



RESEARCH BRIEF

Application of the bioindicator approach for assessing fish and ecosystem health

In recent years the inland aquatic fishery resources in India, the rivers, wetlands, reservoirs and estuaries are rapidly degrading as habitat for fish because of various anthropogenic activities. As a result very often fish population suffer from health problems leading to either morbidity and in extreme cases mortality. There is paucity of data on the level of contaminants in varied aquatic ecosystems as well as on the impact of the contaminants on aquatic biota especially fish. Identification of the relationship between various levels of contaminants and organism responses in the aquatic environment is an important area of work for eco-restoration.

Scientists of CIFRI working in different river stretches have standardized various indices at physiological, species and community level for fish and ecosystem health assessment.

The indices standardized were applied in river Hooghly and in river Churni in West Bengal. In the river Hooghly 117 Km stretch is impacted by siltation, industrial effluents, sewage and silt dredging for brick preparation. Six sites within the upstream least impacted site Samudragarh and downstream impacted site Panihati were investigated. Of the six sites only 3 or 50% of the sampled sites upstream supported fishery in acceptable condition as reflected by the high IBI (37-45) and fish species number (56) compared to the downstream Panihati with less IBI (17) and number of



Study sites of River Hooghly



Study site of River Churni



Active monitoring of fishes in river Churni

fish species (14). The quantitative health assessment index (HAI) a measure of fish health based on 12 parameters also indicated higher HAI (60) at the stressed site Panihati and low HAI (20) at the least stressed site Samudragarh.

In river Churni the bioindicators was applied in 5 sites of its 70 Km stretch impacted by pollutants from sugar mills and dye factories. The results indicated that impact of pollution is significantly high in the 3 upstream sites of the river which receives more quantities of the sugar mill effluents. This is reflected by low IBI (24-29), low fish species number (16-20) compared to the two downstream sites of high IBI (37-43) and higher fish species number (27-36).

Active monitoring of fishes in cages installed in the stressed sites for 30 days recorded significantly enhanced blood cortisol, glucose, bilirubin and depleted chloride levels indicating impaired metabolism. Tissue alteration is manifested by lamellar hyperplasia, hypertrophy, clubbing and aneurism in gills and shrinkage of epithelial cells of renal tubules and enlargement of glomerular cells. The IBI is significantly lower at stressed sites upstream and only 3 or 60% of the sampled sites spatially supported fishery in acceptable condition.

The studies indicate that the approach of applying a suite of bioindicators at the primary, secondary and tertiary levels of biological organization is an improved and effective method for assessing the health of fish population in the inland aquatic ecosystems

Presently the approach is being further validated by its application in 123 Km stretch of river Damodar and in river Ganga and Yamuna.

Arsenic a threat in inland waters of West Bengal

The Ganga-Brahmaputra delta comprising of West Bengal and Bangladesh is contaminated with the toxic metalloid arsenic. The problem was first reported in 1980s. At present, 9 districts of West Bengal are found contaminated covering an area of 38,865 sq. km affecting a sizeable population of the state. This contaminated water when used for irrigation purposes for growing crops, the harvests are retaining arsenic above permissible limits. From this background a

project "Arsenic in Food Chain: Cause, Effect and Mitigation" has been conceived to trace the pathway of arsenic through different food-chains to human being and its detrimental effect on other biota.. It is under National Agricultural Innovation Project. The project partners are Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, (Lead centre) and six institutes, viz. CIFRI, IVRI (ERS), WBUAFS, UBKV and DNGMRF. CIFRI is involved in assessing the hazards caused by arsenic to the aquatic organisms and the human health risk associated with the consumption of fish and other aquatic organisms. Study sites are the arsenic contaminated Gontera, Ghetugachi, Dakshin Panchpota, Nonaghata and Mitrapur villages of Chakdaha and Haringhata blocks of Nadia and the uncontaminated site in the Polba block of Hooghly, West Bengal.

Studies conducted so far indicated the presence of significant amount of arsenic in the pond waters (up to 116 ppb), especially where the contaminated ground water is stored for irrigation and fish culture. The pond sediments are accumulating and retaining arsenic even above 20 ppm. In the flesh of *Labeo rohita* and *Cirrhinus mrigala* the arsenic content has been detected up to 238 ppb. In the uncontaminated area, in pond waters and fish flesh the arsenic content was below detection limit while in sediments its content was up to 3 ppm.

