



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

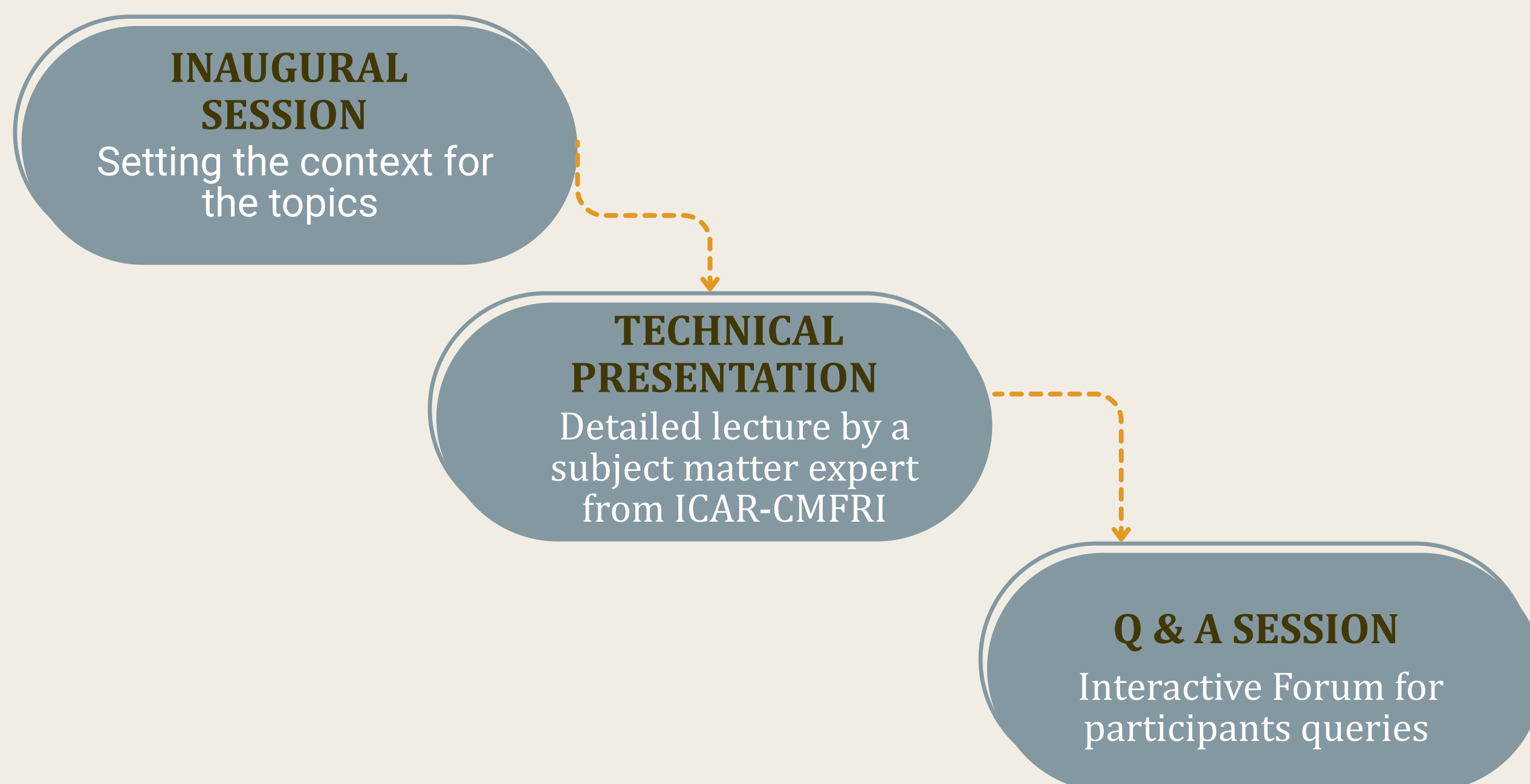
FISHTech Webinar series is a flagship online knowledge-sharing initiative of MANAGE–FISHub, designed to showcase innovative technologies developed by fisheries research institutions, ICAR institutes, State Fisheries Universities, and other academic and R&D organizations across India. The series aims 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.





