



भारत सरकार
GOVERNMENT OF INDIA
मत्स्यपालन विभाग
Department of Fisheries



FISHTech Report



“To Explore Technologies in Fisheries and Aquaculture Sector”



20
26
JULY



MANAGE Fisheries Innovation and Startup Hub (MANAGE - FISHub)

(A National Fisheries Incubation Centre Supported by the Ministry of Fisheries, Animal Husbandry and Dairying, Govt. of India)

National Institute of Agricultural Extension Management (MANAGE)

(An Autonomous Organization of Ministry of Agriculture and Farmers Welfare, Govt. of India)

Rajendranagar, Hyderabad – 500 030, Telangana, India

<https://www.manage.gov.in/managefishub/>

MANAGE-FISHub

MANAGE – Fisheries Innovation and Startup Hub (MANAGE-FISHub) is a national-level incubation and innovation hub hosted at the National Institute of Agricultural Extension Management (MANAGE). It was established at MANAGE in 2025 with the support of the Department of Fisheries (DoF), Ministry of Fisheries, Animal Husbandry and Dairying (MoFAHD), Government of India, to transform the fisheries and aquaculture sector through innovative technology, entrepreneurship, and ecosystem development.

Vision

The Vision of MANAGE-FISHub is to foster sustainable innovation and entrepreneurship in the fisheries and aquaculture sector by nurturing startups, accelerating technology adoption, and promoting inclusive growth across the value chain.

Collaboration Partner

ICAR–Central Marine Fisheries Research Institute (ICAR–CMFRI)

The ICAR–Central Marine Fisheries Research Institute (ICAR–CMFRI) played a central role by collaborating with MANAGE-FISHub for the FISHTech Webinar Series.

Established on 3 February 1947, the ICAR–Central Marine Fisheries Research Institute (ICAR–CMFRI), headquartered in Kochi, Kerala, is one of the world's leading tropical marine fisheries research institutes under the Indian Council of Agricultural Research (ICAR). Renowned for its excellence in marine fisheries, mariculture, biotechnology, and coastal ecosystem research, ICAR-CMFRI develops innovative technologies, scientific knowledge, and skilled human resources to promote the sustainable growth and resilience of India's marine fisheries and aquaculture sector.

FISHTech Webinar

FISHTech Webinar series is a flagship online knowledge-sharing initiative of MANAGE-FISHub, designed to showcase innovative technologies developed by fisheries research institutions, ICAR institutes, State Fisheries Universities, and other academic and R&D organizations across India. The series aims to bridge the gap between technology developers and end users by creating a structured national platform for technology dissemination.

Objective of the Webinar

- To disseminate knowledge on emerging fisheries technology developed by fisheries institutes.
- To facilitate technology awareness among budding aquapreneurs, innovators, rural youth, students and fisheries professionals.
- To showcase commercialization pathways and startup opportunities linked with institution-developed fisheries technology
- To strengthen capacity building through expert-led sessions.
- To facilitate interaction among scientists, startups, aspiring aquapreneurs and students, thereby fostering collaborative learning and innovation ecosystems.

Program Schedule

The MANAGE-FISHub Webinar Series was organized as a structured 15-day intensive program, with each day dedicated to covered cutting-edge technologies and emerging trends within the fisheries sector.

INAUGURAL SESSION

Setting the context for the topics

TECHNICAL PRESENTATION

Detailed lecture by a subject matter expert from ICAR-CMFRI

Q & A SESSION

Interactive Forum for participants queries

Promotional Activities

The outreach focused on both institutional and public digital platforms

Regular updates and speaker profiles shared across social media handles

Short coming soon posters were used to redirect the participants

A key collaborating partner, **CMFRI** promoted the series through their internal WhatsApp Group

Information brochures and daily session links were shared through all WhatsApp groups



Formal invitation and program posters were sent to various fisheries colleges, KVKs and participants of MANAGE-FISHub Program

Personalized emails were sent to the MANAGE-FISHub participants

Regularly reminder Email were sent to registered participants 12 hours and one hour before each live session

MANAGE-FISHTech Webinar Meet Our Speakers



Dr. B. Santhosh
Principal Scientist & Head
ICAR-CMFRI
Regional Centre, Vizhinjam



Dr. M. K. Anil
Principal Scientist
ICAR-CMFRI
Regional Centre, Vizhinjam



Dr. Ritesh Ranjan
Principal Scientist
ICAR-CMFRI
Regional Centre, Visakhapatnam



Dr. Shoji Joseph
Principal Scientist
ICAR-CMFRI
Kochi, Kerala



Dr. Suresh Babu P. P.
Principal Scientist
ICAR-CMFRI
Kochi, Kerala



Dr. Sekar Megarajan
Senior Scientist
ICAR-CMFRI
Regional Centre, Visakhapatnam



Dr. Anikuttan K. K.
Senior Scientist
ICAR-CMFRI
Regional Centre, Mandapam



Dr. Johnson B.
Senior Scientist
ICAR-CMFRI
Regional Centre, Mandapam



Dr. Anuraj A.
Senior Scientist
ICAR-CMFRI
Kochi, Kerala



Dr. Sanal Ebenezer
Senior Scientist
ICAR-CMFRI
Kochi, Kerala



Mr. Ambarish P. Gop
Scientist
ICAR-CMFRI
Regional Centre, Vizhinjam

REGISTER NOW

20 July-7 August 2026

11:00 am to 12:00 nn IST

Platform: WebEx

MANAGE-FISHTech Webinar

Join the Webinar on
Mass Production of Marine Copepods
"To Explore Technologies in Fisheries and Aquaculture Sector"