As a whole, since the surface water bodies and aquatic organisms are found contaminated with arsenic, which is even exceeding the different permissible limits, the surface water component of the project is found important to establish the contributions in the food chain. Further studies will quantify the harmful effects of the pollutant in the aquatic component of the ecosphere.

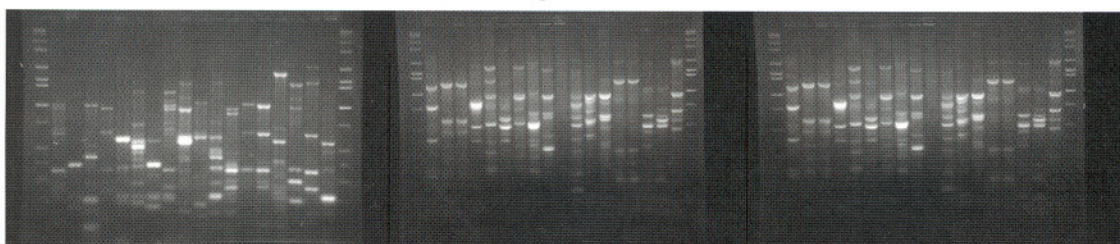
Microbial diagnostics for fish pathogens

Aeromonas hydrophila and related species are widely distributed in the aquatic environment and these have been responsible for haemorrhagic septicaemia, infectious dropsy, red mouth disease, red pest disease in fish. There is a need to develop and validate molecular genotyping techniques so as to create a genomic fingerprint database. This genotyping information would be useful to identify prevalent strains causing disease in fish in specific groups/regions, to identify new virulent strains introduced into

fish population and to track potential sources of these virulent strains.

CIFRI scientist using BOX-PCR, ERIC-PCR and 16SrDNA-PCR methods obtained what is called a “fingerprint” of the bacterial genome. The gel-banding patterns were evaluated using Bionumerics software and dendrogram pattern obtained, which put different isolates into different clusters as per their genomic similarity. Besides these all *Aeromonas* isolates were screened using specific target genes. Comparative sequence analysis of ‘aer’ & ‘ahcytoen’ gene sequences indicated wide genomic variation among the isolates. Using real time PCR detection and quantification of *E.coli*, *Salmonella* and *Vibrio* ng

cholerae in fish and water samples was done and the tests are being standardized for detection of *Aeromonas* species. Real time PCR was also standardized for detection of Viral hemorrhagic septicemia virus (VHSV), Koi herpes virus (KHV) and *Renibacterium salmoninarum*, the causative agent of bacterial kidney disease (BKD) in fish. In all cases the test was found to be very sensitive, detecting up to 20 copies in a sample, which is considered to be very good detection level.



ERIC-PCR- genotyping analysis of *Aeromonas* isolates. Amplified DNA bands are visualized on 2% agarose gel electrophoresis

TRAINING

Training Program	Participants	Venue
Catch Assessment Survey (IFMS) Software	Ten officers from Department of Fisheries from five states - viz. Karnataka, Tamil Nadu, Kerala, Andhra Pradesh and Pondicherry,	Bangalore, 3-4 July 2008 and 7-8 July 2008.
Bundh breeding	35 fish farmers	Ramsagar, Bankura during July 26-27, 2008.
Management of Reservoir Fisheries	Four MFSc students of CIFE, Mumbai	CIFRI, Barrackpore during August 4-23, 2008.
Induced breeding, composite and integrated aquaculture and disease control with organic approach	30 fishermen	Jayarambati, Bankura during September 18-20, 2008.
Inland Fisheries Development	31 fisherwomen of Bihar	CIFRI, Barrackpore during October 16-25, 2008.
Reservoir Fisheries Management	30 fishermen of Orissa	CIFRI, Barrackpore during December 1-10, 2008
Inland Fisheries Development	30 fishers of Bihar	CIFRI, Barrackpore during December 15-24, 2008

Mass Awareness

- On 'Conservation of Hilsa and fish juveniles' at Diamond Harbour, Frazergunj, Dhulian, West Bengal on 9.7.08, 1.08.08, 20.11.08 respectively.



