda*.



(a) Photograph of LRG cell line transfected with GFP plasmid in Bright field Inverted microscope (b) Fluorescent Inverted microscope at 100X.

Loop mediated isothermal amplification (LAMP) based detection of selected pathogens of fish

2014-2017

Kundan Kumar

Sensitivity and specificity testing of the LAMP assay

The LAMP assay developed in this study is able to detect as low as 1pg of the genomic DNA. The assay specifically detected *F. columnare*, and appeared green after addition of SYBR green I stain. Negative

results were seen in reactions containing Betanodavirus, Megalocytivirus, *A. hydrophila*, *E. coli* and *P. aeruginosa* as templates. These results indicate that LAMP method is highly specific to *F. columnare*.

Performance evaluation and improvement of newly-designed water filtration unit

2016-19

S.P. Shukla, Sanath Kumar, Kundan Kumar, Saurav Kumar, V.S. Bharti and Nalini Poojary

An electroadsorption based water filtration unit for the treatment of contaminated water without any use of chlorination and de-chlorination chemicals was designed. The unit consists of an electrically charged column with physically entrapped adsorbents. Initial trials of the unit with 5 ppm ammonia concentration showed 40-60% removal of ammonia from water. The unit removed about 40% Arsenic (III) from water at 5ppm initial concentration. The flow rate of the unit is 20L/min (1200L/h) and the material used for the fabrication can be reused without loss of the efficiency. Electrically charged column device showed an appreciable potentiality for chlorine free inactivation of bacteria in shrimp hatchery waste water. The salient features of the technology are:

- A demonstration unit has been installed in the Zebra Fish Facility of CIFE and showed that the treatment of municipal water (tap water) with electrically charged column resulted in complete bacteria removal without any chlorination, ozonation or UV-irradiation of water.
- There was considerable increase in dissolved oxygen concentration of water after filtration.
- Considerable reduction in turbidity, algal growth and Total Dissolved Solids was recorded after filtration

The technology has a potential for application in hatcheries, aqua farms, swimming pools, sewage water treatment, groundwater treatment and heavy metal removal. The field-testing and process of patenting the technology are underway.



Electrically charged column based water filtration unit

Development of fish products fortified with aquatic nutraceuticals

2014-17

K. A. Martin Xavier, Amjad Balange and K. Nagalakshmi

Experiments were conducted with gelatin in batter formulations and the products were evaluated for the coating parameters (coating pick-up, adhesion degree, frying loss and cooked yield), biochemical parameters and oil absorption properties. The coating pickup and adhesion degree were highest in gelatin treated samples. Analytical results indicated that gelatin is poor in oil reduction. This is due to its melting nature at higher temperatures.

Functional snack foods were developed with different seaweeds such as *Sargassum*, *Ulva*, *Chaetomorpha*, *Padina* etc. Process conditions were optimized

using Response surface methodology (RSM). Based on the Expansion ratio, optimum levels of porosity, bulk density, solubility and sensory parameters were standardised. Gelatin was incorporated in surimi prepared from *Pangasianodon hypophthalmus*. Washed mince was mixed with 0.5, 1.0, 1.5% (w/w) levels of fish gelatin. Addition of gelatin showed improvement of the gel strength. Incorporation of gelatin improved water holding capacity, color retention, oxidation prevention and better TPA parameters.

Diversity of *Salmonella enterica* in seafood and molecular bases of its survival and persistence

2015-18

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

The objective of this research is to study the contamination status of fresh seafood with *Salmonella enterica* and identify predominant *Salmonella* types in seafood. During the study period, 48 seafood samples were analyzed comprising of 37 finfish and 11 shellfish samples with 22% of all samples harboring *Salmonella*. *Salmonella* was isolated from 51.35% of finfish and 27.27% of shellfish.

The contamination of seafood with *Salmonella* was found to be increasing from landing centers to the fish markets, with 21% of seafood samples from landing

centers and 59.5% of samples from fish markets being positive for *Salmonella*. Seafood samples from some sampling locations such as Malad fish market, Ferry Wharf fish landing center, Chakala fish market and Dadar fish markets predominantly yielded *Salmonella*. Nearly 50% of the enterobacterial isolates from seafood from Malad fish market were *Salmonella* spp. indicating high levels of contamination. Interestingly, seafood samples from Versova fish landing center were devoid of *Salmonella*. However, samples collected from Four Bungalows fish market, which receives fish from Versova

landing center, harbored *Salmonella*. This suggests that the contamination with *Salmonella* occur immediately after landing and during transportation from landing centers to various locations. The higher incidence of *Salmonella* in fish market samples suggests magnification of

Salmonella contamination from landing centers to the fish markets. Identification of contamination points offer ample opportunities to devise strategies to prevent *Salmonella* contamination of seafood in Mumbai

Taxonomic evaluation of selected teleosts occurring in Indian waters

2016-19

A.K. Jaiswar, A.K. Balange, A. Pavan Kumar, Shashi Bhushan, Karan K. Ramteke

Fifteen species of fishes were collected from different coasts of India for studying their morphological characters. *Hyporhamphus limbatus* (Mumbai), *Hemiramphus far* (Digha), *Tylosurus crocodilus* (Digha), *Strongilura strongilura* (Mumbai), *Mugil cephalus* (Mumbai), *Liza carinata* (Mumbai), *Liza tade* (Mumbai), *Liza subviridis* (Mumbai), *Moolgarda cunnesius* (Mumbai), *Cypselurus naresii*

(Mumbai), *C. poecilopterus* (Mumbai), *Cheilopogon cyanopterus* (Kerala), *C. furcatus*, (Kerala), *C. nigricans* (Kerala), and *C. poecilopterus* (Kerala). Scales and otoliths have been extracted and preserved for further studies. The biochemical analysis of *Mugil cephalus*, *Moolgarda cunnesius*, *Hyporhamphus limbatus* was done.



Cypselurus poecilopterus



Liza carinata



Hyporhamphus limbatus

Productivity and fisheries resource mapping of selected estuarine and coastal waters of Maharashtra

2015-18

Latha Shenoy, Geetanjali Deshmukhe, Asha T. Landge, V.S. Bharti and Neha Qureshi

Sampling and analysis of environmental, fishing and biological parameters of Bhayandar and Karanja estuaries of Maharashtra were carried out. About 37 phytoplankton, 27 zooplankton and 51 fish species recorded from Karanja. Dol-netting is one of the major fishing methods used by traditional fishermen especially in the estuaries of Maharashtra besides gill netting. Estimation of month-wise dol net catch composition was done for both Karanja and Bhayandar. Dol net catch comprised 51 species of fin fishes, 3 species of elasmobranchs, 13 species of shrimps, 10 species of crabs, 5 species of cephalopods, 2 species of jellyfish, 4 species of sea snakes, 1 species of lobster and 3 species of stomatopods. Major catch composition of dol nets recorded during the study included *Acetes indicus*, *Arius maculatus*, *Charybdis* (*Charybdis*) *callianassa*, *Chrysaora* sp, *Coilia dussumieri*, *Harpodon nehereus*, *Lepturacanthus savala*, *Miyakella nepa*, *Mystus gulio* and *Parapenaeopsis sculptilis*. On an average, plastics formed 10.38% of the total catch from dol-netter in a single trip. Significant discards such as jellyfishes, juveniles of several fishes and plastics were recorded in the dol nets operated in the Karanja estuary.

A total of 37 species have been recorded in the gill net operated at Bhayandar estuary. The catch composition of drift gill nets comprised of *Otolithoides biauritus*, *Johnius amblycephalus*, *Johnius macrorhynchus*, *Protonibea diacanthus*, *Mugil cephalus*, *Plicofollis dussumieri*, *Leptomelanosoma indicum*. The major catch in lobster gill net consisted of *Panulirus polyphagus*, *Panulirus ornatus*, *Portunus pelagicus*, *Portunus sanguinolentus*, *Johnius macrorhynchus*, *Protonibea diacanthus*, *Otolithoides biauritus*.

Decadal (1995-2015) changes in quantity (tonnes) of various varieties of fish and shellfishes in Uttan (Thane) and Karanja (Raigad) estuaries of Maharashtra have been studied. The data for per unit effort production (kgs) for last 10 years (2005-06 to 2015-16) was collected and analysed for Raigad and Thane districts respectively for both mechanised and non-mechanised boats and gears separately.

Evaluation of leaf meal as a replacer of De-Oiled Rice Bran (DORB) in the diet of *Labeo rohita*

2015-18

Ashutosh D. Deo, Md. Aklakur, Muralidhar A.P. and Manish Jayant

Low *in vitro* digestibility (32.17%) was observed with *Ipomea batata* (Sweet Potato leaf meal, SPLM), which was verified by conducting *in vivo* digestibility in fish *L. rohita*. The Apparent Digestibility Coefficient (ADC) of SPLM was 36.68% which was also low and comparable with the *in vitro* digestibility. The relatively low ADC value of protein for SPLM can be attributed to the presence of different anti-nutritional factors. The Anti-nutritional factors (ANFs) present in sweet potato leaf meal (SPLM) were hydrogenic cyanides (38.88mg/100g), tannins (23.03mg/100g), total oxalate (684.65mg/100g), phytate (15.02 mg/100g), alkaloid (0.136mg/100g), and trypsin inhibitors (3.20 mgTIA/g). Strategies for the removal of anti-nutritional factors (ANFs) were standardized for SPLM. Soaking for 12-24 hrs removes most of the ANFs from 20-80% without significant nutrients loss. However, fermentation with *Chaetomium globosum* yielded higher nutritional profile along with the considerable changes in ANFs. The growth trial conducted on *L. rohita* clearly suggested that up to 75% replacement of DORB by SPLM (untreated) had no negative impact, rather showed better growth than DORB control and comparable FCR and PER. Therefore, from the result it can be concluded that up to 75% replacement of DORB with SPLM is possible.

Papaya leaves were collected from east Godavari district of Andhra Pradesh and the leaf meal was prepared. The proximate



Plant of *Sesbania bispinosa*
(*Sesbania*)



Tree of *Leucaena leucocephala*
(*Subabul*)

composition of papaya leaf meal (PLM) was protein 24.54%, ether extract 9.4%, moisture 10.2%, ash 13.86%, NFE 42.0%. The yard trial on fish *L. rohita* fed with diet containing 20% replacement of DORB with PLM showed better growth, feed conversion, and nutrient utilization.

Two more leaves *Sesbania bispinosa* (*Seasbania*) and *Leucaena leucocephala* (*Subabul*) were collected and leaf meals were prepared. The proximate composition and anti-nutritional factors were also determined for both the leaf meal. Leaf meal prepared from *L. leucocephala* had higher protein content (29%) than *S. bispinosa* (25%). The mimosine, an anti-nutritional factor content of *L. leucocephala* was 3.75%.

Pharmacodynamics and physio-metabolic responses for selected anti-parasitic compounds in *Labeo rohita*

2014-17

Subodh Gupta, P.P. Srivastava, Gaurav Rathore, Ashutosh D. Deo, and Muralidhar A.P.

Pharmacokinetics and dynamics studies were conducted for benzimidazole derivatives (albendazole, fenbendazole and mebendazole) in *Labeo rohita*.

Detoxification mechanism for benzimidazole derivatives (albendazole, fenbendazole and mebendazole) was established in *Labeo rohita* for the first

time. Drug efficacy and effectiveness of benzimidazole derivatives in healthy and infected fish was examined against gill and intestine helminthes. The study found that fenbendazole and albendazole were safe. Medicated feed containing 0.2% fenbendazole was formulated for trials.

Expression profiling of growth and immunity related genes in fish fed with carbohydrate rich diet

2014-17

Sujata Sahoo, N.P. Sahu, K. K. Jain, Megha Kadam Bedekar and Sikendra Kumar

Three isonitrogenous and isolipidic diets were prepared with graded level of carbohydrates {20% (T1), 30% (T2) and 40% (T3) of digestible carbohydrate} for *Labeo rohita* juveniles. Proximate analysis of the feed has been carried out. After sixty days of feeding trial, weight gain percentage, SGR, FCR, HSI, GSI and survival rate were calculated. Highest growth performance was shown by T3 group. Metabolic enzymes (amylase, hexokinase, glucose-6-phosphate dehydrogenase activity, ALT and AST) and antioxidants enzymes (SOD, catalase activity) studies from liver and muscle tissues along with Blood NBT and serum Complement 3 assay were completed. Glucose-6-phosphate dehydrogenase activity was highest in T3 (40% carbohydrate) followed by T2 group

and lowest activity was recorded in T1 group in both liver and muscle tissues. Hexokinase, ALT and AST activities showed similar trend. Amylase, catalase and SOD activities were nonsignificantly different among the three groups. The T1 group exhibited the high NBT activity followed by T2 group, ($p < 0.05$) whereas in T3 group, lowest activity was observed. The C3 complement activity were significantly different ($P < 0.05$) among different groups. The T1 group exhibited the high C3 activity followed by T2 group and T3 being lowest. Expression of selected genes (IGF1, Myf5, IGFBP-1, TNF and NF- κ B) were studied with real-time PCR. Out of which IGFBP-1, TNF and NF- κ B showed significant dose dependent variation in level of expression.

Development of academic management module for CIFE

2015-17

Shrinivas Jahageerdar, N.P. Sahu, P.P. Srivastava and Sudeep Marwaha (IASRI, New Delhi)

Online registration of masters' students for first and second semester of the batch 2015-17 and 2016-18 was completed. Masters degree course allocation to faculty for first and second semester by HoDs was completed. The guide allocation to masters' students for the batch 2015 and 2016 by HoDs was completed. An analysis of the course allocation for the year 2015-16 suggests that a total of 295 courses were offered during the academic year. A module to prepare the directory CIFE Alumni is complete.

Course No.	Course Name	Course Instructor Approval
AA-001-2015	Gen and Shellfish Immunology	Approved: Dr. PRADEEP KUMAR
HJ001-1617	Principles of Selection and Selection Methods	Approved: Dr. APARNA CHAUDHARI
FG001-1617	Fish Breeding	Approved: Dr. SHRINIVAS JAHAGEERDAR
FG002-1617	Biostatistics and Computer Applications in Fish Genetics	Approved: Dr. SHRINIVAS JAHAGEERDAR
FG003-1617	Biotechnology in Fish Genetics	Approved: Dr. SUDHEEP MARWAHA
FG004-1617	Research Methodology	Approved: Dr. SHRINIVAS JAHAGEERDAR
	Research work to be undertaken	Approved: Dr. SHRINIVAS JAHAGEERDAR

Guide Signature: Dr. SHRINIVAS JAHAGEERDAR
Professor Signature: Dr. APARNA CHAUDHARI
Fish Biotechnology

Development of inbred lines of zebra fish and assessment of inbreeding depression

2015-18

Gopal Krishna, Mujahid Khan Pathan, Shrinivas Jahageerdar and Aparna Chaudhari

Genetic characterization of zebrafish stocks was done using mitochondrial D-loop marker.

About 200 pairs of fishes were bred that comprised inbred as well cross bred and mixed populations. About 34 F2 inbred families were produced and selected traits were recorded regularly. *In silico* characterization of 2000 reported microsatellites in zebrafish was completed for their type and location in the genome. Selected loci will be used to estimate inbreeding coefficient using molecular marker heterozygosity approach. The facility CZebraG - Centre for Zebrafish Breeding and Genetics Research



was inaugurated on 3rd Mar 2017 by DG (ICAR) in the presence of DDG (Fisheries) and Director, CIFE.

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

2012-17

Shrinivas Jahageerdar, Gopal Krishna, Thongam Ibemcha, Chanu, Arun Sharma, Rupam Sharma, Sunil Kumar Nayak, Asha Landge, Lenin Singh A. and C.S. Chaturvedi

Five stocks from various geographical locations viz., Andhra Pradesh, Assam, Chhattisgarh, Odhisa and West Bengal were collected and assembled at freshwater farm Balabhadrapuram of CIFE-Centre Kakinada. A total of 243 single pair mating were initiated and 119 full-sib families

were produced. PIT tagging protocol was standardized. Intra-abdominal insertion of PIT tag can be carried when the fishes attain 15 g body weight. Heritability for body weight at one year pond-age was found to be high indicating the possibility of improving the body weight at harvest.



Commercial production, toxicity and field tests of WSSV DNA vaccine

2015-17

Aparna Chaudhari, Gireesh Babu P, Muralidhar A.P. and A. Pavan Kumar

WSSV DNA vaccine developed at FGB Division of the institute obtained the approval of Review Committee on Genetic Manipulation for industrial scale production and pre-clinical trials. Lab scale studies revealed no environmental transmission to soil, water or exoskeleton from vaccinated shrimp. Fermenter scale production is being optimized in collaboration with ICT DBT-Energy Bio Resource Centre, Mumbai.



A value chain analysis of farmed shrimp in India

2013-17

Nalini Ranjan Kumar, M. Krishnan, Swadesh Prakash and Vinod Kumar Yadav

Farmers and other stakeholders in the farmed shrimp value chain in Gujarat were earning good profit in their business. However, they were experiencing a number of constraints in carrying out their activities. The suggestions for probable solutions of the same will help in improving value realization from farmed shrimp industry in Gujarat.

There is need to reassess potential sites for coastal aquaculture as per the provision of CAA Acts 2005, through remote sensing and GIS. High rate of mortality is one of the major problems in shrimp farming which is mainly due to improper transport of seed, and poor technical and scientific management of seed production.

One of the major constraints faced by shrimp sector in Gujarat was the loss of crop owing to diseases, mainly viral diseases. Since 1995, shrimp farming was seriously affected by viral diseases like WSSV. Preventive measures should be followed strictly and religiously by all concerned in shrimp farming to restrict the spread of the disease.

Shrimp farming is risky business and to overcome it, there is need to follow proper management practice. It involves farm level best management practices (BMPs), species diversification, proper site selection, ensuring availability of quality seed, ensuring right kind of feed, medicine and monitoring of exotic species etc. Therefore there is an urgent need to educate the shrimp farmers about BMPs on

regular basis and ensure quality inputs on time for its easy adoption.

Lack of availability of quality seed has become the major reason for outbreak of diseases and mortality in shrimp crop. To bridge the gap between demand and availability of quality seed, there is need to establish seed production unit in nearby areas which can produce pathogen free seed suitable for shrimp farming.

Aerators play a very crucial role in deciding the intensity of shrimp farming and hence the yield and profitability. Therefore, farmers should be encouraged to use more aerators by providing subsidy on electricity bills and purchase of aerator. Also industry is facing tough competition in international market as well as from cheaper import in domestic market. It is felt that excise duty need to be reduced and DPP should be increased to 5% to improve its international competitiveness.

Processors face the problem of deterioration in quality of harvested shrimp due to which preparation of 'Head on', a premium product which fetches 20% over other products, get limited to 55% of total shrimp. To ensure better quality of raw material, harvesting needs to be mechanized. There is huge shortage of skilled labour in shrimp farming. This can be mitigated by arranging training and skill development programmes to enhance availability of skilled farm labour for shrimp culture.

Capacity building of stakeholders to integrate fisheries and aquaculture in emergency response and preparedness

2015-17

Arpita Sharma

This project has resulted in increased awareness about the vulnerability of the sector, current frameworks for response and the need to be better prepared among 160 diverse participants. Under this project, 5 workshops have been organised. Two of them were conducted in 2016-17. In the other workshops, participants were distributed a set of guiding documents which included the Fisheries and Aquaculture Emergency Response Guidance and the Guidelines for the Fisheries and Aquaculture Sector on Damage and Needs Assessments in Emergencies. The workshop was conducted as per the structure provided in these Guidance books. Workshops have been covered by FAO, national and local media. Cases of use of sea safety device in Kerala and Mumbai, floods in Assam, drought in Karnataka, and cyclone in Andhra Pradesh have been studied.

A lecture on "Earthquake and its Pre and Post Disaster Management Measures" was organised on 4th June 2016. Mr. Rajendra Lokhande, Control Room Supervisor, Disaster Management Unit, Municipal Corporation of Greater Mumbai (MCGM), Mumbai delivered this lecture.

Workshop on Sea Safety Measures, organized at Bhati Fishermen Cooperative Society at Madh Island, Mumbai was conducted on 26.10.16. In this workshop a successful example of District Disaster Management Authority (DDMA), Palghar was shared with the fishers and constraints faced by them regarding use of sea safety devices were also studied. A leaflet on Sea Safety Measures was prepared and distributed. Fishers reported that there is a need for more awareness on this and to replicate the example of Palghar in their areas too.

Another workshop was organized on Fish handling and Sea safety measures for fishermen at Sasoon Dock, Colaba, Mumbai on 7.1.17. A total of 50 fishers from three fishermen cooperative societies, namely Akhil Bhartiya Macchimar Khalashi Sangh, Mumbai, Karanja Macchimar Cooperative Society, Mumbai and Martand Matsyodyog Sahakari Sanstha, Mumbai participated in this workshop.

Participation was done in the Global Conference on Climate Change Adaptations in Fisheries and Aquaculture organised by FAO and NACA at Bangkok, 8-10 August, 2016. Papers related to this project were presented to a global audience.



Workshop on Sea Safety Measures at Bhati Fishermen Cooperative Society, Madh Island, Mumbai

Kolkata

Captive maturation, breeding and culture of indigenous ornamental fish *Botia dario* and *Colisa lalia*

2015 -18

B. K. Mahapatra, G. H. Pailan, Subhendu Datta, Parimal Sardar, S. Munilkumar and S. Dasgupta

In *Botia dario*, neither natural photo-thermal nor regime at 12L:12D simulated temperature along with natural photoperiod was effective to initiate gonad recrudescence in both the sexes. Gonado-somatic index of both males and females were highest in control under ambient natural photoperiod and temperature. In *Colisa lalia*, female and male need different photoperiod regimes as male shows better gonad development under natural photoperiod. Females attained highest gonado-somatic index (GSI) under photoperiod regime of 12L: 12D in combination with above ambient temperature (AAT; 26-28°C). In *C. lalia*, testicular lobules were mostly occupied with spermatozoa and few spermatids under control condition (natural photoperiod in the range of 10-11L: 14-13D and temperature (21-23°C). Fecundity of *C. lalia* and *B. Dario* is around 600 and 6000-12000 eggs, respectively.

3% Soya oil, 3% fish oil, 5% soya lecithin as phospholipid source, 3% Spirulina powder as carotenoid source and 3% multi feed additive mixture can be supplemented in the diet of *B. dario* and *C. lalia* to optimize the growth, nutrient utilization, survival, skin colouration and muscle composition.

Gonad was not developed in *B. dario* during 90 days feeding period but it was developed in *C. lalia*. However, *B. dario* of T3 fed diet supplemented with 3% fish oil, 3% soya oil, 5.5% soya lecithin, 6% spirulina powder and 3.5% multi additive mixture and *C. lalia* of T1 fed diet supplemented with 2% fish oil, 2% soya oil, 3.5% soya lecithin, 4% spirulina powder and 2.5% multi additive mixture) exhibited significantly high GSI. Specific growth rate was 0.24 ± 0.06 in enriched zooplankton treated while it was 0.26 ± 0.029 in Tubifex fed *Botia* while colouration was better in zooplankton treated *Botia*.

Experiments of larval rearing of *C. lalia* larvae were conducted with small size zooplankton along with liquid larval feed with or without green algae. It was observed that larvae pass over the first feeding stage with algal density (*Chlorella* sp.) of 0.05-0.10 million cells/ml.

Study was carried out to see the effect of water temperature and pH on growth and survival of *C. lalia* (Hamilton, 1822) juvenile under captivity for a period of 90 days. Results showed that water temperature above 30°C and below 16°C and pH below 6 and above 8 were not good for the survival and growth of *C. lalia*.



Botia dario



Colisa lalia



Evaluation of flesh quality of *Pangasianodon hypophthalmus* and development of value added products

2015 -18

Arup Ratan Sen, Parimal Sardar and D.K. Singh

Growth performance, carcass and meat quality was evaluated in pangasius fish supplemented with natural antioxidant rich diet. Antioxidant enzyme activity of fish fed moringa extract was higher as compared to control diet and other feeding groups. Dressing % varied from 63.42 to 66.0% and non-significant difference was noticed. The fillet yield was significantly higher (30.03%) in antioxidant supplemented fish as compared to control. The storage study at refrigerated temperature (4°C) was conducted of fish fillet of pangasius fed control diet, vitamin mineral based antioxidant mixture, moringa leaf meal and extract and their combination. The rate of increase in free fatty acids and peroxide value of fish fillets during refrigerated storage was observed to be lower in moringa extract fed fish compared to control. *Moringa oleifera* leaf

extract can be effectively used as natural antioxidant and antimicrobial ingredient as feed supplement in pangasius fish production. In another experiment a non-significant ($P>0.05$) increase in total viable counts (log cfu/g) was noticed in nano zinc treated minced fish as compared to control and inorganic zinc. The other microbial counts viz. coliforms, *Vibrio* and *Staphylococcus* also showed similar trend. It can be inferred that the nano-zinc can be effectively used as antioxidant and antimicrobial fish additives for increasing the shelf life of pangasius minced fish meat. A value added product like fish sausage from pangasius cooked by dry heat method was more acceptable and irrespective of cooking method, sausage can be stored safely upto 8 days at refrigerated temperature without much deterioration in quality.



Kakinada

Technology refinement of zero water exchange system in *Litopenaeus vannamei* farming through commercial probiotic and bioremediator intervention

2015-18

Thongam Ibemcha Chanu , N. K. Chadha, Chandra Prakash, Muralidhar A.P.,
Karthireddy Syamala and Arun Sharma

Experiment on comparative analysis of control group, commercial probiotic group and in combination (both probiotic and bioremediator) in organic waste management and production of *L. vannamei* were conducted. Water quality parameters viz. temperature, pH, dissolve oxygen, NH_3 , NO_2^- , organic carbon, salinity, calcium hardness, magnesium hardness and alkalinity, transparency, primary productivity of treatment ponds were evaluated. Water quality and soil parameters showed optimum values and no significant differences among the treatments and control were observed. Bacterial biota (*Vibrio*, total heterotrophic bacteria and *Bacillus*) of water, sediment, *L. vannamei* were analyzed by CFU/ml or CFU/g method. *Vibrio* colony count showed no significant difference in water, soil and shrimp was observed among treatment and control group throughout the culture period. No significant symptoms of disease were observed during the course of culture period in all the three treatments. Total heterotrophic bacteria counts were not significantly difference in treatment groups with control both water, soil and shrimp. However, THB bacteria counts were more compared with *Vibrio* count. *Bacillus* count also showed no significant difference in all the three treatment with

respect to water, soil and shrimp. For growth performance, necessary data on length weight were collected weekly after 37 DOC. Data on total feed consumption, FCR, SGR, and total body weight gain were analyzed. Growth performance in terms of average weight (g), % weight gain, FCR, SGR and FER were not statistically significant among the treatment groups and control. However, highest growth performances were observed in probiotic treated group. Survival rate was highest in probiotic treated group. However, no significant difference was observed among the treatment and control groups. Overall production performance (kg/ha/cycle) showed no significant difference compared to control. However, highest production performance was recorded in probiotic treated group.



Isolation and characterization of pathogenic bacteria associated with *L. vannamei* farming

Arun Sharma, Muralidhar A.P., Karthireddy Syamala and Thongam Iberncha Chanu

Collection of *L. vannamei* samples was carried out in and around Amlapuram, Kakinada farm, Mandapeta, Mamidada, Yanum, Dhaksharam area of East Godavari District, Andhra Pradesh. Culture and isolation of bacterial colonies, followed by biochemical tests viz. gram staining, Voges-Proskauer, malonate, citrate utilization, ONPG, nitrate reduction,

catalase, arginine, mannitol, sucrose, arabinose, trehalose, arginine etc were performed. Identification and molecular characterization of bacteria viz. *Vibrio alginolyticus*, *Vibrio parahaemolyticus*, *Bacillus safensis*, *Shewanella amazonensis* and *Vibrio cholerae* was done.