Speaker



Dr. B. Santhosh
Principal Scientist & Head
ICAR-CMFRI
Regional Centre, Vizhinjam

22 July 2026
11:00 AM to 12:00 NN IST
Platform: WebEx

MANAGE-FISHTech Webinar

Join the Webinar on
Hatchery Production of Cultchless Spat of Crassostrea madrasensis through Hormone-induced Settlement
"To Explore Technologies in Fisheries and Aquaculture Sector"

Speaker



Dr. M. K. Anil
Principal Scientist
ICAR-CMFRI
Regional Centre, Vizhinjam

24 July 2026
11:00 AM to 12:00 NN IST
Platform: WebEx

MANAGE-FISHTech Webinar

Join the Webinar on
Biovalorisation of Organic Wastes into High-value Aquafeed Ingredients and Organic Compost using Black Soldier Fly Larvae (Hermetia illucens)
"To Explore Technologies in Fisheries and Aquaculture Sector"

Speaker



Dr. Sanal Ebenezer
Senior Scientist
ICAR-CMFRI
Kochi, Kerala

20 July 2026
11:00 AM to 12:00 NN IST
Platform: WebEx

MANAGE-FISHTech Webinar

Join the Webinar on
Coastal Pond & Sea Cage Farming of Indian Pompano
"To Explore Technologies in Fisheries and Aquaculture Sector"

Speaker



Dr. Sekar Megarajan
Senior Scientist
ICAR-CMFRI
Regional Centre, Visakhapatnam

27 July 2026
11:00 AM to 12:00 NN IST
Platform: WebEx

MANAGE-FISHTech Webinar

Join the Webinar on
Technology for Seed Production of Vermiculated Spinefoot (Siganus vermiculatus)
"To Explore Technologies in Fisheries and Aquaculture Sector"

Speaker



Dr. Anuraj A.
Senior Scientist
ICAR-CMFRI
Kochi, Kerala

31 July 2026
11:00 AM to 12:00 NN IST
Platform: WebEx

MANAGE-FISHTech Webinar

Join the Webinar on
Microalgae culture Technology
"To Explore Technologies in Fisheries and Aquaculture Sector"

Speaker



Dr. Shoji Joseph
Principal Scientist
ICAR-CMFRI
Kochi, Kerala

03 August 2026
11:00 AM to 12:00 NN IST
Platform: WebEx

MANAGE-FISHTech Webinar

Join the Webinar on
Breeding and Seed Production of Giant Trevally (Caranx ignobilis)
"To Explore Technologies in Fisheries and Aquaculture Sector"

Speaker



Mr. Ambarish P. Gop
Scientist
ICAR-CMFRI
Regional Centre, Vizhinjam

21 July 2026
11:00 AM to 12:00 NN IST
Platform: WebEx

MANAGE-FISHTech Webinar

Join the Webinar on
Production of Designer Clownfishes through Captive Breeding
"To Explore Technologies in Fisheries and Aquaculture Sector"

Speaker



Dr. Anikuttan K. K.
Senior Scientist
ICAR-CMFRI
Regional Centre, Mandapam

23 July 2026
11:00 AM to 12:00 NN IST
Platform: WebEx

MANAGE-FISHTech Webinar

Join the Webinar on
Standardized Protocol for Breeding and Seed Production of Black Seabream (Acanthopagrus berda)
"To Explore Technologies in Fisheries and Aquaculture Sector"

Speaker



Dr. Suresh Babu P. P.
Principal Scientist
ICAR-CMFRI
Kochi, Kerala

28 July 2026
11:00 AM to 12:00 NN IST
Platform: WebEx

MANAGE-FISHTech Webinar

Join the Webinar on
Nursery Rearing of Indian Pompano (Trachinotus mookalee) in Recirculating Aquaculture System (RAS)
"To Explore Technologies in Fisheries and Aquaculture Sector"

Speaker



Dr. Ritesh Ranjan
Principal Scientist
ICAR-CMFRI
Regional Centre, Visakhapatnam

04 August 2026
11:00 AM to 12:00 NN IST
Platform: WebEx

Hatchery Production of Cultchless Spat of *Crassostrea madrasensis* through Hormone-induced Settlement