His excellency Shri G. K. Gandhi, Governor of West Bengal visiting CIFRI stall

EVENTS AND MEETINGS

National Fish Farmers Day

Central Inland Fisheries Research institute (CIFRI), Barrackpore celebrated "National Fish Farmers Day" at General Auditorium, Sardar Patel Zila Panchayat Bhavan, Vadodara on 10th July 2008. The occasion was graced by Prof. M.C.Varshneya, Vice-Chancellor of Anand Agricultural University, Anand, Dr. K. K. Vass, Director, CIFRI, Barrackpore and Shri L.C.Patel, District Development Officer, Vadodara.



Over 300 persons including 250 fishers and fish entrepreneurs from different regions of Gujarat State and personnel from local ICAR offices, state departments and university and media were present at the function.

- 'Protection of Juvenile Fishes in Reservoir' on 22.8.08 at Maithon, Jharkhand.

Exhibition

The institute participated in the following exhibitions

- Second Green Revolution Summit and Expo 2008 at Science City, Kolkata during Sept 24-26, 2008.
- 32nd Conference of Ethological Society and National Symposium on Fish Behaviour during October 16-17, 20.08.
- 8th Indian Fisheries Forum during November 22-26, 2008 at Eastern Zonal Cultural Centre, Kolkata
- Krishi -o- Slipa Mela, Jagaddal, North 24 Parganas during December 27-02, 2008.

Institute management committee

The 36th Meeting of the Management Committee of the CIFRI was held at Barrackpore on 30th July 2008. The meeting was chaired by Dr. K.K. Vass, Director. Dr. V.V. Sugunan, Assistant Director General (I.Fy.), ICAR, Shri R.N. Chowdhury, Director of Fisheries, Patna, Mr. Ejaz Ahmed, Patna (Nonofficial Member) Dr. M.M. Prasad, Pr Scientist, CIFT and Shri U.C. Prasad, Sr. Administrative Officer, CIFRI attended the meeting. The Chairman briefed the members regarding the achievements made by the Institute under different Research Projects. The Committee discussed the agenda items for different administrative and financial items. Progress of civil works since last meeting was also reviewed.

Launch workshop

The Launch Workshop of the Outreach Activity-3 entitled 'Nutrient Profiling and Evaluation of Fish as a Dietary Component' involving six institutes under the Fisheries Division, viz. CIFRI, Barrackpore (Lead Institute); CIFA, Bhubaneswar; CIBA, Chennai; CIFT, Cochin; CMFRI, Cochin; and DCFR, Bhimtal. was held at CIFRI, Barrackpore on 31st July- 1st August, 2008. The workshop was attended by Dr K .K Vass, Director, CIFRI, Dr VV Sugunan, AGO (Inland Fisheries), the PIS and Co-PIS from participating institutes and Scientists of CIFRI.



Dr. K. K. Vass, Director, CIFRI, hoisting the National Flag

Independence Day

The Independence Day was celebrated at CIFRI with due solemnity. Staff members assembled for the hoisting of the National flag by Director, CIFRI. Other cultural functions were also organized by the staff members.

CGIAR Challenge Program

Dr. Louis Van Brakel Martin, Scientist at World Fish Centre, Penang, Malaysia visited sites of CGIAR Challenge Program on Water and Food project on "Improved fish productivity and management in tropical reservoirs" at Jhansi in Uttar Pradesh and Bhopal in Madhya Pradesh during August 17-22, 2008. He had detailed discussions about the progress and findings of the project with the project staff and representatives from State Department of Fisheries of project states and Bundelkhand and Barkatullah University.



Fisheries enhancement activities
at a project site in Bhopal

He expressed his satisfaction about progress of the project and was impressed by the positive impact of

project outputs at both the sites. He had detail discussion with the Project Leader Dr. S. Ayyappan, DDG (Fy) and Executive Project Leader Dr. K. K. Vass, Director, CIFRI, Barrackpore. Dr. Martin also visited CIFRI, Barrackpore and held discussions with institute scientists.