Externally Funded Projects

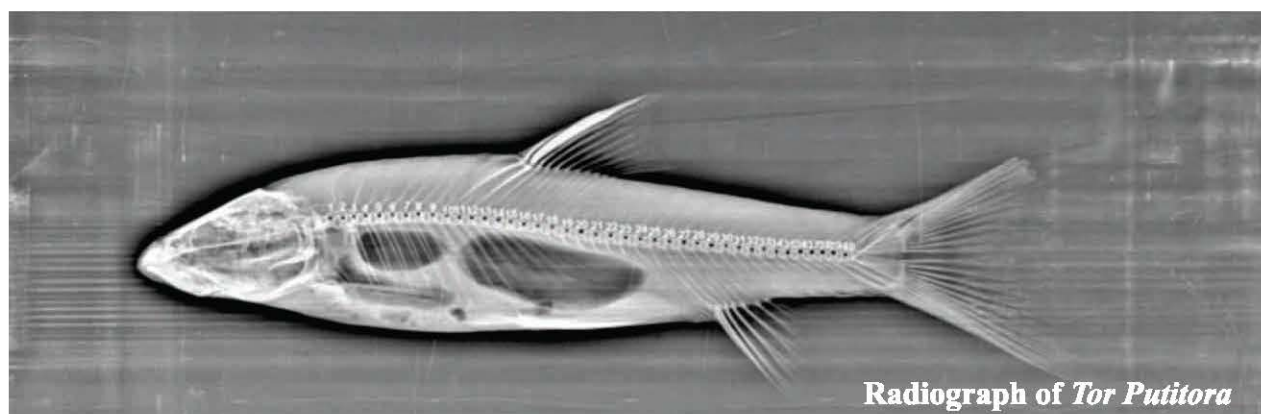
Conservation of Indian mega fish: Molecular taxonomy and phylogeography of mahseer fishes of India

2015-18

A. Pavan Kumar

Budget: 25.86 lakhs

Radiographs of *Tor tor*, *Tor putitora*, *Tor khudree* and *Tor mosal mahanadicus* were analyzed and observed variation in vertebrae number among species. Microstructure of scales was investigated for these species and found significant variation in overall shape, intercirclear space and lateral line canal width of scales. Otolith shape was studied and variation observed among *Tor khudree*, *Tor tor* and *Tor mosal mahanadicus*. Complete mitochondrial genome of *Tor malabaricus* was amplified using long PCR approach. Nuclear genes such as Recombination Activating Gene and 18S ribosomal gene for *Tor tor*, *Tor khudree*, *Tor mosal mahanadicus* and *Tor putitora* were amplified.



Lateral line scale for *Tor Khudree*

Development of functional fish sausage for promoting entrepreneurship

2016-18

A. R. Sen, P. Sardar, S. Datta and B. K. Mahapatra

Budget : 43.54 lakhs

Fish sausage was developed with new spice formulation, binders and extenders. Oat fibre was added in product formulation at two levels (2% and 4%) for processing sausage enriched with dietary fibre. Fish emulsion with fibre was equally stable and gel strength was observed to be higher in fibre-enriched fish sausage. Overall palatability score of fish sausage was in the “very good” range even after 4% oat fibre enrichment. In texture profile, hardness, gumminess and chewiness was significantly ($P<0.05$) higher in fibre-enriched product. Peroxide value, Total volatile base nitrogen and TBA value increased in fish sausage with increased storage period (after 8 days) at refrigerated temperature (4 ± 1)°C. No significant increase of Total viable counts, Coliforms and Enterobacteriaceae was noticed in fish sausage added with or without fibre during refrigerated storage and total viable count was within the range of 2-3 log cfu/g of sample. In another experiment, fish sausage was enriched with wheat fibre @ 2 and 4 %. The texture profile hardness, gumminess and chewiness was significantly higher ($P<0.05$) in fish sausage added with wheat fibre (2 and 4%). In sensory attributes, the sausage with 4 % wheat fibre was less acceptable than other two formulations.

Contract Research Project

National Centre for Sustainable Coastal Management, Chennai

Development of DNA barcodes for Indian marine crustaceans with commercial and conservation significance

2016-17

A. Pavan Kumar and A. K. Jaiswar

Budget : 9.5 lakhs

A total of 31 species including shrimps (Penaeidae 12, no., Solenoceridae 2, Sergestidae 7), crabs (Portunidae 5, Matutidae 1, Xanthidae 2) and lobsters (Panulidae 2) were collected. Total genomic DNA was isolated from all these samples and PCR conditions for COI and 16S rRNA was standardized. DNA barcodes were generated for five species of shrimps and both the genes showed sufficient barcoding gap to discriminate the species.



Portunus pelagicus

Department of Biotechnology, New Delhi

Novel molecular approaches for advancing prediction and mitigation of disease outbreaks in aquaculture for small scale farmers

2016-19

K.V. Rajendran, Megha Kadam Bedekar and Sanath Kumar

Budget: 113.456 lakh

The goal of this research project is to understand the factors responsible for dysbiosis in *Penaeus (Litopenaeus) vannamei* that lead to disease outbreaks using metagenomic sequencing and analysis and other molecular and histological tools. Two shrimp farms located in the west coast of India (Maharashtra) were selected for the study. For metagenomic sequencing, DNA extracted from shrimp gut, soil and water were used. Library construction and sequencing were performed using Illumina Nextseq 500 PE sequencing platform. The metagenomic sequence data generated from the samples are being analyzed to understand the microbial taxonomic composition, functional diversity and the key differences in metagenomic contents of healthy and diseased shrimps. The samples of water, sediment and tissue collected from all the selected ponds were subjected to PCR screening for WSSV detection and bacteriological analysis. The shrimp samples were also tested for *Enterocytozoon hepatopenaei* (EHP) using PCR and histology. Regular histology of shrimp samples are being carried out. Bacterial isolates obtained from the samples have been biochemically identified, and confirmed by PCR. The isolates are being screened for virulence genes commonly associated with shrimp pathogenic bacteria. Different DNA extraction protocols have been employed to extract DNA from different tissues and specific procedures for different tissues are being standardized. The Principal Investigator of the project from CIFE attended a training workshop and a project review meeting at Cefas, Weymouth, UK during 30th January to 1st February 2017.

Improvement of safety and quality of transglutaminase mediated restructured fish products by bioactive phenolics and terpenoids

2012-2016

A.K. Balange, Martin Xavier and K. Nagalakshmi

Budget: 58.47 lakhs

Textural properties of pink perch mince sausages were improved with 1% microbial transglutaminase (MTGase) and 0.5% tannic acid (TA). Pangasius mince emulsion sausages were successfully prepared to provide an alternative for pangasius fish utilization and to reduce the post-harvest losses. Salt free Shidol from anchovy was prepared with saturated brine. Fish chocolate was also prepared.

National training in molecular biology & biotechnology for fisheries professionals

2015-18

Gopal Krishna, Aparna Chaudhari and Gireesh Babu

Budget: 66.85 lakhs

This is a multi-institutional HRD project for fisheries professionals for which CIFE is the nodal centre and CIFA and CMFRI are partners. The third batch of training was conducted during 2nd May to 31st Jul 2016 and the fourth batch commenced on 7th Mar 2017 at CIFE, with a total of 12 participants during this year. The training comprises of 6 weeks course work and 6 weeks research project and is aimed at enabling application of biotechnology tools to fisheries research.

Development of pelleted diet for *Labeo rohita* and *Clarius batrachus* using *Acranthus aspera* and evaluation of its immunostimulatory properties in pond culture system

2015-17

V. Harikrishna

Budget: 17.21 lakhs

Three different experimental diets were prepared with the inclusion of 0.5 % *Achyranthes aspera* leaf extract, 0.5 % *Achyranthes aspera* seed extract and control diet. This was followed by a sixty-days pond experiment conducted at ICAR-CIFE Rohtak centre with *Labeo rohita*. Growth parameters were observed at every 10 days interval and at the end of the experiment sampling was done in which tissues and blood samples were stored for further processing.

ICAR-CRP on Vaccines and Diagnostics, New Delhi

Development of dual combination vaccine for protection of *Labeo rohita* to bacterial pathogens *Flavobacterium columnare* and *Edwardsiella tarda*

2015-17

Megha Bedekar, Kundan Kumar and Saurav Kumar

Budget: 23.45 Lakhs

A formalin inactivated bacterin was developed against *E. tarda*. A 100% inactivation of bacteria was achieved in 0.4% formalin for 96h. A hyperosmotic shock protocol was optimized using 4% NaCl for 3 min. A dual combination of the bacterin comprising of *E. tarda* and *F. columnare* was formulated to assess as protective vaccine against *E. tarda* and *F. columnare* in *Labeo rohita*. Field trial of vaccine was done. Industry could produce vaccine for important bacterial pathogens of freshwater fish and they can be deployed for large scale field use. This research effort will produce deliverable in the form of a dual vaccine for *F. columnare* and *E. tarda* for large scale use which will improve fish productivity and ultimately enhance the lives of fish farmers and benefit the industry as well.

Ministry of Food Processing Industries, New Delhi

Biochemical composition of Bombay duck fish and functional characterization of its muscle proteins

2014-17

B.B. Nayak and A.K. Balange

Budget: 29.30 lakhs

The project aimed at characterizing the protein component of the fish to understand its suitability to make high value products. Continuous breeding nature of Bombay duck is established. The average content of moisture, protein, lipid and ash in Bombay duck during 2 year sampling period were in the range of 87.80-91.75%, 7.19-9.33%, 0.34-2.12% and 0.28-0.66% respectively. The yield of meat from Bombay duck was $39.31 \pm 1.37\%$ in manual meat picking method and 34.13% when using meat bone separator. The amount of sarcoplasmic, myofibrillar and stroma proteins were in the range of 18.72 ± 1.43 , 42.4 ± 0.76 and 14.69 ± 0.67 (mg/gm of meat) respectively corresponding to 24.7, 56 and 19.3% contribution to total protein. Moderate emulsifying capacity and low water holding capacity characterize the meat. Bombay duck meat formed strong gels through heat processing but oozed out water during preparation. Sarcoplasmic proteins could be recovered through precipitation using different concentrations of citric acid, vinegar, 0.1N HCl, TCA and 0.05% chitosan. Maximum recovery of sarcoplasmic proteins was observed in the presence of 0.1% TCA which was $81.04 \pm 1.8\%$. Results suggest that the proteins from Bombay duck can be recovered and utilized for various products.

Rajeev Gandhi Science & Technology Commission, Mumbai

Pilot scale demonstration of value added products from surimi

2014-17

A.K. Balange and Martin Xavier

Budget : 44.84 lakhs

Developed various fish products - fish chakli, fish shev, fish vada, fish cutlet, prawn pickle, Jawla chutney, fish kheema, fish papad, fish sausages etc .

Trained 752 no's of fishermen and women from Mumbai, Palghar, Raigad, Panvel, Thane and Ratnagiri by conducting 22 training Programmes.

Three groups, from Versova, Cuffe Parade Koliwada and Vasai have started their own business on small scale and three have already launched their products with their own brand name in local market of Mumbai.

Eight training programmes on the "Value added products preparation from Surimi" were conducted for the fisher folks of Raigad, Mumbai, Palghar, Sindhudurg, Ratnagiri districts. Total 266 trainees benefited from the training where the trainees were given demonstrations on preparation of various fish products i.e. Prawn pickle, fish pickle, fish wada, fish chukly, fish shev, fish papad, fish cutlet etc.



Feasibility study of using solar powered cool boxes to improve shelf life and hygiene of fish sold in retail markets in Mumbai

2016-18

Sanath Kumar, B.B. Nayak and R.S. Maurya

Budget : 15.34 lakhs

The non-availability of conventional electricity in rural India has been a serious limiting factors for food preservation and as a result, huge quantities of perishable foods are lost leading not only to economic losses to the producer, but also the wastage of foods. Globally about 10 million tons of fish constituting 10% of the fish catch is lost due to mismanagement. This loss can be reduced substantially by making cold-chain facilities available to the producers and the retail vendors. The goal of this project is to develop a storage box for fresh fish using solar cooling technology. The designing of cool box and the components is in progress. The basic design requirements include features such as the size, display, storage capacity etc. The mechanical design includes design of compressor, condenser, throttling device and the evaporator. The box is expected to be portable and also mounted on a carriage for easy movement. The cooling system will be based on the simple vapour compression refrigeration system involving R134a refrigerant. The temperature inside the box will be maintained at 2-4°C.

National Fisheries Development Board

National surveillance for aquatic animal diseases

2013-18

Pani Prasad and Swadesh Prakash

Budget : 149.70 lakhs

In this project, the shrimps from Maharashtra - Raigad, Thane (BW Ecosystem) and Gujarat- Navsari, Valsad, Surat (BW Ecosystem) were examined and analysed for presence of different viruses and EHP. During the period April to June, shrimps in Thane, Taluka Safale of Maharashtra state and Surat(Taluka Khajod) were found to be affected by the EHP which was confirmed by screening different samples collected from farm. The clear size variations in individual shrimp length and growth retardation were the characteristic features. During monsoon period, four pathogens were detected i.e. WSSV, HPV, EHP and MBV. The awareness programmes were conducted among the farmers in different districts on various aspects of the project and good management practices.

Fisheries enhancement in Maharashtra (District Thane) through seed production and pen culture in rivers Vaitarna and Bhatsa for livelihoods and nutritional security among the tribal community

2015-18

Neelam Saharan, A.K. Reddy, Chandra Prakash, A.K.Verma and M.H. Chandrakant

Budget: 132.29 lakhs

Hatchery shed has been prepared. One nursery pond was prepared. Hatchery is being installed at Gaydhara village. One more pen has been prepared in Ajnup village at Vaitarna River. Soil and water samples were collected and analysed. Base line data was collected.



ICAR-CRP on Nanotechnology, ICAR

Development of nano-sized delivery system for nutraceuticals in aquafeed

2015-17

Subodh Gupta

Budget: 45 lakhs

Nano-sized delivery for methyl donors like methionine and lecithin was formulated. Nano-encapsulated trypsin proteolytic activity for plant and animal based proteins in-vivo and in-vitro were examined. The In-vivo plant protein digestibility improved significantly with nano-encapsulated trypsin compared to bare and without treated trypsin. Nano-formulated methionine enhanced growth performance and immunity of *Labeo rohita* fingerlings.

Fish gelatin based nano-composite film for food packaging

2015-18

B.B. Nayak and K. Nagalakshmi

Budget : 15 lakhs

The project aimed to develop natural polymer- based films for food packaging because of its bio-degradability. Gelatin was extracted from Pangasius fish and Croaker fish with a yield of 14.67% and 8.8% respectively. Using different glycerol concentrations and different volumes of the gelatin, films were prepared and their characteristics were compared with those made from animal gelatin. Glycerol at a concentration of 10% of the gelatin concentration and thickness of 3.5mm gave optimum transparency, elasticity, smoothness, texture and overall acceptability. Further, chitosan nanoparticles were prepared and mixed with fish gelatin and animal gelatin and nano-composite films were prepared. Chitosan nanoparticles were added in different concentrations and could be added up to 50% of gelatin concentration. Nano-composite films of Pangasius were also compared and films prepared from Croaker fish gelatin and those prepared from Pangasius fish were found to be better. Storage studies showed that shrimp coated with nano-composite film and gelatin film stayed longer and was better in terms of its texture, colour, odour, appearance and overall acceptability than the control, thus nano-composite aids in increasing the shelf-life of the shell fish stored at 4 °C.

Extramural Research, ICAR-Education Division

Supply demand supply analysis of professional fisheries human capital in India

2015-17

Ananthan P.S and Ramasubramanian V.

Budget: 21.50 lakhs

An Expert Consultation Workshop on “Methodological Framework for Assessment of Human Capital in Fisheries, Dairy & Agriculture” was organized at ICAR-CIFE, Mumbai on 11th June 2016. A stakeholder validation workshop entitled “Demand-Supply Scenario of Fisheries Professionals and Para-professionals in India” has been conducted on 17th of September, 2016 at College of Fisheries, Ratnagiri, Maharashtra. A review meeting of the project was held on 31st Oct., 2016 at CIFE, Mumbai in which Dr. M. B. Chetti, ADG (HRD) presided over the meeting and discussed activities of the project. Participated in the Industry meet “Profit on Aquaculture” during 11-13th Feb., 2017 at Bhimavaram, Andhra Pradesh and collected employment status from various stakeholders viz., Seed, feed and pharma industry, Fish Processors, Fish Farmers, Fish Marketers etc.

Socio-economic analysis of fisheries graduates: The observations from 642 student respondents from four states (seven colleges) revealed that 43.15 % of students were females; 59.35 % of students were from rural background; and 56.85 % students had their schooling with medium of Instruction in their local languages (i.e. not in English). Many (45.17 %) students have chosen fisheries by choice. Majority (50%) of the guardians of the students had studied up to higher secondary. These students can be assets in the rural

development programmes. They can also understand the researchable issues in rural fisheries. However, as most of them are from vernacular background, they may take time to learn from English journals.

FISHERIES STUDENTS

Category	f	%
General	119	18.54
OBC	330	51.40
SC	87	13.55
ST	66	10.28
Others*	95	14.80*
Total	697(642)	

**Others include on overlapping special categories such as J&K quota, PH, etc.*

Reasons for Joining Fisheries

	f	%
Own choice	290	45.17
Family decision	44	6.85
Exposure / Awareness	72	11.21
Best Available option	179	27.88
Others	44	6.85*
No response	13	2.02
Total	642	100.00

Board of Research in Nuclear Science, New Delhi

Baseline riverine radioecology and biodiversity studies around proposed NPP site, Jabalpur (Madhya Pradesh)

2015-17

S. Dasgupta and S P. Shukla

Budget: 202.35 lakhs

Documentation of radio ecological and other environmental parameters is very essential before setting up Nuclear power plant. The present study generated data on flora and fauna diversity in the Narmada basin around Chutka, the proposed NPP site. Rich biological communities comprising 54 species of phytoplankton, 38 species of aquatic macrophytes, 5 groups of zooplankton, 14 macrobenthos, 42 fish and 2 shell fish species were recorded during the period of study. Tempo-spatial variation of diversity was recorded among phytoplankton, zooplankton, macrophytes, macrobenthos and fish communities at different locations 30 km up and down stream of Narmada basin keeping Chutka at zero point. Benthic communities were found between moderately stressed and unstressed conditions during study period, which varied seasonally. A total of 10 species belonging to flora (04) and fauna (06) were categorized as indicator species in the stretch of Narmada basin around Chutka. Among natural radionuclides, ¹³⁷Cs mostly reported below detected level in fish, sediment and benthos, whereas, ^{K40} showed wide range of variation between 1.77 and 1460.0 Bq/kg dry wt. in fish and sediment samples. The ²¹⁴Pb and ²¹²Pb levels in sediment and fish were mostly detectable and varied among different fish. The ^{Ac228} concentration was significantly higher in sediment compared to the values detected in fish of different niches.

Studies on present status of marine radioecology and biodiversity at Kalpakkam coastal sites.

2011–17

A.K. Pal (till 31 May 2015), S. Munilkumar, S. Rajaram and S. Sreedevi (ESL, BARC, Kalpakkam)

Budget: 208.35 Lakh

A total of around 22 sea water samples were analysed for Cesium-137 (^{137}Cs) by AMP method and counted in HPGe. The Geometric mean value of ^{137}Cs in sea water was 3.35 mBq/l. In addition, minimum activity (≤ 3.2) was observed from 8 locations and maximum activity (6.28 ± 0.39) was observed at NE3 location. However, mean concentration of ^{137}Cs was around Below Detectable Level (≤ 3.2 mBq/l). ^{137}Cs in biological ashed samples such as seaweeds-2, crustaceans-5, molluscs-6 and fish-8 Nos were directly counted in HPGe counting system. ^{137}Cs in all the biological samples were below detection limit (≤ 0.12 Bq/kg fresh). A total of around 50 sea water samples were analysed for strontium-90 (^{90}Sr) by TBP method and counted in Low background Beta counter. ^{90}Sr in all the seawater samples were below detection limit (≤ 1.22 mBq/l). Tritium (^3H) in seawater, a total of 41 samples were analysed using LSS 3170 Perkin Elmer make after distillation. The Geometric mean value ^3H in seawater is 4.61 Bq/l and which was around the below detection limit of ≤ 4.26 Bq/l

National Agricultural Science Fund, New Delhi

Stock characterization, captive breeding, seed production and culture of hilsa (*Tenualosa ilisha*)

2012-17

S. Dasgupta and G. H. Pailan

Budget: 139.84 Lakhs

Studies on endocrine changes in relation to gonad maturation in hilsa showed that there are two distinct extended spawning periods in hilsa (*Tenualosa ilisha*) in Bhagirathi-Hooghly stretch of the Ganga river system, which commence from February through May, and September through October with peaks in Feb-Mar, and October. Interestingly hilsa elicit differential preference for environmental cues for spawning in different seasons. Plasma sex steroids, such as 11-keto-testosterone and 17α -20 β -dihydroxy progesterone (DHP) were associated with early gonad growth and maturation respectively in both sexes. The pattern of gonad development and maturation in land-locked hilsa in Ukai reservoir was similar to their riverine counterpart with comparatively low levels of circulating sex steroids and lower gonadosomatic index. Immunolocalization of branchial NKA and NKCC and variation in their expression confirmed their roles in osmo-acclimation during migration. Prior to catadromous migration, hilsa juveniles enhance osmoregulatory capability after attaining certain body length in freshwater stretch of river as preparedness for seaward journey.

New Projects

DNA barcoding and domestication of ornamental fishes of the Chindwin and Barak-Surma, Meghana river basins of Northeast India

2017-20

S. Munilkumar, B.K. Mahapatra and A. Pavan Kumar

Budget : 24.648 Lakh

Captive maturation, breeding and culture of some indigenous ornamental fishes of Assam

2017-20

B.K. Mahapatra, S. Datta and P. Sardar

Budget : Rs. 65.90 lakhs



6

Extension Achievements

6.1. Short term training programmes

ICAR-CIFE, Mumbai

Title	Date	No. of Participants	Participants Profile
Application of Molecular Markers in Fisheries and Aquaculture	30 May-04 Jun, 2016	13	PG Students of MU, KUFOB & ANU, AP
Aquaculture Project Planning, Formulation, Monitoring and Evaluation	08-10 Jun, 2016	19	Scientists and SRF from Goa and Maharashtra
Communicating Science	05-11 Jul, 2016	13	Staff/RA from ICAR Institutes/SAUs
Value Added Fish Products Preparation from Low Cost Fish	27 Jul, 2016	30	Fisherwomen of Shiroda, Vengurla Sindhudurga
Value Added Fish Products Preparation From Low Cost Fish	28 Jul, 2016	40	Fisherwomen of Niwati, Sindhudurga
Value Added Fish Products Preparation From Low Cost Fish	29 Jul, 2016	30	Fisherwomen of Deogad, Ratnagiri
Basics in Freshwater Aquaculture	03-9 Sep, 2016	23	Fishers, Entrepreneurs, students & farmers
Value Added Fish Products Preparation	07 Sep, 2016	10	Fishers & villagers
Health Management of Ornamental Fishes	14-21 Sep, 2016	17	Agri. Farmers, Fishers, Entrepreneurs, & professionals from Goa, U.P. and M.P
Value Added Fish Products Preparation	17 Sept, 2016	10	Fishermen and women
Freshwater Pearl Culture	27 Sep, 2016 - 01 Oct, 2016	14	Agri. Farmers, Fishers, Entrepreneurs & professionals
Value Added Fish Products Preparation	14 Oct, 2016	28	Fishermen & women
Value Added Fish Products Preparation	21 Nov, 2016	44	Fisherwomen of Uttan, Vasai
Good Laboratory Practice	28 Nov-03 Dec, 2016	08	Technical Officers from ICAR Institutes
Handling and Maintenance of Lab and Field Equipment	17-30 Jan, 2017	12	ICAR Technical Staff
Molecular Immunology of Fish and Shellfish	15-24 Mar, 2017	13	Scientists and Professors from Veterinary Colleges
Soil and Water Quality Management in Aquaculture	16-25 Mar, 2017	13	Staff, Research Scholar, Students

ICAR-CIFE Powerkheda Centre

Title	Date	No. of Participants	State/Region
Fish and Prawn Culture	05-14 Apr, 2016	20	Farmers from Shivhar, Bihar
Fish and Prawn Culture	17-26 Apr, 2016	20	Farmers from Samastipur, Bihar
Fish and Prawn Culture	01-10 Jun, 2016	20	Farmers from Banka, Bihar
Fish and Prawn Culture	14-23 Jun, 2016	19	Farmers from Khagaria, Bihar
Fish and Prawn Culture	07-16 Jul, 2016	16	State Govt. Fisheries Dept. Begusarai, Bihar
Magur Breeding and Hatchery Management	11-16 Jul, 2016	07	State Govt. Inspectors from Chattisgarh, private entrepreneurs from U.P., Students from B.U. Bhopal.
Carp Breeding and Hatchery Management	19-26 Jul, 2016	28	Students and entrepreneurs, Bhopal
Fish and Prawn Culture	02-11 Aug, 2016	19	Dept. of Fisheries Bihar, Lakhisarai, Bihar
Fresh water Prawn (<i>M. rosenbergii</i>) Seed Rearing and Culture	18-23 Aug, 2016	19	Private entrepreneurs from Bihar, M.P. and Gujrat
Fish and Prawn Culture	29 Aug-07 Sep, 2016	18	Dept. of Fisheries Bihar, Saharsa, Bihar
Carp Culture Practices and Recent Advantages	15-21 Sep, 2016	18	Fish Farmers from M.P., Students and State Govt. Officers from Karnatak
Fish and Prawn Culture	01-10 Feb, 2017	17	Dept. of Fisheries Bihar, Sitamarhi, Bihar
Fish and Prawn Culture	14-23 Feb, 2017	20	Dept. of Fisheries Bihar, Saharsa, Bihar
Fish and Prawn Culture	25 Feb-06 Mar, 2017	19	Dept. of Fisheries Bihar, Vaishali, Bihar
Fish and Prawn Culture	28 Mar-06 Apr, 2017	20	Dept. of Fisheries Bihar, Bhojpur, Bihar
Inplant Training			
In-plant training program	11 Oct-30 Nov, 2016	18	B.F.Sc. Students from Fisheries College, Raha, Assam

ICAR-CIFE Kolkata Centre

Title	Duration	No. of Participants	State/Region
<i>Mithe Pani Me Machhli Palan</i>	03-12 May, 2016	20	Farmers from Banka, Bihar
<i>Mithe Pani Me Machhli Palan</i>	17-26 May, 2016	21	Farmers from Sheikpura and Madhepura, Bihar
<i>Mithe Pani Me Machhli Palan</i>	28 May-06 Jun, 2016	20	Farmers from Araria, Bihar
<i>Mithe Pani Me Machhli Palan</i>	28 Jun-07 Jul, 2016	21	DOF, Farmers from Aurangabad and Darbhanga, Bihar
Advances in Freshwater Aquaculture	20-26 Jul, 2016	25	Farmers from Ribhoi Dist. of Meghalaya, West Bengal
Entrepreneurship Development in Ornamental Fish Breeding & Culture	04-10 Aug, 2016	40	Students, farmers entrepreneurs from Arunachal Pradesh, Bihar, Maharashtra U.P. & West Bengal
<i>Mithe Pani Me Machhli Palan</i>	16-25 Aug, 2016	20	DOF, and farmers from Kishanganj and Purnea, Bihar
Management of Soil, Water and Fish Diseases in Aquaculture	18-24 Oct, 2016	15	Chhatisgarh, West Bengal, M.P. and Gujarat
Fish processing and value added fish products	03-09 Nov, 2016	14	Nafarganj, Bali
Adunik upaye machhe Chash	09-11 Nov, 2016	22	Nafarganj, Bali
<i>Mithe Pani Me Machhli Palan</i>	16-25 Nov, 2016	19	DOF, Supul, Madhepura, Bihar
Ornamental Fish Breeding and Culture	18-20 Nov., 2016	05	DOF, HP
Fish Nutrition and Feeding Strategies	01-07 Dec, 2016	46	Students, Famers and Entrepreneurs from W. Bengal, Bihar, Chhattisgarh and Tripura
<i>Mithe Pani Me Machhli Palan</i>	08-17 Dec, 2016	22	DOF, Kishanganj, Bihar
Adhunik Upay Mach Chas	19- 23 Dec, 2016	19	Kultalil Milon Tritha Society, Narayantala, Basanti
Culture of Food Organisms for Fish	04-10 Jan, 2017	08	Students, Famers and Entrepreneurs from W. Bengal, Odisha, U.P., Chhattisgarh & Manipur

<i>Mithe Pani Me Machhli Palan</i>	12-21 Jan, 2017	20	DOF, farmers from Aurangbad, Bihar
<i>Mithe Pani Me Machhli Palan</i>	23 Jan-01 Feb, 2017	19	DOF, farmers from Araria, Bihar
Quality Improvement in Ornamental Fish	02-08 Feb, 2017	14	Students, entrepreneurs from W. Bengal & Bihar
Ornamental Fish Breeding & Culture	08-10 Feb, 2017	34	Students and entrepreneurs, A.P.
<i>Mithe Pani Me Machhli Palan</i>	14-23 Feb, 2017	40	DOF, farmers from Katihar, Purnea, Bihar
<i>Mithe Pani Me Machhli Palan</i>	01-10 Mar, 2017	20	DOF, farmers from Banka, Bihar
<i>Mithe Pani Me Machhli Palan</i>	16-25 Mar, 2017	20	DOF, farmers from Jehanabad, Bihar
<i>Mithe Pani Me Machhli Palan</i>	16-20 Mar, 2017	25	ATMA, Pakud, Jharkhand
Ornamental Fish Breeding and Culture	27-29 Mar, 2017	27	Students and entrepreneurs, A.P.
Inplant Training			
In-plant training on Freshwater Aquaculture for B.Sc. (Ag)	07-13 Jun, 2016	27	Students from Banaras Hindu University



ICAR-CIFE Kakinada Centre

Title	Duration	No. of Participants	State/Region
Fish and Prawn Culture	21-30 Apr 2016	20	Patna District, Bihar)
Fish and Prawn Culture	04-13 May, 2016	16	Rohtas District, Bihar
Fish and Prawn Culture	19-28 May, 2016	28	Kaimur District, Bihar
Fish and Prawn Culture	01-10 Jun, 2016	22	Aurangabad District, Bihar
Disease Diagnosis, Prevention and Control Measures in Aquaculture	04-13 Jun, 2016	21	Mumbai, Kakinada Rajahmundry, Guntur, Visakhapatnam, A.P.
Fish and Prawn Culture	20-29 Jun, 2016	27	Muzzaffarpur District, Bihar
Fish and Prawn Culture	11-20 Jul, 2016	29	East Champaran District, Bihar
Better Management Practices in Shrimp Farming	16-25 Aug, 2016	26	Kakinada, A.P.
Fish and Prawn Culture	21-30 Aug, 2016	30	West Champaran District, Bihar
Fish Nutrition and Feeding Management	19-28 Sep, 2016	26	Mumbai, Kakinada
Fish and Prawn Culture	17-26 Oct, 2016	30	Siwan District, Bihar
Fish and Prawn Culture	01-10 Dec, 2016	27	Saran District, Bihar
Fish and Prawn Culture	01-10 Feb, 2017	26	Munger District, Bihar
Fish and Prawn Culture	15-24 Feb, 2017	29	Khagaria District, Bihar
Fish and Prawn Culture	01-10 Mar, 2017	17	Lakhisarai District, Bihar

ONE YEAR SKILL DEVELOPMENT CERTIFICATE COURSE



The absence of qualified technical staff in the aqua-hatcheries and aquaculture farms is having its cascading effect on the aquaculture in the entire country, as the hatcheries have to supply the quality fish/shrimp seed to aqua farmers and in turn aquaculture has to produce the fish as per the requirement of the growing population.

