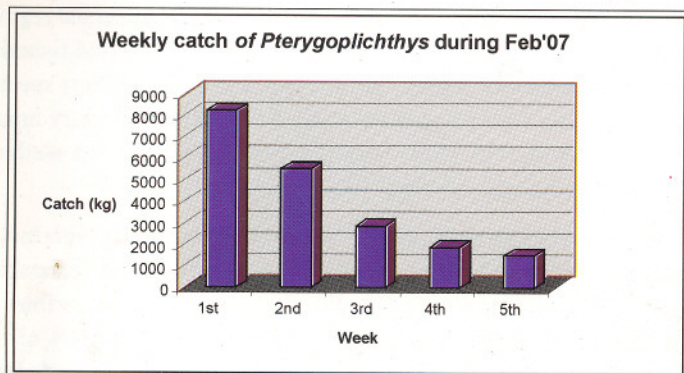




RESEARCH BRIEF

Invasion of *Pterygoplichthys* (exotic fish) in a Ramsar site in Kolkata

A massive breeding population of an exotic fish, native of South America, was noticed in the East Calcutta Wetlands, a Ramsar site. Since the main bioresource of the wetland is fish production, the fishers and its managers are of late observed to be worried about a peculiarly looking new member of fish in the wetland. The hard body armour and very rough rays of caudal, dorsal and pectoral fins are causing injury to the hands of fish catchers, and to their nets. The massive increase in population with its likely impact on the existing fisheries is a matter of concern to managers. A month-long operation was carried out during the beginning of the year 2007 using drag net to eradicate it. The weekly trend of fishes recovered was nearly 8mt in the first week followed by a gradual fall in the 2nd week is indicated below.



After one year during March 2008 an experimental fishing operation using 100m long drag net was carried out for 6 hrs to examine their present status. The operation yielded a total of 28kg fish of different size groups indicating the existence of a good population.

Taxonomically the fish belongs to the family Lorocariidae, the largest family of catfishes. The fishes can be readily distinguished by their hard, rough, armoured skin, ventrally located sucker like mouth with a prominent barbel on each side and large sail-like dorsal fin. They are relatively large fish with maximum size of 381 mm in length and 997g in weight recorded during the study period. The basic colour pattern is numerous brown or dark grey spot on a lighter background. Presence of more than 10 fin rays distinguishes sail-fin catfish from other closely related genus. After thorough investigation of various morphometric and meristic



Catch of *Pterygoplichthys* from drag net operation for 6 hrs
characters it was noted that two species namely *Pterygoplichthys disjunctivus* and *P. pardalis* constituted the population.

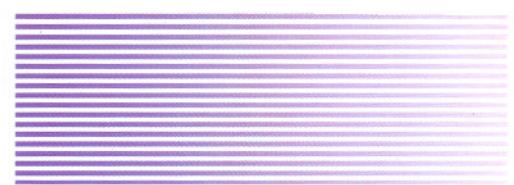


Pterygoplichthys disjunctivus



Pterygoplichthys pardalis

Studies pertaining to their feeding and breeding biology revealed that the species to be omnivore type. However, gut contents analysis indicated, the species is detritivore, since more than 95% of the content was occupied by detritus.



Gravid females with mature ova and presence of young fishes indicated the existence of breeding population. Gonado-somatic index and ova diameter study indicated the species is a prolonged breeder. Mature ova were noticed from July till October indicating their breeding season. The fecundity of the fish ranged from 530 (fish-29.2cm, 437g) to 2419 (fish-29.8cm, 491g). The highest fecundity was recorded during August, but higher value was also recorded during October.

Apart from the Chinese major carps, which are being cultured in the state on a large scale, other exotic fish species gaining dominance in the natural waters of the State, are *Oreochromis niloticus niloticus*, *Barbonymus gonionotus*, *Pangasianodon hypophthalmus* and *Clarias gariepinus*. The presence of exotic fish, *Piracactus brachypomus*, has also been recorded from the state. These observations do not seem to be good for the fish diversity situation.

Surveys in eight wetlands of West Bengal revealed the presence of 76 fin fish species spread across 55 genera and 30 families. Presence of 51 species was recorded from Beladanga, 55 from Chandania, 39 from Bhomra, 31 from Khalsi, 33 from Raja, 25 from Chamordaha, 61 from Kol and 38 species from Borthy wetland with diversities (Shannon index H') ranging from 1.3 to 3. Wetland retaining riverine connection recorded higher diversity. Three species of prawns and one species of crab were also recorded. Sizeable presence of exotic fishes was also recorded from some of the wetlands.



