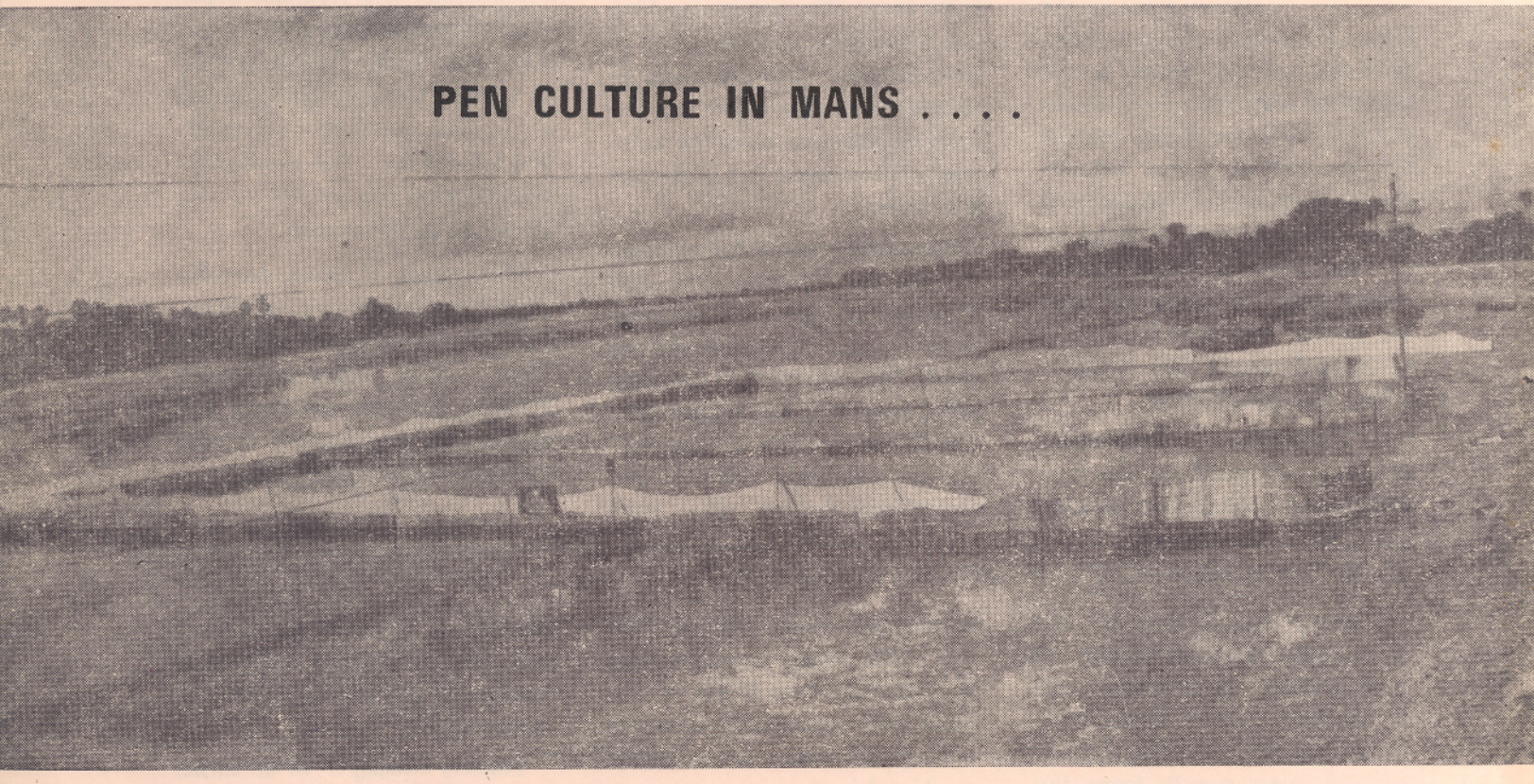
CIFRI NEWSLETTER

Volume 6 Sept.-Oct. 1983 Number 5



RESEARCH HIGHLIGHTS

PEN CULTURE IN MANS

Pen culture can considerably augment fish production from *beels, mans* and other riverine wetlands. The recently recorded success in a pen culture experiment conducted at Muzaffarpur is a significant pointer holding a great promise for future, by giving a production level of about four tonnes of fish in six months from one ha area.