In view of these, a one year certificate course in 'Fish farming and hatchery operation' is being introduced as the first of its kind by the ICAR-Central Institute of Fisheries Education (CIFE), Kakinada centre. The certificate course is expected to provide qualified manpower to the aquaculture industry in the years to come. Fourteen students have already been admitted in June 2016.

ICAR-CIFE Rohtak Centre

Title	Date	No. of Participants	Participants Profile
<i>Litopenaeus vannamei</i> farming in inland saline water	09-13 May, 2016	20	Farmers from Punjab and Haryana
Shrimp culture practices in inland saline water	06-10 Jun, 2016	12	Farmers from Punjab and Haryana
Inland saline aquaculture management practice	04-09 Jul, 2016	09	Farmers from Punjab and Haryana
Disease management and better management practice in Inland saline water shrimp farming	08-12 Aug, 2016	09	Farmers from Punjab and Haryana
On farm feeding management in inland saline water	22-27 Aug, 2016	04	Farmers from Punjab
Community based Aquaculture	05-07 Sep, 2016	11	Farmers from Punjab
Inland saline aquaculture practices	07-11 Nov, 2016	18	Farmers from Punjab
Inland saline shrimp farming	19-23 Dec, 2016	12	Farmers from Punjab
Inland saline shrimp farming	02-06 Jan, 2017	12	Farmers from Punjab
<i>Litopenaeus vannamei</i> culture using inland saline water	20-24 Feb, 2017	10	Farmers from Punjab
Inland saline aquaculture practices	06-10 Mar, 2017	14	Farmers from Haryana
Inland saline aquaculture practices	14-18 Mar, 2017	05	Farmers from Haryana
Inland saline aquaculture practices	27-31 Mar, 2017	06	Farmers from Punjab

SIX MONTH CERTIFICATE COURSE ON SKILL DEVELOPMENT IN AQUACULTURE



A six month skill development program in Aquaculture has been initiated and inaugurated on 1st June 2016 (1st June to 30th November, 2016) at ICAR-CIFE Rohtak Centre with an objective to train and develop skills in the rural youth in the management of an aqua farm and make them self equipped with required knowledge to develop as aqua farming

entrepreneurs. The training module has been simplified in a way to focus more on practical aspects than the theoretical sessions. A total of 10 candidates registered for the course and the trainees are being exposed and trained on various aspects of freshwater and inland saline water aquaculture.

6.2. Exhibitions Organized

Event	Venue	Duration
International Day for Biodiversity celebration organised by National Biodiversity Authority, India	Yaswantrao Chavan Auditorium, Mumbai	22 May, 2016
20th National Agriculture Exhibition organised by CCSCOE, Kolkata	Surer Math, Dum Dum, Kolkata	10-14 Aug, 2016
Kisan Mela - cum - Technology Demonstration & Pre-Rabi-Kisan Sammelan organised by ERS of ICAR-IVRI, Kolkata	Sasya Shyamala KVK, Arapanch, Sonarpur, South 24 PGS, West Bengal	14 Dec, 2016
21st Sundarban Kristi Mela O Loko Sanskriti Utsaborganised by Kultalil Milon Tritha Society, Sundarbans.	Kultalil Milon Tritha Society Ground of Narayantala, West Bengal	20-29 Dec, 2016
Bengal Fish Fest 2017 organised by Department of Fisheries, Govt. of WB.	Nalbon Food Park, Salt Lake, Kolkata	06-08 Jan, 2017
12th Konnagar Science Fair, 2017 organised by Juktiman	Rajrajeswari Yuba Samity Ground, Konnagar, West Bengal	13-15 Jan, 2017
Versova Koli Seafood Festival-2017	Versova, Mumbai	20-22 Jan, 2017
Agricultural Exhibition organised by KVK, ICAR-CRIJAF, Barrackpore	North 24 Parganas, West Bengal	13 Feb, 2017
Exhibition programme in National Seminar on "Priorities in Fisheries & Aquaculture" organized by ICAR-CIFRI, Barrackpore.	College of Fisheries, Rangeilunda, Odisha	11-12 Mar, 2017
Science and Technology Fair and Exhibition organized by Vivekananda Vijnan Mission and IEM, Kolkata	IEM, Kolkata, West Bengal	12 Mar, 2017



6.3. DBT Sponsored Training Programme (Duration: 3 Months)



The III batch of DBT Sponsored 3 Months National Training in Molecular Biology & Biotechnology for Fisheries Professionals from 2nd May 2016 to 30th July 2016 was successfully completed on 30th July 2016 at CIFE Mumbai. Dr. Gopal Krishna, Director, ICAR-CIFE and National Co-ordinator of the project presided the valedictory function and distributed certificates to the seven participants who were scientists and assistant professors from ICAR-IIAB, Ranchi; ICAR-CIFRI, Barrackpore; ICAR-CIFA, Bangalore Centre; ICAR-CMFRI, Karwar Centre; SVVU, Tirupathi; CoF, Ratnagiri; Kamdhenu University, Gujarat. The participants presented the details of their short term research projects mentored by CIFE

faculty. Dr. Aparna Chaudhari, HoD, FGB presented the training report and evaluation by participants.

6.4. Awareness Programs

Title	Venue	Duration	No. of Participants
Awareness training programme on fish culture	Geyzing and Gangtok, Sikkim	04-06 May, 2016	74
Awareness program cum farmers-scientists interaction on Enhancement of fish production through farmmade feed	State Fisheries Research and Training Institute, Mawpun, Shillong, Meghalaya	15-16 Dec, 2016	30
Awareness program on Fish cum Pearl culture	IIVR, Varanasi	21 Dec, 2016	146
Value Added fish products preparation	Gangtok, Sikkim	30-31 Jan, 2017	26
Value Added fish products preparation	Umaim, Barapani, Shillong	02-03 Feb, 2017	20



An interactive meeting with fishers and farmers stakeholders

Shri Radha Mohan Singhji, Union Minister for Agriculture and Farmers Welfare in his presidential address reiterated the Prime Minister of India, Shri Narendra Modi's humble beginnings (as it was his birthday that day) and said Shri Modi has dedicated his life to the service of the nation which should serve as a beacon for all the citizens of India. He emphasized that representatives of the people should become more focused and service oriented with a missionary zeal. The focus of his Ministry and the ICAR is to serve the best interests of the farmers and fishers. All efforts should be oriented towards the end beneficiaries so that the policy will get developed in the right direction.

Dr. Gopal Krishna, Director and Vice Chancellor, ICAR-CIFE, Mumbai welcomed the Hon'ble Minister and the gathering and stressed on the role of CIFE in improving the lives of the fishers and their livelihoods through joint efforts and partnerships.

Shri M. Gaikwad, IAS, Commissioner of Fisheries, Department of Fisheries, Maharashtra spoke on the need for improved value added products from fish by sourcing the same at low cost and thus providing a wider market base for the fishers and fish farmers.

Dr. Bharti Lavekar, Member of Legislative Assembly, Govt. of Maharashtra requested for more support from Department of Fisheries in order to improve the lives and livelihoods of the fishers. She requested for



more interactive efforts and also joint programs with the related institutions.

The Union Minister also distributed value added products and agricultural kits to the fishers and farmers respectively. Few farmers also expressed their concerns which the Minister patiently listened and gave them suggestions.

Dr. N.P. Sahu, Head of Division, ICAR-CIFE, Mumbai delivered the vote of thanks.

Interactive Fish Farmers' Meet-2016 at Motihari, Bihar

ICAR-CIFE Mumbai organized an "Interactive Fish Farmers' Meet - 2016" at Motihari, Bihar on 30 Dec, 2016. The meeting was inaugurated by Hon'ble Agriculture and Farmers Welfare Minister Shri Radha Mohan Singh. More than 1000 fish farmers were present in the meeting who interacted with the experts from ICAR-CIFE Mumbai, K.V.K. Pipra Kothi RAU Pusa, and progressive farmers. Director, ICAR-CIFE welcomed the Chief Guest and also the local fish farmers and explained the activities of the Institute and role of ICAR-CIFE in developing and transferring the technologies for the fish farmers of the area. The experience sharing and question answer session by the fish farmers was



conducted in the presence of the Chief Guest and other dignitaries. The technologies such as pearl culture and mixed farming was also explained to the farmers with the help of display material on pearl culture.

National Fish Farmers' Day Celebrated at ICAR-CIFE, Mumbai



National Fish Farmers' Day was celebrated with lots of enthusiasm and fervour on 10th July, 2016 at ICAR-CIFE, Mumbai. The Chief Guest of the function was Dr. (Mrs.) Bharati H. Lavekar, Member of Legislative Assembly, Versova Constituency and Shri Bijay Kumar, IAS, Principal Secretary, Department of Animal Husbandry, Dairying and Fisheries, Govt. of Maharashtra was the Guest of Honour. On this occasion a total of 22 awards for different categories namely successful fish farmers, fishery entrepreneurs, fish breeders, best social workers for fisheries development, etc. were given for their significant contributions in fisheries and aquaculture.

The Chief Guest Dr. (Mrs.) Bharati H. Lavekar congratulated the award winning fish farmers and affirmed that CIFE is doing yeoman services for the fish farmers and fishery entrepreneurs. She also added that fishery fraternity should take benefit of CIFE's presence in Versova area. The Guest

of Honour Shri Bijay Kumar, IAS Principal Secretary, Department of Fisheries, Govt. of Maharashtra pointed out the systematic problems faced by fishery sector and steps taken by the department to resolve them through single window system. He also lauded the efforts of CIFE in HRD and over all development of the sector.

The Director CIFE informed that CIFE is taking active steps in human resource development and urged the fisheries fraternity to take maximum advantage of the CIFE's presence in this region. Thereafter, a Fish Farmers - Scientists Interaction meeting was held in the afternoon of 10th July, 2016 in which about 50 fish farmers, entrepreneurs, breeders, hatchery operators participated with enthusiasm. A question answer session was also organized in which HoDs and scientists replied the technical queries raised by the farmers & fishermen.

ICAR-CIFE, Kolkata



National Fish Farmers' Day was celebrated at CIFE, Kolkata Centre which was attended by more than 50 farmers.

6.5. Tribal Sub-plan Programme

Under TSP CIFE has undertaken tribal related activities for the development in Maharashtra, West Bengal and Goa. CIFE helped in carp hatchery operation, carp seed rearing in cages and ornamental fish culture in cages and their marketing in Dimbhe reservoir, Maharashtra. Thirty two old cages at Dimbhe reservoir were repaired. About 8000 rohu seed was stocked in cages. Feed and other inputs were provided for the table size fish culture in cages.

In West Bengal, Nafarganj, Basanti Island, Sundarban, South 24 Parganas, West Bengal a short term training programme was conducted on “*Adhunik Upaye Machher Chash*” during 9-11 Nov 2016 in which 23 tribal farmers participated. Input support for pond preparation, stocking and post stocking management in feed based carp and prawn poly-culture system has been given to 20 selected tribal farmers



Training Programme for Tribal fish farmers

Shri S. S. Ahluwalia, Hon'ble Minister of State for Agriculture and Farmers Welfare and Parliament Affairs, Govt. of India inaugurated the short term training programme (19-23 December, 2016) on Modern Methods of Fish Culture for Tribal fish farmers from Canning Subdivision, South 24 Parganas, West Bengal. 25 tribal farmers from Haringhata block, Nadia, West Bengal were benefitted. 50 piglets and inputs have been distributed to the farmers under this programme.

Dr. B.K. Mahapatra, Principal Scientist & OIC, ICAR-CIFE, Kolkata Centre welcomed the Hon'ble Minister at the Centre and briefed about the significance of this training programme. In his inaugural address, the Hon'ble Minister highlighted the need of skill development and training of fish farmers particularly on integrated fish farming. He also suggested for



development of some adopted villages on this line. He expressed his overall happiness over the programme schedule of the training programme and opined that poor tribal fish farmers will be very much benefited by this type of training programme. He also suggested guiding the farmers for any financial help from banks/ other financial organizations.

6.6. Print Media (Published in news paper/online)

S. No.	Topic	Date	Media
CIFE-Mumbai			
1.	<i>Moti utpadan Kisano ko banaye atma nirbhar</i>	22 Dec, 2016	Aas Pas, Varanasi
2.	<i>Seep paalan se badhaye amdani</i>	22 Dec, 2016	Amar Ujala, Varanasi
Powerkheda			
1.	<i>Jhinga Utpadan Keliye Hoshangabad Ka Mausam Anukul</i>	17 Sep, 2016	Dainik Bhaskar
2.	<i>Machli Palan Shikhar Ban Rahe Arthik Rup Se Sakshyam</i>	28 Feb, 2017	Dainik Bhashkar
3.	<i>Hoshangabad Ke Kendra Mein Bachaya Bilupta Pabda Ka Beej</i>	01 Mar, 2017	Dainik Bhashkar
Kolkata			
1.	<i>Kachhpsangrakhane chase badhakatuk chaichhen bisheshagyara</i>	16 May, 2016	Eisomay, Kolkata
2.	<i>Biswyoushnayane basat bodlacche, nadisomudrer motsokul</i>	24 May, 2016.	Eisomay, Kolkata
3.	<i>Hariye jaoya desimach feratenatun udyog</i>	25 July, 2016	Eisomay, Kolkata
4.	<i>Desivebeki pate porche haibrid magur</i>	08 Sep, 2016	Eisomay, Kolkata
5.	<i>Sysobekhu bhochey pomfret chingri parse</i>	10 Sep, 2016.	Eisomay, Kolkata
6.	<i>Koi proja titairihocchebideshe, Laxmi haracche bangla.</i>	07 Nov, 2016	Eisomay, Kolkata
7.	<i>Rasayanic kitnasaksutki mach, Jotil rog dorgoray</i>	07 Nov, 2016	Eisamay, Kolkata
8.	<i>Hormonopo babohar, chunokonthasa Tilapia dapote.</i>	28 Nov, 2016	Eisomay, Kolkata
9.	<i>Mach-rosikera khusiholeo bipod dekchenbyganira - Khudeili sherpate milche dim!</i>	16 Mar, 2017	Ananda Bazar Patrika, Kolkata
10.	<i>Ruikatlarpasheidedar Tuna Mackerel</i>	20 Mar, 2017	Eisomay, Kolkata
11.	<i>Chahidabarchegenri-guglir, sahaj chaser laver sambhabona</i>	27 Mar, 2017	Eisomay, Kolkata



Kakinada

1.	<i>Hatcheries nirvahana pi khendhriya matsya samstha cheedadhisikhshana</i>	08 May, 2016	Andhra Prabha, Daily
2.	CIFE to introduce new certificate	09 May, 2016	The Hindu, Daily
3.	<i>Chepalapempakam pi edadhisikhshana</i>	09 May, 2016	Eenadu, Daily
4.	<i>Hatcheries nirvahana pikhendhriya matsya samstha chesikhshana</i>	09 May, 2016	Pen Power, News paper
5.	<i>Kolleru prantha chepala saagu aacharanatmakam</i>	25 Oct, 2016	Sakshi telugu daily
6.	<i>Aqua saagu nu pariseelinchina</i>	16 Jul, 2016	Eenadu daily
7.	<i>Mastyasikshanagaduvupempu</i>	17 May, 2016	Eenadu daily
8.	<i>Andhra lo aqua saagu adhbutam</i>	16 Jul, 2016	Andhra Jyothi Krishna District
9.	<i>Kolleru chepala saagu vidhanampai bihar aqua raitulaprasamsa</i>	28 Jun, 2016	Sakshi daily telugu news paper
10.	<i>Chepala pempakam pai edadi shikshana</i>	09 May, 2016	Eenadu telugu daily
11.	Skilled Development Certificate course for 1 year	08 May, 2016	UCC Channel Kakinada - a local TV Channel
12.	<i>Chepala khendhram abhivridhiki krushi</i>	30 Dec, 2016	Eenadu, East Godavari Edition

Rohtak

- Article on MoU Signed between CIFE and Fisheries Department, Government of Haryana regarding technology transfer and human resource development at 2nd Agri Leadership Summit-2017, Faridabad, Haryana <http://www.dailypioneer.com/state-editions/progressive-farmers-given-cash-prizes.html>
- Article on Role of ICAR - CIFE Rohtak centre on the demonstration of the technology for the commercial inland saline shrimp culture at Punjab. <http://www.dailypioneer.com/state-editions/punjab-govt-announces-50-subsidy-on-shrimp-production.html>
- Article on CIFE at Punjab Fish Mela-2016 <http://www.tribuneindia.com/news/ludhiana/education/first-ever-punjab-fish-mela-concludes-at-pau/227703.html>

6.7. TV/Radio Talk Delivered

S. No.	Name of the person who delivered	Name of the talk	Date	Name of the programme
Powerkheda				
1	R. K. Upadhyay	Fish culture and its importance in progress of livelihood	12 Aug, 2016	Bhopal Doordarshan, Bhopal
Kolkata				
1	B.K. Mahapatra	Role of CIFE in entrepreneurship development for Fisheries	15 Jun, 2016	Annadata Programme of ETV Bangla
2	B.K. Mahapatra	Role of CIFE for imparting fisheries education in the country	22 Jun, 2016	Annadata Programme of ETV Bangla
3	B.K. Mahapatra	Importance of Fish Farmers	10 Jul, 2016	Annadata Programme of ETV Bangla
4	B.K. Mahapatra	Role of aquarium plants in fish keeping under captivity	16 Jul, 2016	Annadata Programme of ETV Bangla
5	B.K. Mahapatra	Breeding of Magur, <i>Clarias batrachus</i> in captivity	21 Jul, 2016	Annadata Programme of ETV Bangla
6	B.K. Mahapatra	<i>Pakal Macher Chas</i>	29 Jul, 2016	Annadata Programme of ETV Bangla
7	G.H. Pailan	Rearing of ornamental fish, <i>Botia dario</i> under captivity	01 Aug, 2016	Annadata Programme of ETV Bangla
8	G.H. Pailan	Integrated pig cum fish farming	09 Aug, 2016	Annadata Programme of ETV Bangla
9	B.K. Mahapatra	Breeding and culture of Cory cat, <i>Coridora saeneous</i>	08 Mar, 2017	Annadata Programme of ETV Bangla
Kakinada				
1.	Dr. P. Srinivasa Rao	<i>Vannameiroyyala pempaka muloadhikothpathiki adhunik apaddatulu</i> (In Telugu Language)	22 Apr, 2016	Palleseemalu, All India Radio, Visakhapatnam
Rohtak				
1.	Mr. V. Harikrishna	Freshwater Fish Farming & Inland Saline Shrimp Culture	28 Jul, 2016	Hello Kisan, broadcasted by Doordarshan (DD Kisan) Channel
2.	Mr. Ashok Kumar	<i>Jhenga Palan Ek Labhkari Vayvasay</i>	29 Aug, 2016	Broadcast in All India Radio

6.8. Visit Coordination

S No	Date/ Period	Organization / University / College / Category of Visitors	No. of Visitors
CIFE-Mumbai			
1	Jun-Aug, 2016	Ratnagiri Fisheries College, Somaiya College, Mumbai, The Institute of Science and other colleges B.F.Sc. M.F.Sc. and B.Sc. M.Sc.	More than 100 students
3	09 Sep, 2016	B.Sc. (Agriculture) students of Ilayam Institute of Agriculture & Technology, Thuraiyur, Trichy District, Tamil Nadu	50
3	14 Feb, 2017	Mithibai College, Mumbai	25
Powerkheda			
1	10 Jun, 2016	Farmers from Block Bhimgarh, Dist. Betul, M.P.	08
2	07 Sep, 2016	B.Sc. and M.Sc. students from Carrier College, Bhopal	50
3	20 Sep, 2016	Students from Tagore H. S. School, Hoshangabad, M.P.	64
4	28 Sep, 2016	Under Mukhyamantri khet tirth yojna farmers from dist. Chindwada, M.P.	12
5	17 Oct, 2016	Under Mukhyamantri khet tirth yojna farmers from dist. Chindwada, M.P.	12
6	18 Oct, 2016	Under NSS program, girl students from Girls Home Science College, Hoshangabad, M.P.	55
7	17 Nov, 2016	Under 'ATMA' pariyojna farmers from Tikamgarh, M.P.	18
8	18 Nov, 2016	Krashak mitra from Dist. Raisen, M.P.	25
9	23 Nov, 2016	Under 'Atma' pariyojna, farmers from Block Shujalpure dist. Shajapur, M.P.	14
10	23 Nov, 2016	Under 'Atma' pariyojna, farmers from Block Kalapiple dist. Shajapur, M.P.	14
11	13 Jan, 2017	Students from Singhs Model H.S.School, Itarsi, M.P.	40
12	18 Jan, 2017	Women farmers from block Shahpur, Betul, M.P.	30
13	03 Feb, 2017	Research and Extension Officers from Nepal Govt.	09
14	03 Mar, 2017	CED MAP, Sihor, MP	60
15	22 Mar, 2017	Under 'Atma' pariyojna, farmers from Harda, MP	18
16	22 Mar, 2017	Sarojini Naidu Govt. PG Girls Autonomous College, Bhopal, M.P.	85
17	23 Mar, 2017	Farmers from Star matshya sangha, Berikula, Sivni, M.P.	20
18	23 Mar, 2017	IWMP pariyojna, farmers from Betul, M.P.	20
19	23 Mar, 2017	Under MAP pariyojna, farmers from sahapur tehsil, Betul, M.P.	30
20	25 Mar, 2017	Mukhyamantri khet tirth pariyojna, farmers from Sihor, M.P.	30
21	27 Mar-03 Apr 2017	Exposure Cum Training to Final year B.F.Sc students from CoF, Jabalpur, M.P.	11

Kolkata

1	15 Apr, 2016	Exposure visit of MSc Students from Dept. of Zoology, Calcutta University	07
2	21 Jun-31 Jul 2016	Summer training on Fish handling, processing and packaging, Kolkata	01
3	23-25 Jul, 2016	Field exposure visit for one year trainees from IFTC, Lamphelpet, Manipur	17
4	02 Aug, 2016	One day training programme on Feed formulation & feeding strategies, Kolkata	32
5	06 Aug, 2016	Exposure visit of B. F. Sc. Students from COF, Nellore, AP	22
6	18-20 Sep, 2016	Exposure visit of progressive fish farmers/ fisherman from DOF, Govt. of Manipur	20
7	25-28 Oct, 2016	Exposure visit of B.F.Sc students from W.B.U.A.&F.S, Chalk Garia	21
8	25 Nov, 2016	Exposure Visit of progressive farmers from DOF, Govt. of MP	14
9	27 Nov, 2016	Exposure visit programme of B.Sc. (IFF) Students from APC College & M.L.S.M. College, Bihar	28
10	30 Nov - 02 Dec, 2016	Study tour of B. F. Sc. students from CoF, Ratnagiri, Maharashtra	31
11	02 Jan, 2017	Exposure visit programme of B.F.Sc students from CoF, Gadavasu, Ludhiana, Punjab	17
12	21 Jan, 2017	External study tour programme of B.F.Sc. students from CoF, Kamdhenu Vishwavidalya, Chhattisgarh	25
13	01-10 Feb, 2017	Study tour of progressive fish farmers from DOF, Govt. of A&N Island	09
14	14 Mar, 2017	Fishery exposure visit from ATMA, Haldia, WB	20
15	21 Mar, 2017	M.Sc. (Zoology) students from Ballygaunge Science College, Calcutta University	09
16	24-25 Mar, 2017	Students of School of Ecology and Environment Studies from Nalanda University	40

Rohtak

1	03 Dec, 2016	Ojasvi Pathshala, Rohtak	25
2	15 Jan, 2016	Participants of National Youth Festival, Rohtak	200
3	18 Feb, 2017	Vaish College, Rohtak	50
4	22 Mar, 2017	KVK Jhajjar	15

6.9. Transfer of Technology and Demonstration/Product development



Mumbai

- **ICAR-CIFE Commercialises Eco-Hatchery for Carp Seed Production**

On 16th April 2016, ICAR-CIFE signed MoU with Hyderabad based TEEWAVE Technologies for transfer of its innovative Eco-hatchery technology for carp seed production. Dr. Gopal Krishna, Director, ICAR-CIFE and Chairman, TEEWAVE Technologies signed the MoU on behalf of CIFE and TEEWAVE. Dr. Dilip Kumar, former Director, CIFE graced the occasion as Guest of Honour and lauded the research efforts having fructified and being taken to entrepreneurs and farmers. The inventing scientists, Dr. A.K.Verma and Dr. V.K.Tiwari briefed about the advantages of Eco-hatchery as compared to the existing carp hatchery technologies. The Heads of Divisions, Registrar, CFAO, members of Institute Technology Management Unit were present. As per MoU, TEEWAVE Technologies would manufacture the 'ICAR-CIFE Eco-Hatchery' with technical support from CIFE and market it across India. TEEWAVE would pay onetime technology transfer fee as well as royalty on number of units being sold. The agreement is valid for seven years. It may be noted that a patent application (Application Number: 3042MUM/ 2013; Date of filing: 23.09.2013) has already been filed. The electrically charged column based

water filtration unit for wastewater treatment was demonstrated to interested industries and other stakeholders. Two prototypes of the filtration device are in final stage of development and subsequent technology transfer.

