



Event Report

Farmers' training program on induced breeding of small indigenous fish

Assam, India

September 2023



Citation

This publication should be cited as: WorldFish. 2023. Farmers' training program on induced breeding of small indigenous fish, Assam, India. Event report. Penang, Malaysia: WorldFish.

About WorldFish

WorldFish is a nonprofit research and innovation institution that creates, advances and translates scientific research on aquatic food systems into scalable solutions with transformational impact on human well-being and the environment. Our research data, evidence and insights shape better practices, policies and investment decisions for sustainable development in low- and middle-income countries.

We have a global presence across 20 countries in Asia, Africa and the Pacific with 460 staff of 30 nationalities deployed where the greatest sustainable development challenges can be addressed through holistic aquatic food systems solutions.

Our research and innovation work spans climate change, food security and nutrition, sustainable fisheries and aquaculture, the blue economy and ocean governance, One Health, genetics and AgriTech, and it integrates evidence and perspectives on gender, youth and social inclusion. Our approach empowers people for change over the long term: research excellence and engagement with national and international partners are at the heart of our efforts to set new agendas, build capacities and support better decision-making on the critical issues of our times.

WorldFish is part of One CGIAR, the world's largest agricultural innovation network.

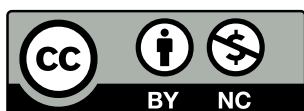
Acknowledgments

The document is published under the project "Taking nutrition-sensitive carp-SIS polyculture technology to scale" implemented by WorldFish. This project is funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) and commissioned by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) through the Fund International Agricultural Research (FIA). We are thankful to the Department of Fisheries, Government of Assam for their active support and collaboration.

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Photo credits

Sourabh Kumar Dubey

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List of acronyms

APART	Assam Agribusiness and Rural Transformation Project
BMZ	German Federal Ministry for Economic Cooperation and Development
CRP	Community Resource Person
DOF	Department of Fisheries
FD	Fisheries Demonstrators
FDO	Fisheries Development Officers
FIA	Fund International Agricultural Research
FPC	Farmer Producer Company
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (German Agency for International Cooperation)
SIS	Small indigenous fish species

1. Executive summary

- Small indigenous fish species, collectively referred to as SIS, are loaded with vital micronutrients. They play a crucial role in promoting nutrition-sensitive aquaculture in South Asia and have the potential to significantly reduce undernutrition through food-based strategies. However, the lack of standardized techniques for large-scale hatchery production of these micronutrient-dense SIS presents a major technical barrier to advancing nutrition-sensitive aquaculture approaches.
- With the funding support from German Federal Ministry for Economic Cooperation and Development (BMZ), WorldFish is implementing the *Taking Nutrition-Sensitive Carp-SIS Polyculture Technology to Scale* project. As part of this project, WorldFish has successfully devised scalable mass production techniques for SIS seed in the Indian states of Odisha and Assam.
- To enhance capacity and facilitate technology transfer among farmers, hatchery operators cum owners, and seed growers, WorldFish, in collaboration with the Department of Fisheries, Assam, organized a "Field level farmers' training program on induced breeding of small indigenous fish in Assam." The training took place in Mangaldai, Darrang, on September 2nd and 5th, 2023.
- A total of 97 participants attended the field-level training program, including 62 farmers from three different districts—Darrang, Udalguri, and Nalbari. The participants also included 9 hatchery owners cum operators, 1 ornamental fish breeder, 4 seed growers, 2 Community Resource Persons (CRPs), 4 members of the farmers' producer company (FPC), and other district fisheries officials.
- As part of the event, an Assamese version of a practical guideline on the induced breeding of mola carplet (*Amblypharyngodon mola*) for mass seed production, along with a mola seed raising guideline, was distributed among the participants.

2. Introduction

India is currently facing a significant developmental obstacle in the form of undernutrition. Fish, with its rich content of protein, micronutrients, vitamins, and essential omega-3 fatty acids, emerges as a crucial resource that is challenging to substitute with other food sources. Particularly in states like Assam and Odisha, where a considerable number of women, men, and children suffer from undernourishment, fish plays a vital role in addressing malnutrition. Indigenous small fish species, known as SIS, are considered "superfoods" due to their substantially higher levels of micronutrients compared to commonly farmed carp species like rohu and catla.

WorldFish has been at the forefront of advocating for "Nutrition-sensitive aquaculture," promoting the production of micronutrient-rich SIS alongside traditional carp farming. SIS are characterized by their small size (less than 25 cm in standard length) and their origin from natural freshwater ecosystems. Unfortunately, the availability of SIS is rapidly declining in many parts of India due to factors such as resource degradation, overexploitation, pollution, and climate change. Once abundant and affordable, certain SIS are now becoming scarce and expensive.