Barbonymus gonionotus



Piaractus brachipomus



Oreochromis niloticus niloticus



Pterygoplichthys disjunctivus

Partial replacement of pen construction material

Among several factors, cost effectiveness is one of the principal determinants in the adoption of any technology. Earlier experience revealed that more than 50% of completed cost of pen was involved in construction material, labour for construction and installation. Therefore attempt was made to try different material for pen wall construction. The High Density Polyethylene (HDPE) net with 3mm mesh was used for its less cost, durability and labour requirement needed for its fabrication. The capital cost of the present pen design with only HDPE net, reduced to less than half in comparison to the conventional material of split bamboo. The HDPE net used for the new design as pen wall was found to be more durable, thereby, reducing the depreciation cost, besides it is easy to fabricate and needs less labour. The cost involved for the new material and design

for a unit area (0.01ha) at constant height (6.5 ft) of pen wall found to be significantly reduced to Rs. 9.15 only as compared to Rs.19.76 for split bamboo.



The new design of pen with HDPE net

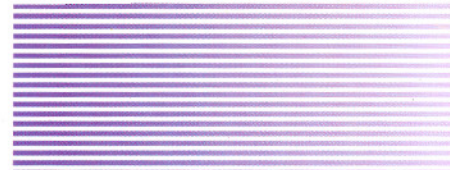
Mystus vittatus, a valued fish in wetlands

The striped catfish, commonly called *Tangra*, belonging to the family Bagridae is an inhabitant of ponds, canals, wetlands, streams and paddy fields. The species is highly relished in West Bengal, Northeastern States, Bihar and Uttar Pradesh. and fetches high market value than many of the major carps being promoted in culture based fisheries of open waters. There has been growing concern over exploitation and depletion of the stock of the species in some open water bodies. The species, owing to its economic value in the region, may be a candidate species for promotion in culture based fisheries of open waters in the region. The biology and fishery of this species in a wetland in West Bengal was studied to provide necessary inputs in this direction. The study was conducted in Chandania wetland (49.5ha), 24 Parganas district, West Bengal.

Fishery: Recruitment of the fish occurred twice a year with major pulse in February-March and a minor pulse during June-September. As the fish matures at 6 cm length, the length group contributing maximum to the catch is sexually mature, constituting 69% of the catch. The length at optimum catch was 7.8 cm, which formed about 45.61% of the catch. Abundance of the fish in numbers varied from 0.73-3.67/100m², while the biomass was 3.53-36.38g/100m². Maximum biomass was during July-October, during which the fish breeds.



M. vittatus



MAIN PROJECT HIGHLIGHTS

- The Institute has been involved in using remote sensing tool in estimation of aquatic resources across the country. Using TNT Microimage software topographical sheets of study area were geo-referenced and watershed area of Murugama (Sahara Jore) water body of Jhalda Block in Purulia district was delineated and computed. The data collected at different centers from various water bodies have been compiled and stored in the database for future use.
- In river Ganga fish landings at Sadiapur and Daraganj landing centers were estimated at 115.96 and 44.02 t respectively. At Sadiapur the fishery was dominated by smaller species that contributed about 34.6%, followed by exotic species, specifically common carp contributing about 34%. These species showed an increase of 79% over the preceding years catch which reflects a changing pattern of fish stock in the river system.
- Suvarnavathy reservoir in Karnataka was investigated in which the total catch was 39.5 t and Indian major carps contributed a high of 95% to the total catches followed by tilapia. The mean CPUE was 12.3 kg registering per unit fish yield of 80.6 kg/ha. Interim recommendations for enhancing productivity of Suvarnavathy reservoir have been formulated for implementation by the State department.
- Investigation in the estuaries recorded a total of 68 species of fishes, belonging to 37 families and 12 orders in the Godavari estuarine system and in the Subarnarekha estuary the presence of 44 finfish species, four species of prawns and three species of crabs were recorded.
- Environmental impact study in river Damoder recorded DDTs in all the water samples analyzed, which even exceeded the permissible limits of EPA for aquatic life.
- IBI study in a highly industrialised stretch of river Damoder recorded 55 fish species belonging to 22 families. Significantly for the first time 5 exotic species viz *Cyprinus carpio*, *Ctenopharyngodon idella*, *A. nobilis*, *Tilapia mossambica* and *T. nilotica* have been recorded in the catches.
- Nineteen bacterial strains were isolated from river Damoder for their phenol degrading capability.