- Technology of shrimp (*L. Vannamei*) culture in both the environment (inland saline soil and brackish water) was digitalized and offered online to users through internet.
- Integrated system for calcium removal from Inland saline water, was submitted in a Booklet on "ICAR Technologies for Creation of Wealth from Agricultural Waste"
- Fresh water pearl culture
- Rearing fingerlings in floating net cages
- Rearing ornamental fish in cages

Powerkheda

- Breeding and seed production of IMC at D-85 hatchery
- Breeding, hatchery installation and rearing of *Clarias magur*
- Controlled breeding and seed production of *Pabda*
- Giant freshwater prawn (*Macrobrachium rosenbergii*) seed production using artificial sea water
- Breeding and seed production of Minor carps

Kolkata

Under the TSP programme

- Feed Based Carp and Prawn Polyculture through FFTOT mode was successfully demonstrated in Bali island, Sunderban to 20 farmers.
- Integrated fish farming at Kastodanga II Gram Panchayet, Haringhata Development Block, Dist. Nadia, West Bengal was demonstrated to 25 tribal fish farmers.

Product Development

- Simple and cheap Dissolved Oxygen test kit for fish farmers
- Feed for colour enhancement of ornamental fish
- Slow sinking pelleted feed for fish and prawn polyculture system
- Prawn pickle

Rohtak

- Commercial marine shrimp culture in inland saline affected areas
- Previous demonstration of farming of tiger shrimp (*Penaeus monodon*) and subsequent technology development and demonstration of whiteleg shrimp (*Litopenaeus vannamei*) have paved the way for large-scale farming of shrimp in farmers' field during the past few years in Haryana.
- While 25 farmers took up the technology in a total area of about 60 acres in Haryana in 2015, the intensive demonstration and training given to farmers of three states, Haryana, Punjab and Rajasthan in collaboration with the respective State Fisheries Departments have resulted in widespread adoption of the technology in 2016.
- Currently, the farming of shrimp has been successful in these states with the total area of farming reaching 90 hectares with an average productivity of 7 to 10 tonnes/ha and a survival rate of 70-80%.

Table: District wise details of commercial inland saline shrimp farms demonstrated by ICAR-CIFE Rohtak centre in 2016

SI No	State	District	Villages	Area
1	Haryana	Rohtak	Lahli, Bohar, Baniyani, Chiri, Anwal	20 ha
2	Haryana	Hissar	Singrayan, Sadwah, Balsmand, Kanwari, Mundhal, Ganganagar	20 ha
3	Haryana	Bhiwani	Jui, Salimpur, Kudal bass, Kudal, Alampur, Baliyali, Dohki, Neemdiwali, Dhabdhani, Kungar, Alkhpura	25 ha
4	Haryana	Sonipat	Garhisiana, Guhana, Pharmana	6 ha
5	Haryana	Jhajjar	Surheti, Badli	12 ha
6	Haryana	Jind	Nerwana	1 ha
7	Rajasthan	Hanumangarh	Nohar, Bhadra	3 ha
8	Rajasthan	Churu	Rajgarh	2 ha
9	Punjab	Firozepure	RattaKhera	1 ha

CIFE participated in Versova Festival



ICAR-CIFE, Mumbai participated in the Versova Festival held at Swami Samarth Nagar, MHADA Grounds, Mumbai on 26th December 2016.

Chief Guest of the function was Hon'ble Chief Minister of Maharashtra, Shri Devendra Fadnavis. The function was graced by the Hon'ble Minister, Animal Husbandry, Dairy Development and Fisheries, Maharashtra, Shri Mahadev Jankar and Hon'ble Dr. Bharti Lavekar, MLA, Versova, Mumbai.

The Hon'ble Minister explained different schemes undertaken by the Government.

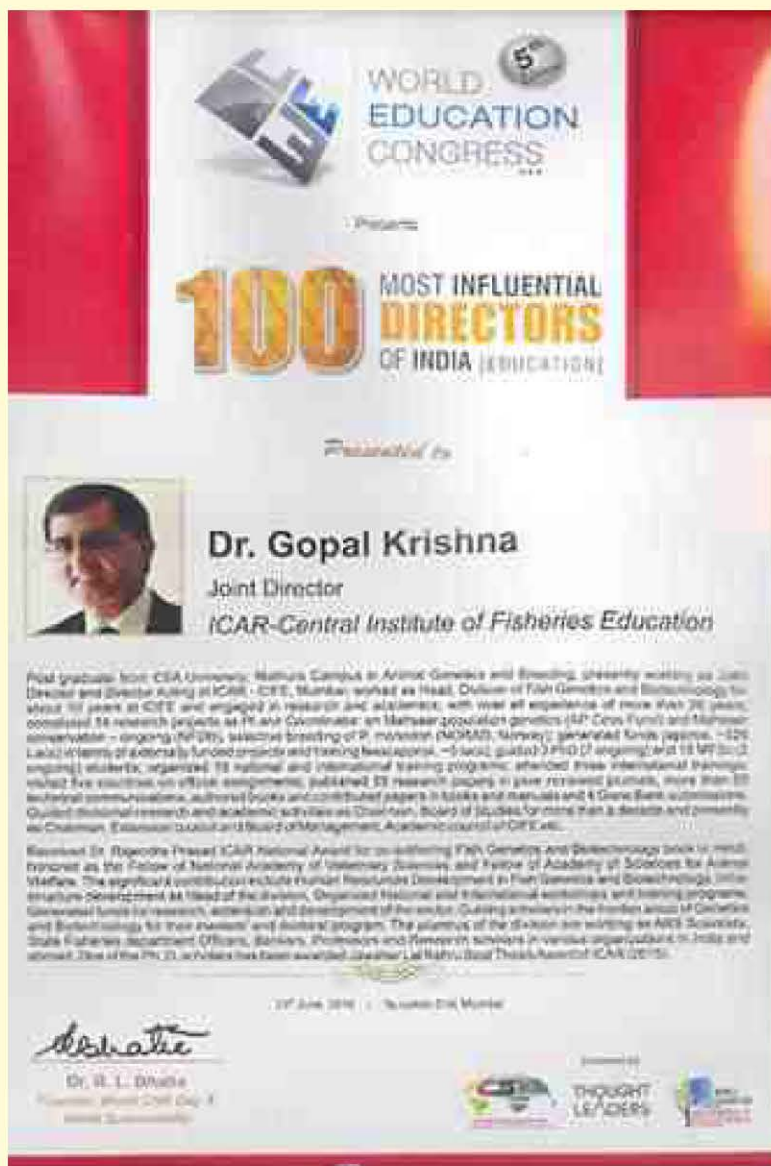
He assured that the concerns of fishermen and women will be given priority during implementation of the schemes. The scientists and staff of ICAR-CIFE explained the activities of CIFE to the Hon'ble dignitaries.

Hon'ble Minister for Animal Husbandry, Dairy Development and Fisheries, and other dignitaries visited the CIFE stall and had interaction with Dr. S.N. Ojha, Dr. Arpita Sharma and Dr. Sikander who explained the research and extension activities of CIFE, Mumbai and its Centres.



7

Honours and Awards



World Education Congress Award

Dr. Gopal Krishna, Director, ICAR-CIFE received “100 Most Influential Directors of India (Education) Award” from the World Education Congress.

Rajshri Tondan Rajbhasha Award of ICAR

Institute received the Second Rajshri Tondan Rajbhasha Award of ICAR for the year 2014-15 for the best work done in Hindi among all ICAR institutes. The Award was received by Dr. Gopal Krishna, Director, CIFE on 16th July 2016 at Vigyan Bhawan, New Delhi.

Special Award to CIFE

‘Ashirwad’ a Socio-cultural organization of Mumbai, awarded CIFE a Special Award-2015-16, for best work in Hindi.





Dr. Gopal Krishna, Director, ICAR-CIFE, Mumbai, receiving the Award for Cashless ICAR Institute from Shri Radha Mohan Singh Ji, Hon'ble Union Minister of Agriculture and Farmers Welfare.



Dr. Gopal Krishna, Director, ICAR-CIFE, Mumbai received "Lifetime Achievement Award" for the Best Green Campus.



Mr. Harikrishna received award at the 9th Livestock Championship and Agri & Livestock Expo-2016, Punjab.

Appreciation for Transfer of Technology

Dr. Gopal Krishna, Dr. N.K. Chadha, Mr. V. Harikrishna, Mr. S. Arun Sudhagar, Mr. Pankaj Kumar, Mr. Ashok Kumar and Mr. Satyendar Singh received a letter of appreciation from the Hon'ble Chief Minister of Punjab, Shri Parkash Singh Badal for research, demonstration and extension activities carried out on the "Technology for the commercial marine shrimp culture in inland saline waters" at Rattakhera, Muktsar Sahib District, Punjab.

Cash Award Scheme for Administrative Category Employees of ICAR



Mrs. Chitra Anagha U. Joshi, Assistant, received a Cash Award Scheme for Administrative Category Employees of ICAR on 16th July, 2016.

Best paper award

Dr. Muralidhar P. Ande participated in a three days International Conference, PROFIT ON AQUACULTURE - 2017 held at Bhimavaram, West Godavari District during 11-13, February 2017 and presented a paper entitled "Utilization of Papaya Leaf Meal in the Diet of *Labeo rohita* (Ham, 1822) fingerlings for growth performance" and received "BEST PAPER" award. He was felicitated by Shri U. K. Viswanadharaju, Chairman, Ananda Group of Companies, Bhimavaram.



Felicitations for XIII Agricultural Science Congress Logo



The National Academy of Agricultural Sciences (NAAS), India organized XIII Agricultural Science Congress at the University of Agricultural Sciences (UAS), Bengaluru in collaboration with local ICAR Institutes from 21-24 February 2017. The theme of the Congress was 'Climate-smart Agriculture'. Mr. Dasari Bhoomalah was felicitated by Sri Vajubhai R. Vala, Hon'ble Governor of Karnataka for designing the XIII ASC logo.

Certification of appreciation

Dr. Nalini Ranjan Kumar

- Elected as member of executive body of Agricultural Economics Research Association, New Delhi.
- Elected as member of editorial board, Indian Potato Association CPRI, Shimla in absentia.

Dr. B.K. Mahapatra

- Received appreciation for Outstanding Contribution towards Country's Blue Revolution from Duron Agro Industries.
- Received appreciation award at the 12th Konnargar Science Fair held during 13-15th January, 2017.
- ISCAR Executive Committee Member for 2017 & 2018.

Dr. K.A. Martin

- Received Certification of appreciation from LWT Food Science and Technology (Elsevier) for outstanding reviews done during 2016 period.
- Served as a member in the Export Inspection Council-IDP member for Inspecting quality standards in Food processing units.

Dr. A.K. Balange

- Nominated as an Expert in Fish Processing & a member of Assessment Panel of Experts of EIA, Mumbai.
- Nominated as a member of Mentor Council for Fisheries Sector by Ministry of Labor and Employment, New Delhi.

Dr. Gayatri Tripathi

Selected as an Associate Editor, Journal of Aquaculture, ICAR-CIFA, Bhubaneswar on 3rd December 2016.

International Fellowship

Mr. S. Arun Sudhagar received Netaji Subash ICAR-International Fellowship for pursuing Ph.D. at University of Veterinary Medicine, Vienna, Austria.

Fellowship

Dr. Mukunda Goswami was awarded a fellowship during International Conference on Environmental Conservation and Human Health-Challenges & Strategies, S.V. University, Tirupathi, 2016.

Dr. A.R. Sen was awarded IMSA Fellow-2016 by Indian Meat Science Association in International Conference at GADVASU, Ludhiana.

Reviewer Excellence Award

Dr. Kiran Dube Rawat received the Reviewer Excellence Award from Agricultural Research Communication Center Journals on 16th November 2016.

International travel grant

Dr. Annam Pavan Kumar received travel grant from DST-Science and Engineering Research Board (DST-SERB), New Delhi and Centre for International Co-operation in Science (CICS), Chennai for attending International symposium on Fish, Genes and Genomes: Contribution to Ecology, Evolution and Management at University of Bangor, UK.

Institutional awards

Special appreciation



Dr. Aparna Chaudhari



Mr. Pranaya Kumar Biswal



Mrs. Anagha Joshi

Institutional awards



Best Scientist
Dr. Rupam Sharma



Best Young Faculty
Dr. Babita Rani A. M.



Best Teacher
Dr. Arpita Sharma



Best Extension Scientist
Dr. B. K. Mahapatra



Best Division
**Fisheries Resources Harvest &
Post Harvest Management Division**



Best Technical Staff
Mr. Prakash Kr. Behara



Best Administrative Staff
Mr. Kunal Mann



Best Administrative Staff
Mr. Pradeep Angane



Best Supporting Staff
Mr. G.V.V. Satyanarayana



Award for Institutional Building
Mr. Dasari Bhoomaiah



**Award for Best Publication of
the year (Highest Impact Factor)**
Dr Md. Aklakur



**Award for overall Best M.F.Sc.
Dissertation (2014-2015)**
Ms. Martina Laishram



**Best Young Scientist
(Field oriented work)**
Dr A.K. Balange



School Children-Highest Scorer in Class X
Master Abhinav Rathore
S/o Dr Gaurav Rathore



School Children-Highest Scorer in Class XII
Master Ayush Grover, S/o Mrs. Anu Grover

ICAR West Zone Sports Meet

24-27 September 2016

Prizes won by ICAR-CIFE

Outdoor Sports

- | | |
|----------------------|----------------|
| • Kabaddi | - Silver Medal |
| • Shot Put | - Bronze Medal |
| • 200 m Race | - Bronze Medal |
| • Long Jump | - Bronze Medal |
| • 100 m race (Women) | - Gold Medal |
| • 100 m race (Women) | - Silver Medal |
| • 200 m race (Women) | - Gold Medal |
| • Long jump (Women) | - Silver Medal |
| • High Jump (Women) | - Silver Medal |
| • Shot Put (Women) | - Silver Medal |
| • Javelin (Women) | - Bronze Medal |

Indoor Sports

- | | |
|--------------------------------|----------------|
| • Badminton (Men) | - Gold Medal |
| • Table Tennis Single (Ladies) | - Silver Medal |
| • Table Tennis Double (Ladies) | - Silver Medal |
| • Chess (Ladies) | - Bronze Medal |





8

Linkages and Collaborations

8.1. Collaborations



Government of India Organizations

- Fishery Survey of India, Mumbai
- Central Institute of Fisheries Nautical and Engineering Training, Kochi
- Marine Products Export Development Authority, Kochi
- Zoological Survey of India, Kolkata
- Indian Institute of Technology, Kharagpur
- Department of Earth Sciences, New Delhi
- Department of Science and Technology, New Delhi
- Department of Biotechnology, New Delhi
- Indian National Center for Ocean Information Services, Hyderabad
- Satellite Application Centre, Ahmedabad
- Bhabha Atomic Research Centre, Mumbai
- Tata Cancer Research Center, Mumbai
- Indian Institute of Foreign Trade, Kolkata
- Tata Institute of Fundamental Research, Mumbai
- Krishi Vigyan Kendra, Banswara, Rajasthan
- Nuclear Power Corporation of India Limited, Mumbai
- National Bank for Agriculture and Rural Development, Mumbai



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 - Central Coastal Agricultural Research Institute, Goa
- ICAR Research Complex for Eastern Region, Patna
- ICAR Research Complex for North Eastern Hill Region, Barapani
- ICAR-Indian Agricultural Research Institute, New Delhi
- ICAR-Central Institute of Agricultural Engineering, Bhopal

8.1. Linkages

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

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, New Delhi
- Indian Institute of Integrative Medicine, Jammu
- Indian Institute of Chemical Biology, Kolkata

International

- University of Idaho, Idaho, USA
- University of Kentucky, Lexington, KY, USA
- Curtin University, Australia



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, Chhattisgarh
- Babasaheb Bhimrao Ambedkar University, Lucknow
- Centre of Agriculture University, Imphal

NGOs:

- Shashwat, Manchar, District Pune
- Yusuf Meherally Centre, Kutch, Gujarat
- United Artists' Association, Ganjam, Orissa
- Friends of Nature Association, Talegaon, Maharashtra

State Governments

Department of Fisheries of the following states: Maharashtra, Haryana, Uttar Pradesh, Bihar, Tamil Nadu, Andhra Pradesh, Tripura, Arunachal Pradesh, Madhya Pradesh, Meghalaya, Nagaland, Assam, Manipur, Mizoram, Sikkim, Punjab and Telangana



Other Organizations

- Haryana Kishan Ayog, Chandigarh
- State Institute of Fisheries Technology, Kakinada
- 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
- Shimpco 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, Hoshanabad, M.P.
- 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, Mumbai
- Shramajivi Janata Sahayyak Mandal, Mahad, Raigarh, Maharashtra

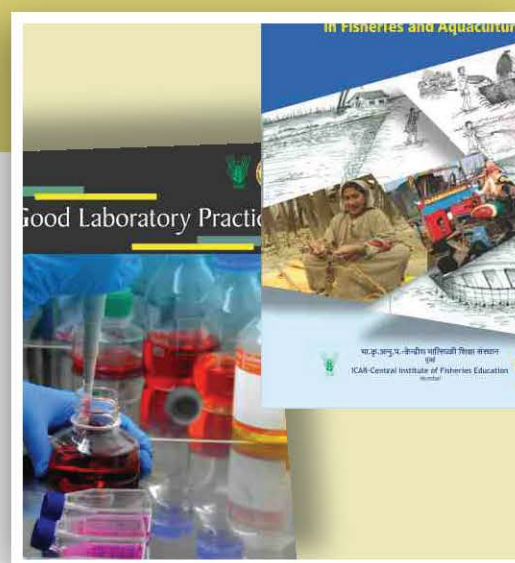
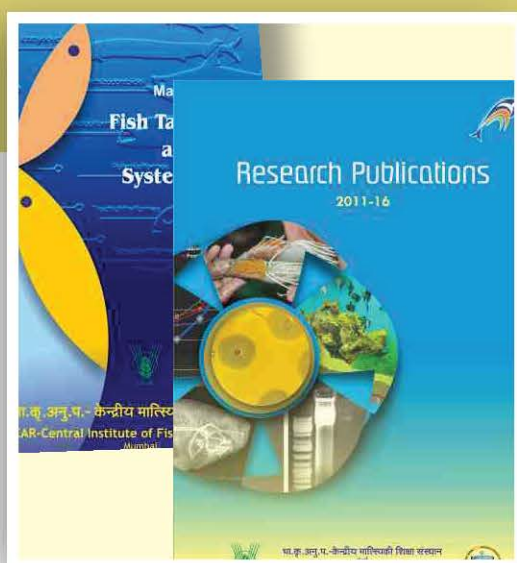
8.2. Collaborations



MoU with MGM's Institute of Biosciences and Technology, Aurangabad

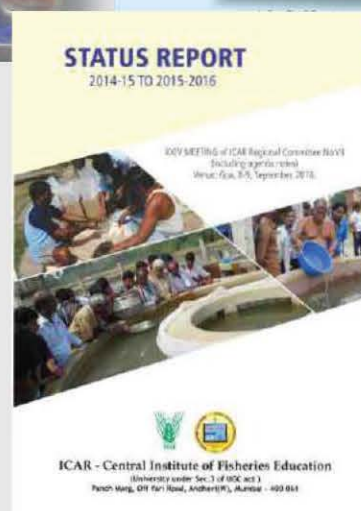
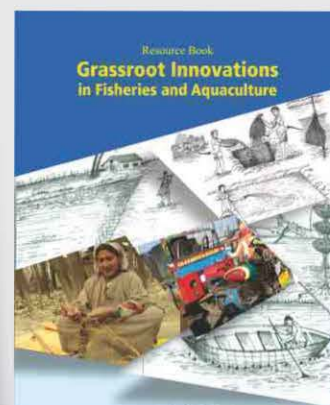
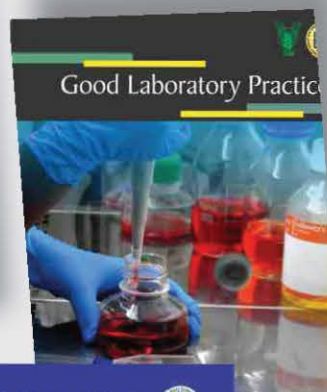
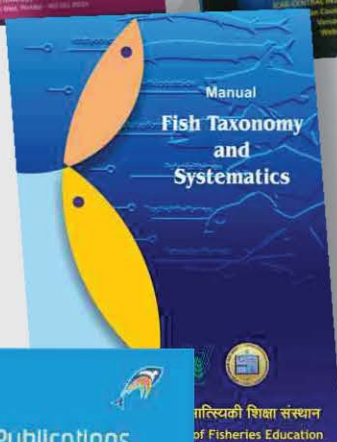
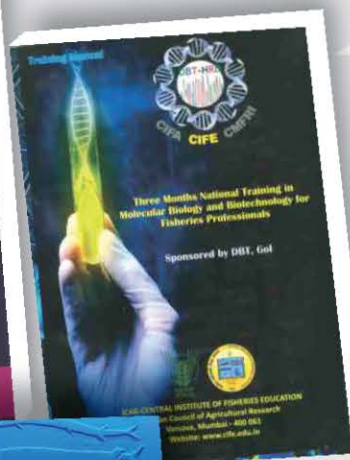
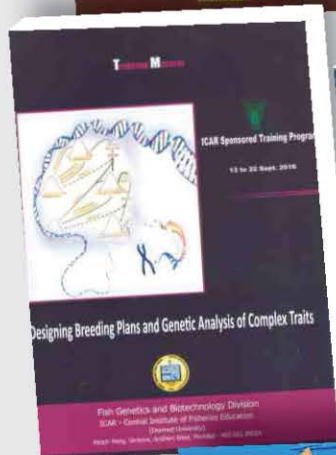
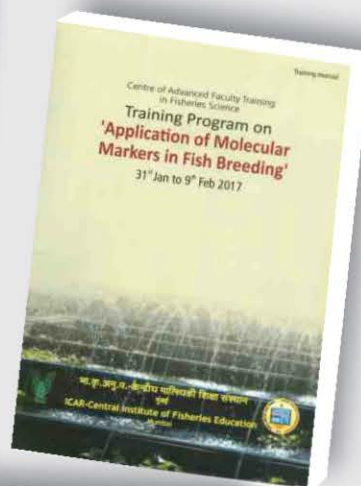
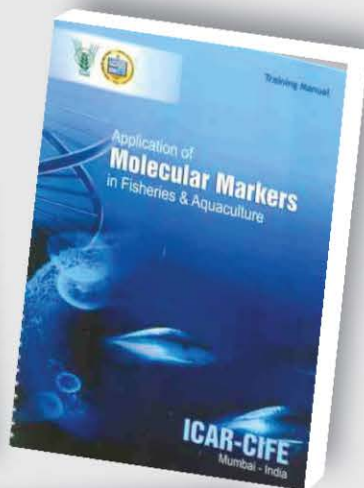
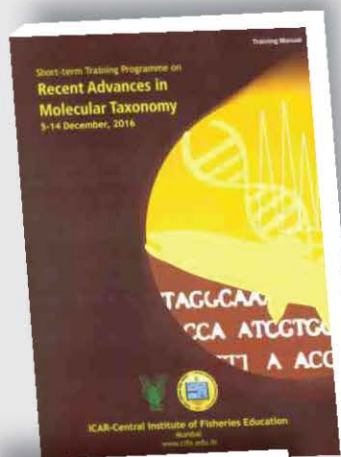


MoU was signed between CIFE and Fisheries Department, Government of Haryana on technology transfer and human resource development at 2nd Agri Leadership Summit-2017, Faridabad, Haryana



9

Publications



9.1 Publications: In Peer Reviewed Journals

- Adiga MS, Ananthan PS, Kumari D, Ramasubramanian V (2016). Multidimensional analysis of marine fishery resources of Maharashtra, India. *Ocean and Coastal Management* 130:13-20
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10

**Participation in
Workshop/
Conferences/
Symposia/
Meetings**

10.1. Participation in Workshop/Conferences/Symposia/Meetings

Important Workshops/Seminars/Meetings etc. attended by Director, CIFE, Mumbai

Date	Place	Name of the Programme
25 April 2016	Ludhiana	Chaired the session on Fisheries Education and Trainings in India
04 May 2016	ICAR, New Delhi	Meeting on 'Marine Fisheries Policy'
14 May 2016	Nagpur	Seminar on 'Development of Fisheries in Vidarbha'
28-29 May 2016	TANUVAS, Chennai	11 th National Symposium of IAUA and VCs meet
01-02 June 2016	New Delhi	Committee meeting constituted to Suggest Draft National Policy on Marine Fisheries
20 June 2016	Rohtak CIFE Centre	Workshop in Inland Saline Aquaculture
27-28 June 2016	TEEB, Chennai	GIZ-MoEF and CC-BOBP-IGO-National Workshop on Dissemination of Study Results of Valuation Studies on Coastal and Marine Ecosystems
07-10 July 2016-	Hajipur, Bihar	Interstate horticulture fare 'Sangam 2016'
15-16 July 2016	ICAR, New Delhi	ICAR Foundation Day
17 August 2016	New Delhi	Meeting with Secretary (DARE) & DG, ICAR
08-09 September 2016	Goa	24 th meeting of ICAR Regional Committee No.VII
22 September 2016	New Delhi	Review meeting by Secretary (ADF)
27 September 2016	NFDB, Hyderabad	Review meeting of NFDB project being operated at ICAR-CIFE
01-02 October 2016	Nagaon, Assam	National Interactive Meet on Mahseer organized by ICAR-DCFR
03 October 2016	Agartala	Foundation Day Programme of CAU, Agartala
17 October 2016	New Delhi	ICAR Sectoral Committee Meeting of NAEAB
01-04 November 2016	Patna	Meeting with Director Fisheries, Bihar with regard to new centre of CIFE at Motihari, Bihar
21 November 2016	New Delhi	World Fisheries Day 2016
12-13 December 2016	Lucknow	Foundation Day program of ICAR-NBFGR, Lucknow
18-19 December 2016	ICAR, New Delhi	Committee meeting to examine the issues related to doubling the farmers' income by 2021-22
26 December 2016	New Delhi	2 nd meeting of committee to suggest Draft National Inland Fisheries & Aquaculture Policy
30 December 2016	Motihari, Bihar	Interactive Fish Farmers' Meet - 2016
31 December 2016	Pusa, Bihar	Awareness and training on Pearl Culture
09-10 January 2017	New Delhi	Meeting of "Niche Area of Excellence"
02-04 February 2017	IIM, Ahmedabad	Training on 'Developing Internal Talent and Leadership'
05-08 February 2017	ICAR, New Delhi	Meeting for finalization of EFC/SFC document
14-15 February 2017	New Delhi	Annual Conference of Vice-Chancellors (VCs) of AUs and Directors of ICAR Institutes
10-11 March 2017	ASRB, New Delhi	Meeting with Chairman, ASRB to discuss issues relating to optimal utilization of infrastructure
18 March 2017	NIO, Goa	Meeting with Director, NIO regarding Time Series Oceanographic off Mumbai
19-20 March 2017	Faridabad New Delhi	Seminar on "Utilization of Saline affected area for White Shrimp Culture"

Name of the Programme	Venue	Period	Name of the person who participated
Exploring Gene Expression Data Using Transcriptome and Microarrays	Computational Biology Facility, Rajiv Gandhi Centre for Biotechnology Thiruvananthapuram, Kerala	18-20 Apr, 2016	Sujata Sahoo
National Consultation on Ornamental Fishes	NFDB, Hyderabad	27-28 Apr, 2016	B.K. Mahapatra Paramita Sawant
Pillay Aquaculture Foundation, Third Congress on Social Entrepreneurship in Aquaculture	ICAR-CIFE, Mumbai	27-29 Apr, 2016	All Scientific Staff
Meeting on Second Green Revolution	ICAR Research Complex for Eastern Region, Patna	03 May, 2016	B. K. Mahapatra
International day for Biological Diversity 2016	Yashwantrao Chavan Auditorium, Mumbai	22 May, 2016	Scientists and Technical Staff
FAO Consultative Workshop to Develop a Zoonotic Emerging Infectious Disease Project in Partnership with Government of India	Great Eastern Hotel Kolkata	20-22 May, 2016	B.K. Mahapatra
Interface meeting on Enhancing the Preparedness of Agricultural Contingencies for West Bengal: Kharif, 2016	ICAR-ATARI, Kolkata	31 May, 2016	A.R. Sen
Distributed and Embedded High Performance Computing (deHPC) Symposium	Indian Institute of Technology Bombay, India	01-04 Jun, 2016	Vinod Kumar Yadav
Review Meeting for Development of Ornamental fisheries	NFDB, Hyderabad	07 Jun, 2016	B.K. Mahapatra
Review Meeting of Fishery Scientist under ICAR-ATARI, Jabalpur	ICAR-CIFE, Kolkata Centre	09-10 Jun, 2016	A.R. Sen
Parliamentary Standing Committee on Agriculture meeting on Research and Development of Food Processing Sectors and its Impact on Human and Animal Health	ITC Sonar, Kolkata	18 Jun, 2016	A.R. Sen
XXIII meeting of ICAR Regional Committee - II	ICAR-NAARM, Hyderabad	24-25 Jun, 2016	B.K. Mahapatra Muralidhar P. Ande
Meeting on Board of Study of Management	Govt. Holker Science College, Indore	02 Jul, 2016	R. K. Upadhyay
National Fish Farmers Day	ICAR-CIFE, Mumbai	10 Jul, 2016	All Scientist & Staff
Inter State Fair Sangam-2016	National Horticulture Board Hajipur, Bihar	8-10 Jul, 2016	S. Munilkumar