Mola (*Amblypharyngodon mola*), known as Mola in Assam, and Pool Barb (*Puntius sophore*), also known as punti, emerge as ideal species for nutrition-sensitive approaches. They contain an abundance of essential micronutrients, including calcium, zinc, and vitamins A and B12, which can significantly contribute to human nutrition and health, especially for women and children. Over the past decade, WorldFish has actively promoted nutrition-sensitive carp-mola farming in Odisha, Assam, and Bangladesh, aiming to encourage the production of SIS for household consumption and income generation. Previous research by WorldFish has shown that incorporating SIS in carp polyculture increases the intake of micronutrient-rich small fish by women and children, providing a cost-effective strategy to alleviate malnutrition. However, the lack of standardized hatchery-based mass production of mola seed has been a significant impediment to scaling up nutrition-sensitive aquaculture to reach a larger population.

In response to this challenge, WorldFish is implementing a project called "Taking Nutrition-sensitive Carp-SIS Polyculture Technology to Scale" in the states of Odisha and Assam in India. The Scaling SIS project is funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) and commissioned by the GIZ through the Fund International Agricultural Research (FIA). A key objective of the project is to develop scalable mass production techniques for mola seed, based on standardized protocols for hatchery-based breeding.

2.1 The breakthrough

In 2022, WorldFish has devised a simple and easily replicable technique for the mass production of mola seeds in partner hatchery located at Odisha. This groundbreaking accomplishment holds immense potential for accelerating the advancement of nutrition-sensitive aquaculture throughout the sub-continent.

Drawing from the experiences and knowledge gained in Odisha, the project team achieved a significant milestone by successfully implementing induced breeding in the state of Assam. This accomplishment marks a pioneering achievement for Northeast India. From March to May 2023, the project team demonstrated their capabilities by producing an impressive quantity of nearly 1 million mola and punti seeds (hatchlings).

This feat was accomplished in collaboration with the project's partner hatchery of Mr. Biswajyoti Sarma, who generously provided his hatchery facilities located in the Chotonagoan village of the Pachim Mangaldai block, within the Darrang district of Assam. In addition to the successful breeding, the project team has developed improved management practices specifically tailored for the nurturing of SIS seeds in pond environments.

Hatchery partner Biswajyoti Sarma sharing experiences in SIS breeding.



3. The event: Farmers' training program

To enhance capacity and facilitate technology transfer among farmers, hatchery operators, and seed growers, WorldFish organized a "Field level farmers' training program on induced breeding of small indigenous fish in Assam" in collaboration with the Department of Fisheries, government of Assam. The training program took place on September 2nd and 5th, 2023, at Mangaldai, Darrang, near to the location of partner hatchery.

3.1 Inaugural session

- The field-level farmers' training program drew 97 participants, comprising 62 farmers from three districts—Darrang, Udalguri, and Nalbari—along with 9 hatchery owners cum operators, 1 ornamental fish breeder, 4 seed growers, 2 CRPs, 4 members of the FPC, and other district fisheries officials. Among the participants, 8 were females and 89 males.
- Kalpajit Gogoi, Technical Coordinator at WorldFish, delivered the welcome address and elucidated the program's objectives. The session commenced with the felicitation of dignitaries following Assamese traditions, followed by participants introducing themselves.
- In his inaugural speech, Mr. Bipul Khataniar, District Fishery Development Officer (DFDO), Darrang, expressed gratitude to WorldFish for organizing a timely training program. He urged farmers to embrace nutrition-sensitive aquaculture through SIS breeding and culture on a broader scale.
- Mr. Biswajyoti Sarma, owner of the partner hatchery and a progressive farmer, shared insights into SIS breeding, highlighting its superior water efficiency compared to traditional carp breeding. He expressed his intent to transform his farm into an exclusive SIS breeding and rearing facility.
- As part of the occasion, an Assamese version of a practical guideline on the induced breeding of mola carplet (*Amblypharyngodon mola*) for mass seed production, along with a Mola seed raising guideline, was distributed among participants.
- The program schedule and a detailed list of participants are provided in Annex 1 and Annex 2.



Participants in the first batch of farmer training program.



Participants in the second batch of farmer training program.

3.2 Technical Session

- During the technical session, Kalpajit Gogoi delivered a detailed presentation on the induced breeding of Mola and Punti for mass seed production. He emphasized the importance of developing induced breeding technology for small indigenous fishes, highlighting that broodstock development plays a pivotal role in successful breeding operations. Proper broodstock development resolves the majority of issues in induced breeding operations.
- Mr. Bipul Khataniar, in the second half of the technical session, presented on induced breeding of Magur and other indigenous fishes of Assam. Drawing from his firsthand experience, he shared insights into Magur breeding and underscored the cultural importance of other small indigenous fishes.
- A comprehensive discussion about carp-mola and other SIS polyculture was also happened. Mr. Khataniar shared his experience of achieving high mola production in his household pond under APART intervention. He underscored the importance of partial harvesting for periodic sales and regular household consumption, given the prolific breeding nature of mola.
- Additionally, Gogoi provided valuable information on income and returns from mola farming, offering a practical perspective on the economic aspects of such endeavors.