HRD ACTIVITIES

Training

Training Programme	Participants	Venue
Management of Floodplain wetlands	16 students and teachers of Srikishan Sarda College, Hailakhandi, Assam	Regional Centre of CIFRI, Guwahati during January 3-9, 2008
Fisheries Management of Floodplain wetlands	13 Students of Cachar College, Silchar, Assam	Regional Centre of CIFRI, Guwahati during January 29 to February 4, 2008
Sampling Techniques of Data Collection for Fish Catch Estimation in Inland Water Bodies	Karnataka State Fishery Officers	Bangalore Centre of CIFRI, 16th February 2008
Training course of Inland Fisheries	40 Fish farmers of Bihar	CIFRI, Barrackpore during February 18-27, 2008
Training programme on 'Inland Fisheries'	40 fish farmers from Bihar	CIFRI, Barrackpore during 07-16 March 2008
Empowerment of Tribal Fisher women for value added fish products	39 Tribal women	Jhargram, Medinipore during March 24-29, 2008
Inland Fisheries Development	80 Fish farmers of Bihar	CIFRI, Barrackpore during March 6-15, 2008 and March 25 – April 3, 2008.
Training program on 'Inland Fisheries Development'	40 fish farmers from Patna district, Bihar,	CIFRI, Barrackpore during 5-16th May 2008



NAARM Training at CIFRI

An Off-campus short term training for administrative, finance and accounts manpower was organized at CIFRI by NAARM, Hyderabad during 25-30 April, 2008. Administrative, accounts, audit and scientific personnel of CIFRI participated in the training. Very informative lectures were delivered by NAARM Faculty members.

The course was concluded by a valedictory lecture by Dr. S.M. Ilyas, Director NAARM.

Winter School

A winter school entitled "Social science research tools in inland fisheries development" was organized at this Institute during 7-27th January 2008. The winter school was inaugurated by Dr. R.K.Samanta, V.C., BCKVV. The School provided an opportunity to the researchers/scholars to develop proper perspective on social science and acquainted them with the tools and techniques for conducting research in fisheries sector. A total of 22 participants from state agriculture universities, conventional universities, state fisheries department and research scholars of various institutions participated in the course. The resource person across the country belonging to the ICAR organizations, state agriculture universities and retired scientist delivered lectures. Apart from theoretical and practical aspects the participants were exposed to seminar, debate and media presentation and a PRA exercise for 4 days conducted at Ullan village, Lakhmikanthapur, South 24 Paraganas. Dr. V.V. Sugunan, Asst. Director General (I.Fy.), ICAR distributed the certificates and awards to the participants in the valedictory function.



Mass Awareness

Our Bangalore research centre of CIFRI in collaboration with Department of Fisheries organized a mass awareness programme "Conservation and Propagation of Mahseers" at Bheemeshwari on 17.01.08. The participants included the stake holders - Fishermen depending on Cauvery River for livelihood, officers of the Department of Fisheries, Representatives from Wild Life Association of South India (WASI), Bangalore & Coorg Wild Life Society (CWLS), Madikeri, and Officials of Jungle Lodges & Resorts. One thousand fingerlings of mahseers produced at Government Fish Farm, Harangi were released in the river for ranching. Live exhibition of mahseer (*Tor khudree*) and important food fishes (carps) of river Cauvery was arranged. Brochures on *Mahseer Conservation* in Kannada (published by Department of Fisheries) and in English were released in the function.



Five Mass awareness campaign towards conservation of fish and prawn seed and juveniles were organized during the period January to May 2008. At various places of West Bengal, 500 fishers participated in these awareness programmes

EXHIBITIONS

Institute participated in the following exhibitions

- The Kochi unit of CIFRI participated in the exhibition arranged in connection with the Honorable Union Agriculture Minister Shri.Sharad Pawar's visit to CMFRI, for the celebration of Diamond Jubilee year during January 4-7, 2008.
- Sanchita Krishi Utsav, Budge Budge, South 24 Parganas during January 02-04, 2008.
- Kapgari Krishi Vigan Kendra, Kapgari, Jhargram, Medinipore during February 4-5, 2008.



