

## **NBFGR convened an Expert Consultation on “Development of a Roadmap for Translational Genomics in Indian Aquaculture” (29<sup>th</sup> August, 2025)**

An Expert Consultation on “Development of a Roadmap for Translational Genomics in Indian Aquaculture” was held at ICAR-National Bureau of Fish Genetic Resources (NBFGR), Lucknow on 29<sup>th</sup> August 2025, which was organized by ICAR-NBFGR in collaboration with the Asian Fisheries Society Indian Branch (AFSIB). The event was inaugurated by Dr. T.R. Sharma, ICAR National Professor-BP Pal Chair, Former DDG (Crop Sciences) & JC Bose National Fellow, as a Chief Guest. The consultation was presided over by Dr J. K. Jena, DDG (Fisheries Science), ICAR, and Chairman, AFSIB. On this occasion, Dr. Kajal Chakraborty, Director, ICAR-NBFGR, Lucknow extended a warm welcome to all.

Dr. Jena delivered the introductory address and outlined the context of the consultation. Highlighting the sectoral growth, he informed that Indian fish production has increased multi-folds since independence, with an average growth rate of 8-9%. He stressed that future productivity gains must come from technology-driven innovations. Given the huge fish diversity, he emphasized that species prioritization for genomics is a crucial step, as the resources, time and infrastructure for Research and Development are limited. The prioritization ensures that focussed-efforts are made on the species with highest scientific, ecological and conservation relevance.

Chief Guest Dr. T. R. Sharma highlighted rapid advances in genome technologies, and urged researchers to strengthen the emerging areas such as genome editing, genomic selection, and pan-genomics for improving aquaculture outcomes. Dr. N. K. Singh underscored the need for translational genomics with high-quality genomic resources, stakeholder-driven species prioritization, strong bioinformatics capacity, and greater investment in indigenous technologies with IPR protection in fisheries. The dignitaries present on this occasion included Dr. B.K. Behera, Chief Executive, National Fisheries Development Board; and Dr. Ajit K. Shasany, Director, CSIR-National Botanical Research Institute; Dr. Shubhadeep Ghosh, Assistant Director General (Marine Fisheries), ICAR; Dr. P. K. Sahoo, Director, ICAR-CIFA; Dr. A. R. Rao, Former ADG (PIM), ICAR, and researchers from collaborating Institutes of the platform.

The *Technical Session* comprised of lectures from eminent researchers. Dr. N. K. Singh delivered a lecture on “*Translational Genomics for Sustainable Utilization*”, wherein he traced the history and progress of genome sequencing projects in India with particular emphasis on rice and pigeon pea. Dr. S. K. Mangrauthia delivered a talk on “*Genome Editing for Sustainable and Climate-Resilient Agriculture*”, which provided a comprehensive overview of genome engineering, while Dr. A. R. Rao presented on “*Development of a Roadmap for Translational Genomics – A Path Towards Accelerated Innovation in Aquaculture*”. Dr. Ajit K. Shasany deliberated on “*Avenues in Translational Genomics for Food Commodities*”. Dr. Victor Martinez, University of Chile joined the consultation virtually, and elaborated on “*Genome Editing for Traits of Commercial Significance*”.

The consultation concluded with discussion on prioritizing functional and translational genomics, initiating pan-genome projects for key aquaculture species, and adopting advanced genome editing and selection approaches to address aquaculture challenges. There is need for focused research on ornamental fishes, strengthened inter-institutional collaborations, and enhanced capacity building in genomics and bioinformatics, incorporating artificial intelligence and machine learning for sustainable and competitive aquaculture.

## Glimpses of the Expert Consultation