Peninsular Fisheries and Aquaculture meet

A brainstorming meet on *Peninsular Fisheries and Aquaculture* was held at the CIFA/ CIFRI complex, Hessarghatta, Bangalore on 23 August 2008 to discuss matters on :

- Strengthening the existing partnership between ICAR Institutes/Centres and the State/University agencies to enhance the outputs and outcomes of research projects.
- To explore new areas of cooperation among the partners and finding ways to operationalize them
- To set time-bound targets for achieving research outputs of the Institute/Centres.



The brainstorming meet at Bangalore.

Dr. S. Ayyappan, DDG (Fy), Dr. V.V. Sugunan, ADG (I Fy), ICAR, Dr. G. Syda Rao, Director, CMFRI, and Dr. W.S. Lakra, Director, NBFGR attended the meeting. The main recommendations of the meeting were:

- CMFRI and CIFRI would develop projects on trophic modeling
- Potential species viz., *Labeo dussumieri*, *Barbodes carnaticus*, *Clarius dussumieri* and *Gonoproktopterus kolus* were identified for propagation
- CIFRI and CIFA to prepare a plan for setting up a

state-of-art work station for cage farming in an identified reservoir in the region.

- Scientists of CIFRI to visit CIFT to identify specific areas of collaboration on suitable crafts and gears for reservoir fishing
- A workshop on 'Peninsular Fisheries and Aquaculture' to be organized during January, 2009

XIX Meeting of ICAR regional committee-II

CIFRI, Barrackpore, organized the XIX meeting of ICAR regional committee-II during September 26-27, 2008 at Orissa University of Agriculture and Technology, Bhubaneswar. His Excellency the Governor of Orissa Shri Murlidhar S. Bhandare inaugurated the meeting. A number of emerging issues related to agriculture and allied sectors were discussed in three technical sessions. The meeting was chaired by Dr. Mangala Rai, Secretary DARE, Govt. of India and Director General, ICAR. A large contingent of members, more than 125, comprising Hon'ble Ministers from Orissa & West Bengal; Secretary, DARE & Director General, ICAR; Additional Secretary, DARE & Secretary, ICAR; Secretary, Members of the ICAR Governing Body; Secretary, Agriculture, Govt. of Orissa; Special Secretary Fisheries, Govt. of West Bengal; Adviser, Planning Commission; Six Vice Chancellors and their faculty members of SAUs in the region; five DDGs & four ADGs from ICAR; Directors of ICAR Institutes in the region; Directors of NBPGR & IGFRI as special invitees; Senior officers from the Ministry of agriculture, Govt. of India, State Directors of Agriculture, Horticulture, Animal Husbandry & Fisheries, Govts. of Andhra, Orissa & West Bengal; Regional Heads & Officer-in-Charge from the regional stations/centers of ICAR; representative of NABARD and other Scientists attended and participated in the deliberations.

Hindi Pakwara

Hindi Pakhwara was celebrated at the Institute's Headquarters during the period from 15.09.2008 to 29.09.08. Prof. Rewa Jajodia, Head, Hindi Department, Bangabasi Evening College, Kolkata inaugurated the Hindi Pakhwara Celebrations. During this fortnight a number of Hindi competitions like *nibandh lekhan*, *tippany lekhan*, *shabdawali*, *Viyakhyan*, *Kavita Path*, *Hindi Patra lekhan*, *Hindi nibanxdh*, *Quiz* etc. were conducted. A large number of officers and staff including scientists participated in these competitions. The Valedictory function was organized on 29th September 2008. Dr. R. B. Singh, Joint Director, Central Translation Bureau, Kolkata was the Chief Guest at the function and it was presided over by Dr. K. K. Vass, Director, CIFRI. The message received from Shri Sharad Pawar, Hon'ble Minister of Agriculture, Govt. of India and Dr. Mangla Rai, DG, ICAR, New Delhi was read out.. The Chief Guest and Director, CIFRI distributed prizes to the winners of various Hindi competitions.

Fish marketing strategy

A meeting of NCAP-NFDB Sponsored project on "Exploring market opportunities for fisheries sector in India" was held at Institute's Headquarters on 24.10.08. A good number of representatives from the Fishing, Farming and Trading communities were present to discuss the project initiative per se, and the problems and prospects of the sector to facilitate developing market infrastructure for fisheries products.