- "Rashtriya Kisan Mela evam Shabji Pradarshani" held at IIVR, Varanasi, from 9-10th Feb'08.
- "National Level Science & Technology Fair, 2008" at Salt Lake City, Kolkata., during April 12 – 20, 2008.
- Silver Jubilee of NBFGR at Lucknow, Uttar Pradesh during April 26 – 27, 2008.



Hon'ble Shri Sharad Pawar, Union Agriculture Minister visits CIFRI Exhibition Stall at CMFRI

MEETINGS

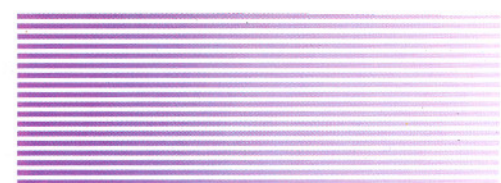
- The 4th 'Network Meeting of Fisheries Scientists in Agricultural Research Institutes', convened by the Fisheries Division, ICAR, was held on 2nd February 2008, at C I F R I, Barrackpore. Dr. S. Ayyappan, DDG (Fy.), ICAR chaired the meeting and Dr. V. V. Sugunan, ADG (I. Fy.), ICAR, New Delhi also participated. Eight fishery scientists from seven agricultural research institutes of ICAR viz., Central Rice Research Institute, Cuttack, Central Agricultural Research Institute, Port Blair, ICAR Research Complex

for Eastern Region, Patna, ICAR Research Complex for NEH Region, Barapani and ICAR Research Complex for Goa, Goa, Water Technology Center for Eastern Region, Bhubaneswar and Central Soil and Water Conservation Research and Training Institute, Dehradun participated. Participants presented their on-going research projects, future programs and constraints, which were discussed and Action Plans were finalized.

- The Fisheries Division of ICAR convened the 'Meeting of the Nodal Officers of NEH Component in ICAR Fishery Research Institutes', on 4th February 2008 at CIFRI, Barrackpore. Dr. S. Ayyappan, DDG (Fy.), ICAR, New Delhi chaired the meeting. He welcomed all the participants and thanked the Director CIFRI and the Directors of all the Fishery Institutes for supporting the NEH component programs. He informed the house that ICAR has indicated a budget of Rs. 15 crores for the Fisheries Division under NEH component.

The DDG appreciated the efforts made by the concerned Institutes and the nodal officers associated for effective execution of NEH Component. He also put on record, the contributions of late Dr. M. Choudhury of CIFRI, Guwahati Center, for effectively executing and coordinating the NEH activities in the region. Although these efforts have started bearing fruits, the dimension of the responsibilities that lie ahead are enormous, he stressed. After the brief remarks, individual presentations were made by all nodal officers and programme for next year was finalised.

- The Midterm Review Meeting of the ICAR Regional Committee-II, comprising the States of Andhra Pradesh, West Bengal, Andaman & Nicobar Islands, was held under the chairmanship of Dr. S. Ayyappan, DDG (Fy.) and Nodal Officer of the ICAR Region-II on 5th February 2008 at CIFRI, Barrackpore to take stock of the action taken by respective organizations on the identified action points at its 18th meeting. The chairman expressed overall satisfaction on the level of implementation of various issues and requested the distinguished participants to be ready for taking up many emerging challenges like global warming, increase in production & productivity, and value addition to agricultural products. A number of distinguished participants, who attended the review meeting were Dr. R.K. Samanta, Vice-Chancellor BCKV, Dr. S.K. Bhattacharya, Director NIRJAFT, Kolkata, Dr. M.P. Pandey, Director CRRI, Cuttack, Dr. V. Krishnamurthy, Director CTRI, Rajmundry, Dr. Ashwini Kumar, Director WTCER, Bhubaneswar, Dr. N. Sarangi, Director CIFA, Bhubaneswar, Dr. D.N. Hegde, Project Director DOR, Hyderabad, Dr. B.C. Virakatamath, Project Director DRR, Hyderabad, Dr. P.G. Karmakar, Officiating Director CRIJAF, Barrackpore, the Dean and Faculty Members of SAUs viz. BCKV, WBUAFA, UBKV, ANGRAU, & OUAT, senior officers from the Govt. of West Bengal, heads and scientists from the ICAR regional stations and others. It was decided in the meeting that all actions points be completed by different organizations before next meeting is fixed by the CA in ICAR for the reconstituted region.
- The Institute organized the ICAR Eastern Zone Sports Meet for the year 2007-08 at Barrackpore, during 4-8th February 2008. 14 Institutes from 8 States viz., CIFRI, West Bengal, CIFA, Orissa