Oxbow lakes in the form of *beels, jheels, mans, chars* etc. are the water bodies associated with the river basins and they form one of the important resources for inland fisheries development in the Indo-Gangetic plain. *Manika man*, situated at Gandak basin, in Muzaffarpur is a serpentine *man* devoid of floating weeds. But there is a mat of submerged weeds like *Hydrilla, Najas, Ceratophyllum* etc.

The Pen : Experiments are being conducted to raise marketable size fishes in pens installed in the *man*. The pen having 50m length and 20m width is made of split bamboo. The long side of the pen is at right angles to the shore so that even when the water recedes in summer, 3/4 of the pen is in water.

Remarkable growth in 6 months : The pen was stocked with 500 fingerlings of catla, rohu and mrigal after clearing the submerged weeds. The combination was catla 50%, rohu 40% and mrigal 10%. The size at stocking of fingerlings was approximately 100 g in respect of each species. The fishes were fed with mustard oil cake and rice bran in the form of agglomerate at 2 : 1 ratio. The feeding was done daily at 2% of the body weight. In addition to this, a feed comprising *Hydrilla, Najas* and *Ceratophyllun* were also given in compost form. At the end of six months, all the fishes registered a growth of over 1 kg in the range of 1.1 to 1.3 kg. The production was 400 kg of fish per 0·1 ha i. e., 4 t per ha in six months.

This system of culture provides scope for raising 2 crops in a year. Pen culture operations in *man* in Bihar offers immense scope. Further, extensive work on this system with more number of pens in *mans* is planned for 1984.

CAGE CULTURE OF CATLA IN PENINSULAR TANKS

Closely at the heels of the successful demonstration of cage culture of common carp in Sankey Tank, Bangalore, catla was tried, yielding highly encouraging results from the same tank. A 10.56 sq.m cage produced a net 82.9 kg of catla in 6 months. This is equivalent to 78.5 tonnes/ha/six months. Earlier, catla fry were raised to fingerlings in the same cages.

Sankey Tank, at Bangalore is a typical peninsular tank, where cage culture experiments were successfully conducted in 1981 and 1982 using common carp (CIFRI Newsletter IV-(4), V (3 & 4). In 1983, experiments on nursery rearing and culture of catla were conducted in cages.

The 10·56 sq m cage was stocked with 133 catla fingerlings having average size 141 mm/50·0g. After a rearing period of 185 days the fish have grown to 360.16 mm /772.2g with 87% survival. The total harvest was 89.575 kg i. e., 84.8 tonnes per hactare. The net production worked out to be 78.5 tonnes/ha/six months. A feed comprising rice bran and groundnut oil cake in equal proportion was given daily at 5-10% of total body weight.

Nursery rearing : In an earlier experiment, the same cage was used for nursery rearing of catla. Catla fry with an average weight of 5 5g grew to 50.2 g in 107 days on a diet composed of rice bran and groundnut oil cake in equal proportions. This technology is being refined further by way of reduction in production cost.

LARVAL REARING OF MACROBRACHIUM MALCOLMSONII—CIFRI achieves a major breakthrough in freshwater prawn farming.

The larvae of freshwater prawn *Macrobrachium malcolmsonii* were successfully reared to post larval stage at the Kakinda Centre of CIFRI This much awaited breakthrough is a leap forward in CIFRI's endeavour to develop a viable technology for mass production of freshwater prawn seed.