Workshop on Culture of Lesser Known Fish Species with Commercial Importance of NE India	NE Regional Centre of NIRD, Guwahati	16 Jul, 2016	S. Munilkumar
Workshop on Inland Saline Aquaculture	Lahli Village, Haryana	19-20 Jul, 2016	N.P. Sahu
National Consultation on Best Management Practices for Ornamental Fish Production	NFDB, Hyderabad	25-27 Jul, 2016	B.K. Mahapatra
Workshop on National Operating Standards for Skill Development in Fisheries	NFDB, Hyderabad	04-05 Aug, 2016	Latha Shenoy
Brain Storming Session on WSSV/EHP	Agharkar Research Institute, Pune	05 Aug, 2016	Rajendran K.V.
National Seminar on Approaches to Clean and Sustainable Development in Coastal Zones of India- Present Status and Future Need	CSIR-NIO, Regional Centre, Mumbai	25-26 Aug, 2016	Annam Pavan Kumar Saurav Kumar Kundan Kumar
Review Meeting on NFDB Funded Technology Upgradation Projects	NFDB, Hyderabad	30-31 Aug, 2016	Neelam Saharan
VI Advisory Committee Meeting	CIFRI, Barrackpore	30-31, Aug 2016	S. Dasgupta G.H. Pailan
23 rd Zonal Workshop of KVK	KVK Khorda, ICAR-CIFA, Bhubaneswar	03-05 Sep, 2016	B. K. Mahapatra
Regional Committee Meeting VII	Goa	08-09 Sep, 2016	Kiran Dube Rawat
Seminar cum Workshop on Safe Reuse of Municipal Wastewater	Netaji Subhas Regional Institute Cooperative Management, Kalyani	09-10 Sep, 2016	B.K. Mahapatra S. Datta
National Conference on Inland Fisheries	Seva Kendra, Kolkata	20-21 Sep, 2016	B.K. Mahapatra
District Level Children Science Congress	Krishan Bhabini Nari Siksha Mandir, Chandennagore	23 Sep, 2016	B.K. Mahapatra
Review Committee Meeting	NFDB, Hyderabad	27 Sep, 2016	Kiran Dube Rawat
Board of studies meeting	P.R. Government College, Kakinada	30 Sep 2016	Muralidhar P. Ande
3 rd Meeting of the Scientific Advisory Committee (SAC) of the Sasya Shyamala Krishi Vigyan Kendra	Ramakrishna Mission Vivekananda University	01 Oct, 2016	B.K. Mahapatra
International Workshop on Linear Mixed Models in Practice: An As-REML-Oriented Approach	ICAR-CIFE, Mumbai	13-15 Oct, 2016	All Scientific Staff

Feed and Feeding Management in Cage Culture	Maharashtra Fisheries Department, Govt. of Maharashtra, Mahila Vikas Mandal Mantralaya, Mumbai	18 Oct, 2016	N.P. Sahu
Meeting of <i>Nagar Rajbhasha Karyanvayan Samiittee</i>	SPM, Hoshangabad.	24 Oct, 2016	Sunil Nayak, R.K. Upadhyay
International Conference on Science and Technology for National Development	KUFOS, Cochin	25-27 Oct, 2016	K.A. Martin Xavier Manjusha L.
Workshop on Dynamics of Challenges and Options in Integrated Aquaculture	Hotel The Panache, Patna, Bihar	02 Nov, 2016	G.H. Pailan
Review Meeting of ICAR All India Network Projects, Consortium Research Platform and Outreach Projects of the Fisheries Division	NASC complex, New Delhi	03-04 Nov, 2016	Annam Pavan Kumar
Meeting on Fish Culture Policy	Atal Bihari Vajpayee Institute of Good Governance & Policy Analysis, Bhopal.	07 Nov, 2016	R.K. Upadhyay
International Symposium and IMSACON-VII	GADVASU, Ludhiana	10-12 Nov, 2016	A.R. Sen
Seminar: Prophylaxis in Aquaculture	ICAR-CIBA, Chennai	16 Nov, 2016	Megha Bedekar Saurav Kumar
Half yearly Review Meeting on CRP Vaccine and Diagnostic	ICAR-CIBA, Chennai	17 Nov, 2016	Megha Bedekar Saurav Kumar
52 nd meeting of Academic Council	ICAR-CIFE, Mumbai	18 Nov, 2016	Members of Academic Council
National Seminar on Ornamental Fish culture	Rabindra Bhavan, Barasat, West Bengal	19 Nov, 2016	B.K. Mahapatra
Workshop on Designing of Course & Education Material for Online Certificate Courses	ICAR-CIFE, Mumbai	21-23 Nov, 2016	All Scientific staff
International Conference on Statistics & Big Data Bioinformatics	ICRISAT, Hyderabad	23 Nov, 2016	Ramasubramanian V.
<i>Namami Devi Narmade Abhiyan</i>	Office of the Commissioner, Hoshangabad	25 Nov, 2016	Dhalongsaih Reang R. K. Upadhyay
ICAR Education Central Zone Monitoring and Review Meeting	ICAR-CIFE, Mumbai	28-29 Nov, 2016	B.K. Mahapatra
National Seminar on Aquaculture diversification: the way forward for blue revolution	ICAR-CIFA, Bhubaneswar	01-03 Dec, 2016	N.P. Sahu, Gayatri Tripathi, Rupam Sharma Sikendra Kumar

National Consultation on Higher Fishery Education	ICAR-CIFE	16 Dec, 2016	All Scientific Staff
24 th Annual Conference of Agricultural Economics Research Association on 'Agriculture for Nutrition Security'	ICAR-IVRI, Izzatnagar, Bareilly	15-17 Dec, 2016	Nalini Ranjan Kumar Neha Wajahat Qureshi
31 st Meeting of the Institute Management Committee of NBFGR, Lucknow	NBFGR, Lucknow	19 Dec, 2016	Rajendran K.V.
Brain Storm Discussions on Fish Diseases & Ornamental Fishes organised by DBT, New Delhi	College of Fisheries, (CAU), Agartala	21 Dec, 2016	S. Munilkumar
International Conference on Environmental Conservation and Human Health -Challenges & Strategies	S.V. University, Tirupathi	21-23 Dec, 2016	Mukunda Goswami
Seminar on Challenges and Opportunity in Aquaculture Sector	College of Fisheries, Dholi, Bihar	26 -29 Dec, 2016	N.P. Sahu
International Conference on Emerging Technologies in Agricultural and Food Engineering	IIT, Kharagpur	27-30 Dec, 2016	A.K. Verma
Bengal Fish Fest 2017	Nalbon Food Park, Salt Lake, Kolkata	07 Jan, 2017	Scientists of Kolkata Center, CIFE
Improvement of Ecosystem Services for Livelihood Development Through Community Participation	IBRAD campus, Prafulla Kanan, Kestopur	17 Jan, 2017	B.K. Mahapatra
Group Monitoring Workshop on Review of Young Scientist Scheme Projects	Kalinga Institute of Industrial Technology Bhubaneswar	02-03 Feb, 2017	Annam Pavan Kumar
Workshop on Impact Evaluation of Issues Related to Climate Change and Agriculture	Institute of Economic Growth New Delhi	6-10 Feb, 2017	Neha Wajahat Qureshi
International Conference, Profit on Aquaculture - 2017	Bhimavaram, West Godavari District, Andhra Pradesh	11-13 Feb, 2017	V.K. Tiwari Muralidhar P. Ande Babita Rani
Meeting on National Policy on Inland Fisheries and Aquaculture	ICAR-CIFE	23 Feb, 2017	All Scientists
Career Mela	Govt. Home Science College, Hoshangabad, M.P	22-23 Feb, 2017	Sunil Nayak Dhalongsaih Reang, R.K. Upadhyaya L.P. Bamaliya

3rd Annual Review Meeting of all ongoing projects under NASF for the theme area, Abiotic and Biotic Stresses, and Quality Traits in Animals and Fishes	NASC, New Delhi	23 Feb, 2017	S. Dasgupta
Career Mela	Govt. Narmada Maha Vidhyalay College, Hoshangabad, M.P	02-03 Mar, 2017	Sunil Nayak Dhalongsaih Reang, L.P. Bamaliya
Second Student Convention on Innovative Approaches for Academic Excellence in Higher Fisheries Education	CIFE, Mumbai	04-06 Mar, 2017	All Scientists & Students
National consultation on Off Season Spawning in Carps Towards Year Round Availability of Seeds	ICAR-CIFA, Bhubaneswar	09 Mar, 2017	S. Dasgupta
Science Academy's Lecture Workshop	Department of Zoology, University of Calicut	09-10 Mar, 2017	Rajendran K.V.
Workshop under All India Survey of Higher Education	Pune	10 Mar, 2017	Vinod Kumar Yadav
National Workshop on Responsible Use of Antibiotics and Chemicals, Impact on Animal Health and Aquaculture	ICAR-CIFA, Bhubaneswar	10 Mar, 2017	T. I. Chanu
Fourth Indian Biodiversity Congress (IBC 2017)	Pondicherry University Puducherry UT	10-12 Mar, 2017	Vidya Shree Bharti
National Seminar on Priorities in Fisheries and Aquaculture	College of Fisheries, Rangeilunda, Bhubaneswar	11-12 Mar, 2017	N.P. Sahu B.K. Mahapatra
National Workshop on Inland Saline Aquaculture Converting Waste to Wealth and Way Forward	ICAR-CIFE Center, Rohtak	20-21 Jun, 2017	Scientific Staff of Rohtak

10.2. Training Programmes\Summer schools/Winter schools attended

Name of the Programme	Period	Organized by	Name
National training in Molecular Biology and Biotechnology DBT HRD training	Jul-Sep, 2016	ICAR-CIFA Bhubaneswar	Husne Banu
CAFT training programme in Biotechnological and Nanotechnological tools in Aquatic Animal Health	21 days	ICAR-CIFE Mumbai	Husne Banu
Training on Role of Scientists on Natural Resources Management and Environmental Management	5 days	Indian Institute of Forest Management- IIFM, Bhopal	Shashi Bhushan
DST sponsored training programme on Big Data Analytics in Agriculture	13-22 Jun, 2016	ICAR-NAARM, Hyderabad	V. Ramasubramanian
Short term course on Dynamic Data Assimilation	13-24 Jun, 2016	Civil Engineering Department, IIT Bombay	Vinod Kumar Yadav
Competence Enhancement Programme on Soft Skills and Personality Development	01-10 Jun, 2016	NAARM, Hyderabad	S.S. Kamat Nalini Poojary
DBT-3 month training on Marine Biotechnology for Fisheries Professionals	Jul-Sep 2016	CMFRI, Kochi	Shamna N.
Training on Advances in Fish Nutrition and Feed Technology	21-23 Sep, 2016	ICAR-CIFA, Bhubaneswar	P.K. Behera
International Workshop on Crustacean Taxonomy	20-23 Sep, 2016	University of Kerala, Thiruvananthapuram	A.K. Jaiswar
Training on HPLC, GLC, GCMS Instrumentation analysis at Export Testing Laboratory	22-30 Nov, 2016	Dept. of Agricultural Chemicals, Faculty of Agriculture, B.C.K.V., Mohanpur, Nadia, W.B.	S. Datta
Winter School on Rapid Diagnostics for Fish Health Management	18 Nov-08 Dec, 2016	ICAR-CIFE, Mumbai	D.K. Singh
Good Laboratory Practices for ICAR Technical Officers	03 Dec, 2016	ICAR-CIFE, Mumbai	Nalini Poojary
Advances in Molecular Taxonomy	05-14 Dec, 2016	CIFE, Mumbai	Paramita B. Sawant
Application of Molecular Marker in Fish Breeding	31 Jan-09 Feb, 2017	ICAR-CIFE, Mumbai	Dhalongsai Reang
Biotechnological and Nanotechnological Tools in Aquatic Animal Health Management	08-28 Mar, 2017	ICAR-CIFE, Mumbai	Upasana Sahoo

10.3. Visits Abroad

Name of the person who attended	Programme	Organized by	Funded by	Place	Period
M. Goswami	14 th International Conference on Invertebrate and Fish Cell Culture & World Congress in <i>In Vitro</i> Biology	Society for In Vitro Biology, USA	DBT, Govt. of India & Society for <i>In Vitro</i> Biology, USA	San Diego, California, USA	11-15 Jun, 2016
Neha W. Qureshi	18 th Biennial Conference of International Institute for Fisheries Economics and Trade (IIFET)	University of Aberdeen, Scotland, UK	International Institute for Fisheries Economics and Trade (IIFET), Oregon State University, Oregon, USA	University of Aberdeen, Scotland, UK	10-15 Jul, 2016
A. Pavan Kumar	International Symposium on Fish, Genes, Genomes: Contribution to Ecology, Management and Conservation	Fisheries Society of British Isles	SERB, New Delhi CICS, Chennai	University of Bangor, Wales, UK	18-22 Jul, 2016
A.K. Balange	11 th Asian Fisheries and Aquaculture Forum Bangkok	Asian Fisheries Society, NACA & Fisheries Department, Thailand	Asian Fisheries Society, NACA & Fisheries Department, Thailand	Bangkok, Thailand	03-07 Aug, 2016
Gopal Krishna Arpita Sharma	Global Conference on Climate Change Adaptation for Fisheries and Aquaculture	NACA, Thailand	NACA, Thailand	Bangkok, Thailand	08-10 Aug, 2016
Rajendran K.V.	International Training Workshop on Methods in Histopathology and Molecular Biology for Disease Diagnosis in Finfish and Shrimp	Cefas, UK	Department of Biotechnology Govt. of India	Weymouth, UK	30 Jan-01 Feb, 2017

ICAR-CIFE Scientists visited abroad



Dr. Gopal Krishna



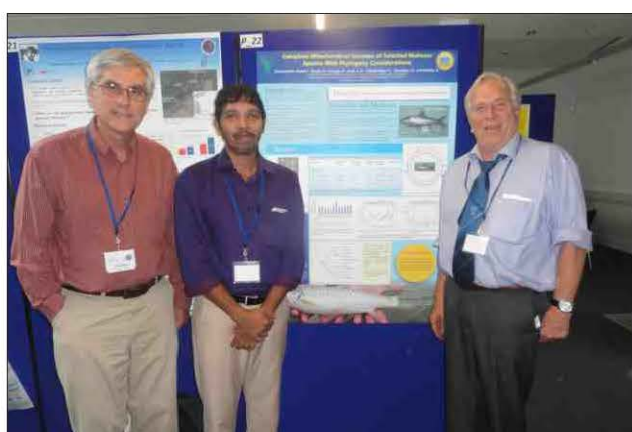
Dr. K.V. Rajendran



Dr. Arpita Sharma



Dr. A.K. Balange



Dr. A. Pavan Kumar



Dr. Neha Wajahat Qureshi



11

**Workshops/
Seminars/
Symposia
Organised**

MEGA EVENT



CIFE WAVE 2017

A slew of events were held during 3-6 March 2017 which included Students Convention, Poster exhibition, Brainstorming sessions on Blue Revolution: Way Forward, Innovations for Excellence in Higher Fisheries Education, Industry Meet, Alumni Meet, Cultural evening, Best Poster Presentations, Book release and Valedictory function.

Second
**STUDENT
CONVENTION**
3-5 MARCH 2017



Second Student Convention on Innovative Approaches for Academic Excellence in Higher Fisheries Education



Second National Student Convention on 'Innovative Approaches for Academic Excellence in Higher Fisheries Education' was successfully organized from 3-5 March, 2017 by ICAR-Central Institute of Fisheries Education (CIFE), Mumbai in association with Indian Fisheries Association (IFA), Asian Fisheries Society-Indian Branch (AFS-IB) and Post Graduate School Students Union (PGSSU).

The objective of this Second National Student Convention was to provide a platform to students to present innovative approaches in education and research to achieve excellence so as to improve the learning outcomes.

The inaugural programme of the Second Student Convention on 'Innovative Approaches for Academic Excellence in Higher Fisheries Education', on 3rd March 2017 was done in a novel way by release of fishes into tanks by the dignitaries.

Dr. Gopal Krishna, Director, ICAR-CIFE, Mumbai, welcomed the gathering of eminent Scientists, Directors of various ICAR Institutes, CIFE staff, students and faculties coming from all the fisheries colleges. He mentioned in his welcome address that there is a need to have high growth in fisheries sector and this can be done by harnessing the ideas of the young minds. This will help in bringing Blue

Revolution which is the dream of our Hon'ble Prime Minister Shri Narendra Modi. He also mentioned that for this, entrepreneurship plays a key role in every sector and the gap between researcher and entrepreneur in fisheries needs to be stepped up.

In his address, **Dr. J.K. Jena**, DDG (Fisheries), ICAR, mentioned the importance of this student convention and stressed that this was a platform for the students to share innovative ideas that would take the fisheries sector ahead. He emphasized on the health benefit of fish as food and the need to create a niche for various fishes among the consumers. He encouraged the gathering to achieve their targets by analyzing the challenges ahead of them.

A Souvenir on the convention and many new books namely Social Entrepreneurship in Aquaculture, Abstracts of Students research, Grassroots Innovations in Fisheries, Students Magazine (Jal Manjari) and Technical Bulletins on various technologies were released by dignitaries. A CD on Fish Chromosome Analysis by FGB division was also released.

Shri Mahadev Jagannath Jankar, Minister of Animal Husbandry, Dairy Development and Fisheries Development, Govt. of Maharashtra, in his address emphasized the



importance of academicians and scientists in policy making. He urged the scientists to focus on the transfer of knowledge from lab to land which is very crucial for development of the sector.

Exhibition and poster presentation

This was followed by inauguration of the exhibition by **Shri Mahadev Jagannath Jankar**, Minister of Animal Husbandry, Dairy Development and Fisheries Development, Govt. of Maharashtra; **Dr. Trilochan Mohapatra**, Secretary (DARE) and Director General, ICAR, New Delhi; **Dr. J.K. Jena**, DDG (Fisheries), ICAR, New Delhi and **Dr. Gopal Krishna**, Director, CIFE. The exhibition was a grand display of 134 colourful posters prepared by students, highlighting innovative ideas to bring excellence in fisheries education and research. The ideas were in the field of education, extension and research in order to bring Blue Revolution in the country. Young students bubbling with ideas from 20 colleges of fisheries across India were present and the dignitaries interacted with the students making the event very lively and motivating. ICAR institutes like CMFRI, CIFRI, CIBA, CIFA, NBFGR, DCFR, CIFT,

CIRCOT, CSIR-NIO and several industries also participated in the exhibition. It provided an interesting platform for sharing ideas and getting inspired. The event was followed by a cultural evening programme.

Students from across India were invited to present innovative ideas in order to achieve excellence in education and research in higher fisheries education. Capturing the spirit of the event, posters were presented by almost all fisheries colleges and research Institutes of India. More than 170 posters with innovative ideas were submitted and out of these, 134 posters were displayed in the poster exhibition. About 500 students attended the convention from all states of India. The response was overwhelming and inspiring. Talented young Indians came on a common platform with innovative on Blue Revolution.

Ten best posters were selected for oral presentation before the audience on 5th March 2017. The audience interacted with the students and appreciated their innovative ideas. Best innovative ideas were awarded prizes during the valedictory programme.

द्वितीय छात्र सम्मेलन
उच्च मात्स्यिकी शिक्षा में शैक्षिक
उत्कृष्टता हेतु नवोन्मेषी दृष्टिकोण

3-5 मार्च 2017

भा.कृ.अनु.प.-केन्द्रीय मात्स्यिकी शिक्षा संस्थान
मुंबई

Second Student Convention
Innovative Approaches for Academic
Excellence in Higher Fisheries Education

3rd to 5th March, 2017

ICAR-Central Institute of Fisheries Education
Mumbai



Brainstorming sessions on "Blue Revolution" and "Higher Education in Fisheries"

On the second day (4th March 2017), two brainstorming sessions on 'Blue Revolution' and 'Higher Education in Fisheries' were organised. Here, students from all fisheries colleges in India presented their views on how to bring excellence in fisheries sector. Both the sessions were chaired as well as moderated by Dr. J.K. Jena, DDG, Fisheries, ICAR, New Delhi. He made the session very interactive eliciting enthusiastic responses from student scholars. Several eminent personalities

including Dr. S.D. Tripathi, Former Director, ICAR-CIFE; Dr. K. Gopakumar, Former DDG (Fisheries) ICAR; Dr. Dilip Kumar, Former Director, ICAR-CIFE; Dr. K. Ratnakumar, Vice-Chancellor, TNFU, Tamilnadu; Dr. Ravishankar, Director, ICAR-CIFT; Dr. J.K. Sundaray, Director, ICAR-CIFA graced the occasion. Dr. Gopal Krishna, Director, ICAR-CIFE presided over the sessions. The sessions concluded with remarks by Dr. J.K. Jena and Dr. Gopal Krishna endorsing the students' ideas and emphasizing the confidence building of students in structuring higher education in fisheries. All winners and participants were given prizes and certificates.







4th March, 2017

ICAR-CIFE Industry Day



The annual Industry Day was celebrated this year as part of CIFE WAVE 2017 and wide participation from Industry, Institutions as well as students from across the country. The main unanimous take-home message from the industry day was very loud and clear: move beyond the cosy confines of government jobs and look towards the flourishing aquaculture and fisheries industry for lucrative job prospects and challenging entrepreneurial ventures. The program had a panel of 18 eminent people representing different sectors of the industry like shrimp hatchery, feed company, additives, pharma company, corporate farming, ropes and cages company, seafood processing and exports, certification systems, NABARD, EIC, CMFRI, MPEDA, etc. It was a matter of pride that as many as ten of them were alumni of CIFE, Mumbai.

Dr J.K. Jena, DDG, (Fisheries), Dr. Gopal Krishna, Director and VC, CIFE, Dr Chadha Head, Aquaculture Division, CIFE) welcomed the guests and opened the floor for discussion, while Dr. B.B. Nayak coordinated the discussion. Dr. Manoj Sharma spoke about the changes brought about by his entrepreneurship venture in Gujarat which increased from 4 to 450 ponds in just 2 decades. It was started with a humble amount of Rs 40000 and is currently valued at Rs 2500 crores with a turnover of Rs 100 crores annually. Mr. Ansuman Chand, a successful seafood entrepreneur and alumni of OUAT and CIFE, motivated the students into a debate on



govt. vs. private job preferences. Mr. G.S. Rath, General Manager, Godrej Agrovet, spoke about their collaboration with CIFE in which few were students are recruited every year. There is a requirement of at least 10,000 professionals in the aquaculture sector with technical knowledge and managerial skills.

Dr. S. Jacob, Joint Director, EIC told that some attributes which are needed in a student wanting job in private companies are right attitude, willingness to work, knowledge and skill, patience, involvement and satisfaction. Mr. Mahesh, alumnus of CoF, Ratnagiri and CIFE told about his struggle to get into MPSC as a fisheries officer and how he left the job after a month after realizing lack of promotion and incentives to work, and how he went on to establish India's first surimi plant in Gujarat for a private firm which turned out to be a success story as 16 such plants have come up now after.

Mr. Sandeep Ahirao motivated the students by telling them to take challenges and not to limit their options by choosing job

security over their potential. The questions/suggestions given by students related to entry level salary, salary packages, funding for research, working hours, etc. were acknowledged verbally and were taken into consideration for implementation by the panel members. Mr. Ilanchezhian and Mr. Gopakumar, both

successful entrepreneurs and leading consultants in shrimp farming industry spoke about their struggles and rewarding career in the industry and urged students to take risks. The program ended with concluding remarks by Dr. J.K. Jena and Dr. Gopal Krishna and vote of thanks by Dr. B.B. Nayak.



ICAR-CIFE Hostel Day

ICAR-CIFE Hostel Day was celebrated on 6th March 2017 with enthusiasm and joy under the umbrella of CIFE WAVE, a number of events were organized. But the Hostel Day which was named as SHOAL DAY- 2017 was the highlight of CIFE Wave. The Hostel Day was celebrated with lots of energy, vibrancy and enthusiasm by the young students of CIFE on 6th March 2017 by all the three hostels of CIFE, Mumbai.

The auspicious moment of the inauguration of the Hostel Day began with the ribbon cutting and lighting of the lamp by Dr. Gopal Krishna, Director, ICAR-CIFE. Dr. N.P. Sahu, Dean (Academics), Dr. Arpita Sharma, Warden (Girls Hostel), Dr. K. Pani Prasad, Warden (Boys Hostel) and Dr. Swadesh Prakash, Dean (Students Welfare) were present in this event and mentioned that this is a day which is very important as

hostel life and friends are cherished for ever. PGSSU team and students coordinated this event with joy which was later followed by a cake cutting ceremony.

Towards the end of the day, a grand cultural evening was held where students danced on various themes and dressed in colourful cultural attires.

Prize distribution was done during the cultural Evening by Dr. Gopal Krishna, Director, ICAR-CIFE and Dr. Sujata Saxena.

The hostel staff were given appreciation awards for the contribution and dedication with which they work in the hostel. The Hostel Day ended with a dinner arranged in the hostel itself. The Hostel Day was enjoyable and full of joy, creating lighter moments for the students and faculty to cherish.





ICAR-CIFE Alumni Meet



The fast and busy schedule of our lives makes us forget to appreciate the beauty of the world around us and by the time we realize what we have been blessed with, it is often too late. Alumni meets are one of those few events where friends and classmates get to see each other after years of studying together.

The CIFE Alumni Meet on 4th of March 2017 started with the alumni recalling their past with nostalgia. The programme was held in the CIFE auditorium where about 68 alumni attended the meeting. Dr. Gopal Krishna, Director, CIFE, Mumbai welcomed all, while Dr. S.D. Tripathi, former Director and Vice Chancellor, CIFE, Dr. J.K. Sundaray, Director, CIFA, Dr. N.K Chadha, HoD, Aquaculture Division, CIFE along with several industry veterans and successful entrepreneurs graced the occasion. Dr. M. Goswami presented the status report of CIFE Alumni expressing his happiness in

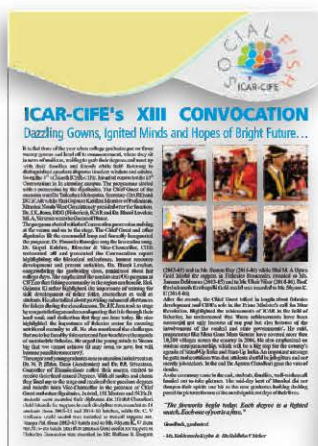
being alumnus of CIFE. Dr. N. K. Chadha among the eldest serving CIFE alumnus shared his memories. The dignitaries released CIFE Alumni Directory with a CD that was compiled by Dr. M. Goswami and Dr. Ashutosh Deo, alumni and faculty at CIFE, Mumbai.

The alumni introduced themselves and it was evident our that many of our alumni owned their own successful companies now, worked for private and government companies at senior levels both in India and overseas. They all had a lot to reminisce, share and more importantly were willing to give back to the Institution that gave them the confidence and built their career. This was followed by a panel discussion where the future course of action for registration of CIFE Alumni Association, holding of next Alumni Meet, etc. were discussed. Soon after, the programme ended with vote of thanks by Dr. Ashutosh Deo.

The first issue of SocialFish was launched



The first issue of **SocialFish**, the student run fortnightly News Magazine that promises to bring facts and fables from the world of fisheries was launched by Dr. J.K. Jena, DDG, Fisheries in the presence of Dr. Gopal Krishna, Director, CIFE and prominent faces from the fisheries industry and institutions. It will primarily be an e-news letter with limited print copies. **SocialFish** is anchored by Fisheries Economics, Extension and Statistics Division, ICAR-CIFE, Mumbai.