04-08-2026

Nursery Rearing of Indian Pompano (*Trachinotus mookalee*) in Recirculating Aquaculture System (RAS)



Dr. Ritesh Ranjan
Principal Scientist
ICAR-CMFRI
Regional Centre, Visakhapatnam
rranjanfishco@gmail.com

Dr. Ritesh Ranjan delivered an informative session that provided participants with detailed insights into the importance of Indian pompano, the functioning of RAS, nursery management practices, water quality management, feeding, grading, disease prevention, and the economic feasibility of the system.

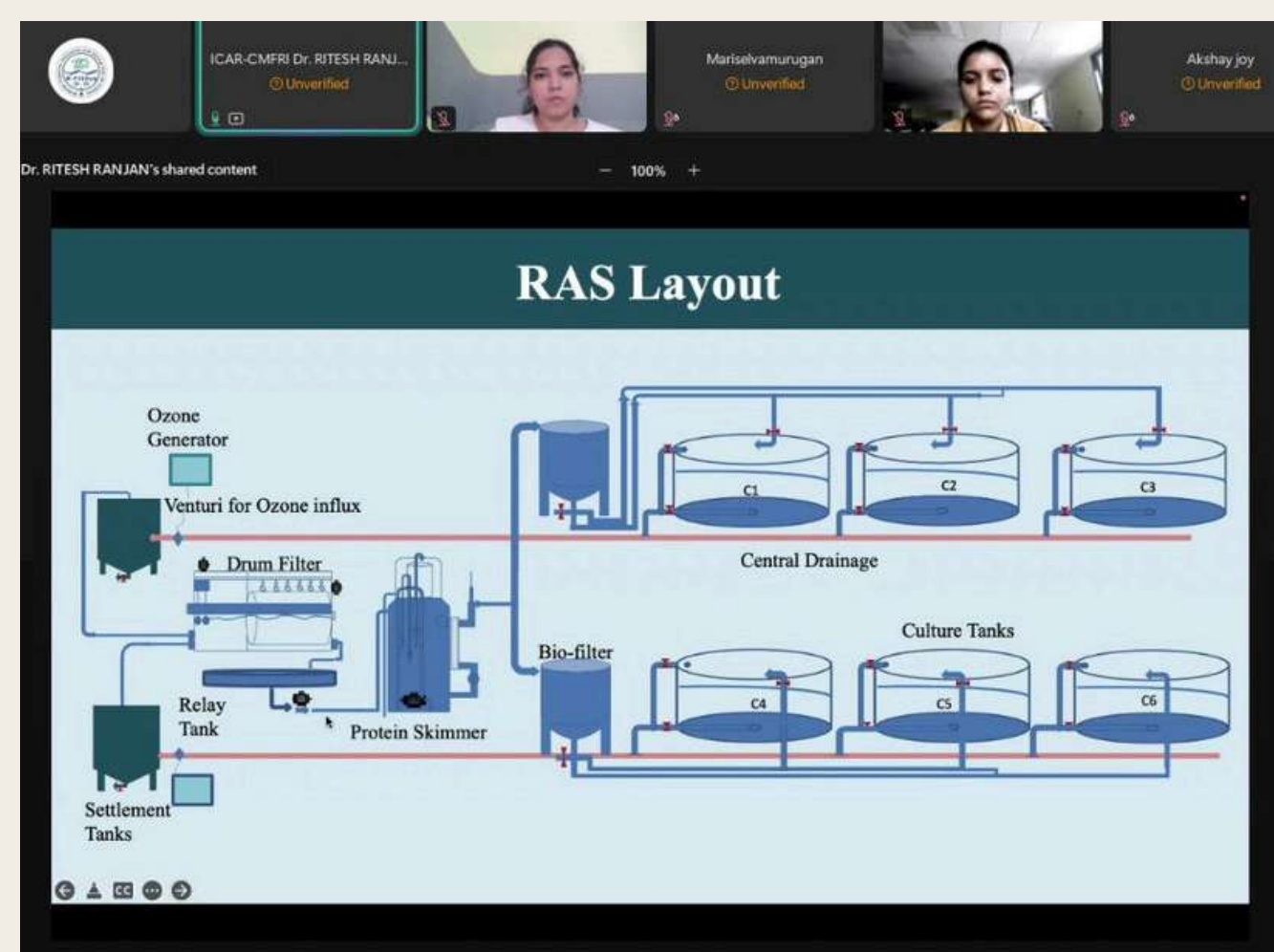
The speaker began by explaining why Indian pompano was selected for nursery rearing in RAS. He highlighted that Indian pompano can accept artificial feed from the juvenile stage, can adapt to a wide range of salinities, grows rapidly, and has good market demand. He also explained that the species can be cultured in different systems, including cages, ponds, raceways, RAS, and biofloc systems. Therefore, developing a reliable and quality seed production and nursery rearing protocol is important for the expansion of Indian pompano culture.