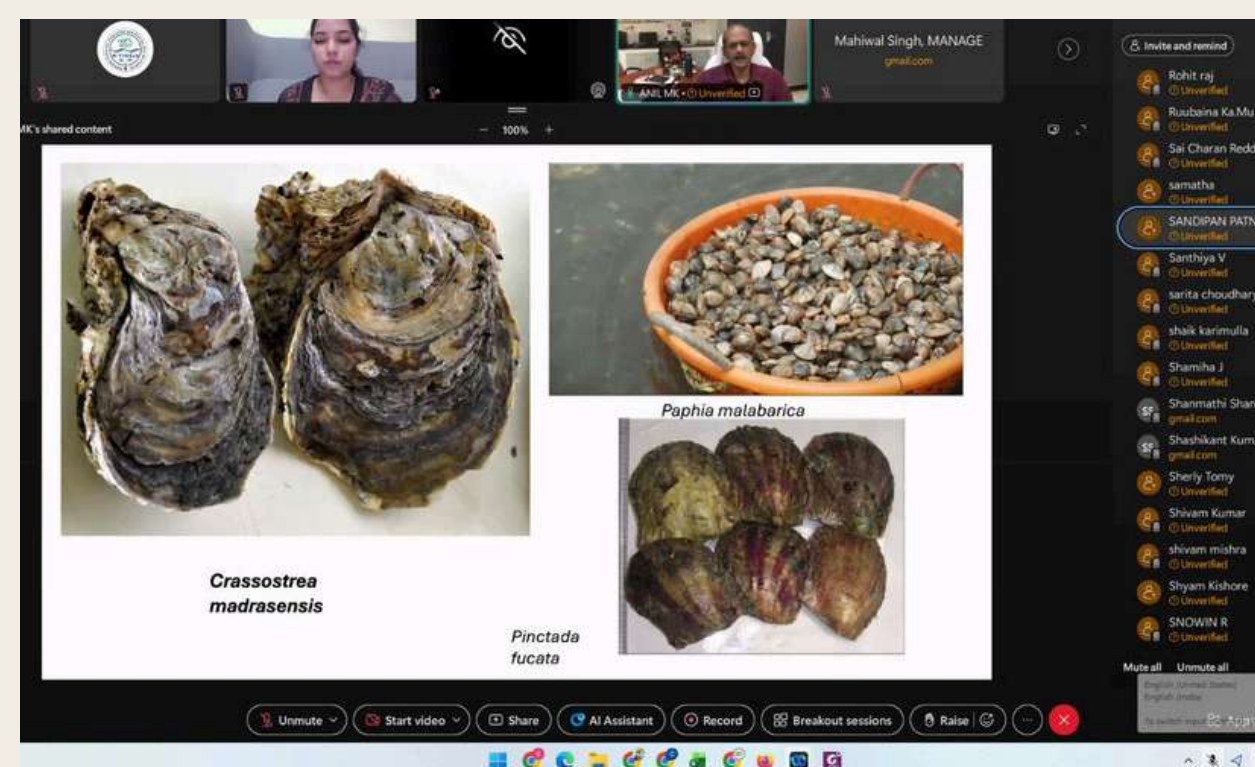
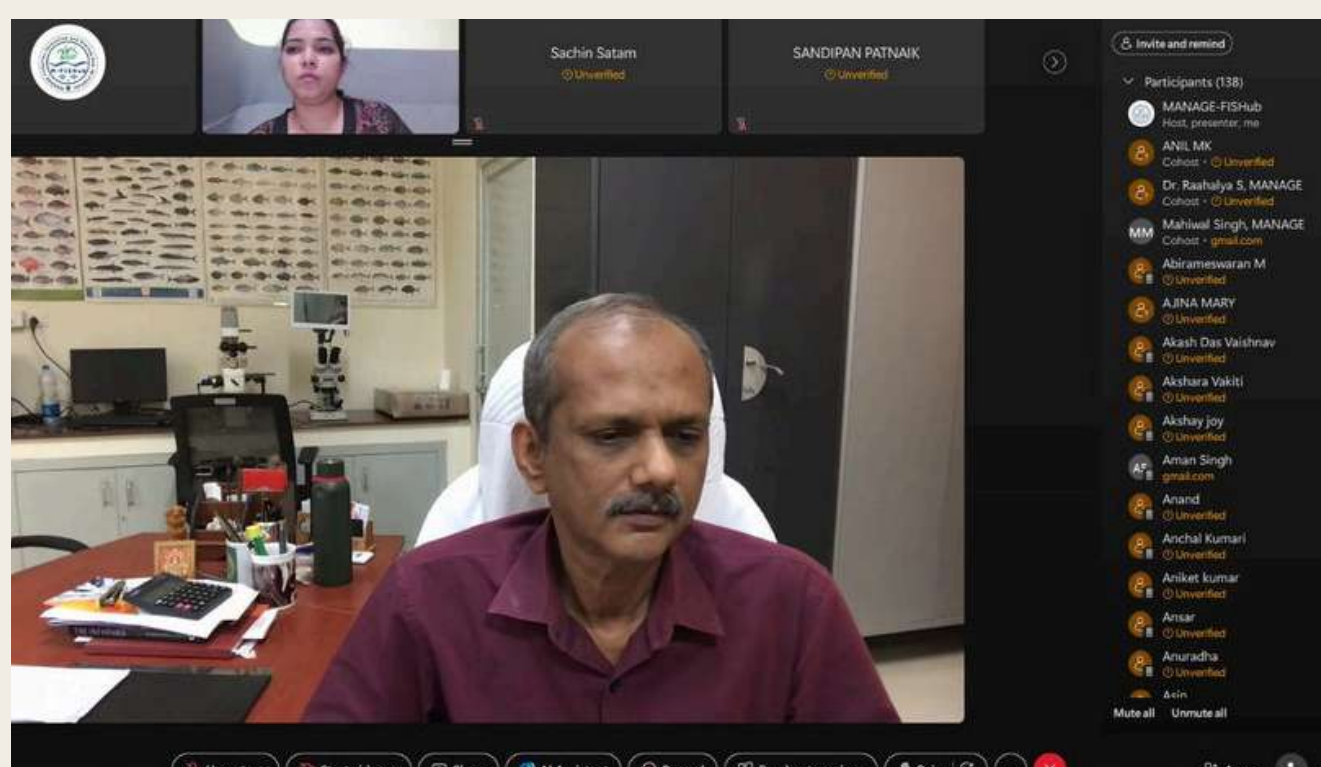
Dr. M. K. Anil
Principal Scientist
ICAR-CMFRI
Regional Centre, Vizhinjam
mkanil65@gmail.com

