



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 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

JUL

28-07-2026

Standardized Protocol for Breeding and Seed Production of Black Seabream (*Acanthopagrus berda*)



Dr. Suresh Babu P. P.
Principal Scientist
ICAR-CMFRI
Kochi, Kerala
sbabu78@yahoo.com

Dr. Suresh Babu highlighted the standardized captive breeding and seed production protocol for Black Seabream (*Acanthopagrus berda*), focusing on larval feeding, nursery rearing and juvenile management.

Dr. Suresh Babu explained that *A. berda* is a commercially important seabream with considerable potential for aquaculture in India. The species is euryhaline, occurring in marine, brackishwater and low-salinity habitats, including estuaries, mangroves and coastal lagoons. It is known for its good flesh quality, consumer preference and high market value. The species exhibits protandric hermaphroditism, with smaller individuals predominantly functioning as males and larger individuals as females. Sexual conversion generally occurs around 22–24.5 cm. The breeding season under Indian conditions extends from August to February, with peak spawning reported during November to January.

The speaker emphasized the importance of collecting broodstock with a wide size range to ensure the availability of both functional males and females. Broodstock can be collected from coastal and estuarine waters using cast nets, hook and line, gill nets and shore seines. The fish are maintained in cages and provided with nutritionally rich pellet feed, supplemented with vitamin-mineral premixes, cod liver oil and natural maturation feeds such as squid, oysters and crabs. For induced spawning, GnRH-based hormones such as Ovaprim or Ovotide are administered intramuscularly. The initial dose is followed by a second dose for females after six hours. The brooders are then maintained in 2-ton FRP tanks with seawater and aeration.