CRIJAF, West Bengal, CRRI, Orissa, ICAR Research Complex for Eastern Region, Patna, ICAR Research Complex for NEH Region, Meghalaya, I I NR, Jharkhand, IVRI, Izatnagar, Bareilly, Uttar Pradesh, NIRJAFT Kolkata, West Bengal, NRC for Mithun, Nagaland, NRC for Orchids, Sikkim, NRC for Litchi, Muzaffarpur, NRC for Women in Agriculture, Bhubaneswar, Orissa, WTCER, Bhubaneswar, Orissa. A total of 434 participants (Males- 402, Females- 32) from 14 Institutes spread over 8 States took part in this 5 day long tournament. In the inaugural ceremony Dr. S. Ayyappan, DDG (Fisheries), ICAR was Guest of Honour. In the closing ceremony Sri A. N. Mallick, Commandant, 6th Battalion, State Armed Police, Barrackpore was the Chief Guest and distributed the medals to the prize winners. Shri. Pradeep Kumar Parida of Central Rice Research Institute (CRRI), Cuttack and Ms. S. Debnath of ICAR Research Complex for NEH, Meghalaya were adjudged as the Best Athlete 'Men' and 'Women', respectively, and CRRI, Cuttack was adjudged the Overall Champion Institute.



- Regional Consultation on preparation of management plan for Hilsa fishery was organised in collaboration with BOBP at Institute's headquarter Barrackpore during March 14-15, 2008. Delegates from Myanmar, Bangladesh, C.I.F.R.I. and Govt. of India participated in the consultation.



- The Annual Institute Research Committee Meeting was held at Barrackpore during 21-23rd April 2008 under the chairmanship of Dr. K.K. Vass, Director, CIFRI. The meeting was attended by all scientists from Head quarters and scientists from outstations. The progress of work on on-going Projects during 2007-'08 were discussed. The proposed programmes for the year 2008-'09 were discussed at length and the IRC approved 13 main themes for formulation of the Projects. The issues related to administrative and financial matters were also discussed in the meeting for smooth execution of projects activities. At the meeting main priority areas of the XI plan was also discussed.



IRC meeting in progress

- The meeting of Research Advisory Committee was convened during 2-3-May 2008. It was chaired by Dr. M.V. Gupta: Ex-ADG, ICLARM (World Fish) and attended by other members viz., Dr. C.S. Singh, Retd. Dean, Fisheries, G.B. Panthnagar University, Dr. R.K. Sinha, Professor Zoology, Dept. of Zoology Patna University, Dr. U.C. Goswami, Professor, Department of Zoology, Guwahati University, Dr. V.V. Sugunan ADG (I.Fy.) ICAR. The meeting was also attended by Heads of Divisions of Riverine, Estuarine, Reservoir, Wetlands, Fish health & Environment, Fishery Resource Assessment and HRD & TOT divisions. Apart from these officers scientists at Barrackpore and outstations attended this important meeting. All Heads of Divisions and a few Principal Scientists presented the progress of work in their respective divisions on various research projects before the committee members for their information and seeking suggestion and direction. New projects were formulated in the light of responses and discussion in the meeting with the approval of RAC.



Scientist interacting with the QRT members.

- A special interaction meeting on implementation of the CPCB project entitled "Assessment of fisheries with regard to water quality in river Ganges and Yamuna" and issue of 'Environmental flow in rivers' was organized at CIFRI, Barrackpore on 19 May 2008. The meeting was attended by participating scientists of the projects, HODs and Director CIFRI. Prof. Brij Gopal expert attended the meeting and advised various aspects of site selection, approaches and methodologies to be adopted for implementation of the project. A project meeting with participants from CPCB is envisaged during February 2009.