Dr. Anil explained the hatchery-based production and nursery rearing of oysters, with emphasis on developing reliable systems for producing oyster seed and supporting their subsequent culture.

Dr. Anil explained that oyster farming in India traditionally depends largely on natural or wild spat, which attach themselves to oyster shells suspended in backwaters. He discussed different methods of oyster farming, including floating long-line systems, cages and floating baskets. Floating baskets can be periodically lifted, rinsed and returned to the water to maintain suitable culture conditions. The speaker explained the life cycle and larval development of oysters, beginning with fertilization followed by embryonic development, the morula stage, D-shaped larva, umbo stage, eyed larva and finally the competent larval stage or spat.

A major focus of the session was the production of cultchless or single oyster spat. Normally, competent oyster larvae permanently attach to the tank or another substrate, making them difficult to remove and manage. To overcome this limitation, the competent larvae are treated with epinephrine/adrenaline, which inhibits permanent attachment and enables the production of individual cultchless spat. The session also discussed spawning and larval rearing techniques, including natural spawning, thermal shock and stripping methods. Stripping allows greater control over the selection of male and female broodstock and is particularly useful for genetic and triploid production studies. Static, flow-through and recirculating systems can be used depending on stocking density.

The speaker further explained nursery and farming systems, including cages, trays, longlines, rafts, trestles, floating baskets and other suspended culture methods.