8th Indian Fisheries Forum

The 8th Indian Fisheries Forum was jointly organized by the Asian Fisheries Society (Indian Branch), Mangalore, the Inland Fisheries Society of India, Barrackpore and the Central Inland Fisheries Research Institute, Barrackpore during the 22-26 November 2008 at the Eastern Zonal Cultural Center (EZCC), Kolkata. More than 400 participants, including subject matter experts, stakeholders, farmers, researchers and students from all over the country and abroad attended the Forum. Shri. Kiranmay Nanda, Honorable Minister-in-Charge of Fisheries, Aquaculture, Aquatic Resource and Fishing Harbours, Government of West Bengal inaugurated the Forum on 22 November 2008 in a splendid ceremony. Dr. S. N. Dwivedi, former Additional Secretary, Government of India and





**Hon'ble Minister -in - Charge, Fisheries,
Shri Kiranmay Nanda,visiting the Exhibition stalls.**

President, ASET, Bhopal presided over the function. Dr. Mohan Joseph Modayil, Member, ASRB and Vice President AFSIB; Dr. M. V. Gupta, World Food Price Laureate; Dr. S. J. Kaushik, Director, Institute of



**Inaugural function of the 8th Indian
Fisheries Forum**

Hydrology, INRA, France and Shri. R. P. S. Kahlon, Secretary (Fisheries), Government of West Bengal were the Guests of Honour. Other dignitaries on the dias were Dr. S Ayyappan, Deputy Director General (Fisheries), ICAR, New Delhi and Chairman, Asian Fisheris Society India Branch, Dr. K. K. Vass, Director, CIFRI, Barrackpore and President, the Inland Fisheries Society of India; Dr. K. M. Shankar, Secretary, ASFIB and Dr. (Mrs.) K. Mitra, Secretary, the Inland Fisheries Society of India. The Forum was dedicated to the memories of *Padamshri* late Dr. V. G. Jhingran, Former Director, CIFRI, Barrackpore and late Dr. G. N. Mitra, Former Fisheries Development Adviser, Government of India.

The Forum was conducted in seven sessions *viz.* a 'Special Session' consisting of talks and lecture on selected topics of contemporary importance ,three 'Special Symposia' *viz.* Fish Diseases, Fish Nutrition and Indian River Systems; theme based Technical Sessions *viz.* 'Fisheries and Aquatic Biodiversity'; 'Aquaculture & Productivity Enhancement'; 'Aquatic Environment & Fish Health'; 'Fish Genetics, Nutrition & Biotechnology' and 'Social Fisheries, Value Addition & Education', each consisted of oral presentations with lead papers by invited experts and presentations of accepted abstracts by registered participants and 'Poster Session' based on the five themes.

The valedictory function was held on 25th November. Shri. Md. Anisur Rahman, Honorable Minister of Animal Resource Development, Government of West Bengal was the Chief Guest.

Vigilance Awareness Week was observed in the Institute during 3-7th November 2008.

VISITORS

Name	Organization
Dr.P.V.Dehadrai	Ex DDG(Fy) ICAR
Dr.S.N.Dwivedi	President ASET
Prof.D.P.Zutshi	Ex Director,CRD, University of Kashmir
Dr. S. Ayyappan	DDG(Fy) ICAR
Shri N.Reddy	CEO, Cantonment Board, Bkp.
Dr. Bangali Babu	Director, IINRG, Ranchi
Shri R.N.Chowdhury	Director of Fisheries,Govt. of Bihar
Dr. L.V.A.Martin	Scientist, World Fish Centre, Malayasia, Penang