Quinquennial Review Team meetings

The CIFRI Quinquennial Review Team (QRT) for 2002-07, constituted of Dr. P.V. Dehadrai Ex-DDG (Fy.) ICAR as Chairman, and Prof. M.S. Johal, Head, Dept of Zoology, Punjab University, Prof. D.P. Zutshi, Ex-Director, CORD, Kashmir University, Dr. P. Kumar, Ex-Prof. IARI and Prof. Kaushal Kumar Head, Dept of Zoology & Dean Faculty of Science D.D.U. Gorakhpur University reviewed the achievements of all the projects of CIFRI during the period 2002-07. A total of four visits and seven meetings were held at CIFRI HQ, Barrackpore, Kolkata and its regional centres at Bangalore, Guwahati and Allahabad. These visits and meetings helped the Team to get relevant feed back from the scientific, technical and administrative personnel, pertaining to the work/programmes undertaken during the period 2002 to 2007. The Team made an in-depth assessment of different research activities of the Institute under various programmes and looked into the achievements made.

Keeping in view the terms of reference for QRT and emerging needs of this sector, recommendations were made by the team for future research direction. These are grouped under Research, Policy support, Human resource development, Manpower, Infrastructure, Regional Centre activities and Administration. During 23-27th May 2007 the Quinquennial Review Team visited the Institute and held extensive discussions to finalize the QRT report. The final report has been sent to the council.

VISITORS

Name	Organization
Dr. S. Ayyappan	DDG (Fisheries) ICAR, New Delhi
Sri Yugraj Singh Yadava	Director, BOBP, Chennai
Sri M.S. Sidhu	Director of Fisheries, M.P.
Sri Rakesh Agarwal	Pr. Secretary, Fisheries, Govt. of U.P.
Sri H.C. Pathak	Director of Finance, ICAR.
Sri S.M. Ilyas	Director NAARM, Hyderabad
Dr. C.S. Singh	Retd. Dean, Fisheries College, Pantnagar
Dr. M.V. Gupta	Ex. ADG, ICLARM,
Dr. R.K. Sinha	Professor, Dept. of Zoology, Patna University
Dr. Brij Gopal	School of Env., JNU, New Delhi
Prof. M.S. Johal	Head, Dept. of Zoology, Panjab University
Prof. Kaushal Kumar	Dean, Faculty of Science, Gorakhpur University
Dr. D.P. Zutshi	Former Director, CORD, Kashmir University
Dr. P.V. Dehadrai	Former DDG (Fy.) ICAR
Dr. Praduman Kumar	Former Professor, Agricultural Economics, IARI



STAFF NEWS

PROMOTION

Name	To	w.e.f
Sri C. P. Singh, T-2	T-3	30-06-2007
Smt. Usha Unnithan, T-3	T-4	24-06-2007
Smt. Abhijita Sengupta, T-4	T-5	27-08-2006
Sri Subrata Das, T-3	Two advance increments	27-01-2008
Sri Sapan Kumar Ghosh, T-4	One advance increment	01-07-2006
Sri N. C. Biswas, T-4(Driver)	One advance increment	01-01-2007
Sri U. K. Chatterjee, T-4 (Driver)	One advance increment	01-01-2007

NEW APPOINTMENT

Name	Post of joining	Date & place
Shri Ashisa Kumar Purusty	Scientist	16.05.2008 at Vadodara
Ms. Sana Yengkokpam	Scientist	16.05.2008 at Guwahati
Shri Solanki Jayesh K.	T-3	22.05.2008 at Vadodara
Shri Sudipta Gupta	Assistant	04.06.2008 at Barrackpore

SUPERANUATION

Name	From	To
Shri R. Balamurugan, T -2 (Driver)	Karnal	Bangalore
Shri Paras Ram, Senior Clerk	Karnal	Allahabad
Shri Dalbir Singh, SSG.II	Karnal	Allahabad
Shri Rabi Kumar Sonkar, SSG.I	Allahabad	Barrackpore

INTER INSTITUTIONAL TRANSFER

Name	From	To
Shri Paramjeet Singh, SSG.I	Karnal	DWR, Kamal
Dr.(Mrs.) Usha Moza, Pr. Scientist	Karnal	ICAR Hq. (Fy. Divn.) New Delhi
Dr.(Mrs.) R. A. Srivastava (Sinha), T-4	Barrackpore	NBFGR, Lucknow