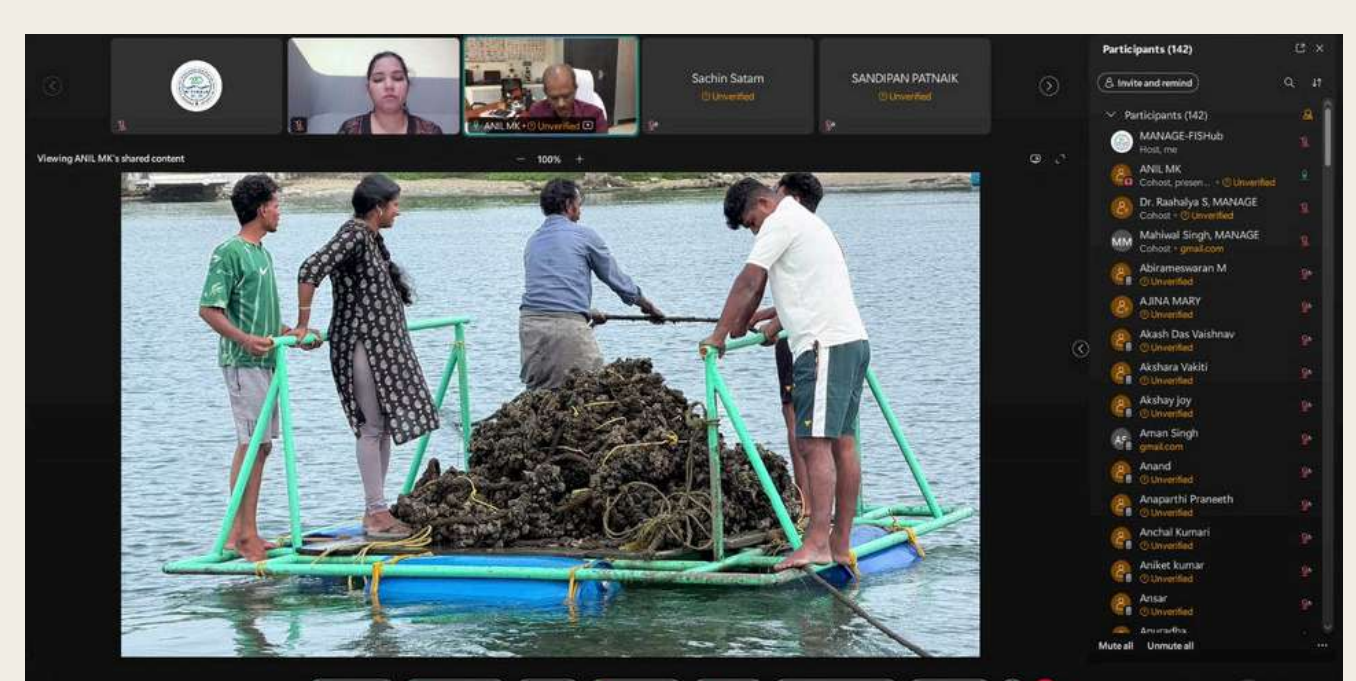
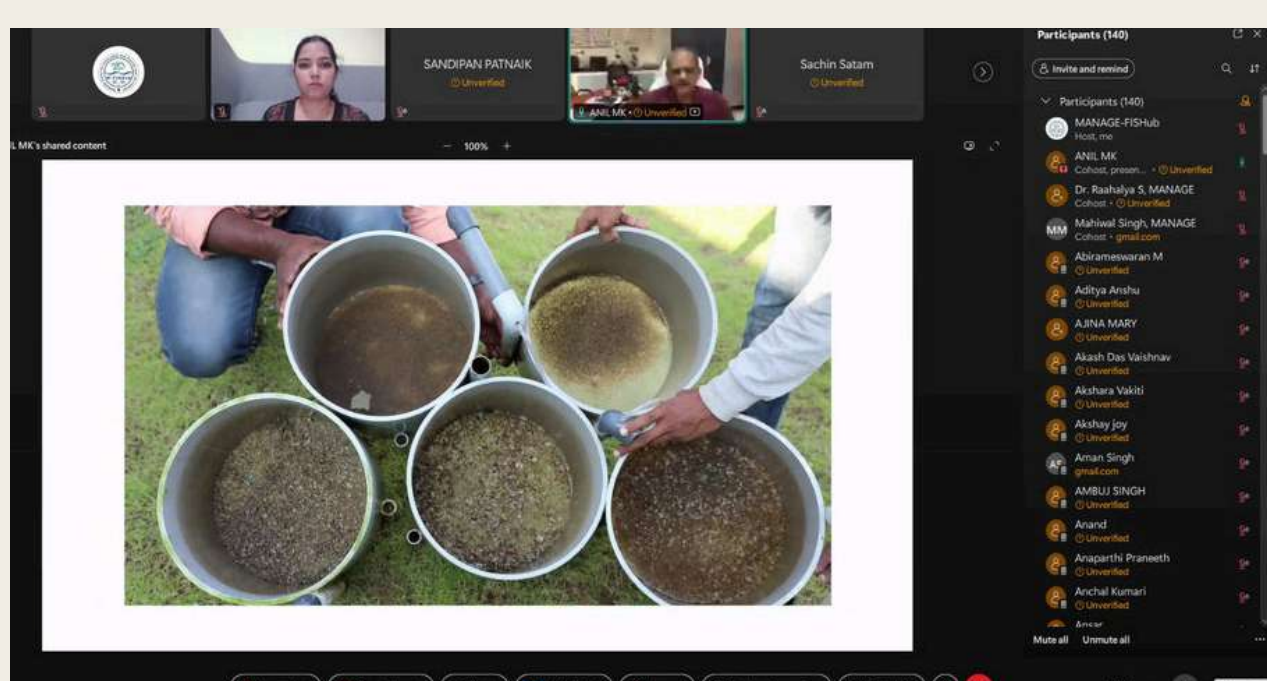