STAFF NEWS

Promotions

Name	Promoted to	w.e.f.
Dr. Sanjoy Bhowmick	T-(7-8)	03.02.2005
Shri Sujit Choudhury	T-5	22.07.2006
Md. Quasim	T-6	29.06.2006
Shri James Murmu	T-5	29.06.2006
Ms. Sunita Prasad	T-5	29.06.2006
Shri N.K. Saha	T-4	01.07.2007
Mrs. Jolly Saha	Personal Assistant	28.07.2008
Shri Bijoy Kumar Roy	Senior Clerk	01.08.2008
Shri Lalta Prasad	SSG.IV	28.07.2008(A.N.)
Shri M. Anjanappa	SSG.III	29.07.2008
Shri Kharban Kumar	SSG.III	28.07.2008
Shri Binod Kumar Sahani	SSG.II	28.07.2008
Shri Sabbir Ahmed	SSG.II	28.07.2008
Shri Sukhen Das	SSG.II	28.07.2008
Shri Probodh Ranjan Mahata	SSG.II	28.07.2008
Shri Hemanta Das	SSG.II	28.07.2008
Shri Lalta Prasad	T-I	29.07.2008
Shri Karam Raj	T-I	29.07.2008
Shri Biswanath Bose	T-I	29.07.2008
Shri Jagdish Balmiki	T-I	29.07.2008
Shri Pashupati Ghosh	Lower Division Clerk	29.07.2008
Shri Tarapada Ghosh	Lower Division Clerk	29.07.2008
Shri Shitla Prasad (Alis-Shri Sita)	SSG.IV	02.08.2008
Shri B.C. Das	SSG.IV	18.08.2008
Shri M.C.Das	SSG.III	18.08.2008
Ms. Bindu Singh	SSG.II	18.08.2008
Shri Somenath Banerjee	SSG.II	18.08.2008
Shri Sudama Basfore	SSG.II	18.08.2008
Shri Anil Kumar	SSG.II	18.08.2008(A.N.)
Ms. Hemlata Haider	SSG.III	30.08.2008

Financial upgradation under A.C.P. Scheme

Name and Designation	w.e.f.
Shri Chhotey Lal, Senior Clerk	20.03.2008
Shri R.K. Sardar, SSG.II	06.08.2008
Shri A.K. Bhanja, SSG.II	06.08.2008
Shri S.C. Sadhukhan, SSG.II	06.08.2008
Shri S. Banerjee, SSG.II	06.08.2008
Shri B.P. Samanta, SSG.II	08.08.2008
Shri B.P. Mishra, SSG.II	08.08.2008
Shri T.K. Gayen, SSG.II	14.08.2008
Shri Swapan Gayen, SSG.II	16.08.2008
Shri A.C. Das, SSG.II	16.08.2008
Shri Sibulal Das, SSG.II	20.08.2008
Shri S. Govindarajan, SSG.II	27.08.2008
Shri Sukumar Sarkar, Senior Clerk	10.09.2008
Shri Swapan Kumar Das, Time Keeper	10.09.2008
Shri K.C. Das, SSG.II	10.12.2008

Inter-institutional transfer

Name	From	To
Shri Dalbir Singh, SSG.II	Regional Centre of CIFRI, Allahabad	Regional Station of IARI, Karnal
Dr. K.D. Joshi, Senior Scientist	Regional Centre of CIFRI, Allahabad	Directorate of Coldwater Fisheries Research, Bhimtal, as Principal

Transfer

Name	From	To
Shri T.K. Haider, T-2	Vadodara	Barrackpore
Shri G. Paramanick, T-2 (Driver)	Bangalore	Barrackpore

Superannuation

Name & Designation	Last place of posting	Date of superannuation
Shri Karna Bahadur, SSG.III	Barrackpore	31.08.2008
Shri H.K. Barman, SSG.IV	Barrackpore	30.09.2008
Shri K. Kallanan, SSG.IV	Kochi	30.09.2008
Ms. M. Banerjee, Senior Clerk	Barrackpore	31.10.2008
Shri K.P. Ram, SSG.III	Barrackpore	31.10.2008
Ms. Anjali Rani Dutta, SSG.II	Barrackpore	31.10.2008
Shri V. Mariappan, SSG.III	Bangalore	31.12.2008

New Appointment

Name	Post of Joining	Date & Place
Dr. Dipesh Debnath	Scientist	04. 07. 2008 at Barrackpore
Dr. Bijay Kumar Behera	Senior Scientist	01. 09. 2008 at Barrackpore

Obituary

Staff members of CIFRI express their deep sorrow at the demise of Shri Shitla Prasad (Alias - Shri Sita), SSG.IV on 20.08.2008 and Sk. Abdullah, SSG.II on 06.11.2008. May their departed soul rest in peace.