Dr. Ranjan then discussed the importance of RAS for nursery rearing. He explained that conventional nursery systems require larger areas because of their lower stocking densities, whereas RAS allows higher stocking densities while maintaining good water quality. He highlighted that RAS can provide better growth, survival, seed quality, feed efficiency, and reduced water consumption compared with conventional and flow-through systems. He explained that RAS is essentially a closed-loop system, in which water is continuously treated, reconditioned, and pumped back into the culture tanks, creating a controlled environment for fish growth.

Dr. Ranjan further explained the major components of the RAS. The system consisted of six five-tonne culture tanks connected to filtration and water-treatment components. The system included a settlement tank, drum filter, protein skimmer, UV sterilization, biological filter, oxygen enrichment, and ozone treatment.

Challenges associated with RAS technology

- High capital cost
- High energy consumption
- Requirement of skilled man power



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 Ebenezeer
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"

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

Speaker



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

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"

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

Speaker



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

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"

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

Speaker



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

MANAGE-FISHTech Webinar

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

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

Speaker



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

MANAGE-FISHTech Webinar

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

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

Speaker



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

MANAGE-FISHTech Webinar

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

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

Speaker



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

MANAGE-FISHTech Webinar

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

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

Speaker



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

MANAGE-FISHTech Webinar

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

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

Speaker



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

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"

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

Speaker



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

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"