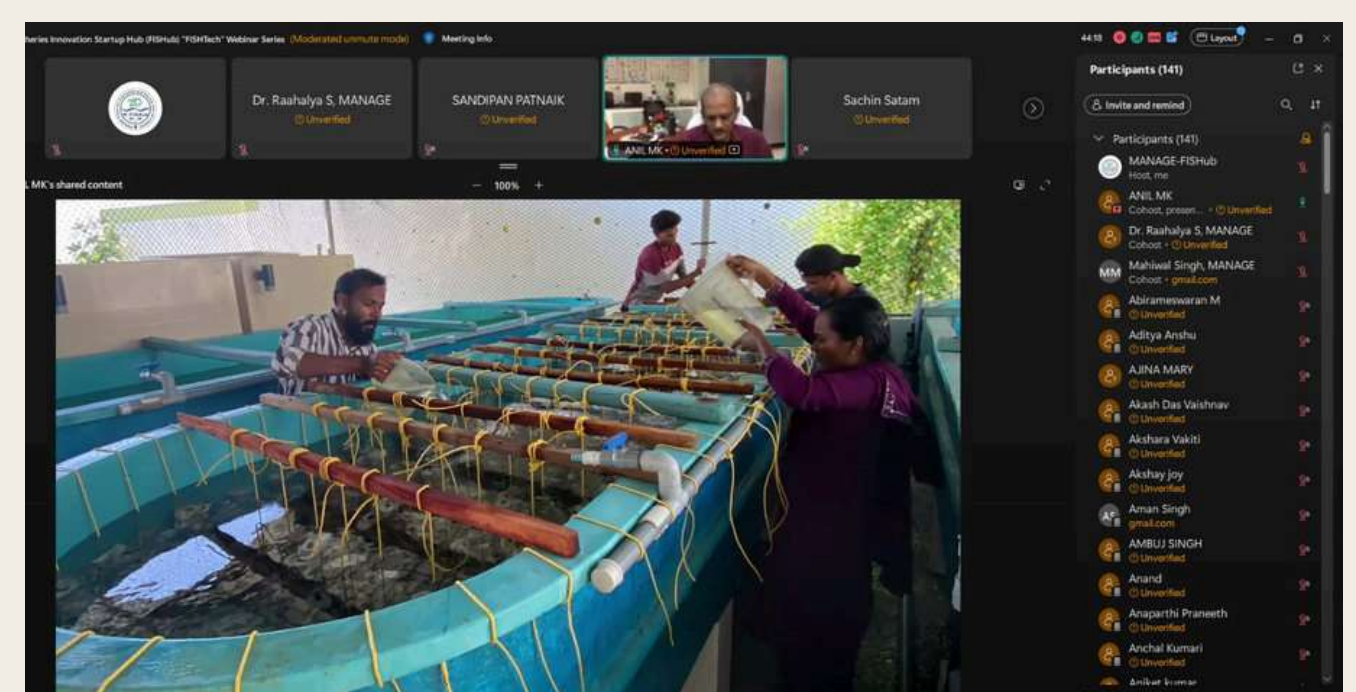
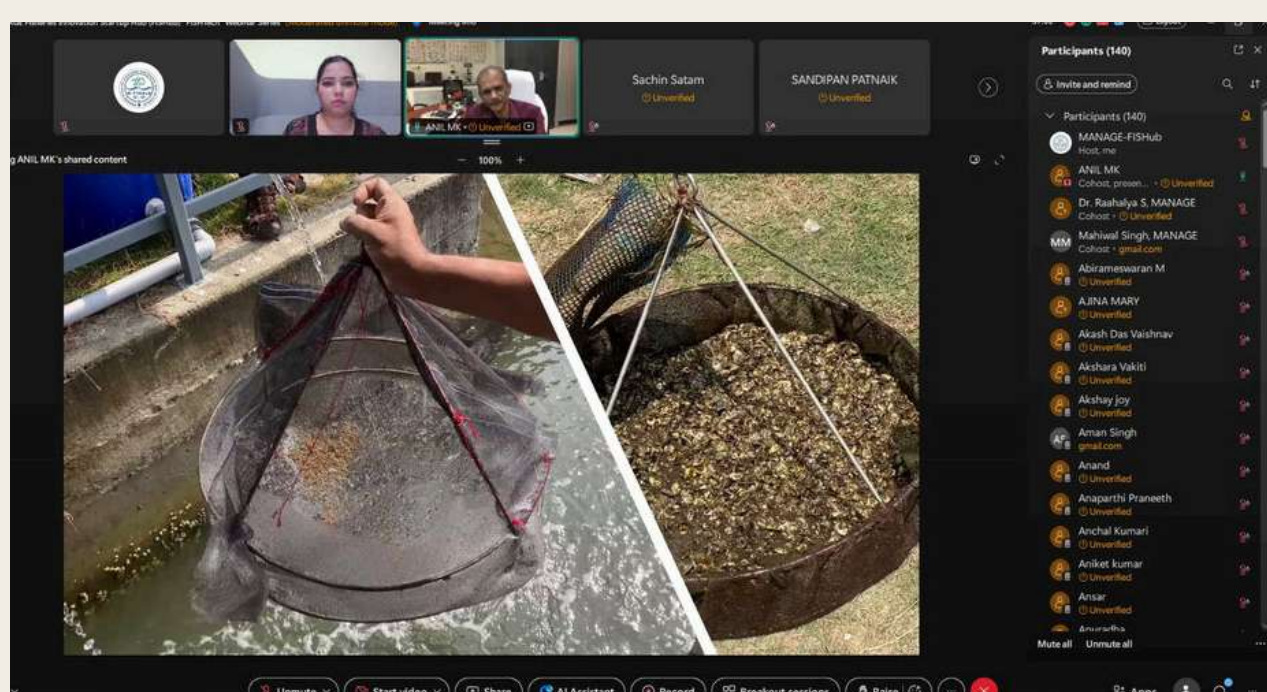


