

**CONSOLIDATED REPORT OF THE SUB-PROJECT ON NATIONAL NETWORK
OF GERMPLASAM CENTRES FOR PRIORITIZED FINFISHES OF GANGA
AND MAHANADI BASINS FOR CONSERVATION AQUACULTURE**

[2015 - 2016]

1. Project Title: Consortium Research Project - Agro biodiversity (CRP-AB) platform
Sub-Project: National Network on Conservation Aquaculture
2. Sanction No.: Council letter no. FIN-6(10)/2015; CRP-AB (FMS Scheme code 11103)
3. Date of Start: 01.07.2015
4. Date of Termination: 31.03.2017
5. Actual Location : ICAR - National Bureau of Fish Genetic Resources (NBFGR)
: ICAR - Central Institute of Freshwater Aquaculture (CIFA)
: ICAR - Directorate of Coldwater Fisheries Research (DCFR)
6. Principal Investigators
Dr. T. T. Ajith Kumar, Senior Scientist, NBFGR, Lucknow
Dr. Pratap Chandra Das, Principal Scientist, CIFA, Bhubaneswar
Dr. R. S. Patiyal, Senior Scientist, DCFR, Bhimtal
7. Co - investigators
Dr. S. M. Srivastava and Dr. L. K. Tyagi, Senior Scientists, NBFGR
Dr. Santosh Kumar, Scientist, NBFGR
Dr. Suresh Chandra, Senior Scientist, DCFR
Dr. S. K. Sahoo, Principal Scientist, CIFA
Mr. S. Ferosekhan and Dr. S. P. Kamble, Scientists, CIFA
8. Duration of the Project: 3 years
9. Total amount sanctioned: Rs. 47 Lakhs
10. Total amount spent: Rs. 34, 26,048/-
11. Result of Practical / Scientific Value

The project is planned to develop stock specific broodstock of targeted fish species of the rivers, Ganga and Mahanadi. The research can be carried to implement technological

interventions for artificial propagation of proposed species. The developed broodstock at such germplasm resource centres will conserve the native species on farm; can produce seed for stock enhancement in wild and also technology for regional level diversified aquaculture for livelihood enhancement. The study will also provide valuable information on biology / life history traits for developing captive stocks of the targeted species. The evaluation of fish species suitable for pond culture and standardization of their seed production technology will help both in aquaculture and natural stock enhancement. This will in turn, minimize the pressure in natural stocks.

12. Papers Published: Nil

(i) Papers presented at scientific meetings: Nil

(ii) Manuscripts under preparation: 02

13. Patents and products developed: Nil

14. Detailed Progress Report: Please see the Annexure - I

15. Signature: (*Sd.*)

Name of the principal investigator: T.T. Ajith Kumar

Designation: Sr. Scientist, NBFGR

(*Sd.*)

Director / Head of Institution

Date: 13/5/2015

Station: Lucknow

16. Comments of the Lead Centre Platform Coordinator:

17. Remarks of the SMD:

Detailed progress report

As the initiation of the project, all the three institutes were conducted surveys in the selective river basins of Ganga and Mahanadi. The purpose of the surveys were collecting target fish species from the respective sites for broodstock development and identification of sites to ranch the hatchery bred fishes, as measure towards biodiversity conservation and stock enhancement. The NBFGR has conducted surveys at the wetlands and rivers (tributaries of Ganga) of Lakhimpur and Bahraich districts (Palia, Pilibhit and Sharda Sagar regions) of Uttar Pradesh. The DCFR has performed their survey at the rivers of upland Ganga (river) basin viz., Kosi, and Gomati rivers and West Ramganga of Utrakhand. Likewise, the CIFA has conducted surveys at the river Mahanadi stretches, near Sambalpur (Huma area), Sambalpur and Odishato. All the three project teams were also visited the local fish markets of the respective regions and had an interaction with the fishermen to find out the availability of the targeted fishes in the particular regions. The CIFA team has accomplished detailed investigation to find out the availability and habitat, feeding and breeding aspects of Mahanadi Mahseer at their proposed sites.

The NBFGR has made three collections and sufficient numbers of the target fish species like, *Labeo calbasu*, *L. bata* and *L. dyocheilus* have been collected from Seth Ghat and Ull rivers for broodstock development and the collected fishes were stocked in the NBFGR ponds. The water quality, feeding and growth performance of the stock is being monitored regularly. Followed, captive breeding and seed rearing was done for the above said three *Labeo* species, utilizing the brooders available with the NBFGR and around 5.0 lakh spawn were produced. The spawn were reared to fingerling size for ranching and brood stock development. In continuation, around fifty thousand fingerlings of *L. calbasu*, *L. bata* and *L. dyocheilus* were ranched at Kakraha Wetland in Dudhwa Tiger Reserve and Sharda river in Lakhimpur Kheri and Seth Ghat on 29, December 2015. Besides, awareness camp on fish biodiversity and need for their conservation was organized at the Dudhwa tiger reserve, which was attended by 150 stakeholders. The District Forest Officer and Dr. J. K. Jena, Director, ICAR-NBFGR has launched the ranching and awareness programmes. In addition, 2500 fingerling of *L. calbasu* was supplied to a farmer of Lucknow for rearing in polyculture pond.

The DCFR has collected their target fish species like *Schizothorax richardsonii*, *Nazitor chelionides*, *Tor putitora* and two species of ornamental fishes (*Barilius bendelisis* and

Schistura obliquofascia) from the upland regions of river Ganga and stocked in their rearing facilities for broodstock development. In continuation, they bred the fishes, Mahseer and Snow trout (utilizing the existing stock available) and 500 advanced seeds were reared at Gomati river and the programme was launched by the Honourable Speaker of Uttarakhand Government, Shri Govind Singh Kunjwal Ji and Honourable Minister of Irrigation Shri Yashpal Aarya Ji and the Director DCFR, Dr. A.K Singh.

After having conducted severe surveys and interactions with fishermen, steps have been initiated by the CIFA for collecting Mahanadi Mahseer from the Sambalpur region. During the first visit, Mahseer with 0.7-2.5kg weight, Calbasu and Fringed lipped carps were collected. The collected fishes were released in a local farm at Sambalpur to acclimatize them to pond condition. During rearing, the fishes infected with fungal attack were prevented through pond treatment of CIFAX. Mortality was noticed and rest of the fishes are being maintained, which would be transported to CIFA later.

The dead fishes obtained during rearing were examined for gut content analysis to find out the feeding habits. Ovary and testes are being collected for histological study to understand the reproductive stages. It was found that the fishes are having long coiled intestine and it was also observed that gut contained vegetative matter, mollusc and sand mud. The gut length and weight of Mahseer was measured and the gonadal maturity was examined and the values were recorded.

Followed, third visit have been made at Mahanadi riverine system in Sonapur of the Subarnapur district. The project team has visited Lankeswari ghat, Hikudi and Nimna regions also. At the end of the survey, it was known that, the Mahseer is amply available at Pattabhadi, Gattarkeli and Tundupalli regions and it is planned to collect fishes during the coming pre-monsoon season.

Technical Programme for 2016 - 2017

Riverine stock collection from different / new regions of Ganga (including upland areas) and Mahanadi for brood stock development, captive breeding and seed rearing

Performance under carp polyculture system, feasibility study and analysis of economic advantage

Selection of protected sites for propagation assisted rehabilitation and stock enhancement

Study on the life history traits of target species

Conduct of awareness programmes at different areas