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

Speaker

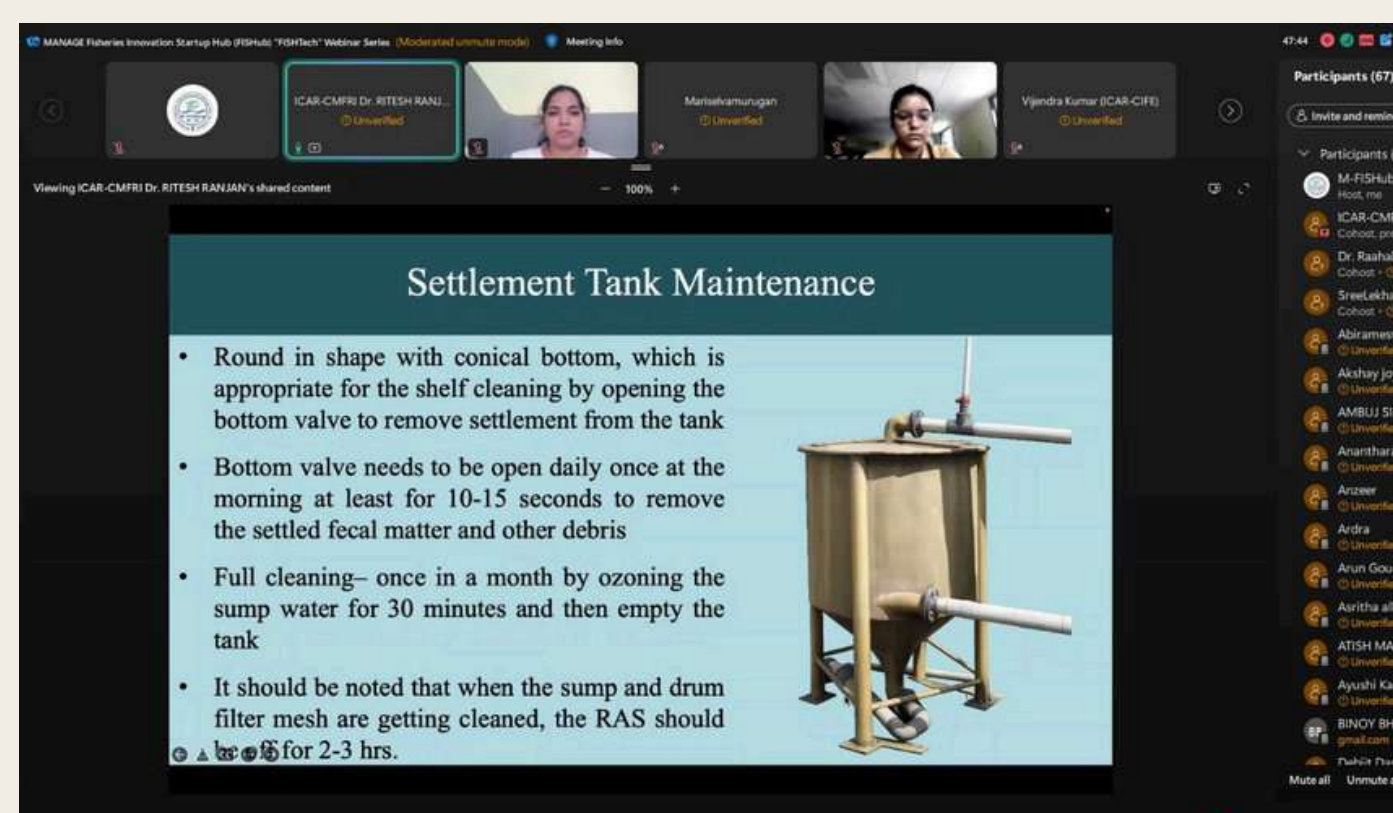