Berried females were collected from River Godavari and its canals. They were maintained in freshwater in plastic pool on a diet comprising flesh of blood clam, *Anadara granosa* and broken rice. The zoeae released by the prawns were transferred into a fibre glass tank (200 l), containing aged brackishwater of salinity 15.5 ppt. The zoeae were fed on cut pieces of tubificid worm, particles of egg custard and nauplii of *Artemia* spp. During the course of experiment, salinity was raised to 19 ppt and the water was continuously aerated. The range of water temperature was from 26 to 31·5°C. All the 11 stages of larvae were successfully completed and the first post larva was settled 51 days after hatching.

This achievement is significant in view of the fact that rearing of freshwater prawn larvae often becomes a formidable task as the environmental and nutritional requirements are too exacting.

M. malcolmsonii attains upto 230 m in length and it is second only to *M. rosenbergii* in size. The Institute had already developed technology for hatchery and culture of *M. rosenbergii.*

Natural breeding of *M. malcolmsonii* occurs in Hooghly-Matlah estuarine system during May-August and in Godavari during the monsoon months. The post larvae and juveniles are collected from these waters in the following months. However availability of seed from natural sources is highly uncertain and this is a serious constraint in popularising freshwater prawn farming. It is hoped that the refinement of the present technique and its wider adoption would reduce, to a great extent, the present shortage of stockable quality seed of this species.

MASS CULTURE OF BRINE SHRIMP IN SALTERNS

The rearing of brine shrimp *Artemia salina* and mass production of their cysts have been achieved in the salterns at Dhiga, West Bengal. *Artemia* is a valued live food for the larval rearing of prawns and fishes and their cysts fetch Rs. 500-600 a kg. *Artemia* cysts are often imported due to inadequate supply from domestic sources. Vast stretches of salt pans are available in both the coasts and mass culture of *Artemia* thus offers bright prospects.

Inoculation of the salterns was done with cysts of laboratory reared brine shrimp. The salterns were initially filled with sea water drawn from the adjoining creek. The salinity of water was 33 ppt, pH 6.5 and the temperature 32°C. Water depth was maintained at 28-43 cms. The cysts started hatching 32 hrs after inoculation and hatching was complete after 72 hrs. Percentage of hatching was 50%.

The shrimps were reared for 27 days at a temperature of 33-39°C on rice bran extract. There was a gradual increase in salinity due to evaporation reaching upto 80 ppt. the shrimp started producing cysts from 24th day when the water temperature was 35-37°C and salinity 75-80 ppt. The cysts were found floating and were collected on a polythene sheet. They were sundried and stored for further trials.

EXTENSION

LAB TO LAND PROGRAMME

One hundred farm families in Chanditala and Kamarpukur areas of Hooghly were benefited by the Lab to Land Programme. Under the guidance of CIFRI's Extension Scientists, these farmers could realise a production of 2160 kg to 4763 kg carps/ha/yr. In magur culture, the yield was 1640 to 2900 kg/ha/6 months. In both cases the high yield rates were obtained with a low level of input.

EXTENSION LECTURES

Extension Scientists delivered lectures on '**Fish Diseases and their Control**, '**Food Chain**', '**Pond Productivity**' and '**Inland Aquaculture**' for the benefit of trainee fish farmers of Vivekananda Institute of Community Services, Mandia; trainee officers of Cooperative Land Development Bank, Kalyani and trainee farmers of FFDA, Hooghly. The scientists also spoke to a number of fish farmers and students who visited the Institute.

Dr. A. K. Laal, Scientist of Bhagalpur Research Centre talked on 'Economics marketing and co-operative system' for the benefit of post graduate students of Ichthylogy and Fisheries, Bhagalpur University on 12 August, 1983.

DEMONSTRATION OF CIFRI TECHNOLOGY AT PATNA RAJ BHAVAN

At the instance of the Director General, ICAR, the technology for composite fish culture has been demonstrated in a pond at Raj Bhavan, Patna. This demonstration was conducted in deference to the wishes expressed by his Excellency, the Governor of Bihar

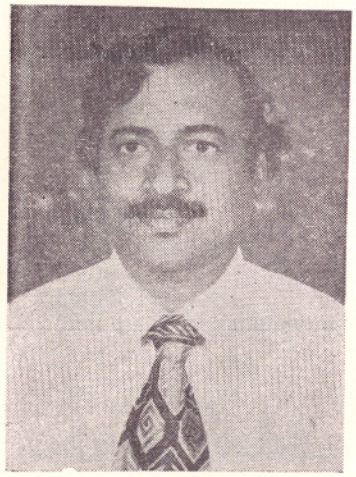
A six species combination of Indian and exotic carps stocked at the rate of 5500/ha in the 0.12 ha pond yielded a net production of 5292 kg/ha in $11\frac{1}{2}$ months. The cost of production worked out to be Rs. 3.42/kg.