Director's desk

Dear Reader,

The CIFRI-News briefly highlights different activities pertaining to research, technology transfer, support to development initiatives in the inland sector and institutional building carried out during the period. In order to create awareness about the concept of ecosystem management and sustainable fishery in open-water inland resources the CIFRI regional centre at Vadodara in linkage with Gujarat Fisheries Department organized National Fish Farmers meet at Vadodara. It evinced a great interest among fishers, fish farmers from different districts in Gujarat and also students from different colleges in the city of Vadodara. We believe that such small efforts contribute to expanding the stakeholder base involved in aquatic biodiversity conservation. The issue pertaining to identification of problems in inland fish marketing has remained unaddressed for a long period. A NFDB sponsored study was commissioned jointly by NCAP and CIFRI in West Bengal and Tripura and salient findings were shared with all stakeholders in a workshop at Barrackpore the outputs will form a baseline for developing modern marketing strategy for the inland sector in the country. Availability of appropriate database on fish as health food has been a constraint for medical doctors to prescribe diet advisory to people with regard to fish eating as preventive to many human ailments. To address this issue CIFRI in collaboration with other fishery institutes and medical experts has initiated an outreach programme on fish nutrient profiling. In this connection a launch workshop was organized at Barrackpore involving all stakeholders in order to finalize the approach to project execution. The institute is also involved with CGIAR sponsored project on reservoir fisheries in M.P. and U.P. the significant success achieved till date under the project was reviewed by an external expert from WorldFish Centre, Penang, Malaysia. This successful work was also presented at 2nd International Forum on Water and Food held at Addis Ababa, Ethiopia during November 10-14, 2009. The outputs from this pilot scale study will provide inputs to formulate policy support to reservoir fishery development in the country. The institute successfully organized XIX meeting of ICAR Zone-II Regional Committee at OUAT, Bhubaneswer, which was inaugurated by the Honorable Governor of Orissa. This two day important meeting was held under the chairmanship of Dr. Mangala Rai, the Secretary DARE and Director General ICAR and many important decisions on agriculture improvement in the region were taken during the deliberations. The high point during the period for the institute was the

grand and successful organization of 8th Asian Fisheries Forum (Indian Branch), which is organized after every third year and for the first time in Kolkatta. In this Forum over 400 delegates from India, Canada, USA, Norway, Bangladesh and Nepal participated. The CIFRI organized this important event in collaboration with Inland Fisheries Society of India, and ASFIB, Mangalore. Apart from these important events, mandatory meetings of Management, Hindi fortnight, IJSC, and Rajya Bhasha implementation Committee were also organized during the period. The institute continued its efforts to market its expertise by bagging two consultancy projects one each from Narmada Control Authority and Department of Fisheries Govt. of Madhya Pradesh. Further, the institute also got involved with two new NAIP projects one on microbes and another on genetic tools as consortium partner.

During the period our scientists continued to execute their work programmes on estuaries, rivers, reservoirs, wetlands, environmental issues, climate change and also one CPCB sponsored project on bio-restoration in river Ganges and Yamuna. The institute also took up a task of imparting training to large number of officials, officers and fishers from the states of Bihar and Assam. The CIFRI will continue to play its active role in developing sustainable technologies / practices to improve the livelihoods of resource poor fishers in collaboration with line departments in the country.

Between July-December 2008 some of our colleagues superannuated we wish them a happy, active and healthy retired life; some colleagues moved to other institutes / organizations we value their contribution to the institute and wish them pleasant working at new places. Some new scientist and other staff joined the institute as fresh recruits, the CIFRI family welcomes them. The CIFRI family also congratulates the scientists and staff who got promotions during this period. Our staff other than scientists received revised scales as per 6th pay commission and it has been a great financial support and incentive to them. We hope they will put more effort in achieving the objectives of the institute. Many infrastructure activities were completed and new initiated during the period. Looking back on six months achievement we feel satisfied but much remains to be done.

Any suggestions from our respected readers for further improving the contents of the newsletter will be highly appreciated.

K.K.Vass

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