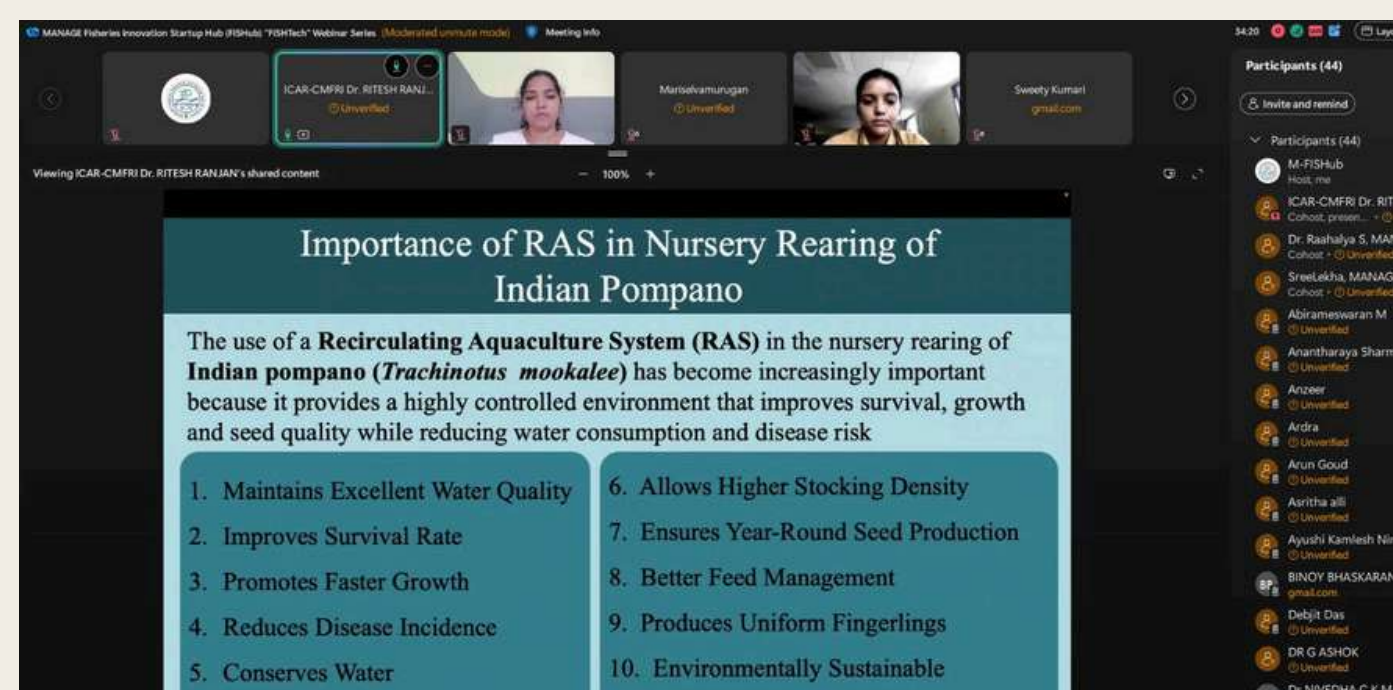
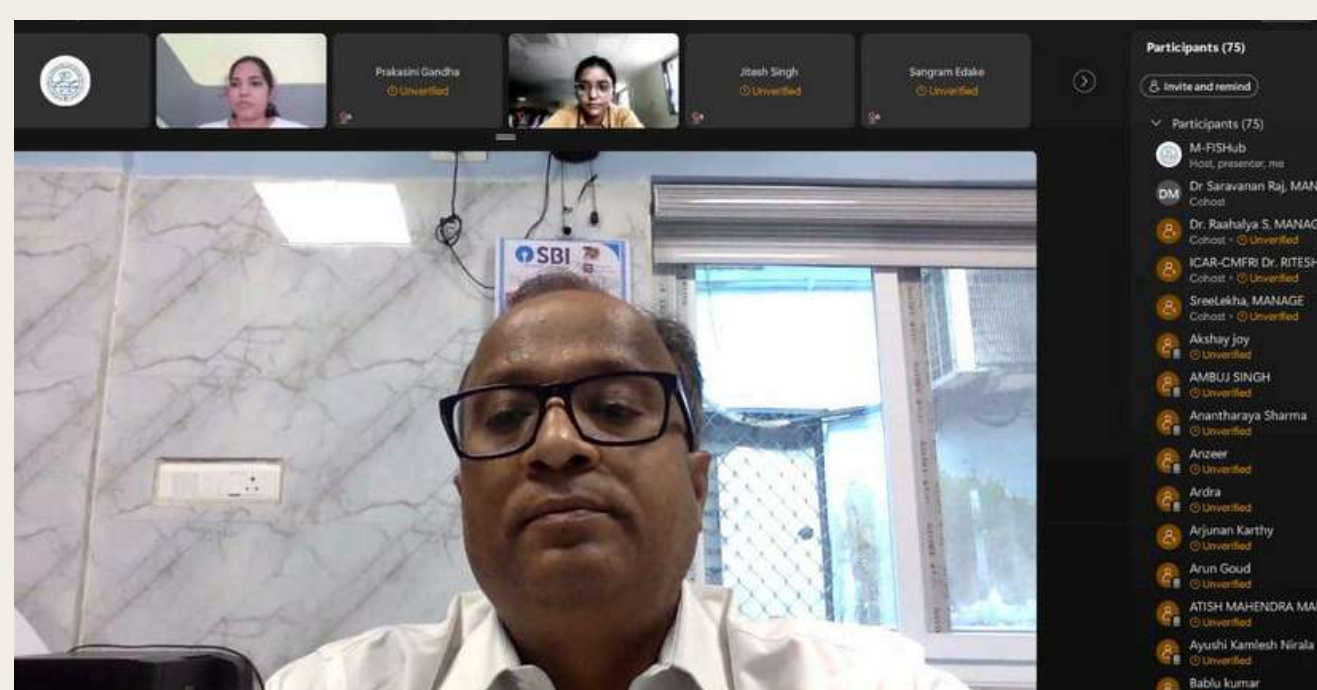