Cultural Program



Vibrant Confluence of South, North, East and West

A cultural programme involving participants from all fisheries colleges was organised. This programme was coordinated by CIFE-PGSSU. The participants displayed diverse talents on the stage. The students enthralled the audience by their vibrant performances.



CIFE SPORTS MEET

ICAR-CIFE Sports Meet 2017 was conducted during 6-12 March, 2017. Chief Guest for the inauguration was Dr. Gopal Krishna, Director, ICAR-CIFE. The sports-in-charge (Dr. A.K. Balange), Sports Coordinator (Dr. A.K. Verma) President CIFE-PGSSU (Mr. Arun V.V), Sports Secretary CIFE-PGSSU (Mr. Parmanand Prabhakar) and all the captains were present. In this annual sports meet, all the students were divided into four houses namely Blue House, Green House, Yellow House and Red House. The sports meet was started with the lighting of the sports torch. Following sports event were conducted for boys and girls such as

athletics (race 100m & 200m), discus throw, javelin throw, long jump, shot put, walking competition and cycle race, indoor games (chess, carrom board, badminton, table tennis) and outdoor game (football, cricket, basketball, volley ball, kabaddi, kho-kho and lawn tennis). Overall champion was Blue House with highest point followed by Green House, Red House and Yellow House. Best athlete award for the boys was given to Manickavasagam S. (Blue House) and among girls, to Neethu Jose (Blue House), Man of the Series Cricket award to Mr. Sujit Kumar Shandilya (Green House) and Best player for football to Nitesh Gurung (Green House).



Interactive Meet of Directors & Finance Officers of ICAR Institutes (West Zone) at ICAR-CIFE, Mumbai



Dr. Trilochan Mohapatra, Secretary (DARE) & DG (ICAR) inaugurated and chaired the Review-cum-Interactive Meeting of Directors & Finance Heads of ICAR Institutes of West Zone on 6th May 2016 at ICAR-CIFE. Shri S. K. Singh (IAS), Additional Secretary & Finance Advisor, DARE co-chaired the Meeting. Directors and Finance Heads from ICAR Institutes in the West Zone States participated.

ICAR Education Central Zone Monitoring and Review Meeting



ICAR Education Central Zone Monitoring and Review Meeting was held from 28-30 November 2016.

Director, ICAR-CIFE, Dr. Gopal Krishna briefed the committee about the achievements of CIFE during the last five years. The Chairman recommended to explore the opportunities of getting funding under different ICAR programs. Dr. P.S. Pandey outlined the genesis and major objectives of the committee. He explained how the monitoring and evaluation system has evolved for imparting transparency in funding mechanisms. The Committee interacted all the scientists, Centre-Incharges, students and administrative staffs. The Committee visited facilities and hostels of CIFE New campus and old campus.

The Committee expressed satisfaction over the performance and support provided to the university in terms of impact in the development of fisheries education.



PAF 3rd Congress on Social Entrepreneurship in Aquaculture



Central Institute of Fisheries Education, Mumbai organized the Congress on 'Social Entrepreneurship in Aquaculture' in collaboration with Pillay Aquaculture Foundation (PAF) and Indian Fisheries Association, Mumbai from 27th to 29th April, 2016. Many Government Agencies, ICAR Institutes and other stakeholders participated in the Congress.

The Congress was inaugurated by Dr. Mangala Rai, former Secretary, DARE & Director General, ICAR, New Delhi and presently Vice Chancellor, GBPUA&T, Pantnagar. He highlighted the importance of water, need to understand its cost and budgeting, and the role of social entrepreneurs in fisheries and aquaculture. Dr. J.K. Jena, Deputy Director General (Fisheries), ICAR, New Delhi presided over the function. He outlined the challenges in enhancing fish production to reach the targeted production. Dr. Gopal Krishna, Director/Vice Chancellor, ICAR-CIFE welcomed the dignitaries. In his address, he emphasized the importance of social entrepreneurship in aquaculture. He also highlighted the role of Social Entrepreneurs having innovative ideas, passion to do good to the society and compassion for environment and equity to improve the production, processing and marketing of fish and fish products through empowering women and the poor farmers and fishermen. The objective of the Congress was to attract the attention of the policy makers and stakeholders to help in

the emergence of a cadre of social entrepreneurs in aquaculture through policy support, training and leadership development. Theme of the Congress was presented by the Secretary, PAF Dr. P. Keshavanath on behalf of the President of the PAF, Dr. V.R.P. Sinha.

Dr. Cherdasak Virapat, DG, NACA, Dr. Vishnu Swaminathan of Ashoka Innovators for the Public, Dr. S.D. Tripathi, and Dr. W.S. Lakra, former Directors/Vice Chancellors of CIFE were Guests of Honour, while Dr. Satyajit Mazumdar of Tata Institute of Social Sciences, Mumbai was a Special Guest. Over 250 delegates from different parts of the country as well as from abroad consisting of academia, management experts, aquaculture practitioners, policy makers and planners, administrators, NGOs and students attended the Congress. Mr. Pongpat Boonchuwong, NACA Mentor in Fisheries and Aquaculture Economics, Dr. A.S. Ninawe, former Vice Chancellor, MAFSU and Advisor DBT, Dr. S.C. Pathak, former Chief General Manager, NABARD, Dr. A.K. Singh, Director, DCFR, Bhimtal, Dr. Jitendra Sinha of SAI, Professor P.N Panday, President, ZSI, Professors B.N. Pandey, G.K. Kulkarni and Y.K. Khillare were among the notable participants.

Based on the deliberations and recommendations, it was decided to call the gist of the recommendations of the Congress given as the 'Mumbai Declaration to Promote Social Entrepreneurship in Aquaculture, which was unanimously adopted.



“The delegates, comprising of researchers, social entrepreneurs, practitioners and promoters, private companies, non-governmental organizations, government agencies and other participants, after having deliberated over a period of three days agreed that the identification, integration, and promotion of social entrepreneurship in government policy and programmes for aquaculture is essential for the growth of the sector in a sustainable manner and call upon state/central governments to take concrete further steps to establish, accelerate and strengthen such entrepreneurship for the benefit of all the stake holders. Governments need to create an enabling environment in the construction of infrastructure essential for ensuring ready access to physical

resources, particularly marginal land for aquaculture, availability of quality water, seed, feed, breed, and mechanism for rigorous quality control, healthy product development, trading and marketing, without impairing the quality of fish and fish products. Governments should promote and propagate the development of a deeper understanding industries to become environmental-centric and social-centric, while making sizable profit. All stake holders, as well as students and researchers, should be aware of the philosophy and ethics of a successful social entrepreneurship. The governments should also set up an appropriate mechanism to identify in the startups the leadership quality that also should include a passion for doing social good and compassion for social equity and environment. Adequate institutional facilities need to be created for third party certification traceability and skill development and also to start an academic course for Social Entrepreneurship in Aquaculture and ICAR should consider establishing such facilities at CIFE, Versova, Mumbai.



Matsya Kala Workshop 2016

Collaborating to achieve excellence

The 'Matsya Kala Workshop' first of its kind at CIFE, saw 15 art students from J J School of Fine Arts displayed their art work. Dr. Gopal Krishna, Director, CIFE explained his purpose for such an interesting step towards bringing Art and Science together under one roof, "People find some kind of a peace and freedom in art, art is an asset and becomes therapeutic as well as an aesthetic element in our overly stressed out lives. I visit art shows, as it relaxes me, and I believe It would do a lot of good to the people who work here as well as the students, faculty members and visitors to be able to look at art when they come here. We also look at art as a means to convey important messages of environmental preservation. We will be displaying these works on our walls at CIFE and these will

become our permanent collection. We hope to have such activity workshops every year with CIFE and J J School students too."

The workshop saw some interesting depictions not only of fishes and oceans but also of the people who live off these occupations.

Prof. Anant Nikam of JJ School who has conducted this workshop said that students of art need different kinds of inspiration to make art. Nature is the best inspiration, the forms in marine life, the CIFE libraries with thousands of images of life forms, the labs, the beach etc give a different perspective to the understanding of subject, form, shape and colour. These kinds of activities open up the imaginations of the students and it help to create a dialogue with the viewer of the works.



CIFE hosts National Consultation on Higher Fisheries Education



ICAR-Central Institute of Fisheries Education, Mumbai organized a one-day National Consultation on Higher Fisheries Education on 16th December, 2016 at Mumbai. The primary aim of the event was to support the education system of the fisheries colleges by facilitating through ICAR-fisheries research institutes. The consultation meet was attended by Deans of Fisheries Colleges of Jammu & Kashmir, Gujarat, Maharashtra, Tamil Nadu, Karnataka, Uttar Pradesh, Uttarakhand, Madhya Pradesh, Odisha, West Bengal, Andhra Pradesh, Tripura and Rajasthan along with the Directors of ICAR Fisheries Institutes.

In the inaugural address, Dr. Gopal Krishna, Director, ICAR-CIFE expressed that the goal of “Blue Revolution” can only be achieved by strengthening fisheries education in the country. Hence, this is the need of the hour to support the state fisheries colleges, who shoulder the responsibility of producing fishery graduates, to augment their basic need for improving the student quality. This will help in developing quality human resources in the country with adequate expertise in frontier areas of fisheries. Dr. N. P. Sahu, Dean, ICAR-CIFE introduced the delegates about the genesis and work plan of the National Meet and also highlighted

the features to be discussed during the group discussion. Dr. G. Venkateshwarlu, ADG (EQR), Education Division, ICAR presented a glimpse of various ICAR schemes launched recently to enhance the quality of higher education by supporting the students and faculties. Dr. P. Jayasankar, Director, ICAR-CIFA advocated strongly for incorporating the elements of entrepreneurship development programme in higher fisheries education. Dr. A.K. Singh, Director, ICAR-DCFR, Bhimtal, Dr. Masood Balkhi, Dean, COF-J&K, Dr. B.K. Das, Director, ICAR-CIFRI, Barrackpore also expressed their views to bring harmonization between UG and PG education.

The National Consultation Meet was successful in providing an interface for fruitful discussion and exchange of ideas among the representatives of Colleges of Fisheries, ICAR-CIFE and ICAR Research Institutes pursuing teaching and research in fisheries. In order to maintain the momentum of growth of this sector, highly competent human resource is an indispensable pre-requisite. The recommendation of this National Consultation will facilitate the reforms in higher fisheries education of the country.



The review meeting of ICAR research institutes and the State Agricultural Universities located in Maharashtra



The review meeting of the performance of ICAR research institutes and the State Agricultural Universities located in Maharashtra was held at ICAR-Central Institute of Fisheries Education, Mumbai on 4th July 2016. The meeting was chaired by the Hon'ble Union Minister of Agriculture and Farmers Welfare **Shri Radha Mohan Singh ji**. **Shri Vijay Deshmukh**, State Minister for Fisheries, Maharashtra, **Shri Ram Shinde**, State Minister of Agriculture and Horticulture, Maharashtra, **Shri Chhabilendra Roul**, IAS, Additional Secretary DARE and Secretary ICAR, **Dr. J. K. Jena**, Deputy Director General (Fisheries) ICAR, **Dr. Gopal Krishna**, Director, ICAR-CIFE, Mumbai, **Shri Bijay Kumar**, IAS, Principal Secretary (Fisheries), Government of Maharashtra, **Shri Bhagwan Sahay**, IAS, Principal Secretary Agriculture, Government of Maharashtra were on the dais. The Hon'ble Union Minister of Agriculture dwelt at length on the role of extension and transfer of technology from lab to land. Hon'ble Union Minister **Shri Radha Mohan Singh ji** stressed on the field extension and emphasized the need for bringing together the state departments and the research

institutes / State Agricultural Universities located in the same state. He felt that these institutions should meet at least twice in a year as this would enable first hand transfer of technology directly to the first line department of extension.

The Hon'ble Union Minister of Agriculture emphasized on the revival of the KVKs in the state and to reorient the KVKs as an institution that delivers technology to the farmers. The Minister also explained why the IARI model needed to be replicated in Ranchi and Assam after 69 years of independence. He also spoke on the Gokul Gram Concept which the Government of India was promoting.

He stated that the governance climate from the top is driven by national spirit and pro-growth. **Shri Radha Mohan** also emphasised the need for uploading and publicising the good work that is being done by all the concerned institutions. He was emphatic that science and technology are the only tools for ensuring progress in agriculture and development. Speaking on marketing, he laid stress on streamlining the marketing channels and minimising the loss in post harvest.

The Hon'ble Union Minister also released a technical manual on Fish Haematology by ICAR-CIFE, Mumbai, a book on Apiculture by KVK Baramati, a technical bulletin on Desi cow breeds by KVK Solapur and a folder on pomegranate by KVK Dhule.

Shri Chhabilendra Roul, IAS Additional Secretary, DARE and Secretary ICAR, emphasized on increasing production and productivity on all fronts of agriculture. He reiterated that this review meeting of the performance of agricultural institutions was being taken for all the states and this one was being done for Maharashtra. He welcomed all the dignitaries and participants to this review meeting.

Dr Gopal Krishna, Director of ICAR-CIFE, Mumbai made a presentation on the activities of the institute and explained academic programmes and facilities of CIFE, and the thrust areas of research of the institute. He also explained the efforts taken by ICAR-CIFE to liaise with all

concerned agricultural departments. The process of review of the performance of various ICAR institutes as well as SAU's was initiated by the Hon'ble Union Minister of Agriculture and Farmers Welfare. He quickly reviewed the progress and in the process appreciated as well as chose to guide the respective institutions in the efforts that they have been making in generating technologies and their transfer. The participating institutions included ICAR-Central Institute of Research on Cotton Technology, Mumbai, ICAR - Central Institute of Cotton Research, Nagpur, ICAR-Directorate of Onion and Garlic, Pune, ICAR-Directorate of Floriculture Research, Pune, Director ATARI, ICAR- NRC Grapes, ICAR-NRC-Pomegranate, Vice Chancellor, MAFSU Nagpur, MPKV Rahuri and KVK's. Dr. J. K. Jena, Deputy Director General, ICAR, explained the importance of Fisheries Sector in the state and also thanked the dignitaries and delegates for taking up such a meeting at CIFE, Mumbai.



Video Conferencing Training Program: Designing Breeding Plans and Genetic Analysis of Complex Traits

Fish Genetics and Biotechnology Division, ICAR-CIFE, Mumbai organized an ICAR Sponsored Training Program on 'Designing Breeding Plans and Genetic Analysis of Complex Traits' during 13-22 September, 2016. Dr. Shrinivas Jahageerdar was the Course Director and the program was coordinated by Mr. M.A. Pathan and Dr. N.S. Nagpure. Ten scientists/faculty members from nine institutes/universities attended the program. The training program was inaugurated by Dr. Gopal Krishna, Director, CIFE on 13th September, 2016. In all, 20

theory/ practical classes were conducted. Apart from the faculty of FGB Division and CIFE, five invited speakers from outside CIFE also delivered lectures and imparted hands-on training to the participants.

Trainees were exposed to genetic analysis of complex traits by employing 'Mixed Models' through SAS® and R® programs. One of the important features of the program was a lecture on 'Whole genome selection' by Dr. Rama Bangera, Geneticist, AKVAFORSK, Sundersola, Norway through Skype.

International Workshop on Linear Mixed Models in Practice: An As-REML-Oriented Approach

In a majority of crop, animal and fisheries experiments both fixed and random effects are invariably found. Ignoring or mistreating random effects inadvertently leads to inappropriate analyses and wrong inferences. Employing the General Linear (Mixed) Models (GLMM) for analyses of research data is the best way to arrive at proper conclusions, but analysis through GLMM is a formidable task. Adopting GLMM needs a thorough knowledge of mixed models and statistical software.

Keeping these points in mind, the ICAR-Central Institute of Fisheries Education, Mumbai and Indian Fisheries Association (IFA), Mumbai organized an International Workshop on 'Linear Mixed Models in Practice: An As-REML-Oriented Approach' from 13-15 Oct 2016 at CIFE, Mumbai.

Dr. Arthur Gilmour, Retd. Professor New South Wales Department of Primary Industries (NSW-DPI), Australia, an authority on mixed models and the principal developer of the AS-REML software, was the key resource person of this workshop. A total of 34 faculty members, scientists and research scholars from government and private organizations attended the workshop. The workshop was

inaugurated by Dr. Gopal Krishna, Director, CIFE & President Indian Fisheries Association. In his inaugural address he emphasized the need to have appropriate experimental designs and to adopt proper statistical models in analyzing the research data for meaningful inferences. During the workshop, live data sets were provided to the participants for hands-on analysis. Many participants analyzed their own research data with the guidance of Dr. Gilmour. Dr. S.D. Tripathi, former Director, CIFE was the chief guest for the valedictory function held on 15th Oct 2016. The function was chaired by Dr. Gopal Krishna, Director, CIFE and Dr. W.S. Lakra, former Director, CIFE also graced the occasion. The workshop was coordinated by Dr. Shrinivas Jahageerdar, Principal Scientist, FGB Division, CIFE.





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**Distinguished
Visitors**



Cabinet Ministers, Govt. of India

Shri Radha Mohan Singh
Hon'ble Union Minister of Agriculture and Farmers Welfare
04 July 2016, 17 September 2016 and 30 December 2016

Shri S. S. Ahluwalia
Hon'ble Minister of State for Agriculture and Farmers Welfare and Parliament Affairs
27 October 2016, 14 August 2016, 19 December 2016 and 16-25 March 2017

Shri Giriraj Singh
Minister of State in Ministry of Micro, Small and Medium Enterprises (MSME)
04 April 2016

Ministers, Govt. of Maharashtra

Shri Vijay Deshmukh
State Minister for Fisheries, Maharashtra
04 July 2016

Shri Ram Shinde
State Minister of Agriculture and Horticulture, Maharashtra
04 July 2016

Shri Mahadev Jankar
Hon'ble Minister Animal Husbandry, Dairy Development and Fisheries, Maharashtra
26 December 2016

Shri Thakur Singh Bharmouri
Hon'ble Minister of Forest and Fisheries, Himachal Pradesh
05 January 2017 and 03 March 2017

M.P. and MLAs

Shri Gajanan Kirtikar
Member of Parliament, North-West, Goregaon, Mumbai
03 March 2017

Dr. Bharati Lavekar
Member of Legislative Assembly (Versova, Mumbai)
16 May 2016, 10 July 2016, 17 September 2016, 26 December, 2016 and 03 March 2017

ICAR, New Delhi

Dr. Trilochan Mohapatra
Secretary, DARE & Director General, ICAR, New Delhi
06 May 2016, 15 June 2016 and 03 March 2017

Dr. J.K. Jena
Deputy Director General (Fisheries) ICAR, New Delhi
15 June 2016, 27-29 April 2016
21 October 2016, 04 July 2016
03 March 2017 and 04 March 2017

Dr. Sudhir Raizada
Assistant Director General (Inland Fisheries), ICAR, New Delhi
21 October 2016 and 04 November 2016

Dr. P.S. Pandey
ADG (EP & HS), ICAR, New Delhi
28-30 November 2016

Dr. G. Venkateshwarlu
ADG (EQR), ICAR, New Delhi
16 December 2016

Dr. Pravin Puthran
ADG (M.Fy.), ICAR, New Delhi
13 January 2017

Visitors from abroad

Shri Mahinda Amaraweera
Minister of Fisheries and Aquatic Resources Development, Government of Sri Lanka
04 November 2016

Dr. Arthur Gilmour
Retd. Professor, New South Wales Department of Primary Industries (NSW-DPI), Australia
13-15 October 2016

Dr. Ravi Fotedar
Professor, Sustainable Aquaculture, Curtin University, Australia
29 August 2016

Dr. Soottawat Benjakul
Professor, Prince of Songkla University, Thailand
17 August 2016

Shri S.K. Singh

*IAS, Additional Secretary & Finance Advisor,
DARE
06 May 2016*

Shri Chhabilendra Roul

*IAS, Additional Secretary DARE and Secretary
ICAR
04 July 2016*

Vice-Chancellors**Dr. Mangala Rai**

*Former Secretary, DARE & Director General,
ICAR, New Delhi and presently Vice
Chancellor, GBPUA&T, Pantnagar
27-29 April 2016*

Dr. A.S. Ninawe

*Former Vice Chancellor, MAFSU and Advisor
DBT
27-29 April 2016*

Prof. George John

*Vice Chancellor of Birsa Agricultural
University, Jharkhand
06 June 2016*

Prof. R. K. Kohli

*Vice-Chancellor, Central University of Punjab,
Bathinda
24-26 October 2016*

Directors of ICAR Institutes**Dr. A.K. Singh**

*Director, ICAR-DCFR, Bhimtal
27-29 April 2016*

Dr. K.V. Prabhu

*Jt. Director (Research, ICAR-IARI)
28-30 November 2016*

Dr. B.K. Das

*Director, ICAR-CIFRI
16 December 2016*

Dr. J.K. Sundaray

*Director, ICAR-CIFA
3-4 March 2017*

Eminent Scientists**Dr. M.V. Gupta**

*World Food Prize Laureate (2005)
06 June 2016*

Dr. S.D. Tripathi

*Former Director, CIFE, Mumbai
27-29 April 2016 and 28-30 November 2016*

Dr. Dilip Kumar

*Former Director, CIFE, Mumbai
16 April 2016 and 11 July 2016*

Dr. P. Keshavanath

*Secretary, Pillay Aquaculture Foundation
27-29 April 2016*

Dr. Cherdsak Virapat

*DG, NACA
27-29 April 2016*

Dr. Vishnu Swaminathan

*Director, Ashoka Innovators
27-29 April 2016*

Dr. Satyajit Mazumdar

*Tata Institute of Social Sciences
27-29 April 2016*

Mr. Pongpat Boonchuwong

*NACA Mentor in Fisheries and Aquaculture
Economics
27-29 April 2016*

Dr. S.C. Pathak

*Former Chief General Manager, NABARD
27-29 April 2016*

Dr. Jitendra Sinha

*Sal-Sustainable Agro Zoological
27-29 April 2016*

Prof. P.N. Panday

*President, ZSI
27-29 April 2016*

Prof. Madhusoodana Kurup

*Former Vice Chancellor of Kerala University
of Fisheries and Ocean Studies (KUFOS),
Kochi
06 June, 2016*

Dr. A. K. Chaube

*Scientist-in-charge, Mumbai Centre of NIO,
Mumbai
06 June 2016*

Dr. A.D. Diwan

*Ex. ADG (M.Fy.), ICAR
13 December 2016*

Dr. Atul Jain

*Director, Ornamental Fisheries Training and
Research Institute, Udaipur, Rajasthan
14 December 2016 and 23 December 2016*

Dr. K.V. Jaichandran

*Director Research, KUFOS
5 February 2017*

Dr. K.P. Ramesh

*Head, SRS, NDRI Bengaluru
06 February 2017*

Dr. E. Vivekanandan
Emeritus Scientist
25 March 2017

Other Distinguished Visitors

Shri Bijay Kumar
*IAS, Principal Secretary (Fisheries),
Government of Maharashtra*
04 July 2016

Shri Bhagwan Sahay
*IAS, Principal Secretary Agriculture,
Government of Maharashtra*
04 July 2016

Shri Bijay Kumar
*IAS, Principal Secretary, Department of
Animal Husbandry, Dairy and Fisheries,
Govt. of Maharashtra*
10 July 2016

Shri M. Gaikwad
*Commissioner of Fisheries, Department of
Fisheries, Maharashtra*
17 September 2016

Dr. Dev Swarup
Joint Secretary, UGC, New-Delhi
24-26 October 2016

Mr.G.S. Rath
Marketing Head of Godrej Agrovet
04 March 2017

Dr. S. Jacob

*Joint Director, Export Inspection Council,
India*
04 March, 2017

Dr. Rajendra Parab
*Marketing Manager, Grasim Industries, Aditya
Birla Group*
24 March 2017

Dr. G. C. Yadav
Marketing Manager, Lovibond India Ltd
24 March 2017

Dr. Sanjeev Gupta
*Head, R & D Grasim Industries, Aditya Birla
Group Bharuch, Gujarat*
25 March 2017

Dr. Bimal Kinkar Chand
*Executive Director (Technical)
NFDB, Hyderabad*
04 June 2016

Mr. Anil Mabile
*Principal Secretary (Fisheries)
Govt. of Haryana*
05 June 2016

Dr. P.K. Sharma
*Associate Professor
GCW, Narnaul, Haryana*
8 September 2016

Dr. Puran Prabha
*Associate Professor
GCW, Narnaul, Haryana*
8 September 2016



Shri Mahinda Amaraweera, Minister of Fisheries and Aquatic Resources Development, Government of Sri Lanka at ICAR-CIFE Rohtak Centre

Shri. Mahinda Amaraweera, Minister of Fisheries and Aquatic resources development, Government of Sri Lanka accompanied with Dr. R. S. Raizada, Assistant Director General (Fisheries), ICAR, representatives from the Ministries of External Affairs and Home visited ICAR - CIFE Rohtak Centre on 4th November, 2016.

Dr. Gopal Krishna, Director, ICAR-CIFE briefed on recent achievements and activities of the Centre. During the visit, the minister visited various research facilities available at the Centre and appreciated the efforts made by the centre in the field of inland saline aquaculture. The dignitaries visited selected private shrimp and fish farms located at Anwal and Madina villages, Rohtak (District), Haryana and a farmers interaction had also been arranged. Senior Officials of Rohtak District Administration, Shri R. S. Saugwan, Department of Fisheries, Govt. of Haryana, officials and staff of ICAR - CIFE Rohtak Centre were present in the event.



Shri Giriraj Singh, Minister of State, Ministry of Micro, Small and Medium Enterprises (MSME), Govt. of India visits ICAR-CIFE

Shri Giriraj Singh, Minister of State, Ministry of Micro, Small and Medium Enterprises (MSME), Member of Parliament from the Nawada constituency in the 16th Lok Sabha visited ICAR-CIFE on 4th April 2016. Hon'ble Minister Shri Giriraj Singh has served the Cabinet of Bihar as Co-operative minister from 2005-2010 & Animal Husbandry Minister from 2010 to 2013. He stressed that the research should to be taken in such a manner that it reach the farmers for their betterment and ultimately develop the nation. He showed immense interest in the field of fisheries and narrated the challenges which fishers face in India with specific examples from Bihar. Showing deep respect to the Indian farmers, he spoke eloquently about pertinent issues related to agriculture, livestock and fisheries. Scientific community of CIFE benefitted from his address.



Shri Thakur Singh Bharmouri, Hon'ble Minister of Forest and Fisheries, Himachal Pradesh visits ICAR-CIFE, Mumbai on 5th January 2017



The purpose of this visit was to see the facilities, interact with the scientists and to explore the possible technical and extension support to the state of Himachal Pradesh. During the interaction, Dr. Gopal Krishna, Director, ICAR-CIFE welcomed the Hon'ble Minister and explained the activities of the institute and expertise available in different areas.

The Hon'ble Minister emphasised on the production of organic fish, expressing his concern on health issues with the use of inorganic fertilizers, outbreak of diseases and other environmental concerns. Director Fisheries, H.P. requested CIFE experts to provide necessary support in developing low cost feed for trout & carps and Skill Development Training Programmes for Officers and Farmers. Director, CIFE assured full support for which details will be worked out in consultation with Director Fisheries, Himachal Pradesh. Heads of Divisions and senior faculty were present in the meeting and gave their inputs. The Hon'ble Minister expressed his gratitude to the Director and scientists of CIFE for fruitful discussions.

Dr. T. Mohapatra, Secretary, DARE & Director General, ICAR with Dr. J. K. Jena, Deputy Director General (Fisheries) of ICAR, New Delhi visits ICAR-CIFE, Kolkata Centre



Dr. Trilochan Mohapatra, Secretary DARE & Director General, ICAR with Dr. J. K. Jena, Deputy Director General (Fisheries) at ICAR, New Delhi visited the ICAR-CIFE Kolkata centre on 15 June, 2016. The Director General expressed his happiness at the progress made by the centre in all spheres of research, teaching & training and extension. The Director General also emphasised the need for ensuring value

chain in the process of training and stressed on delivery of training to stakeholders at nearby centres for the convenience of the participants. The DG stressed on the role of the ICAR-CIFE as a nodal institute for delivery of technology through training programs which are of immense importance in the effort at skilling the stakeholders. He expressed his happiness over the well kept premises and cleanliness that was evident in the campus.

