

REGIONAL CENTRE OF CIFRI



No. 2

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CENTRAL INLAND FISHERIES RESEARCH INSTITUTE

Regional Centre, Guwahati

(Indian Council of Agricultural Research)
HOUSEFED Complex, Dispur, Guwahati - 781006

Brief history of CIFRI, Barrackpore

The Central Inland Fisheries Research Station was formally established on 17th March, 1947 in Calcutta under the Ministry of Food and Agriculture, Govt. of India. By 1959, the station acquired its status as Central Inland Fisheries Research Institute (ICAR) and moved to its own building at Barrackpore, West Bengal. Since 1967, the institute has been under the administrative control of the Indian Council of Agricultural Research. In 1987, the institute was reorganized and entrusted with the responsibility of conducting research on inland open water bodies.

Present mandate

- To undertake basic, strategic and applied research in inland open-water fisheries viz. rivers, reservoirs, lakes, estuaries and associated waters
- To develop ecosystem-based technology and strategies for productivity enhancement in mandated waters
- To monitor environmental changes, their impacts on fisheries and developing mitigation action plans in collaboration with other organizations
- To create awareness, provide training and consultancy in inland open-waters

NERC, CIFRI, Guwahati

The Guwahati research centre of CIFRI was established in 1971. The centre was upgraded to Floodplain Wetlands Division of the Institute in 1996. Subsequently it was redesignated as the northeastern regional centre in 2001. In the same year it moved to its own building at the HOUSEFED Complex, Dispur, Guwahati.

Past achievements of the Centre

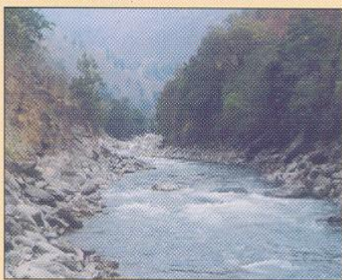
Fisheries ecology of River Brahmaputra : The Brahmaputra river system is the lifeline of open water fisheries of the northeastern region. The centre carried out studies on riverine carp spawn prospecting, fish population dynamics, factors relating to decline in its fisheries, ecology and evaluation of productivity relationships of the river and its 42 important tributaries. The results of these studies are one of the important achievements of the centre, since it generated baseline information on the present status and dynamics of fisheries ecology of this major river system. These studies were useful in pinpointing the possible reasons for the decline in fisheries of R. Brahmaputra and provided the basis for formulation of interim guidelines for the rejuvenation of its fisheries. Also, the availability of natural seed of Indian major carps from the river was assessed in its lower stretches in India (from Guwahati to Dhuburi).

Fisheries ecology of floodplain wetlands (beels) : Studies conducted by the Centre have generated a large volume of scientific information on the ecology and fisheries of beels located in different agro-climatic sub-zones of Assam (most important fisheries resource of the state covering 1 lakh ha). These studies have shown that the present average fish yield in the beels of the state (173 kg ha-1yr-1) is far below their production potential (1000-1500 kg ha-1 yr-1). Results of these studies formed the

basis for formulation of guidelines for optimizing fish production from the beels for the benefit of fishers, beel managers and other stakeholders (e.g., Assam Fisheries Development Corporation, Revenue Department, Mahkuma Parishads, riparian communities, etc.).

AICRPs on Composite fish culture, Carp seed production and Air-breathing fish culture : A series of experiments were conducted on these aspects under the agro-climatic conditions of the northeastern region as part of respective All India Coordinated Research Projects during the seventies.

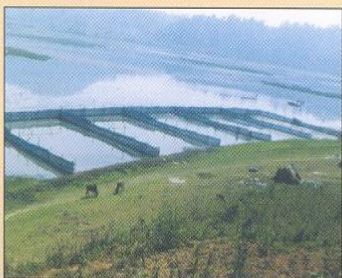
Fisheries ecology of rivers of the Northeast : The first ever synoptic studies on the ecology and fisheries of important rivers of six northern states (excluding Assam) conducted by the Centre revealed that most of these rivers/hill streams presented pristine ecological conditions congenial for fish production. However, fisheries exploitation in most of these rivers were patchy owing to a variety of reasons like inaccessible terrain, fast currents, heavy monsoon discharge, severe winter and prevailing destructive fishing practices.