Later, in a letter addressed to the Director General, ICAR, the Governor's secretariat expressed his Excellency's deep appreciation for the project.

The project was executed by Dr. V. R. P. Sinha and Dr. M. Y. Kamal of the Central Inland Fisheries Research Institute from 23-9-82 to 7-9-83. As disired by the Governor, the scientists have submitted a paper on the development of fisheries in Bihar.

His Excellency, Dr. A. R. Kidwai, Governor of Bihar releasing the fish seed into Raj Bhavan Pond. Also seen in the picture is Dr. M. Y. Kamal, Scientist, CIFRI.

STAFF NEWS

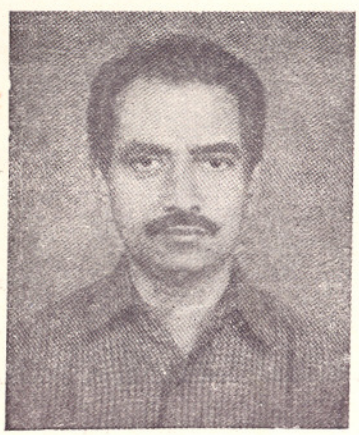


Ph. D. AWARDEES

Shri Hausila Prasad Singh, Scientist at the Bilaspur Centre of CIFRI was awarded Ph. D Degree from the Banaras Hindu University, based on his work on control of aquatic weeds. He studied the effect of herbicides on weeds as also the changes in water quality consequent to the use of herbicides. Sodium salts of dalapon, sodium salt of 2, 4-D and paraquat were the herbicides studied. Apart from the population density, the chlorophyll 'a' and 'b', nitrogen, phosphorus and potassium content of weeds and their removal from ponds by them were monitored. Seasonal changes in the efficacy of treatments, presence of residue and disintegration of weedcides were also studied.

Smt. Usha Moza was awarded Ph. D Degree from the University of Kashmir on her work 'Studies on the neurosecretory organs of fishes of Kashmir'. She studied the interrelation between neurosecretory system and hypophysis in *Schizothorax niger*, *Cyprinus carpio*, *Nemachilus kashmiriensis*, *Glyptothorax kashmiriensis* and *Botia birdii*. Both the neurosecretory nucleii NOP and NLT showed relation with hypophysis and ovary, she observed. WPO had a more decisive role in stimulating gonodotropic activity within pituitary during gonodal maturation. The development stages of neurosecretory organs were also studied.

Dr. Moza carried out her investigations under the supervision of Dr. M. Y. Qadini of Kashmir University.



Shri S. Radhakrishnan, Scientist, is awarded the degree of Ph. D. by Magadh University. The title of Dr. Radhakrishnan's thesis is "Studies on the macrophytic flora in Lake Pulicat with special reference to their utilization as organic manure and artificial feed for fish".

Mr. Shree Prakash, Scientist, Buxar Research Centre of CIFRI obtained Ph. D Degree from the Banarus Hindu University. He worked on the fishery and biology of North Indian Freshwater prawn *Macrobrachium birmanicum choprai.*

Promotions

The following technical personnel were promoted to higher grades on the basis of Five Yearly Assessment.