The DG launched the online training programme on "Culture of Pacific white shrimp *Litopenaues vannamei*". The DG earlier inaugurated the new Fish Quality Control laboratory and released the CIFE-DO (Dissolved Oxygen Test Kit) developed by the Centre.

Dr. J.K. Jena, Deputy Director General (Fisheries) addressed the institute and appreciated the all round development of the centre. Dr. Gopal Krishna, Director and Vice Chancellor, ICAR-CIFE, Mumbai welcomed the dignitaries and felicitated them on the occasion. Dr. B.K. Mahapatra, Principal Scientist & OIC, ICAR-CIFE, Kolkatta made a brief presentation of the activities of the centre and Dr. M. Krishnan, Head, Social Sciences Division, ICAR-CIFE, Mumbai anchored the programme and delivered the vote of thanks.

Dr. J.K. Jena, DDG (Fy.) visits ICAR-CIFE Kakinada Centre



Dr. J.K. Jena, Deputy Director General (Fy.) emphasised need to strengthen the centre by posting a few scientists and technical staff at the centre. He also advised to concentrate more on the training programmes and one-year diploma course to maintain the quality of training. He suggested to take-up focused research activities which will be an immediate requirement to the farmers. A meeting was conducted on the freshwater fish farm land lease issue with the officials from Sri Venkateswara Veterinary University, Tirupati. Dr. Gopal Krishna, Director & Vice-Chancellor, ICAR-CIFE, Mumbai appraised the activities of ICAR-CIFE Kakinada centre and emphasised the need of research activities at ICAR-CIFE Kakinada Centre. Deputy Director General (Fisheries), Assistant Director General (Inland Fisheries) and Director, ICAR-CIFE, appreciated the efforts made by the Scientists, Technical Officers and other Staff of the Centre.



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Others

55th Annual Day Celebration



Central Institute of Fisheries Education, Mumbai, the only national Deemed University on fisheries education celebrated its 55th Foundation Day on 6th June, 2016. Dr. M. V. Gupta, World Food Prize Laureate (2005) graced this occasion as Chief Guest and distributed the annual institution awards in 14 categories like Best Scientist, Best Teacher, Best Extension Scientist, etc. Guests of honour included Prof. Madhusoodana Kurup, former Vice-Chancellor of Kerala University of Fisheries and Ocean Studies (KUFOS), Prof. George John, Vice Chancellor of Birsa Agricultural University, Jharkhand and Dr. A. K. Chaube, Scientist-in-charge, Mumbai Centre of National Institute of Oceanography.

Speaking in a lecture series on the theme "Higher Fisheries Education: Present Status and Future Directions", Dr. M. V. Gupta, recounted the days when he had arranged for batches of SE Asian entrepreneurs to be trained at CIFE. He stressed upon the need for India to lengthen its stride so as to maintain its 2nd position in global aquaculture production. Prof. Madhusoodana Kurup, highlighted the need for greater government emphasis and expenditure in the fisheries sector. He also put forth the view that entrepreneurship

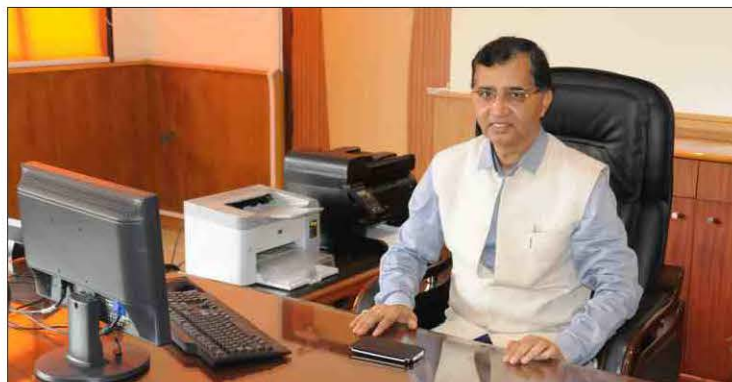
should be encouraged through skill development programs and diploma courses so that the dream of blue revolution envisaged by the Prime Minister is realized. Prof. George John, Vice Chancellor of Birsā Agricultural University, Jharkhand, suggested that CIFE should quantify its impact by tracking the achievements of its alumni in the fisheries sector since its inception. He was of the opinion that the sector lacks human resource of entrepreneurial capabilities and advised action in this direction. Dr. P. K. Pandey, Dean, College of Fisheries, CAU, Tripura, commented on the need to make teaching a more rewarding engagement for scientists who are often judged on research performance alone. Dr. Gopal Krishna, Director, CIFE summed up the Institute's achievements in HRD and technologies such as aquaculture in inland saline areas, enhanced larval survival of indigenous magur, a vaccine for white spot shrimp virus, etc. and thanked experts for their valuable suggestions for future developments in fisheries education.

The celebrations ended with a cultural program in which the staff, students and family members of CIFE participated enthusiastically.

Dr. Gopal Krishna takes charge as Director of ICAR-CIFE

Dr. Gopal Krishna has taken over as the Director of ICAR-CIFE, Mumbai on 28th September 2016. In his message to students and staff, he lauded the efforts of previous Directors and reiterated the challenges and opportunities in taking CIFE to greater heights and making it a global leader in higher fisheries education and human resource development. Following is the summary of his message:

With five and a half decades of academic excellence and leadership, CIFE is now the first choice for professional quality fisheries HRD in the Afro-Asian region. Boasting of reputed faculty and state-of-the-art infrastructure facilities housed in a serene campus, CIFE is marching ahead with renewed vigour to fully realise its vision to be a world-class organization



providing leadership in fisheries education and research.

Understanding the increasingly globalised and specialised world, only the spirit of innovation within a collaborative multidisciplinary R&D environment can help find solutions for complex problems. With excellence, integrity, transparency, and commitment to stakeholders being core values that guide all our endeavours in research, education and extension, CIFE is poised to shape a better future for all.

Agricultural Education Day

ICAR-CIFE, Kolkata Centre celebrated the “Agricultural Education Day” on 3rd December 2016 as a part of Birth Anniversary of Bharat Ratna, Dr. Rajendra Prasad, who was the first Union Minister of Agriculture of India in 1946 and first President of Independent India.

More than 50 students from different colleges participated in this programme. Dr. B.K. Mahapatra, Principal Scientist and OIC of the Centre, briefed the significance of this programme and motivated the students to choose agriculture and allied subjects for a professional career. Many students put their views in support of choosing agriculture as a professional career. All the scientists of the Centre interacted with the students and discussed various aspects of agricultural education.



UGC Review Team visit

A seven member UGC Review Team visited the ICAR-CIFE, Mumbai during 24-26 October 2016 under the chairmanship of Prof. R. K. Kohli, NAAS Fellow & Vice-Chancellor, Central University of Punjab, Bathinda and Dr. Dev Swarup, Joint Secretary, UGC, New Delhi. During review meeting held in the forenoon of 24th October, 2016 with the faculty members of the Institute, Dr. Gopal Krishna, Director/Vice-Chancellor of the Institute welcomed the team and briefed them about the Institute activities.

The review team visited various departments, classrooms, conference halls, library, laboratories existing at main

academic block and the boys & girls hostels.

On 25th October, 2016, the team visited the training-cum-research vessel, MFV Saraswati. They also visited the departments and laboratories in the Old Campus. This was followed by the interaction meeting with scientists/faculties, non-teaching staff and students. The team also interacted with the members of governing body of the Institute. After reviewing the various academic, research and extension activities of the Institute, the team provided the feedback to the Director and prepared the report for onward submission.



Vigilance Awareness Week

ICAR-CIFE and its Centre observed vigilance awareness week from 31st October 2016 to 5th November 2016. On this occasion on 31st October 2016 at 11.00 am all the officials took the pledge. This year the main focus of observing vigilance awareness week is "Public participation in promoting integrity and eradicating corruption".

Rashtriya Ekta Diwas

ICAR-CIFE and its Centres observed Rashtriya Ekta Diwas (National Unity Day). On this occasions on 31st October 2016 at 11.10 am all the officials and staffs of ICAR-CIFE, Kolkata Centre took pledge. This occasion provides us opportunity to re-affirm the inherent strength and resilience of our nation to withstand the actual and potential threats to the unity, integrity and security of our country.



CIFE goes Cashless, becomes Digital



ICAR-CIFE has been the forerunner in moving towards cashless economy. It has long been making all the staff and student payments through online direct bank transfer. It includes salary to our regular staff members, other regular payments such as TA/LTC/medical and GPF etc., salary of project fellows, young professionals, students fellowships, contingencies/advances under the projects, and also payments to other contract services staff. With the recent guidelines of the ICAR/Government of India, CIFE has made all the receivables also cashless, thus paving way to realise the goal of making all official transactions in the University cashless. In pursuance of the this, CIFE has installed swipe machines at various key points and made it operational on 7th of January 2017. The swipe machines have been installed at the International Guest House to collect the rentals from guests visiting CIFE, Mumbai. The machines are operational and the officials are now transacting through these machines and now on, no financial transaction will be made in cash.

All advances to officers and staff members are paid online to their bank accounts. Earlier, some of these advances used to be paid by cash. Now that is also channelized. All advances, whether TA, LTC, medical or contingent, are now disbursed only through the digital mode. Officers are also making payments through digital modes/swipe machines for further purchases of petty nature. Unutilized funds (if any) would also be refunded by officials either through cheques and via swipe machines installed at DDO's office.

Collection of all types of student fees and trainee fees will henceforth be made only through cheque, demand drafts or via swipe machines. This transformation from the cash-based transactions to the digital-payment could become possible only with the cooperation and support of all the staff members and student community of CIFE who have always shown their willingness and commitment to use the technology for nation's development.

68th Republic Day Celebrations

CIFE celebrated the 68th Republic Day of India with all fervor and nationalism. The program started with the Director, Dr. Gopal Krishna hoisting the national flag.

In his speech, Dr. Gopal Krishna urged scientists and students to strive hard with complete dedication to achieve the visions of great leaders of this nation who dreamt of a self-sufficient India. India is making rapid strides in agriculture and allied sectors with increased productions of food grains, milk, fish and a collaborative effort by scientists, farmers & industries would lead India to its next blue revolution. We should make earnest efforts to promote fish not only as a healthy food, but also as a cheap source of protein to the growing population of the country. As of now, the per capita availability of fish is 9 kg per year

and concerted efforts by scientists and farming community are required to bring to this to the FAO standards. For blue revolution, the eastern and north-eastern regions of the country have been earmarked as focus areas of work. We are moving towards a digital economy which aids in transparency and we should keep in mind the social benefits as well while working for the country.

The Director congratulated the staff and students of the institute for their contribution to the field of fisheries and expressed his confidence that the ICAR-CIFE will contribute immensely both in research and academics and the students of this institute will continue the legacy of the institute in coming years. The program was followed by cultural events and games.





CIFE co-ordinated the Hon'ble Parliamentary Committee on official language meeting

Committee for Hon'ble Parliamentary Committee on official language visited Mumbai on 21st December 2016 to inspect the ten selected TOLIC offices including CIFE. The members were Hon'ble Shri Hukmdev Narayan Yadav, Dr. Prassan Kumar Patsani, Dr. Sunil Gaikwad and Shri Shrirang Barne and officials from the Parliamentary Official Language Committee. CIFE Played the vital role as a Coordinator. The Chairman of the North TOLIC, Dr. Gopal Krishna, Director, CIFE, Mumbai welcomed the Parliamentary members. An institutional publication named "Achievements in Hindi" was released by Parliamentary Committee on the occasion.

National Writing Competition

ICAR-CIFE organized a National Writing Competition for students of fisheries colleges. Many students from different parts of country participated. The medium of writing was Hindi.

Awards

Institute received the second Rajarshi Tondan Award of ICAR for the year 2014-15 for the promotion and best work done in Hindi among all ICAR institutes. The Award was received by Dr. Gopal Krishna, Director CIFE on 16th July 2016 at Vigyan Bhawan, New Delhi.

Mumbai's famous Soio-cultural organization "Ashirwad" awarded a 'Special Award' for the year 2015-16 to the institute for best work in Hindi.

TOLIC'S Town Official Language Implementation Committee, North Mumbai, 19th & 20th half yearly meeting of North Mumbai was organized on 19th July & 29th Nov. 2016 respectively and annual

prizes were also distributed on this occasion by Dr. Gopal Krishna, Chairman of TOLIC.

TOLIC Workshop

CIFE organized the TOLIC Hindi Workshop for the members of TOLIC offices on 27th January 2017. There were 44 participant from 25 Central Government offices.

Hindi Publications

During this year the following books were published.

- Jalchari Vol. 22
- Mangur Fisheries (Catfish) : Present & future Prospect
- *Talabon me Machli Palan* - Dr. V.K. Tiwari
- *Rangbirangi Machli Palan* - Dr. Paromita Banerjee Sawant
- *Alankari Machliyon ka rog nidan tatha swasthya prabandh* - Dr. Gayatri Tripathi (Hindi)
- *Shobiwant Mashanche rog nidan & swasthya Vyavsthan* - Dr. Gayatri Tripathi (Marathi)
- Annual Report (Hindi)
- Achievements of Hindi
- Achievements of Town Official Language Implementation Committee, North Mumbai (Office)

Inspection of Official Language

Mrs. Sujata Jethi, Director, Official Language, ICAR, Head Quarter, New Delhi visited the institute to inspect the Implementation of Hindi in institute.

Others

Mrs. Revti Dhongde & Smt. Rekha Nair, Senior Tech. Officers were nominated to Central Translation Bureau, Mumbai Center to participate in the Refresher Translation Training from 28 Nov-02 Dec. 2016

Brief Report on Swachhta Pakhwara

CIFE, Versova, Mumbai

16-30 May 2016



CIFE celebrated the Swachhta Pakhwara with great enthusiasm and interest. On 16th May 2016 students and staff of the institute took the oath to support and spread cleanliness at CIFE headquarters and all its centres. Faculty members organized clean up of CIFE campus, hostels, wet lab, and coordinated students' march to Versova beach and Versova Landing Centre where bags, bottles and other waste were collected. All the waste was collected in the garbage bags and handed over to BMC. The posters carried by the students carried messages about the importance of reducing use of plastic and recommending the 'Reduce-Reuse-Recycle' and 'Repair and Reuse' way of life.

At Versova landing centre they were joined by the Versova Fishermen Cooperative Society who welcomed the initiative and

thanked CIFE for organizing this event and spreading awareness about the need for cleanliness.

The closing ceremony of the Pakhwara, held on 30th May 2016, was graced by Dr. Bharati Lavekar, Member of Legislative Assembly (Versova, Mumbai), Maharashtra, as Chief Guest. Dr. Lavekar viewed a presentation made by the Director, CIFE, Dr. Gopal Krishna on the activities of CIFE staff and students during the Pakhwara and addressed the gathering. She emphasized that in addition to Swachhta, the institute should also make efforts towards the 'Beti Bachao, Beti Padhao' program of the government. She toured the CIFE campus and facilities and suggested future activities for the betterment of the neighbourhood and society.

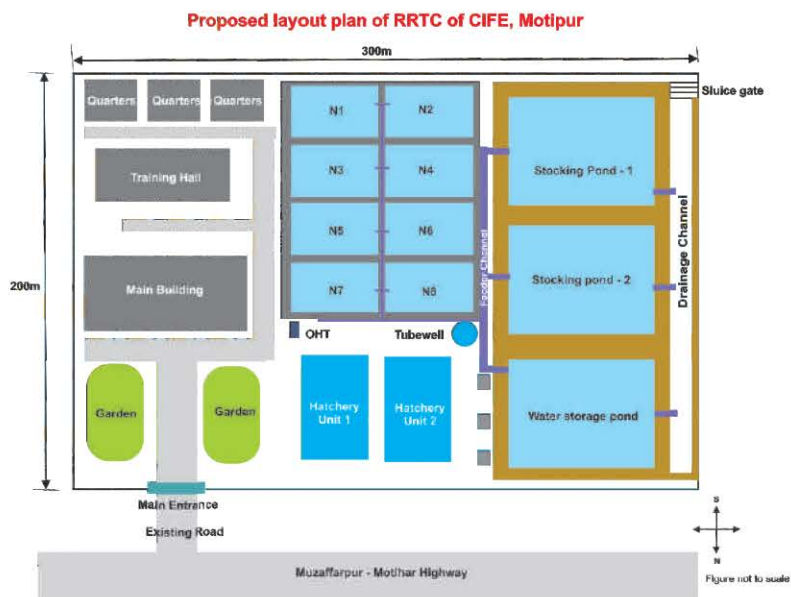




New Regional Research and Training Centre of ICAR-CIFE, Motipur

Fifteen acres of land located in the south-west corner of RRC of IISR, Motipur has been earmarked for new regional research centre of CIFE.

After completion of all codal formalities, the Regional Research and Training Centre (RRTC) of ICAR-CIFE, Motipur, Bihar came into existence in the premises of Regional Research Centre of Indian Institute of Sugarcane Research (IISR) on 29th March 2017. Presently, Dr. Md. Akalakur, Sr. Scientist has been posted at the centre as Officer-in-Charge. The RRC of IISR, Motipur has provided one room in its administrative building to CIFE for the immediate functioning of RRTC of CIFE.



Library and other Learning Resources

The library of ICAR-Central Institute of Fisheries Education, Mumbai is the national facility for Fisheries and Allied Sciences. Library has a rich collection about 37303 books, 8759 Foreign Journals, 4228 Indian Journals, 251 Ph.D. thesis, 2000 reports and other serial publications.

Online Journals (e-journals)

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



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Personalia





CIFE Head Quarters, Mumbai

RMP

Director

Dr Gopal Krishna (From 28.09.2016)

Joint Director

Dr Gopal Krishna (Upto 27.09.2016)

Scientific Staff

Head of Division

Dr.M.Krishnan (upto 30.09.2016)

Dr N.P. Sahu

Dr N.K. Chadha

Dr K.V. Rajendran

Dr Aparna Chaudhari

Dr S.K. Chakraborty (Upto 31.08.2016)

Dr B.B. Nayak (From 15.07.2016)

Head of Division (Acting)

Dr S.N. Ojha (From 01.10.2016)

Principal Scientist

Dr K.K. Jain

Dr Neelam Saharan

Dr Kiran Dube Rawat

Dr LathaShenoy

Dr Naresh S. Nagpure

Dr Nalini Ranjan Kumar

Dr Geetanjali Deshmukhe

Dr P.K. Pandey (On deputation)

Dr S. Jahageerdar

Dr V.K. Tiwari

Dr Arpita Sharma

Dr K. Pani Prasad

Dr A.K. Reddy (Upto 30.06.2016)

Dr P.P. Srivastava

Dr Gaurav Rathore (Upto 01.10.2016)

Dr R.P. Raman

Dr Ramasubramanian V.

Dr Ashok Kumar Jaiswar

Dr Chandra Prakash

Dr Rupam Sharma

Dr Gayatri Tripathi

Dr C.S. Chaturvedi (Upto 30.06.2016)

Dr Satya Prakash Shukla

Dr Swadesh Prakash

Dr Subodh Gupta

Senior Scientist

Dr Mukunda Goswami

Dr Zeba Jaffer Abidi

Dr Asha T. Landge

Dr Ajit Kumar Verma

Dr Ashutosh D. Deo

Dr P.S. Ananthan

Dr Sanath Kumar H.

Dr Megha Kadam Bedekar

Dr Rama Sharma

Dr A.K. Balange

Dr (Mrs) Paramita B. Sawant

Scientist

Mrs Vidyashree Bharati

Dr Babita Rani A.M.

Dr A. Pavan Kumar

Dr Gireesh Babu Pathakota

Dr Kundan Kumar

Mr Vinod Kumar Yadav

Dr Nagalakshmi K.

Mrs Manjusha L.

Dr Martin Xavier K.A.

Dr Md. Aklakur

Mr Sikendra Kumar

Ms Jeena K.

Mr Saurav Kumar

Ms Tincy Verghese

Mr Mujahidkhan A. Pathan

Mr Shashi Bhushan

Ms Shamna N.

Mr Dhamotharan K. (On study leave)

Mr Karan K. Ramteke

Ms Rathi Bhuvaneswari G.

Ms Layana P

Mr Manish Jayant

Ms Neha Wajahat Qureshi

Ms Husne Banu

Mr Angom Lenin Singh

Technical Staff

Chief Technical Officer (T-9)

Mr R.D. Tandel
Dr S.K. Pandey
Mr Alkesh Dwivedi
Dr M.K. Chouksey
Mr S.S. Kamat

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

Mr Chandrakant M.H.
Mr D.R. Khogare
Mr S.K. Sharma
Mr Dasari Bhoomaiah
Mr Ram Singh
Mr P.K. Das
Dr Nalini Poojary
Mr Subhash Chand

Sr. Technical Officer (T-6)

Mr A.K. Padmanabhan (upto 30.11.2016)
Ms Revati B. Dhongde
Mrs Rekha Nair
Mr C.B. Kareer
Mrs Rajani H. Khandgale

Technical Officer (T-5)

Mr R.G. Kudale
Mr Bhagat Singh Rawat (Upto 31.01.2017)
Mrs S.M. Bagwe
Mr B.G. Mandhare
Mr J.M. Koli
Mrs S.P. Nalawade
Mr S. Maity
Mr Sanjeevan Kumar
Mr B.J. Rathod
Mr N.K. Aglave
Mr S.R. Bandkar
Mrs Bharati Ghagare
Mr Avinash Sable
Mr Baburam Jaiswar
Mr Suryakant L. Koli
Mr B.T. Phande

Sr. Technical Assistant (T-4)

Mr Anil Kumar Kulsange
Mr Sagar Suresh Sawant
Mr Rajarshee Moitra
Mr Yogesh Jadhao
Mr K. Dhana Raju
Mr Pawan Kumar
Mr Mohd. Baqar
Mr A.L. Kokanee (Till 31.03.2017)
Mr A.P. Dhawde
Mr Sikandar S. Hussain
Mr K.V. Rajendran
Mr V.G. Dhindore

Technical Assistant (T-3)

Mr Arun Puri Gosavi
Mr R.D. Deshmukh
Mrs Reshma K. Raje

Mr Dhanpat Singh Rawat
Mr V.K. Bhawe

Sr. Technician (T-2)

Mr Pranaya Kumar Biswal

Technician (T-1)

Mr Mohd Sadiq M. Mulla
Mr Abhijeet Vijay Jadhav
Ms Nisha A. Lade (Upto 10.06.2016)
Mr T.G. Gaikwad

Non-Ministerial Staff

Cook
Mr S. Kamaraju

Administrative Staff

Joint Director (Admn) & Registrar

Mr Ashish Roy (upto 28.05.2016)

Chief Finance & Accounts Officer

Mr Suresh Chandra

Sr. Administrative Officer

Mr Mahesh B. Khubdikar

Dy. Director (Official Language)

Dr R.P. Uniyal

Asstt. Director (Official Language)

Mr Devendra Kumar Dharam (From 27.9.2016)

Finance & Accounts Officer

Mr Rahul Kumar (from 18.11.2016)

Administrative Officer

Mr Abhay Mudgal (From 13.12.2016)

Asstt. Admn. Officer

Mr B.L. Kokkula
Mrs N.Y. Raorane
Mrs Sushma Singh
Mrs Poonam N. Behl
Mrs S.R. Wadhavkar

Private Secretary

Mr G.S. Fernandes (Upto 31.08.2016)
Mrs S.R. Arutla

Personal Assistant

Mr P.R. Ninawe
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
Mr D.V. Raorane
Mrs A.U. Joshi
Mr A.G. Kolambkar
Mrs S.V. Pawar

Upper Division Clerk

Mrs Sanyuja S. Parab
Mr B.P. Chauhan
Mr N.L. Ghane
Mr P.G. Angne
Mr M.B. Waghela
Mrs C.C. Raut
Mrs Anu Grover
Mr S.H. Bhosale

Lower Division Clerk

Mr Shirish P. Malvankar
Mr R.N. Kamble
Mr Prasenjit P. Sonawane
Mr Ram A. Shinde
Mr Kunal Maan (Upto 06.08.2016)

Skilled Support Staff

Mr B.N. Sukur
Mr Madhu Wasnik
Mr G.G. Zendekar
Mr Surajbali R. Jaiswar
Mr B.S. Tamankar
Mr Ashok R. More

Mr D.B. Gaikwad
Mr Sitaram B. Padyal
Mrs K.R. Ahire (upto 31.01.2017)
Mr J.K. Makwana
Mrs Kamala Jai Kishore (Upto 30.06.2016)
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 Ankush N. Joyashi
Mr Ganesh N. Zendekar
Mr Anil D. Sonawane
Mr Fakirmayan U. Mullaji
Mr Ninad V. Kandalgaonkar
Mr Sambhaji Shelke
Mrs Reshma Naik
Mrs Revati Venkateshvaran
Ms Ujjawala V. Tiwari
Mr Rohit S. Koduri
Mrs Sabita Devi



Director with CIFE Rohtak Centre Staff

CIFE Rohtak Centre

Officer Incharge/Scientist

Mr Hari Krishna

Scientist

Mr Arun Sudhagar S.
Mr Pankaj Kumar
Dr Sreedharan K.
Mr Satya Prakash
Ms Madhuri Pathak

Sr. Technical Officer (T-6)

Mr Ashok Kumar

Sr. Technical Assistant (T-4)

Mr Satyendra Kumar Singh
Mr Lokesh Kumar

Technical Assistant(T-3)

Mr Krishan Kumar

Skilled Support Staff

Mr Gyani Ram
Mr Lavesh Kumar
Mr Gyan Chand



Director with CIFE Kolkata Centre Staff

CIFE Kolkata Centre

Officer Incharge/Principal Scientist
Dr B.K. Mahapatra

Principal Scientist
Dr Arup Ratan Sen
Dr G.H. Pailan
Dr Shubendu Dutta
Dr Parimal Sardar
Dr S. Munil Kumar

Senior Scientist
Dr S. Das Gupta

Scientist
Dr Sujata Sahoo
Mr Dilip Kumar Singh

Chief Technical Officer (T-9)
Dr Ashok Biswas

Technical Officer (T-5)
Mr R.K. Mondal (Upto 30.11.2016)
Mr P.K. Patra
Mr S.K. Das

Sr. Technical Assistant (T-4)
Mrs G. Aruna Devi
Mr Prakash Kumar Behera
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
Mr Kishore Bose

Skilled Support Staff
Mr T.C. Balmiki (Upto 30.11.2016)
Mr R.N. Prasad
Mr Ramesh Chowdhary
Mrs Suman Pandey



Director with CIFE Kakinada Centre Staff

CIFE Kakinada Centre

Officer Incharge/Scientist
Dr Muralidhar P. Ande

Scientist
Mrs Karthireddy Syamala
Dr Arun Sharma
Dr Thongam Ibemcha Chanu
Mrs Upasana Sahoo

Chief Technical Officer (T-9)
Dr J.K. Prasad

Asstt. Chief Technical Officer (T-7/8)
Dr P. SrinivasRao
Mr K. Murli Mohan
Mr V.N. Acharyulu
Mr R.R.S. Patnaik

Sr. Technical Assistant (T-4)
Mr M. Satyanarayana

Sr. Technician (T-2)
Mr A. Gurraiah

Technician
Mr V. Shivaji

Assistant
Mr B. Laxman Rao

Upper Division Clerk
Mrs M. Rama Mani

Skilled Support Staff
Mr Sheikh Nana Saheb
Mr K. Niranjana
Mr K. Prasad
Mr O. VeeraRaju
Mr T. Satyanarayana
Mr P.V.K. Reddy
Mr P.D. Reddy
Mr Sheikh Valisha
Mr S.S. Reddy
Mr Y. Buchilingam
Mr M. Govindu
Mr M.A. Rao
Mr G.V.V. Satyanarayana



Director with CIFE Powerkheda Centre Staff

CIFE Powerkheda Centre

Officer Incharge/ Scientist
Dr Sunil Kumar Nayak
Mr Dhalongsaih Reang

Chief Technical Officer (T-9)
Dr R.K. Upadhyay

Asstt. Chief Technical Officer
Mr L.P. Bamalia

Sr. Technical Officer (T-6)
Mr Hasan Javed

Technical Officer (T-5)
Mr Gurubachan Singh

Sr. Technical Assistant (T-4)
Mr Anup Singh

Sr. Technician (T-2)
Mr Raghuvir Prasad

Asstt. Administrative Officer
Ms Asha Dhurve

Skilled Support Staff
Mr Lallu Prasad
Mr Vishnu Lal
Mr Mangli Prasad
Mr Surendra Kumar (Upto 08.03.2017)
Mr Shambhu Dayal
Mr Hari Singh
Mr Manohar Lal
Mr Ram Swaroop
Mr S. Prajapati