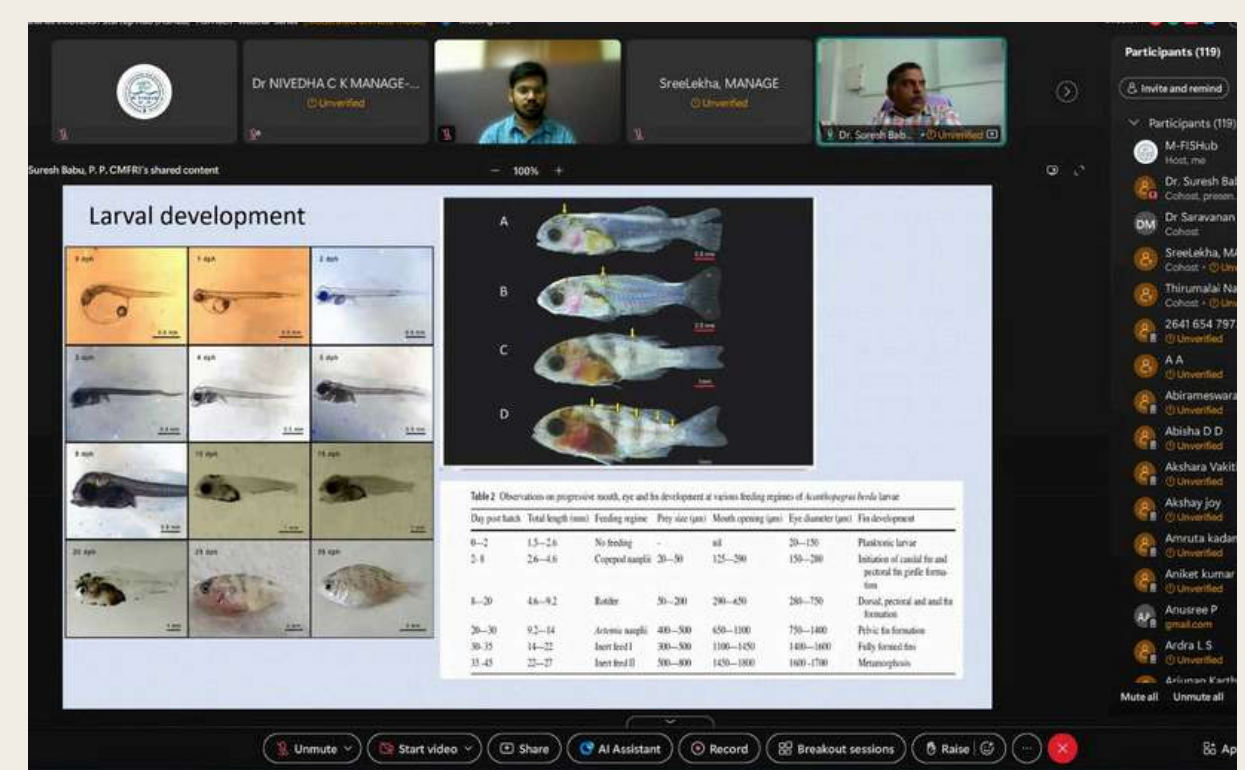
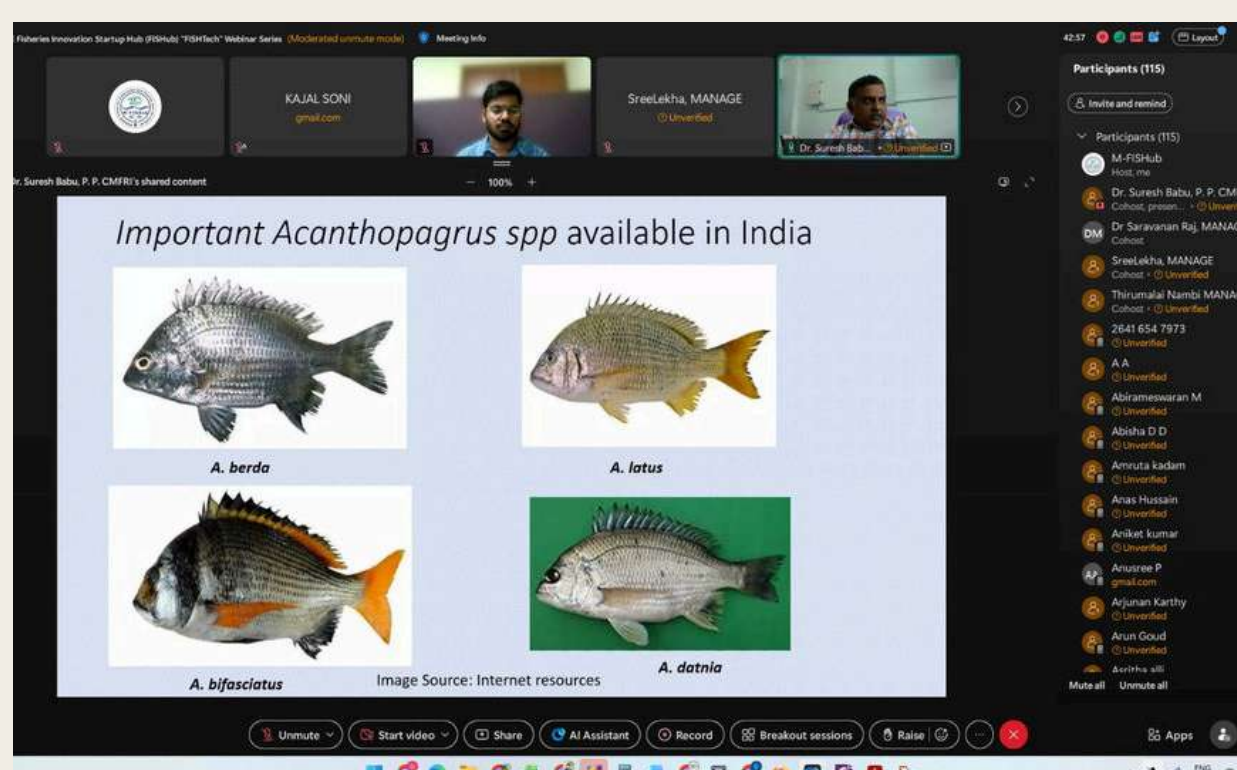
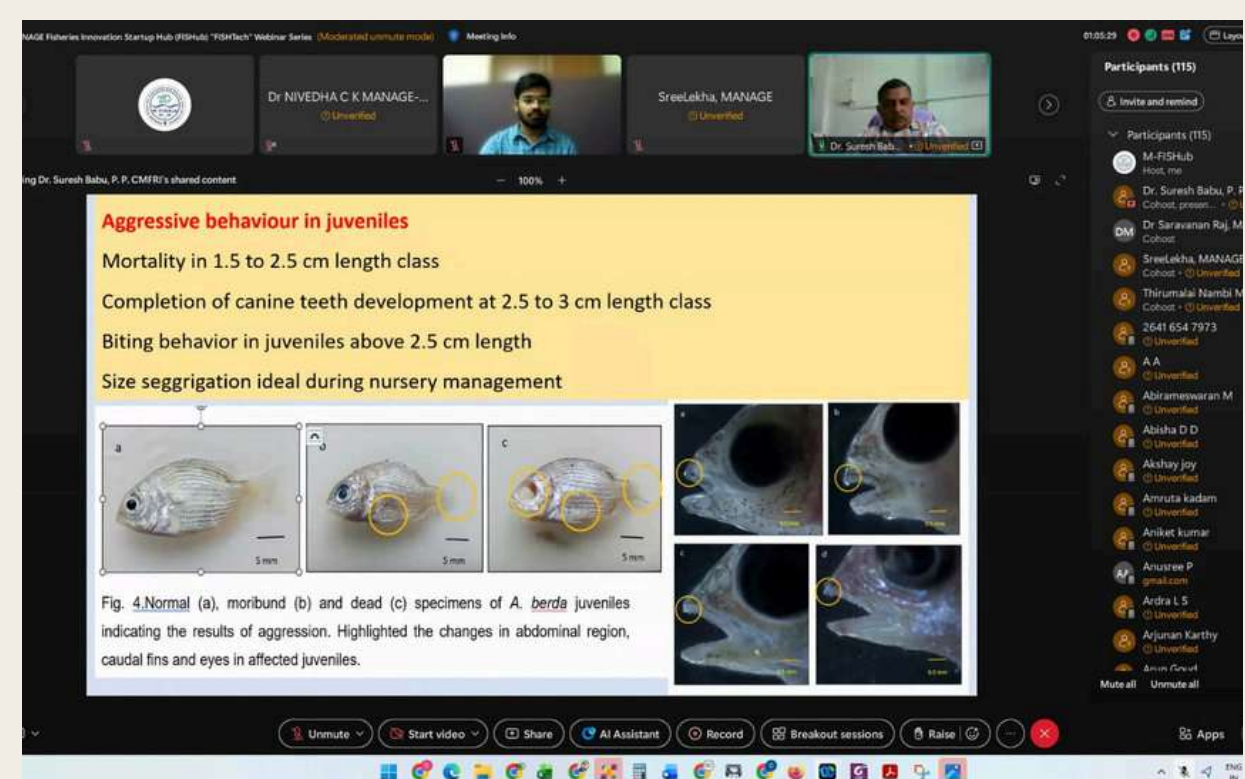
Dr. Suresh Babu identified three major critical periods during larval and juvenile rearing. The first is around the 2–3 DPH stage, when inadequate feed availability can result in mass larval mortality. The second critical phase is the weaning period, when larvae are shifted from live *Artemia* to artificial feed, as some larvae may not readily adapt to the formulated diet. The third challenge occurs during the advanced juvenile stage, when aggressive behaviour and cannibalism may develop.