Dr. Ritesh Ranjan
Principal Scientist
ICAR-CMFRI
Regional Centre, Visakhapatnam

The speaker then discussed the standardized stocking density and production protocol. He explained that the system had a total capacity of 30 cubic metres and could accommodate approximately 30,000 to 60,000 fingerlings, depending on the intended culture period. He highlighted that the system achieved more than 90% survival, an FCR of approximately 1.36, and a biomass holding capacity exceeding 24–25 kg per cubic metre under the standardized protocol. A major focus of the session was on stocking, grading, and feed management. Dr. Ranjan explained that similarly sized fish should be stocked together because Indian pompano is cannibalistic.

Dr. Ranjan further emphasized the importance of light management, ozone treatment, biosecurity, and disease prevention. He explained that Indian pompano is sensitive to sudden changes in light and may exhibit jumping behaviour when exposed to abrupt light stimuli. Therefore, gradual dimming and brightening of lights, tank covering, and adequate freeboard were recommended. He also explained that ozone can improve water clarity, help remove organic matter, and reduce microbial loads, but must be carefully controlled because excessive ozone can be harmful to fish.

The session concluded with an overview of the investment, production costs, returns, and economic feasibility of the RAS nursery system. He highlighted that the system demonstrated favourable economic indicators, including a benefit-cost ratio of approximately 1:1.12, a payback period of less than one and a half years, and a return on investment of about 75.88% under the conditions presented.





Q & A Session

Q1. Is a protein skimmer necessary for every aquarium?

Ans: The speaker explained that the requirement depends mainly on the stocking density and type of system. Protein skimmers are particularly important in marine systems with higher salinity and high fish stocking densities, such as public aquariums, because high-protein feeds generate considerable organic waste. However, for a small household aquarium of around 100 litres containing only a few fish, a protein skimmer may not be necessary, and a sponge filter may be sufficient.

Q2. Can nursery rearing of Indian pompano be carried out in biofloc systems instead of RAS?

Ans: The speaker explained that nursery rearing can also be carried out in biofloc systems, but the stocking density achievable may not be as high as that achieved in the RAS system. The RAS system discussed during the webinar could achieve approximately 24–25 kg biomass per cubic metre, whereas similar stocking levels may not be achievable in biofloc systems.

Q3. What type of feed is recommended for Indian pompano larvae during nursery rearing?

Ans: The speaker explained that feed size should be gradually increased according to fish growth, ranging approximately from 0.3 mm to 1.8 mm, while the protein content may be reduced from around 52% to 40% as the fish grow. He emphasized that better-quality feed results in better growth and performance.

Q4. Why does dissolved oxygen decrease after feeding?

Ans: The speaker explained that feeding increases the activity and metabolic requirements of the fish. During active feeding and digestion, fish require more oxygen, resulting in a temporary reduction in dissolved oxygen levels in the culture tank. Therefore, DO should be monitored carefully, particularly after feeding.