Name	*From*	*To*	*w. e. f*
Shri M. M. Das	T-2	T-I-3	1.7.1983
,, Ranjit Singh	do	do	do
,, B. B. Sethi	do	do	do
,, Pasupati Lal	T-1	T-2	1.1.1983
,, A. K. Mazumder	do	do	do
,, C. R. Das	do	do	do
,, R. K. Haldar	do	do	1.7.1983
,, Benu Kahali	do	Two advance increments	1.1.1983

Retirement

Shri A. C. Sarkar, Assistant, retired from the service on attaining the age of superannuation on 31.10.1983.

Resignation

Dr. K. Gopal Rao, S-1 has resigned from his post. His resignation becomes effective from 15.9.1982.

Wedding bells

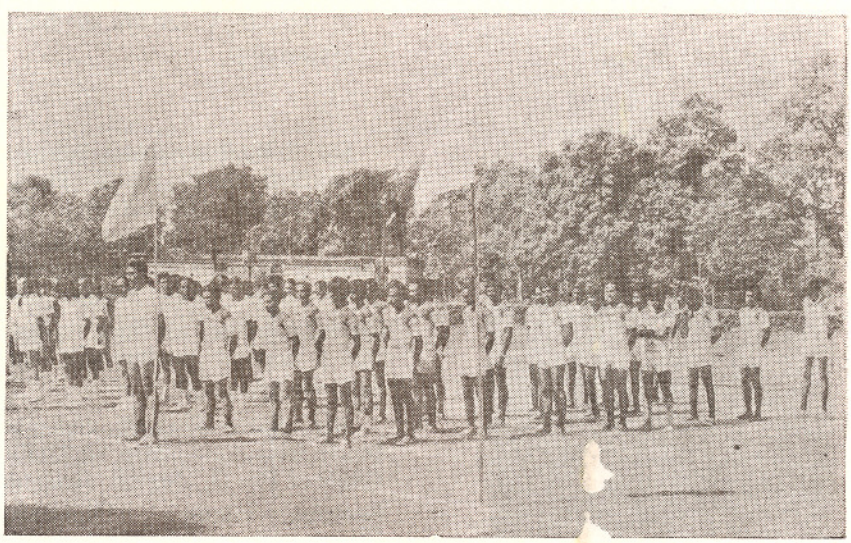
Shri HARDIYAL SINGH, Scientist married SATNAM KAUR on 9.12.1983 at Ludhiana. CIFRI wishes the new couple a happy nuptial life.

SPORTS

ICAR ZONAL SPORTS MEET

CIFRI took active part in the third ICAR eastern zone sports-meet held at Indian Lac Research Institute, Ranchi during 24-29 October 1983 The 53 member CIFRI contigent bagged the following prizes in the meet.

Kabbadi—1st prize; Volley-ball (Smashing) —2nd prize, Table tennis—2nd prize; 100m race—3rd prize, 4 × 100m relay—3rd prize; Long jump—2nd prize. The team secured 3rd position in the meet among the seven Institutes of the zone,

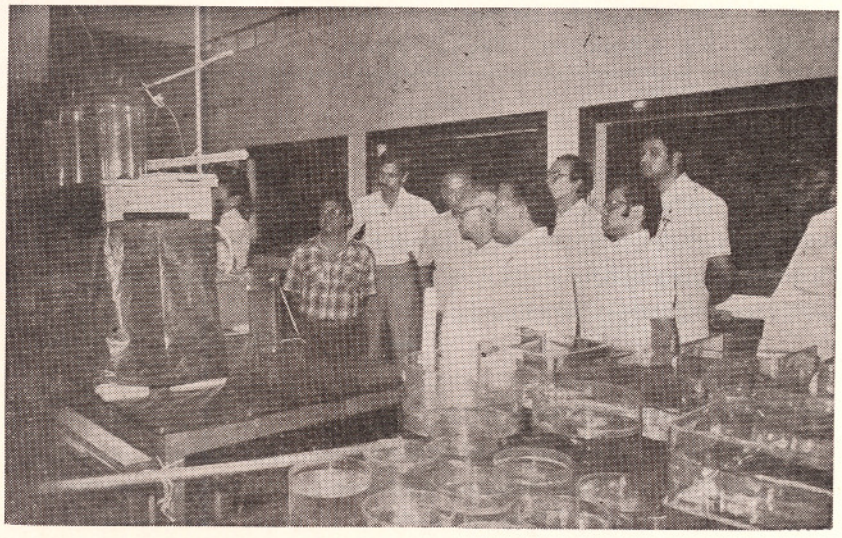


CIFRI contingent that participated in the zonal meet at Ranchi.