For nursery rearing, the standardized practice involves stocking approximately 500 juveniles/m³ in a clear-water system, with around 30 ppt salinity providing suitable conditions for survival and growth.

A formulated feed containing approximately 38–42% crude protein can be used for nursery-reared juveniles. The juveniles are recommended for transfer to grow-out ponds once they attain approximately 3–4 g in size.

A major management concern highlighted was the size-dependent aggressive behaviour of Black Seabream. Mortality can occur when juveniles reach approximately 2.5–3 cm, coinciding with the development of canine-like teeth, which enables larger juveniles to attack and nibble smaller individuals. To minimize mortality, the speaker recommended grading and removing larger “shooters” above approximately 2.75 cm. Similar size segregation should be followed during transportation, with juveniles above and below 2.5 cm packed separately to reduce aggression and associated losses.

The speaker also discussed important parasitic health problems, particularly *Amyloodinium* infestation and gill flukes. These can be managed through freshwater dips or permitted aquaculture treatments, depending on the situation. He concluded by highlighting that the captive breeding and seed-production protocol for *Acanthopagrus berda* has been successfully standardized at ICAR-CMFRI, with the technology supported by ICAR certification and scientific publications. The development of this protocol provides an important foundation for reliable seed production and the expansion of Black Seabream aquaculture.





Q & A Session

Q1. How many viable spawning batches can one broodstock produce during a spawning cycle?

Ans: Dr. Suresh Babu explained that following hormone-induced spawning, a broodstock can produce a maximum of around 2–3 batches of eggs in one spawning cycle. The first spawning may occur approximately 48 hours after induction, followed by subsequent spawning on the following day. Since Black Seabream is a multiple spawner with repeated batch spawning, the same broodstock can potentially be reused for another induction after about a month, depending on its recovery and broodstock management.

Q2. What are the major parasitic problems encountered in Black Seabream cage culture?

