

**Eligibility** Nominated State Fisheries Officials, Research scholars under NSPAADII project, Researchers, Graduates and Post-graduate students, Technicians employed in private laboratories/hatcheries/farms, entrepreneurs etc.

**Venue** Aquatic Environment and Health Management Division, ICAR-Central Institute of Fisheries Education, Panch Marg, Off Yari road, Versova, Mumbai 400061.

**How to apply** The applications in the attached format may be emailed to [megha.bedekar@cife.edu.in](mailto:megha.bedekar@cife.edu.in) or [jeena@cife.edu.in](mailto:jeena@cife.edu.in)

**Duration and mode of the training** Three days; Hands-on

**Time period** Dates proposed August 2023-March 2024; first Wednesday to Friday of every month

**Fees** No charges for nominated State officials and Research associates/ Project Associates from NSPAAD II project.  
Rs. 2000/- for others

**Programme Leader**  
**Dr. C.N. Ravishankar**  
Vice Chancellor /Director

**Dr. Megha Bedekar**  
Principal Investigator

**Dr. Jeena K.**  
Co-Principal Investigator

**NSPAAD II**  
**REFERRAL LABORATORY**

Aquatic Environment and Health  
Management Division  
ICAR-CENTRAL INSTITUTE OF  
FISHERIES EDUCATION,  
Mumbai 61

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**3-Day Hands-on Training**

**PCR-based  
Disease  
Diagnosis**

**Organized by**

**National Surveillance  
Programme for Aquatic Animal  
Diseases(NSPAAD II)-  
REFERRAL LABORATORY**

ICAR-CENTRAL INSTITUTE OF FISHERIES  
EDUCATION  
Panch Marg, Off Yari Road, Versova

Andheri (W) Mumbai 400061

# ICAR-CENTRAL INSTITUTE OF FISHERIES EDUCATION

ICAR-Central Institute of Fisheries Education (CIFE), in over 50 years of existence, has emerged as a Centre of Excellence in Higher Education in Fisheries and allied disciplines. The Institute was established on 6<sup>th</sup> June 1961, under the Ministry of Agriculture, Govt. of India with assistance from FAO/UNDP. It came under the administrative control of Indian Council of Agricultural Research (ICAR) in 1979. Considering the wide mandate involving education, research and extension and recognizing the pivotal role played by CIFE in human resources development in fisheries, the institute was conferred the status of Deemed-to-be-University in 1989. The institute with its core strength in quality teaching, research and training has become a brand name in fisheries higher education. ICAR-CIFE is now placed in a new campus with state-of-the-art facilities and located about 8 km from the domestic and international airports and 20 km from Dadar railway station, a major rail terminus in Mumbai.



## Preamble of the training

ICAR-CIFE is one of the Referral Laboratories under National Surveillance Programme on Aquatic Animal Diseases (NSPAAD) Phase-II, funded by the Department of Fisheries, Ministry of Fisheries under Pradhan Mantri Matsya Sampada Yojana (PMMSY). The aim of the project is to rapidly detect new and exotic infectious diseases in aquatic animals and to test the referred samples. The project also aims to train the stakeholders on important diagnostic tools used for disease investigation.

With recent reports of incidences of newly emerging infectious diseases in the aquaculture sector, the timely and accurate detection of causative agent in a diseased sample is critical in managing the health of a population. Polymerase Chain reaction (PCR) is a highly sensitive and specific, enzyme-driven technique for replicating DNA *in vitro*. PCR is one of the most widely used molecular techniques, and has a wide range of applications, including specific or broad-spectrum pathogen detection, evaluation of emerging novel infections, surveillance, early detection of biothreat agents, and antimicrobial resistance profiling, by virtue of its modifications. PCR-based diagnosis is considered as the Gold Standard in diagnosing aquatic animal diseases. Against this background, the program aims at imparting hands-on training to the State department officials, faculty, research fellows, students and researchers to develop/improve their skill in the area of PCR based disease diagnosis.

## Content of training programme (Theory and Practical Demonstration)

- ◆ Introduction to safety procedures and equipment handling in Molecular diagnostic laboratory
- ◆ PCR-based diagnostics in Animal Health - an overview (Lecture)
- ◆ Introduction to nucleic acids: DNA Extraction from fish/shellfish tissues (Theory and Practical)
- ◆ Quantification and quality evaluation of isolated DNA (Theory and Practical)
- ◆ Basic calculations in molecular biology laboratory (Practical)
- ◆ Introduction to PCR techniques (Theory)
- ◆ PCR based detection of DNA virus (white spot syndrome virus) (Practical)
- ◆ Post-PCR analysis: Agarose Gel Electrophoresis (Theory & Practical)
- ◆ PCR-based detection of bacterial pathogens: Practical
- ◆ PCR-based detection of RNA viruses (Theory and practical)
- ◆ Total RNA extraction from fish/shellfish tissues; Quantification and quality evaluation of isolated RNA (Theory and Practical)
- ◆ Quantification and quality evaluation of isolated RNA (Theory and Practical)
- ◆ Complementary DNA (cDNA) synthesis (Practical)
- ◆ PCR based detection of RNA virus