Appointments

Sl. No.	Name of the Officials	Designation	Date of Joining
1	Mr Devendra Kumar Dharam	Asstt. Director (OL)	27.09.2016
2	Dr. Gopal Krishna	Director	28.09.2016
3	Mr Rahul Kumar	Finance & Accounts Officer	18.11.2016
4	Mr Abhay Mudgal	Administrative Officer	13.12.2016

Retirements

Sl. No.	Name of the Employee	Date of Retirement
1	Mrs. Madhavi Pikle, Tech. Officer(T-5)	01.04.2016 (VRS)
2	Dr A.K. Reddy, Principal Scientist	30.06.2016
3	Dr C.S. Chaturvedi, Principal Scientist	30.06.2016
4	Mrs Kamala Jai Kishore, SSS	30.06.2016
5	Mr G.S. Fernandes, Private Secretary	31.08.2016
6	Dr S.K. Chakraborty, Principal Scientist/HOD (Acting)	31.08.2016
7	Mr R.K. Mondal, Tech. Officer (T-5)	30.11.2016
8	Mr A.K. Padmanabhan, Tech. Officer	30.11.2016
9	Mr T.C. Balmiki, SSS	30.11.2016
10	Mr Bhagat Singh Rawat, Tech. Officer	31.01.2017
11	Mrs Kamal Ramesh Ahire, SSS	31.01.2017
12	Mr Surendra Kumar Namdeo, SSS, Powerkheda Centre	08.03.2017 (VRS)

Transfers from CIFE

Sl. No.	Name of the Employee	Transfer to	Date of Relieving
1	Mrs. Nisha Lade	NBSSLUP, Nagpur	10.06.2016
2	Shri Kunal Man	NRC on Plant Biotechnology, New Delhi	06.08.2016
3	Dr. M. Krishnan	NAARM, Hyderabad	30.09.2016
4	Dr Gaurav Rathore	NBFGR, Lucknow	01.10.2016

Promotions

Sl. No.	Name of the Employee	From	To	w.e.f.
1	Dr J. Krishna Prasad	ACTO	CTO	01.01.2016
2	Mr Hasan Javad	Technical Officer	Sr. Technical Officer	01.01.2016
3	Mr B.R.Jaiswar	Sr. Technical Asstt.	Technical Officer	17.01.2016
4	Mrs Rajani Khandagale	Technical Officer	Sr. Technical Officer	23.01.2016
5	Mr S.L.Koli	Sr. Technical Asstt.	Technical Officer	16.02.2016
6	Mr B.T.Phande	Sr. Technical Asstt.	Technical Officer	22.02.2016
7	Mr Pranaya Kumar Biswal	Technician	Sr. Technician	02.04.2016
8	Mr Sanjeevan Kumar	Sr. Technical Asstt.	Technical Officer	26.05.2011
9	Dr Mukunda Goswami	Senior Scientist	Principal Scientist	31.05.2016
10	Mr P.K. De	Upper Division Clerk	Assistant	23.06.2016
11	Mr Suresh Bhosale	Lower Division Clerk	Upper Division Clerk	23.06.2016
12	Mr A.L.Kokane	Technical Assistant	Sr. Technical Assistant	29.06.2016
13	Mr A.P. Dhawde	Technical Assistant	Sr. Technical Assistant	29.06.2016
14	Mr Sikandar S. Hussain	Technical Assistant	Sr. Technical Assistant	29.06.2016
15	Mr K.V. Rajendran	Technical Assistant	Sr. Technical Assistant	29.06.2016
16	Mr V.G. Dhindore	Technical Assistant	Sr. Technical Assistant	29.06.2016
17	Mr Anup Singh	Technical Assistant	Sr. Technical Assistant	29.06.2016
18	Mr M. Satyanarayana	Technical Assistant	Sr. Technical Assistant	29.06.2016
19	Mr Tapas Kumar Ghosh	Technical Assistant	Sr. Technical Assistant	29.06.2016
20	Mr L.P. Bamalia	Sr. Technical Officer	ACTO	01.07.2016

Obitury

Dr. Subrata Basu, Former Principle Scientist 22 December 2016

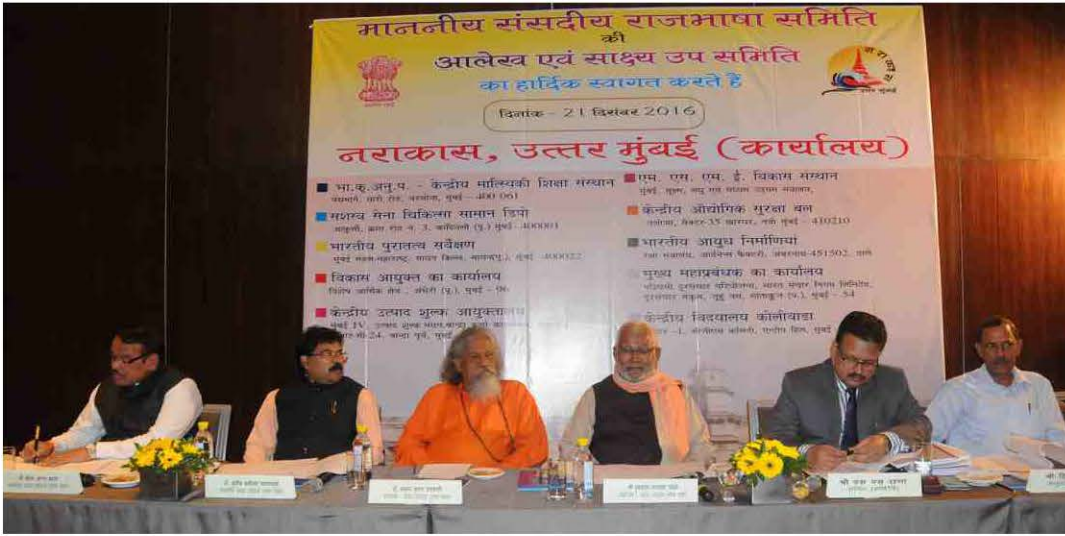
Mr. Ravi Ranjan Kumar, Student of M.F.Sc. 2nd year, FGB Division, 27 November 2016



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हिन्दी प्रगति
प्रतिवेदन

भा. कृ. अनु. प. - केन्द्रीय मात्स्यिकी शिक्षा संस्थान, मुंबई
1 अप्रैल 2016 से 31 मार्च 2017 तक समाप्त अवधि का हिन्दी प्रगति प्रतिवेदन



1) संसदीय राजभाषा समिति

- माननीय संसदीय राजभाषा समिति के आगमन के पूर्व विचार-विमर्श हेतु चयनित नराकास, उ.मुं. (का.) के 10 कार्यालयों के साथ विचार-विमर्श कार्यक्रम संबंधित तैयारी हेतु बैठक आयोजित की गई।
- माननीय संसदीय राजभाषा समिति की आलेख एवं साक्ष्य उपसमिति के साथ केन्द्रीय मात्स्यिकी शिक्षा संस्थान के समन्वय में दस नराकास सदस्य कार्यालयों का 21 दिसम्बर 2016 को विचार-विमर्श कार्यक्रम सम्पन्न हुआ। इसमें माननीय सांसदों श्री हुकुम देव नारायण यादव जी, डा. प्रसन्न कुमार पाटसाणी जी, डा. सुनील गायकवाड जी एवं श्री श्रीरंग बारणे जी ने डा. गोपाल कृष्णा, अध्यक्ष नराकास एवं अन्य समस्त कार्यालयाध्यक्षों को यथोचित मार्गदर्शन दिया।
- संस्थान की हिन्दी उपलब्धियों की एक पुस्तिका संसदीय राजभाषा समिति के विचार-विमर्श कार्यक्रम में प्रस्तुत किए जाने हेतु प्रकाशित की गई।

2) राष्ट्रीय लेखन प्रतियोगिता

भा. कृ. अनु. प. - केन्द्रीय मात्स्यिकी शिक्षा संस्थान, मुंबई द्वारा राष्ट्रीय छात्र लेखन प्रतियोगिता का आयोजन किया गया, जिसमें देश के सभी मात्स्यिकी महाविद्यालयों के छात्र-छात्राओं ने उत्साहित होकर सक्रिय रूप से भाग लिया। लेखन का माध्यम हिन्दी रहा। प्रतियोगिता हेतु नगद पुरस्कार की राशि भी निर्धारित किया गया।

राष्ट्रीय लेखन प्रतियोगिता हेतु मात्स्यिकी के विकास संबंधी प्रासंगिक विषयों को चुना गया। छात्रों द्वारा प्रस्तुत सभी लेख उत्कृष्ट स्तर के थे।

लेखन प्रतियोगिता हेतु गठित मूल्यांकन समिति ने प्राप्त सभी लेखों के मूल्यांकन के पश्चात पांच निबंध उत्कृष्ट पाए। इन उत्कृष्ट प्रतियोगियों को के.मा.शि.सं. मुंबई में 3-5 मार्च 2017 को सम्पन्न हुए राष्ट्रीय छात्र सम्मेलन में आमंत्रित किया गया। निबंधों के प्रस्तुतकर्ता छात्र-छात्राओं का मौखिक प्रस्तुतिकरण दिनांक 05 मार्च 2017 को निर्धारित किया गया। सभी प्रतिभागियों ने अपने संबंधित विषय पर 05 मिनट का मौखिक



प्रस्तुतिकरण दिया तथा निर्णायक मण्डल के निर्णयानुसार निम्नलिखित छात्रों ने शीर्ष स्थान प्राप्त किया।

प्रथम- शुभम शेखर सोनी- मत्स्य विज्ञान महाविद्यालय, नागपुर

द्वितीय - करुण कान्त यादव- कॉलेज ऑफ फिशरीज साइंस, पंतनगर

तृतीय - सौरभ मौर्य - मात्स्यकी महाविद्यालय कवर्धा, कामधेनु विश्वविद्यालय, छत्तीसगढ़.

प्रोत्साहन - मोहम्मद नदीम अंसारी - मत्स्य विज्ञान महाविद्यालय, नानाजी देशमुख पशुचिकित्सा विज्ञान विश्वविद्यालय, जबलपुर (म.प्र.),

प्रोत्साहन- विदित मिश्र - कृषि एवं प्रौद्योगिकी, जी. बी. पंत विश्वविद्यालय, पंतनगर

इन समस्त प्रतिभागियों को निर्णायक मण्डल की

संस्तुति पर माननीय मुख्य अतिथि **डा.जे. के. जेना, उप महानिदेशक (मात्स्यकी)** के कर कमलों से प्रमाणपत्र एवं पुरस्कार प्रदान किए गए। छात्रों को हिन्दी में वैज्ञानिक लेखन की ओर अग्रसर करने के कारण लेखन प्रतियोगिता की सार्थकता पूर्णतः सिद्ध हुई।

3) राष्ट्रीय शिक्षा दिवस

- केन्द्रीय मात्स्यकी शिक्षा संस्थान के छात्र-छात्राओं हेतु भारत के प्रथम शिक्षा मंत्री मौलाना अबुल कलाम आज़ाद की जन्मतिथि के उपलक्ष्य में 11 नवम्बर 2016 को राष्ट्रीय शिक्षा दिवस का आयोजन किया गया इस कार्यक्रम का उद्घाटन माननीय निदेशक महोदय डा. गोपाल कृष्णा के कर कमलों से किया गया। मंच पर डा. एन. पी. साहू, विभागाध्यक्ष, डा. एस. पी. शुक्ला, प्रधान वैज्ञानिक एवं डा. राजेश्वर उनियाल, उप निदेशक (राजभाषा) उपस्थित थे। कार्यक्रम का



शुभारम्भ माननीय निदेशक महोदय के शुभकामनाओं से हुआ, जिसमें उन्होंने छात्रों का उत्साहवर्धन करते हुए वास्तविक शिक्षा की सोद्देश्यता पर प्रकाश डाला। इस कार्यक्रम के दौरान छात्रों हेतु वाद-विवाद प्रतियोगिता एवं गीत-काव्य प्रतियोगिता आयोजित की गई। विजयी छात्रों को दिनांक 5 मार्च 2017 के दीक्षांत समारोह के दौरान राष्ट्रीय छात्र सम्मेलन कार्यक्रम में डा. जे. के. जेना, उप महानिदेशक (मात्स्यिकी) के कर कमलों से प्रमाणपत्र एवं पुरस्कार प्रदान किए गए।

4) हिन्दी पखवाड़ा

- प्रतिवर्ष की भांति इस वर्ष भी दिनांक 14 से 28 सितम्बर 2016 तक संस्थान में **हिन्दी पखवाड़ा - 2016** मनाया गया। इस अवसर पर संस्थान के अधिकारियों / कर्मचारियों एवं छात्र-छात्राओं के साथ ही संस्थान परिवार के बच्चों हेतु विभिन्न प्रतियोगिताएं जैसे निबंध लेखन/ भाषण/ गीत-काव्य/ चित्रकला आयोजित की गई।
- दिनांक 6 अक्टूबर 2016 को संस्थान के निदेशक/ कुलपति **डा. गोपाल कृष्णा** की अध्यक्षता में हिन्दी पखवाड़ा - 2016 का समापन समारोह आयोजित किया गया। इस कार्यक्रम के मुख्य अतिथि वरिष्ठ पत्रकार व लेखक, **श्री विश्वनाथ सचदेव**, संपादक नवनीत एवं अतिथि विशेष के रूप में **श्री कलीम उल्लाह**

खान, उपस्थित थे। इस अवसर पर संस्थान के हिन्दी पखवाड़ा - 2016 में संपन्न विभिन्न प्रतियोगिताओं में विजयी प्रतिभागियों को एवं वर्ष 2015-16 में हिन्दी में सर्वाधिक काम करने वाले अधिकारियों / कर्मचारियों को पुरस्कृत किया गया।

5) दीक्षांत समारोह

भा.कृ.अनु.प. - केन्द्रीय मात्स्यिकी शिक्षा संस्थान, मुंबई में मात्स्यिकी के क्षेत्र में मानव संसाधन विकास का कार्य करती है। इस संस्थान के यारी रोड परिसर में दिनांक 3 मार्च 2017 को 13वां दीक्षांत समारोह का आयोजन किया। इस दीक्षांत समारोह की यह विशेषता थी कि यह पूरा कार्यक्रम हिन्दी में संचालित किया गया।

6) पुरस्कार

- भारतीय कृषि अनुसंधान परिषद के अधीनस्थ संस्थानों में राजभाषा हिन्दी के प्रयोग को बढ़ावा देने हेतु **"राजर्षि टंडन पुरस्कार"** योजना संचालित की जाती है। इस योजना के तहत वर्ष 2014-15 के दौरान हिन्दी में अपना सर्वाधिक कार्य हिन्दी में करने पर केन्द्रीय मात्स्यिकी शिक्षा संस्थान, मुंबई को राष्ट्रीय स्तर का **द्वितीय पुरस्कार** घोषित किया गया। यह पुरस्कार परिषद के स्थापना दिवस के अवसर पर



दिनांक 16 जुलाई 2016 को नई दिल्ली के विज्ञान भवन में प्रदान किया गया, जिसे संस्थान के निदेशक **डा. गोपाल कृष्णा** ने प्राप्त किया।

- मुंबई की सुप्रसिद्ध साहित्यिक - सामाजिक - सांस्कृतिक संस्था **आशीर्वाद** द्वारा प्रतिवर्ष मुंबई स्थित भारत सरकार के केन्द्रीय कार्यालयों द्वारा राजभाषा हिन्दी में सर्वाधिक कामकाज के लिए पुरस्कृत किया जाता है। इस वर्ष (2015-16) भा.कृ.अनु.प., केन्द्रीय मात्स्यिकी शिक्षा संस्थान को हिन्दी में सर्वाधिक काम करने पर आशीर्वाद संस्था द्वारा "**विशेष पुरस्कार**" प्रदान किया गया। यह पुरस्कार शुक्रवार, दिनांक 23 सितम्बर 2016 को वरली, मुंबई में स्थित दूरदर्शन के सभागृह में **डा. एन. पी. साहू**, विभागाध्यक्ष एवं **डा. राजेश्वर उनियाल**, उप निदेशक (राजभाषा) ने प्राप्त किया।

7) नगर राजभाषा कार्यान्वयन समिति, उत्तरमुंबई (कार्यालय)

- दिनांक 29 नवम्बर 2016 को संस्थान के निदेशक एवं नराकास, उ.मु.(का.) के अध्यक्ष **डा. गोपाल कृष्णा** महोदय की अध्यक्षता में नगर राजभाषा कार्यान्वयन समिति उ.मु. (का.) की 20 वीं छमाही बैठक का आयोजन किया गया।
- नगर राजभाषा कार्यान्वयन समिति, उत्तर मुंबई (कार्यालय) की 21वीं विशेष बैठक शुक्रवार, दिनांक 13 जनवरी 2017 को नराकास के अध्यक्ष महोदय व संस्थान के निदेशक महोदय की अध्यक्षता में सम्पन्न हुई, जिसके अंतर्गत समस्त सदस्य कार्यालयों के प्रमुखों को आमंत्रित किया गया था। इसके तहत संसदीय राजभाषा समिति द्वारा दिए गए मार्गदर्शनों के अनुसार हिन्दी के प्रगामी प्रयोग को बढ़ाने हेतु विचार-विमर्श किया गया।

- नराकास, उ.मुं. (का.) की “उपलब्धियों की एक झलक” बुलेटिन प्रकाशित की गई।

8) नराकास कार्यशाला

- नगर राजभाषा कार्यान्वयन समिति, उत्तर मुंबई (कार्यालय) के सदस्य कार्यालयों में कार्यरत अधिकारियों/कर्मचारियों के लिए केन्द्रीय मात्स्यिकी शिक्षा संस्थान, मुंबई में दिनांक 27 जनवरी 2017 को एक दिवसीय कार्यशाला का आयोजन किया गया। इस कार्यशाला में 25 कार्यालयों के कुल 44 प्रतिभागियों ने भाग लिया। कार्यशाला के उद्घाटन सत्र के साथ ही चार तकनीकी सत्रों में आयोजित किया गया।

उद्घाटन सत्र में सर्वप्रथम मुख्य अतिथि डा. एस. डी. त्रिपाठी, भूतपूर्व निदेशक के.मा.शि.सं. व संस्थान के निदेशक एवं नराकास के अध्यक्ष महोदय डा. गोपाल कृष्णा का पुष्पगुच्छ प्रदान कर स्वागत किया गया। इसके पश्चात डा. राजेश्वर उनियाल, उप निदेशक (राजभाषा) एवं सदस्य सचिव ने कार्यशाला की विस्तृत रूप से जानकारी दी। मुख्य अतिथि डा. एस. डी. त्रिपाठी ने अपने आशीर्वाचन में इस संस्थान में हिन्दी में किए जा रहे कार्यों की सराहना की और समस्त सदस्य कार्यालयों को भी इसी प्रकार हिन्दी में कार्य करने हेतु प्रोत्साहित किया। संस्थान के निदेशक एवं नराकास के अध्यक्ष डा. गोपाल कृष्णा ने हिन्दी के महत्व को दर्शाते हुए इसे और आगे बढ़ाने हेतु प्रयास करने के संबंध का मार्गदर्शन दिया।

इसके पश्चात कार्यक्रमानुसार कार्यशाला के तकनीकी सत्रों का आयोजन किया गया। पहले सत्र में श्री राजेन्द्र रावत, मीडिया विशेषज्ञ ने संघ की राजभाषा नीति, नियम व अधिनियम विषय पर व्याख्यान दिया। दूसरे सत्र में श्रीमती सविता राव, प्रभारी राजभाषा

अधिकारी, सी डैक ने हिन्दी में सूचना प्रौद्योगिकी पर एक व्याख्यान दिया। तीसरे सत्र में राजभाषा कार्यान्वयन एवं संसदीय प्रश्नावली पर श्री धीरेन्द्र कुमार झा, परामर्शदाता, विकास आयुक्त का कार्यालय ने व्याख्यान दिया। चौथे सत्र में सभी प्रतिभागियों से सामूहिक चर्चा की गई तथा प्रतिभागियों की शंकाओं पर चर्चा कर समाधान किया गया।

अंत में सभी प्रतिभागियों को प्रमाण पत्र वितरित किए गए व धन्यवाद प्रस्ताव के साथ कार्यशाला का समापन कर दिया गया।

9) हिन्दी प्रकाशन

संस्थान में इस वर्ष के दौरान निम्नलिखित कई पुस्तकें प्रकाशित की गईं।

1. जलचरी 22 अंक
2. मांगुर मात्स्यिकी (कैटफिश) वर्तमान स्थिति एवं भावी संकल्पनाएं
3. तालाबों में मछली पालन - डा. वी. के. तिवारी
4. रंगबिरंगी मछली पालन - डा. पारोमिता बॅनर्जी सावंत
5. अलंकारी मछलियों का रोग निदान तथा स्वास्थ्य प्रबंध - डा. गायत्री त्रिपाठी (हिन्दी)
6. वार्षिक प्रतिवेदन (हिन्दी)
7. हिन्दी की उपलब्धियां
8. नगर राजभाषा कार्यान्वयन समिति, उत्तर मुंबई (का.) की उपलब्धियां

10) वैज्ञानिक अनुवाद

- संस्थान के एम. एफ. एस. सी. के छात्र-छात्राओं के शोध निबंधों का सारांश हिन्दी में अनुवाद कर प्रस्तुत किया।



- संस्थान द्वारा संचालित **कौशल विकास प्रशिक्षण कैलेण्डर** का हिन्दी अनुवाद प्रस्तुत किया गया।
- संस्थान की वेबसाइट का द्विभाषीकरण (हिन्दी - अंग्रेजी) कर दिया गया है।
- संस्थान का वर्ष 2015-16 का वार्षिक प्रतिवेदन हिन्दी में अनुवाद कर प्रस्तुत किया गया।
- संस्थान के विस्तार विभाग से प्राप्त निम्नलिखित बुलेटिनों का हिन्दी व मराठी में अनुवाद कर प्रस्तुत किया गया -
- हिन्दी - बायोफ्लैक्स प्रौद्योगिकी / मराठी - बायोफ्लैक्स तंत्र
- हिन्दी - बाम्बे डक / मराठी बोंबील (बाम्बे डक) वरील प्रक्रिया
- हिन्दी - वैन्नमई फार्म आहार मार्गदर्शिका / मराठी - वैन्नमईसाठी फार्म मधील आहार मार्गदर्शन
- हिन्दी - खरीद से पहले आहार सामग्रियों का मूल्यांकन कर लें / मराठी - खरेदी पूर्वी आहार घटक
- द्रव्यांच्या ठीकाणाचे मूल्यांकन
- हिन्दी - ताजी मछलियों की स्वच्छ देखभाल / मराठी - ताया माश्यांना आरोग्यदायक दृष्टिने हाताळणे

- हिन्दी - मछलियों की पहचान हेतु डी.एन.ए. बारकोडिंग
- हिन्दी - वैश्विक एवं भारतीय परिप्रेक्ष्य में अलंकारी मछलियाँ
- हिन्दी - प्लास्टिक मलबा - तटीय और समुद्री पारिस्थितिकी के लिए खतरा
- हिन्दी - श्रिम्प संवर्धन के लिए अच्छी गुणवत्ता वाले बीजों का चयन
- हिन्दी - मूल्यवर्धित मत्स्य उत्पाद
- हिन्दी - लवणीय जल में इ वेन्नमई का पालन

11) राजभाषा कार्यान्वयन समिति

- दिनांक 23 सितम्बर 2016 को संस्थान की राजभाषा कार्यान्वयन समिति की 83 वीं तथा दिनांक 27 अक्टूबर 2016 को 84 वीं तिमाही बैठक संस्थान के निदेशक महोदय **डा. गोपाल कृष्णा** की अध्यक्षता में सम्पन्न हुई। बैठक में लिए गए निर्णयों पर अनुवर्ती कार्रवाई की गई।
- संस्थान की राजभाषा कार्यान्वयन समिति की पिछली 85 वीं बैठक दिनांक 24 जनवरी 2017 को निदेशक महोदय की अध्यक्षता में सम्पन्न हुई, जिसके अंतर्गत कई बिन्दुओं पर विचार-विमर्श कर निर्णय लिए गए।

12) हिन्दी वेबसाईट

संस्थान का वेबसाईट का द्विभाषीकरण किया गया।

13) शैक्षणिक हिन्दी जलवाणी

- संस्थान के एम. एफ. एस. सी. सत्र 2016-18 के प्रथम वर्ष के छात्र-छात्राओं हेतु हिन्दी जलवाणी क्रेडिट कोर्स की कक्षाएं पाठ्यक्रमानुसार नियमित रूप से संचालित की गईं।

14) हिन्दी पुस्तक प्रदर्शनी

संस्थान में दीक्षांत समारोह एवं राष्ट्रीय छात्र सम्मेलन दिनांक 3-6 मार्च 2017 के दौरान हिन्दी पुस्तक प्रदर्शनी का आयोजन किया गया।

15) राजभाषा निरीक्षण

- दिनांक 23 सितम्बर 2016 को श्रीमती सुजाता जेठी, निदेशक (राजभाषा) भारतीय कृषि अनुसंधान परिषद ने संस्थान के राजभाषा संबंधी किए जाने वाले कार्यों का निरीक्षण किया।

16) हिन्दी पुस्तकालय

- संस्थान का हिन्दी पुस्तकालय सुचारू रूप से संचालित किया जा रहा है। यह प्रशंसनीय बात है कि इस पुस्तकालय में अब तक हिन्दी की उच्चकोटि की लगभग 10 हजार पुस्तकें उपलब्ध हो गई हैं।

17) अन्य

- संस्थान के विदेशी छात्र-छात्राओं हेतु दिनांक 28 अप्रैल 2016 को कम्प्यूटर पर यूनिकोड व कार्य हिन्दी में बोलचाल विषय की कार्यशाला आयोजित की गई।
- संस्थान एवं उपकेन्द्रों में हिन्दी की प्रगति हेतु वैज्ञानिक, प्रशासनिक एवं समस्त कार्य नियमित रूप से किए जा रहे हैं।
- संस्थान एवं उपकेन्द्रों में हिन्दी की प्रगति हेतु वैज्ञानिक, प्रशासनिक एवं समस्त कार्य नियमित रूप से किए जा रहे हैं।
- संस्थान में सहायक निदेशक (राजभाषा) का पद दिनांक 27 सितम्बर 2016 को भर दिया गया। इस पद पर श्री देवेन्द्र कुमार धरम ने अपना कार्यभार ग्रहण कर लिया है।
- संस्थान के वरिष्ठ तकनीकी अधिकारी सुश्री रेवती धोंगडे एवं श्रीमती रेखा नायर ने केन्द्रीय अनुवाद ब्यूरो मुंबई केन्द्र द्वारा आयोजित पुनश्चर्या अनुवाद प्रशिक्षण कार्यक्रम में दिनांक 28 नवम्बर 2016 से 02 दिसम्बर 2016 तक भाग लिया तथा सफलतापूर्वक प्रशिक्षण प्राप्त किया।



PARKASH SINGH BADAL
Chief Minister, Punjab

D.O. No. 218
Dated : 22/11/2016

Dear Dr. Trilochan Mohapatra Ji,

The research, demonstration and extension activities carried out by your team on the "Technology for the commercial marine shrimp- (Pacific white shrimp) culture in Inland saline waters" at Ratta Khera, Muktsar Sahib District, Punjab was exemplary. I whole heartedly congratulate your ICAR-CIFE Rohtak team (Dr. Gopalkrishna, Dr. N.K Chada, Mr. V. Harikrishana, Mr. S. Arun Sudhagar, Mr. Pankaj Kumar, Mr. Ashok Kumar and Mr. Satyendar Singh) for their achievement and zeal for professional excellence.

I believe that your work will bring lot of hope and joy among the saline affected farmers and also help in employment generation for rural youth of Punjab. Please accept my complements on the achievements and convey the same to all concerned.

I am sure you would continue with the good work in the years to come'

With Best Wishes.

(Parkash Singh Badal)

Dr. Trilochan Mohapatra,
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