Ans: The speaker identified *Amyloodinium* infestation and gill flukes (*Dactylogyrus*) as the major parasites encountered during broodstock development and cage culture. *Amyloodinium* infections were observed particularly during the winter season. Infected broodstock can be removed from the group and treated individually through appropriate freshwater dips or permitted treatments.

Q3. What is the culture period and economic cost for producing market-sized Black Seabream?

Ans: Dr. Suresh Babu explained that the species has moderate growth, but it can fetch a good price even at smaller sizes of around 200–300 g. With proper feeding, this size may be achieved in approximately 8–10 months. However, the detailed economics and commercial farming package are yet to be fully standardized, as current work has primarily focused on seed production.

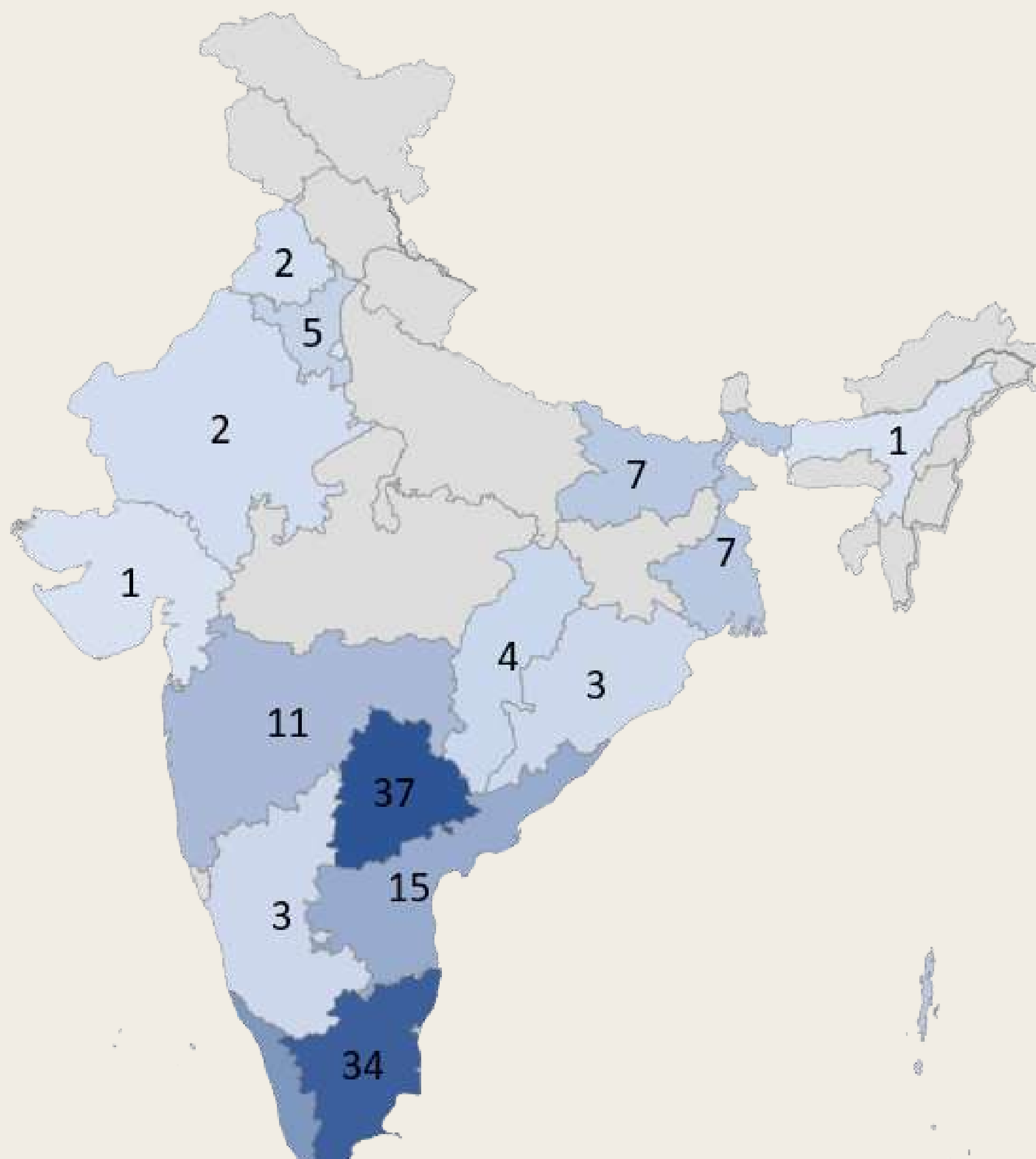
Q4. How can *Amyloodinium* infestation be identified and managed?