Cultchless spat can be grown into marketable oysters with better control over shape and quality, while attached spat can also be produced by allowing competent larvae to settle on prepared oyster shells.

Green and brown mussel seeds are produced, transferred to nursery systems for further growth and subsequently supplied to farmers and other locations. The speaker also discussed the development and standardization of mussel farming technologies, including culture using ropes, rafts and long-line systems.

Particular emphasis was placed on the development of long-line farming systems for marine bivalves. The project involved the development of large floats, anchoring and mooring systems adapted to local conditions. The system was tested in the sea and successfully withstood the monsoon season, providing confidence regarding its suitability for future expansion to other farming areas. The experience demonstrated the importance of developing locally appropriate culture systems and adapting technologies used in other countries to Indian conditions.

Dr. Anil also highlighted the hatchery's capacity to produce large quantities of bivalve spat, including clam seed. The hatchery produced millions of clam spat, which were subsequently released into natural fishing areas to support the rejuvenation of clam fisheries. Similarly, oyster juveniles can be produced through hatchery techniques such as stripping and natural spawning and subsequently transferred for nursery rearing and grow-out. Overall, the session emphasized the potential of hatchery-based bivalve seed production, nursery systems and improved farming technologies to support oyster and other shellfish aquaculture, strengthen seed availability for farmers, rejuvenate natural fisheries and promote sustainable bivalve production.





Q & A Session

Q1. Can treatment tanks with limited depth be used for oyster culture?

Ans: Dr. Anil explained that treatment tanks with a depth of around 1.5–2 metres can be used, provided they maintain continuous water availability. However, the usable culture area may be relatively limited depending on the tank dimensions.

Q2. What problems or losses can occur after hormone-induced settlement?

Ans: The speaker explained that once the spat successfully settles and begins growing, major problems are generally not observed. However, settlement may occasionally fail if the larvae are not at the appropriate maturation or developmental stage. Mortality can also occur under unfavourable conditions, but normally good settlement rates can be achieved with proper management.

Q3. Where can oyster seeds be purchased for farming?

Ans: Dr. Anil stated that oyster seed can be obtained from their hatchery, which he identified as the only hatchery in India currently producing this type of spat. Production is seasonal, with oyster seed production generally beginning around August–September, after which seed can be supplied to farmers.

Q4. What is the feeding rate and proportion of microalgae required during the larval stages?

Ans: The speaker referred participants to the published protocols for specific cell concentrations and feeding rates rather than providing a fixed value during the session. He explained that, with experience, the feeding requirement can also be assessed through daily observation of larval condition and feeding activity under a microscope. The presence of greenish microalgal content inside the transparent larvae can indicate active feeding.

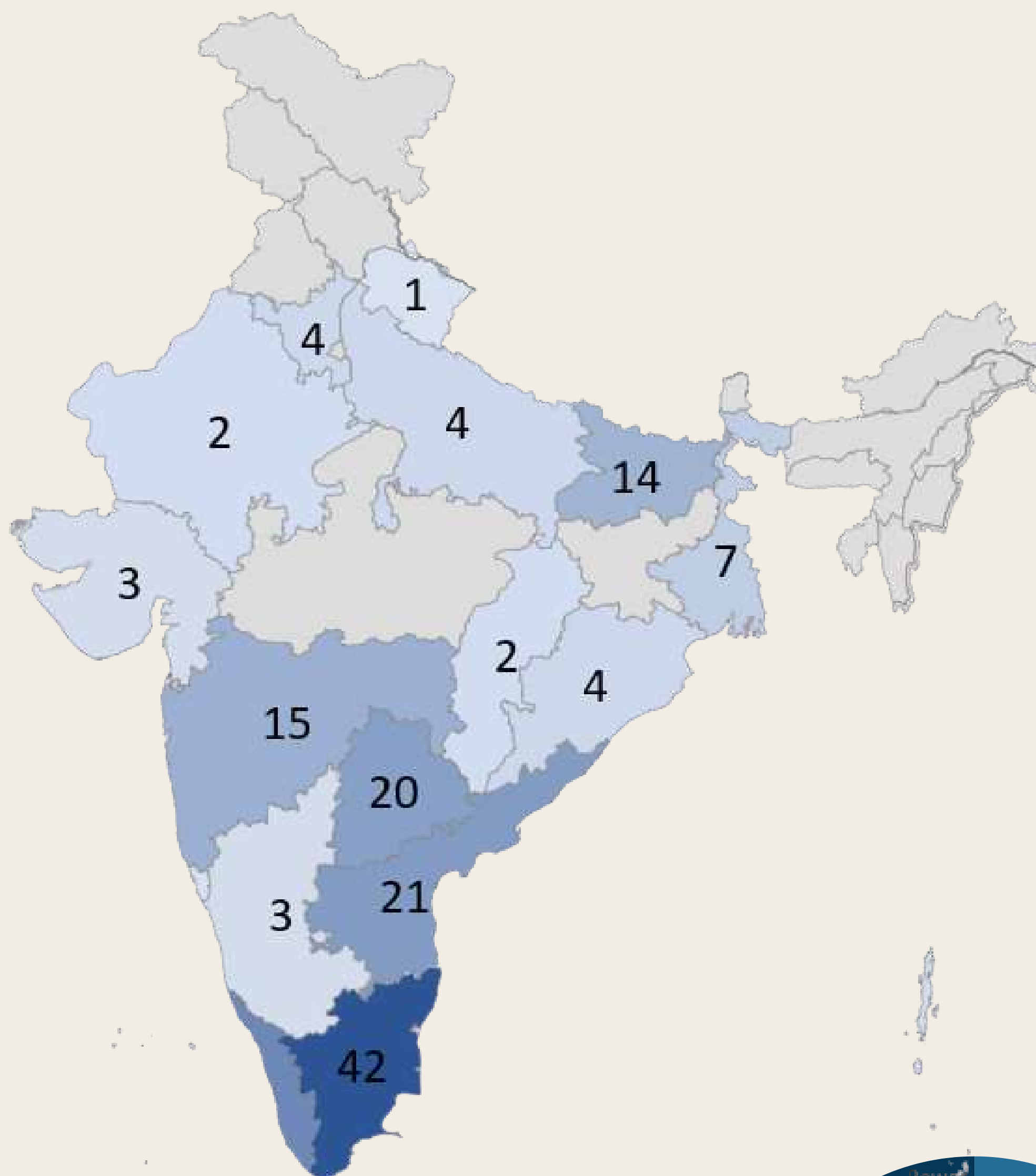
Q5. What are the major health problems encountered during oyster larval rearing, and how can they be controlled?