VISITORS

ASSAM MINISTER VISITS CIFRI

Shri Upendra Chandra Das, Minister for Fisheries, Panchayat and Community Development, Govt. of Assam visited the Institute on 28.10.1983. He has gone round the different laboratories at the Institute and took keen interest in the problems being tackled at the Institute. He was deeply impressed by the progress made in the Institute which, he said would ultimately lead to the benefit of common men and fisherfolk.



Hon'ble Minister Mr. U. C, Das was apprised of the progress made in inland aquaculture research by Dr. A. V. Natarajan, Director, CIFRI (above). Later the Minister was taken around the laboratories. In the picture below, he observes an experiment under water pollution investigations.

OBITUARY

An eminent Scientist dies in harness

We report with profound grief the sudden and untimely demise of Dr. B. I. Sundararaj, Professor of Zoology, Delhi University and one of the eminent fishery scientists of the country. The tragic end came on 7th October 1983 while he was working in his laboratory. Dr. Sundararaj had done considerable basic work of very high standards in the field of reproductive physiology and endocrinology of fishes. **He had been a friend of CIFRI and his association with this Institute dates back to the last one decade.**

During the last few years, Dr. Sundararaj was carrying out very useful work on the breeding of Asiatic carps with synthetic hormones. Besides, a collaborative research programme between CIFRI and his Department on the "Cryopreservation of fish spermatozoa" was also on under his leadership.

Dr. Sundararaj would greatly be missed by the scientists of this Institute whom he had endeared by his work, devotion and human values.

May the departed soul rest in peace.

MADAIAH PASSES AWAY

A bereaved CIFRI family paid their last homage to its beloved member Shri Basmadaih on 11.10. 1983. Shri Basmadaiah, popular as 'Madaiah' breathed his last on that day after a brief illness. He was known for his individualised sense of humour and genial behaviour. We share the grief of the bereaved members of his family.

NEWS ROUNDUP

POLLUTION RESISTANT FISH

British Scientists have bred a pollution resistant fish capable of surviving in water poisoned with industrial wastes. According to the scientists at Lankaster University, London, their new breed of trout can withstand high acidity levels now common in many rivers, lakes and streams receiving industrial effluents.

—ICLARM Newsletter

CHINESE BREAK THROUGH ON CARP VIRUS

Chinese scientists claim to have isolated a virus causing haemorrhage in grass carp. This dreaded epidemic at present plague the 12 provinces of the country affecting 40-50% of grass carp population. Occasionally, the rate of incidence goes as high as 90%. The mortality rate is equally alarming i. e. 80%. Research on grass carp haemorrhage was on since 1972. With the isolation of the offending virus, effective control of the disease is at sight.

—Fish farming international

SEMINAR

Dr. K. Chandra participated in the 53rd Annual Session of National Academy of Science held at the National Institute of Oceanography, Goa during 27-29 October, 1983. He has presented a research paper, 'Some ecological considerations of Rihand Reservoir polluted with industrial wastes of M/s Kanauria Chemicals Renukoot, U. P. (India)' by K. Chandra, R. S. Panwar, D. N. Singh and R. A. Gupta. □

LIBRARY

Books

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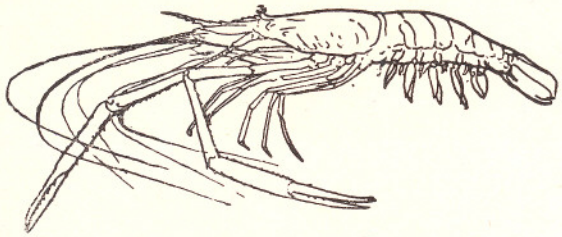

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