Name	Last place of posting	Date of retirement
Dr. M. K. Mukhopadhyay, Principal Scientist	Barrackpore	31.01.2008
Shri S. K. Mondal, Principal Scientist	Barrackpore	31.01.2008
Shri Subhas Bhattacharyya, Personal Assistant	Barrackpore	31.01.2008
Shri P. K. Dutta, Assistant	Barrackpore	31.01.2008
Shri P. Dasgupta, T-5	Barrackpore	29.02.2008
Shri R. R. Mukherjee, T-5	Barrackpore	31.03.2008
Shri Swapan Chatterjee, T-4	Barrackpore	30.04.2008
Shri A. L. Yadav, SSG.IV	Barrackpore	30.04.2008
Shri M. S. Bhoi, SSG.II	Vadodara	30.04.2008
Shri T. H. Ghume, SSG.III	Vadodara	31.05.2008

Obituary

Member of Staff of CIFRI express their deep sorrow and grief at the sad demise of Shri Lal Bahadur SSG.II on 13 June 2008. We all pray to God may his departed soul rest in peace.



Director's Desk

Dear Reader,

This issue of CIFRI-News briefly highlights over all activities of the institute for the last six months. All the members of staff have significantly contributed towards the growth of the organization. During the period we have organized many events at Barrackpore viz., special review meeting for the fishery scientists from crop-based institutes ; meeting of nodal officers of fishery institutes for NEH activities; mid-term review of re-constituted ICAR Regional Committee of Zone-II, ICAR Eastern Zonal Sports Meet , Brain-storming on Environmental flow and inter-linking of rivers, a brainstorming on Hilsa fishery in collaboration with BOBP and DAHD&F, GoI for regional countries viz, Bangladesh, Myanmar and India. Apart from these, mandatory meetings of RAC and IRC were also organized. During the period the institute received approval and sanction for XI plan proposal. A significant raise in allocation has been made for which institute expresses its gratefulness to the Secretary DARE & DG, ICAR and also to DDG (Fisheries). This has enabled the institute to initiate the implementation process of the approved activities in a phased manner. The main thrust for CIFRI during XI plan will be developing management protocols for rivers and estuaries, improving fish production in reservoirs, improvement in culture-based fisheries, protocol development for environment management, impact of climate change on inland fisheries, fishery resource assessment on GIS platform, assessing the economic valuation of inland fishery resources with ecological perspective, in a network mode one out-reach activity on nutrient profiling in fish in relation to human health will be a new initiative.

We feel satisfied that our scientific intervention in two case studies, one each in the state of U.P and M.P. has resulted in improving the per unit fish production and higher per unit availability of fish for the local fishers. This successful initiative has encouraged the State of M.P. to initiate a massive programme to bring about 55 reservoirs under this fishery enhancement protocol. Many more collaborative areas have been identified jointly with the Department of Fisheries in Madhya Pradesh. This has been a follow up of discussions held with Principal Secretaries of Fisheries, Planning and Director of Fisheries

Govt. of Madhya Pradesh at Barrackpore during the period. Similarly for reservoir fishery development, CIFRI has developed close linkage with Damodar Valley Corporation for improving the fishery in the reservoirs under their control in eastern part of the country. The Department of Fisheries Govt. of Jharkhand has improved the reservoir fish production in their state through an innovative initiative of "Matsymitra" launched by the State Director. 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 fishery departments in the country. During the period our scientists continued to execute their work programmes on estuaries, rivers, reservoirs, wetlands, environmental issues, climate change and new programme under NAIP focusing on livelihood component in the State of Bihar in collaboration with ICAR complex Patna. A short term work sponsored by NFDB on fish marketing in collaboration with NCAP has also been initiated. 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. During the period our institutional review has been completed by QRT and they have already submitted their report to ICAR authorities for which we express our thanks to the Chairman and other Members for their valuable suggestions to further improve our research activities.

During the period some of our colleagues superannuated, we wish them a happy 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. At the same time a few scientists and technical staff have joined the institute as fresh recruits, the CIFRI family welcome them.

It is hoped that the contents of this issue would be informative and useful for scientists and others involved in fishery sector. Any suggestions for further improving the contents of the newsletter would be highly appreciated.

K.K. Vass

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