Ans: The speaker explained that *Amyloodinium* is a common parasite along the Indian coast. In broodstock, infected fish can be separated and treated individually, making management comparatively easier. For seed, freshwater baths of around 10 minutes, controlled reduction of salinity, or appropriate treatments such as formalin dips may be considered. The speaker also mentioned that certain anti-parasitic treatments have shown good results. He noted that Black Seabream is relatively hardy and mortality may not be very high even when infestation occurs.

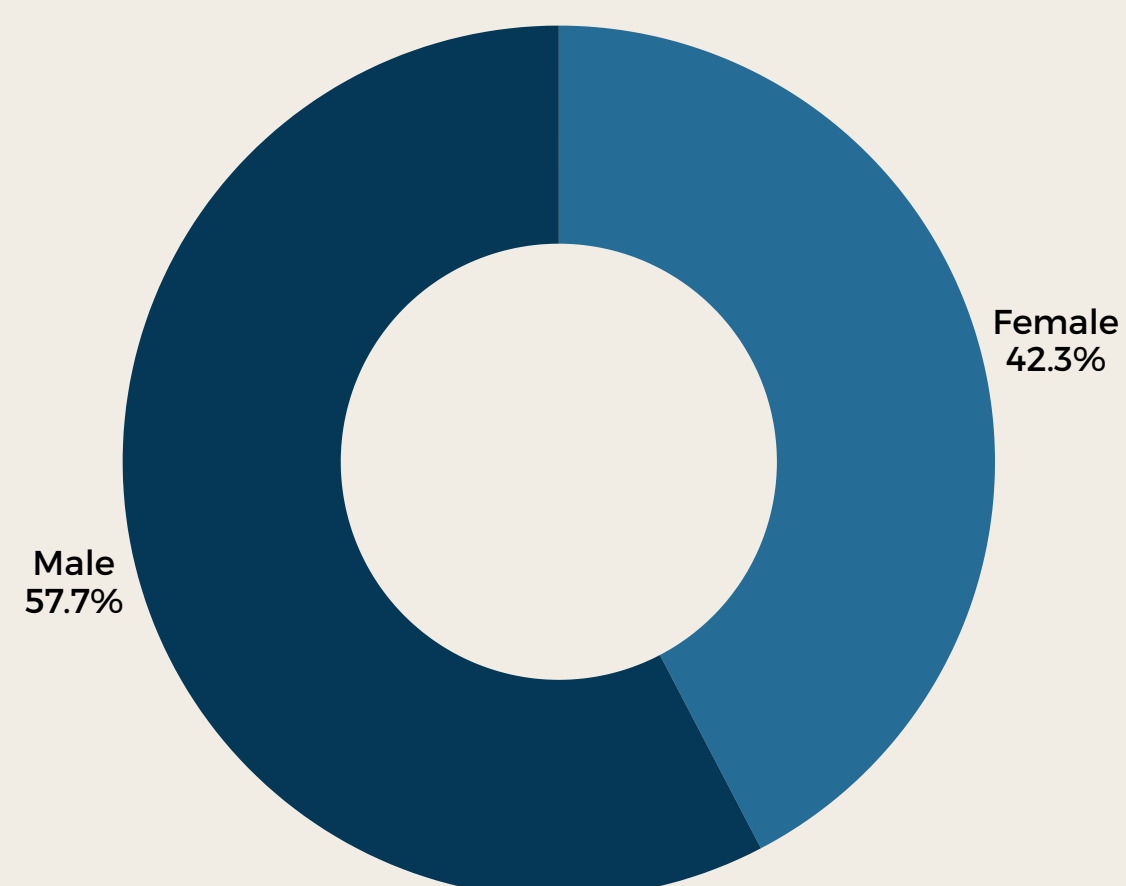
Q5. What is the ideal salinity for optimum growth of Black Seabream?

Ans: Dr. Suresh Babu explained that Black Seabream is a euryhaline species and can be cultured under both marine and estuarine conditions. Based on observations, 20–25 ppt salinity was indicated as favourable for better growth. The species can also survive and grow in marine conditions. Further research is planned to standardize its farming and compare growth and economics under estuarine and marine conditions, as well as pond and cage systems.

Participants Overview



Total Registrations-515
 Attended Participants - 163
 (Male - 94; Female-69)



YouTube Video Link: https://www.youtube.com/watch?v=C-tPv2BN-k0&list=PL4G41x3BKm6lUBmHoLiRlGoB_5Efxiaep&index=9&t=196s