Ans: Dr. Anil highlighted that oyster larvae are highly sensitive to water-quality deterioration, contaminated feed and other management problems, which can result in sudden mortality. Bacterial infections may occasionally occur. Although antibiotics may have been used earlier, their use is currently restricted; therefore, probiotics, good water quality and proper hatchery management are preferred. He emphasized the importance of filtering incoming water and recommended appropriate filtration, including UV treatment where required, to reduce the risk of disease-causing organisms entering the culture system.

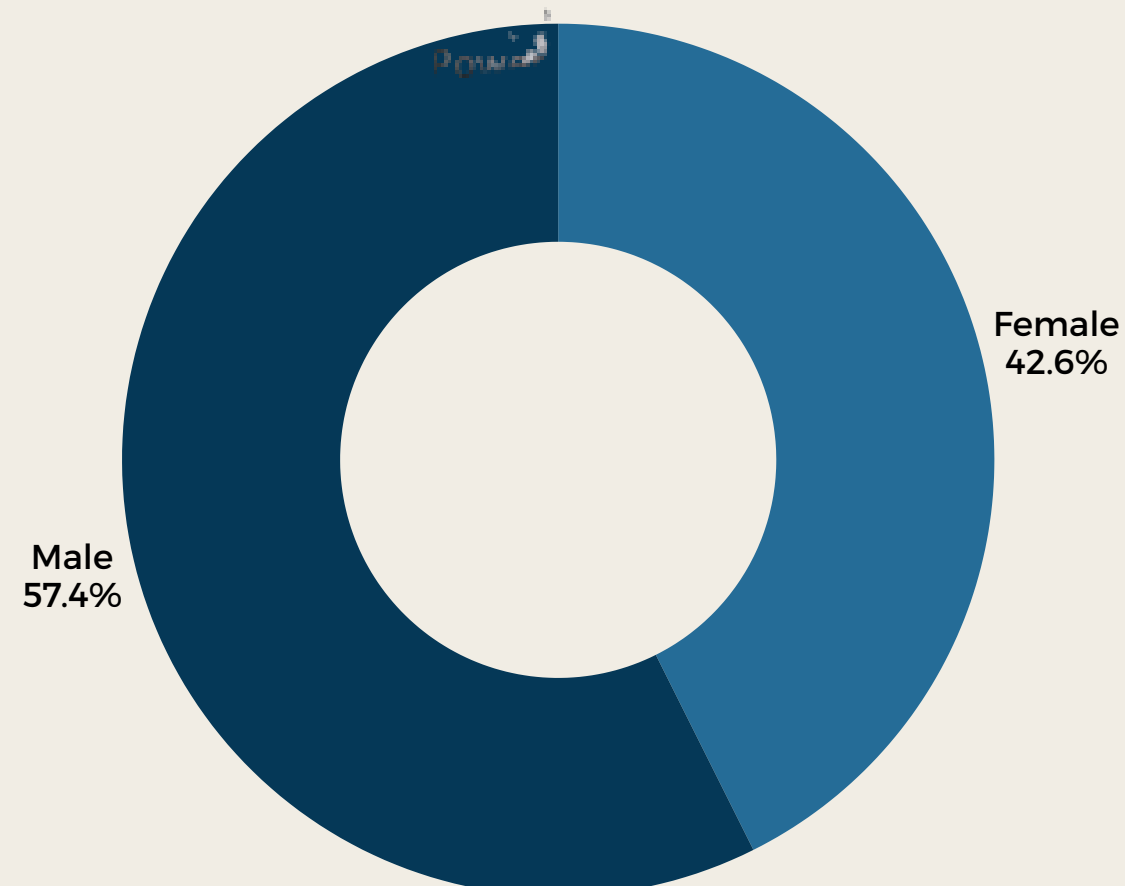
Q6. Can oysters or mussels be integrated into reservoirs, streams or other aquaculture systems to improve water quality?

Ans: The speaker explained that oysters and mussels can potentially be incorporated into such systems because they function as filter feeders, producing both bivalves and improved water quality. However, their use may also generate faecal or filtered organic matter that settles in the system, requiring appropriate management and balance.

Participants Overview



Total Registrations-493
 Attended Participants - 176
 (Male - 101; Female-75)



YouTube Video Link: https://www.youtube.com/watch?v=woxUQWeBGxA&list=PL4G41x3BKm6lUBmHoLiRlGoB_5Efxiaep&index=11&t=2s