Fisheries ecology of northeastern reservoirs : Investigations carried out on the ecology and fisheries of Umrang and Khandong reservoirs bordering Assam and Meghalaya generated primary information on these reservoirs and formed the basis of formulating fisheries development plan for them.

Present activities

Demonstration of pen culture technology : The Centre has recently refined pen culture technology to enhance fish production from floodplain wetlands and other such open water bodies of the Northeast. It is a low-cost technology, wherein cheap and locally available materials are used for pen construction (e.g., bamboo and polyethylene mosquito netting) as well as for supplementary feeding (rice polish and mustard oil cake). Raising of carp fingerlings in pens (each measuring 500 m²) erected in marginal areas of beels has been successfully demonstrated in 9 beels spread over four districts of Assam under the NATP (Jai Vigyan) project on Household Food and Nutritional Security for Tribal Backward and Hilly Regions. This simple technology has already been adopted by selected beel managers of Assam for raising fingerlings. More such demonstrations are in the offing. Growing of table fish in pens has also proved to be a good management option for enhancement of fish production in macrophyte-choked beels where recapture of stocked fishes is difficult.

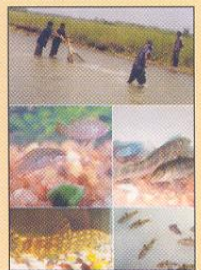


Assessment and conservation of aquatic biodiversity :

The eastern Himalayan region has been recognized as one of the global hotspots of biodiversity. However, the vast aquatic biodiversity of the region is only partially explored till date. This pristine resource is vulnerable to depletion due to natural and anthropogenic causes. The Centre has been carrying out studies on germplasm inventory, habitat evaluation and gene banking of fresh water fishes in prioritized habitats of Assam and Meghalaya under an NATP (GPI) project. A total of 28 rivers of NER have been surveyed wherein 81 species of economically important and endangered fishes have been recorded. Salient habitat parameters and anthropogenic influences have also been assessed and documented.



Indigenous ornamental fishes : Extensive field studies conducted in Assam showed that as many as 150 indigenous fish species occurring in the state had potential ornamental value. But subsequent rearing in laboratory reveals that certain potential species do not fulfill certain criteria considered for selecting ornamental fishes like peaceful nature, suitability for keeping in captivity, adaptability for living in confined spaces and acceptance of artificial feeds. Thus, these potential species are being evaluated for the presence or otherwise of these desirable traits. Enquiries with trade circles revealed that as many as 56 indigenous ornamental fish species caught from the wild are being exported from the state through exporters based in Kolkata. Most of the current export from the state is based on natural collections alone with riverine species like **Botia dario**, **Channa barca**, **Hara hara**, **Gagata cenia**, **Puntius gelius**, **Conta conta**, **Macroglyptus aral**, etc. having greater overseas demand. Studies conducted in Dikhu River of Nagaland showed the presence of many potential species in this hitherto unexplored habitat. Further, the Centre has successfully induced one indigenous ornamental fish species having overseas demand (**Colisa lalia**) to spawn in captivity using the simple technique of environmental stimulation.



Cage culture for raising stocking material :

Experiments on cage culture have been successfully undertaken in selected beels of Assam for **in situ** raising of carp fingerlings for stocking the beels. In each beel, a battery of 8 cages (6 x 3 x 1.5 m size each) has been fabricated using nylon net fitted to bamboo frames with empty PVC drum as float. The study has shown that fry of both minor and major carp (**C. catla**, **L. rohita**, **C. mrigala**, **L. calbasu**, **L. gonius** and **L. bata**) can be successfully raised to advanced fingerling size.

Unconventional method of macrophyte control :

A simple method of weed clearance by cutting the source of sunlight to macrophytes by covering the water surface with thin black plastic sheets (10 m x 5 m) was successfully tried in selected beels of Assam. The experiment proved



the effectiveness of this low-cost method in controlling aquatic macrophytes (both free-floating and submerged).

Stock enhancement in beels : The Centre has initiated studies to determine important parameters governing success of stock enhancement like selection of suitable species, species ratio, stocking rate, size at stocking and recapture for optimizing fish production from them. Towards this end, basic data are being collected from representative open and closed beels for developing a working model for stock enhancement suitable for beels.