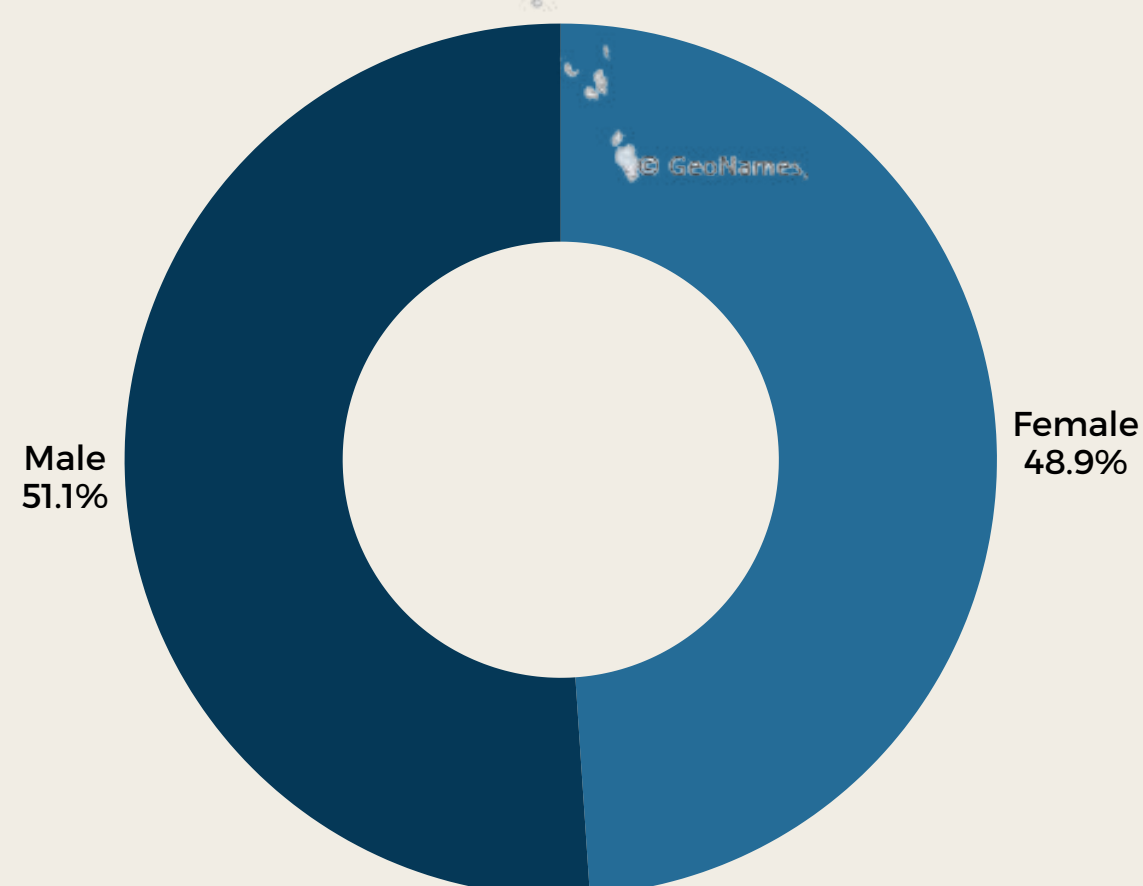
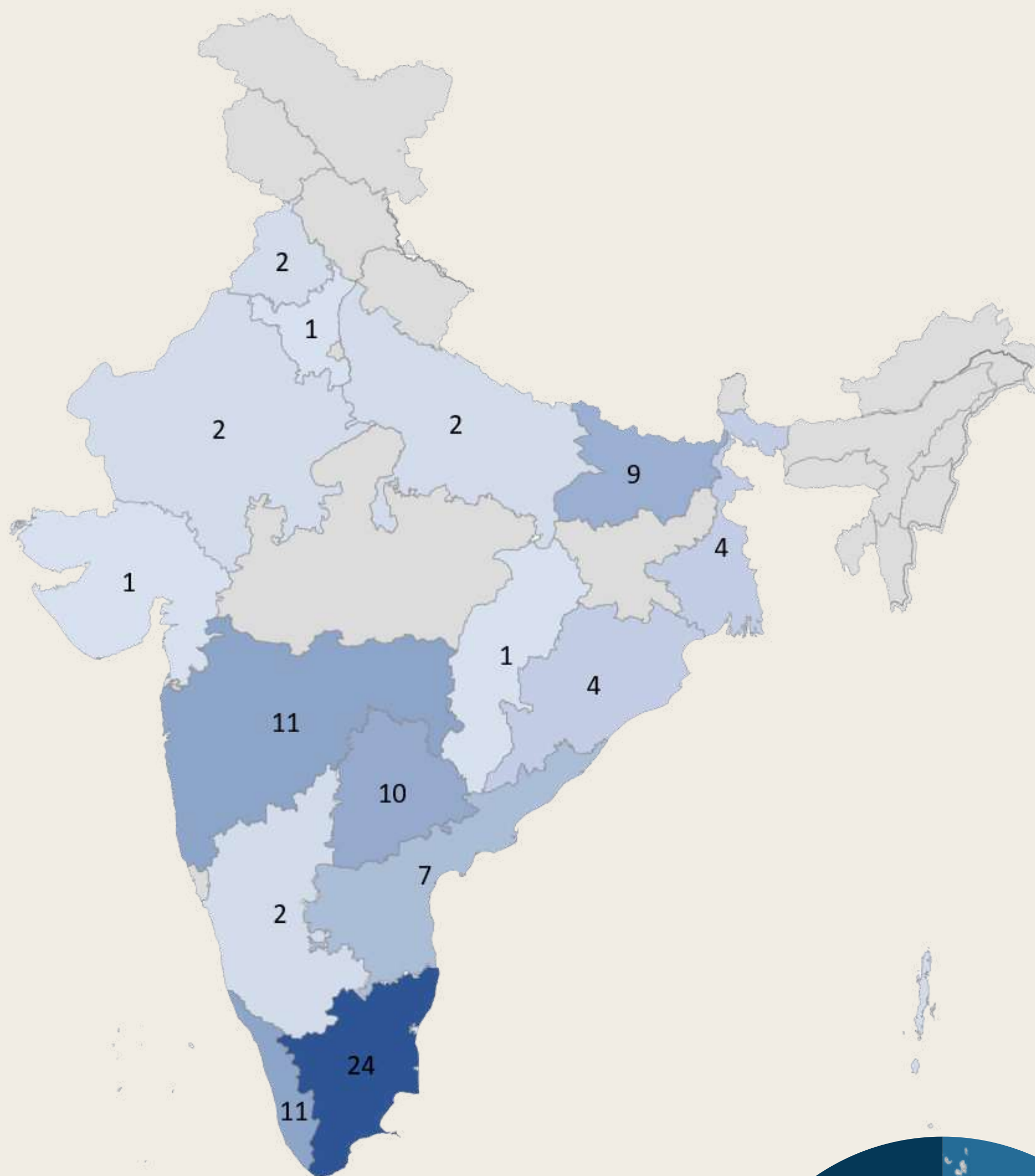
Q5. How can the lipid requirement of broodstock and nursery fish be determined?

Ans: The speaker explained that lipid requirements need to be determined through experimental trials involving different levels and combinations of dietary oils. For broodstock, lipid levels can be evaluated by examining factors such as gonad development, body condition, and egg and larval performance. He shared an example where reducing oil supplementation affected larval survival despite successful spawning. For nursery fish, feeding response and growth can be compared under different dietary lipid levels to identify the most suitable formulation.

Q6. What material is used for the drum-filter mesh?

Ans: The speaker recommended using SS 316 mesh for the drum filter. The mesh may need to be replaced periodically, approximately every two to three months, depending on its condition.

Participants Overview



Total Registrations-527
 Attended Participants -94
 (Male -48 ; Female-46)

YouTube Video Link: https://www.youtube.com/watch?v=nPjAv7MVm0&list=PL4G41x3BKm6lUBmHoLiRlGoB_5Efxiaep&index=4&t=168s