Fisheries ecology of Manipur wetlands : The Centre has studied various aspects of ecology and fisheries of Loktak and Takmu lakes and two more pats (floodplain wetlands) of Manipur. More pats of the state are being covered under rapid random surveys with the aim of determining the actual and potential fish production from these resources as well as for formulating management guidelines to enhance their fish production.

Livelihood studies : Investigations on the socio-economics and livelihood of the fishers of the Northeast have been a new area of research undertaken by the centre. Formulation of means and mechanisms to strengthen the standard of living and food security of fishers is the focus of this research. Studies on these aspects have already been completed in Assam and Manipur.

Human resource development (HRD) : The Centre has conducted 8 training programmes on various aspects of open water fisheries over the past 5 years to train more than 250 individuals of the region as part of thrust given by the ICAR on human resource development in the region. The participants of these trainings included fisheries officials, academicians, beel managers of Assam Fisheries Development Corporation and beneficiaries of pen culture demonstration project. Recently, the Institute has jointly organized a training programme



on all aspects of inland fisheries development for the fish farmers of Meghalaya at Shillong in collaboration with two other ICAR institutes, viz., CIFA, Bhubaneswar and ICAR Research Complex for the Northeastern Hill Region, Shillong. More trainings/ workshops have been planned for the region in the near future. The centre has been identified as one of the nodal agencies to cater to the HRD needs of the Northeast.



Infrastructure development : Keeping in view the research and development need of the Northeastern region, the institute has established modern laboratories at HOUSEFED complex, Dispur, Guwahati in June 2001. The laboratories are equipped with sophisticated scientific instruments like High Performance Liquid Chromatography, Cooling centrifuge, Laminar flow, high resolution microscope with CCTV, UV-Visible spectrophotometer, Flame photometer, Bomb calorimeter, multiprobe water analyzer etc. The

centres library contains about 400 books, 150 bulletins, five regular scientific journals besides special publications of the institute, training manuals, seminar/workshop proceedings, current contents etc. The Council has initiated steps to create adequate infrastructure facilities for conducting regular training programmes at the complex.

Networking with state governments : CIFRI recognizes the need of active cooperation and collaboration with the state fisheries departments and research institutes in order to cater to the genuine research and training needs of the region in the field of open water fisheries. For institutionalizing such a linkage, it organized a regional consultation on fisheries development of the Northeast in 2001 by involving the fisheries Secretaries and Directors of the state fisheries departments as well as research institutes working in the region. The suggestions made in the meeting are being incorporated in the work plan of the centre. The centre has involved the AFDC in selecting suitable beels for its pen culture demonstrations. Further, the services of scientists of the centre have been spared for participating as resource persons in zonal workshops on fish culture organized by the department of fisheries, Govt. of Assam.

Collaboration with other Institutions

The centre has been actively collaborating with ICAR institutes like CIFE, Mumbai; NBFGR, Lucknow; CIFA, Bhubaneswar; ICAR Research Complex for the Northeastern Hill Region, Shillong; CIFT, Kochi in addition to Assam Agricultural University, Jorhat. So far, five research fellows working in the centre have been awarded Ph.D. degrees by various universities. In addition two scholars of CIFE, Mumbai successfully carried out their M.F.Sc. research work under the guidance of scientists of this centre.

Consultancy services

The centre provides consultancy services in the field of environmental impact assessment of river valley projects and other development projects, soil testing, assessment of water quality (including aquatic pollution levels), estimation of fish production potential and formulation/vetting of fisheries projects. It has already extended consultancy services to various agencies like the North Eastern Council (NEC), Shillong and the National Hydro-Electric Power Corporation, New Delhi and state governments of the region as and when asked for.

Prepared by : Dr. M. Choudhury & Dr. R. K. Manna

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For more details, please contact :

Regional Centre, Guwahati

CENTRAL INLAND FISHERIES RESEARCH INSTITUTE

(Indian Council of Agricultural Research)

HOUSEFED Complex, Dispur, Guwahati - 781006

Phone/Fax : 0361-2228486

E-mail : cifriguwahati@gmail.com