3.3 Practical demonstration

- The practical demonstration session on mola induced breeding emerged as a pivotal component of the training program, generating significant enthusiasm among participants eager to gain hands-on experience in mola fish handling and breeding. Led by Kalpajit Gogoi, this interactive session provided a step-by-step walkthrough of mola breeding activities.
- Beginning with the identification of sexes, the session progressed to demonstrate the meticulous process of hormone dilution, preparation of the inducing solution, and loading it into a 1 ml diabatic syringe. Mr. Gogoi showcased the proper technique for holding the Mola in one hand while injecting with the other, emphasizing the correct angle for injection. Throughout the demonstration, he underscored crucial precautions to be observed during fish handling and the injection process.
- The interactive nature of the session allowed participants to personally handle the Mola and practice the injection process under guidance. This hands-on approach not only enriched their understanding but also empowered them with practical skills in Mola induced breeding, ensuring a comprehensive learning experience.
- Training completion certificate is also provided to the participants (Annex 3).

Explaining the sex identification characters of a mature mola during practical demonstration.





Practical demonstration of hormone injection.



Hormone injection hands-on experience by the participants.

4. Outcomes of the event

- **Capacity building across stakeholders:** The event successfully facilitated comprehensive training for hatchery operators, farmers, seed growers, CRPs, FPCs, and state fisheries officials. This training focused on the intricate process of mass seed production for SIS. The initiative aimed to empower participants with the necessary skills and knowledge essential for the successful implementation of these practices.
- **Enhanced partnership and government ownership:** The training played a pivotal role in strengthening collaboration with the Department of Fisheries. This engagement served to reinforce the government's active involvement and ownership of the Scaling-SIS project, indicating a heightened level of commitment to the initiative.
- **Advocacy for policy development:** The training contributed significantly to district-level awareness by disseminating information on the exclusive SIS hatchery concept. This advocacy effort aims to influence policy development, ensuring that the unique needs and potential of small indigenous fish species are recognized and incorporated into broader fisheries policies.
- **Knowledge exchange platform:** Serving as a dynamic platform, the event facilitated open communication and knowledge sharing among district fisheries officials, fish farmers, and experts from WorldFish. This exchange of ideas on SIS breeding created a collaborative and innovative environment, fostering mutual learning and enhancing the collective understanding of best practices.
- **Dissemination of best practices:** The event provided a podium for institutions involved in small fish breeding to showcase their knowledge and best practices. This dissemination strategy aimed to bridge the gap between farmers and state extension machineries, ensuring that valuable insights reach a broader audience. Notably, the event has gained visibility through coverage in various local and state-level newspapers and digital media platforms, amplifying the dissemination of information regarding the availability of mola seeds (refer to Annex 4). This broader coverage contributes to the wider adoption of best practices in SIS breeding.



Inaugural speech by Bipul Khataniar, District Fishery Development Officer, Darrang.



Kalpajit Gogoi, presenting the hatchery-based mass seed production of mola and punti.



Training completion certificate distribution to the participants by DFDO.



Training completion certificate distribution to the participants by DFDO.

Annex 1: Agenda of training program

Time schedule	Agenda	Speakers
Inaugural Session		
10:00 – 10:30 am	Registration	WorldFish
10:30 – 10:40 am	Welcome address	Mr. Kalpajit Gogoi WorldFish
10:40 – 10:50 am	Felicitation	Dignitaries
10:50 – 11.00 am	Self-introduction	All participants
11:00 – 11:15 am	Background & introduction of the project	Dr. Sourabh Kumar Dubey, WorldFish
11:15 – 11:30 am	Address by Dept. of Fisheries	Mr. Bipul Khataniar, District Fishery Development Officer
11:30 – 11:40 am	Experience sharing by Partner hatchery farmer	Mr. Biswajyoti Sarma
11:40 – 11:45 am	Release of training manual on mola induced breeding (Assamese version)	Dignitaries
11:45 – 12.00 N	High-Tea	
Technical session		
12:00 – 12:45 pm	Experience and knowledge sharing on SIS induced breeding in Assam	Mr. Kalpajit Gogoi WorldFish
12:45 – 01:15 pm	Experience and knowledge sharing on Magur induced breeding in Assam	Mr. Bipul Khataniar, District Fishery Development Officer
01:15 – 01:45 pm	Mass seed production of SIS seed: Challenges and opportunities	Dr. Sourabh Kumar Dubey, WorldFish
01:45 – 02:15 pm	Open discussion	All participants
02:15 – 03:15 pm	Lunch	
3.15 – 04:00 pm	Practical demonstration	Mr. Kalpajit Gogoi & Ruhul Amin, WorldFish
04:00 pm	Certificate distribution	Dignitaries

Annex 2: List of participants

Date: 2 September 2023

SI	Name	Gender	Designation	Address
1	Bipul Khataniar	Male	DFDO	Darrang
2	Chintumoni Barman	Male	FDO	Darrang
3	Rajashree Devi	Female	FDO	Darrang
4	Mehboob Alam Sarkar	Male	FD	Darrang
5	Nabikul Islam	Male	FD	Darrang
6	Nabdeep Nath	Male	FD	Darrang
7	Naba kanta Sarmah	Male	FD	Darrang
8	Jeherul Islam	Male	FD	Darrang
9	Nilkamal Biswas	Male	FD	Darrang
10	Biren Baruah	Male	FD	Darrang
11	Liku Moni Nath	Male	FD	Darrang
12	Nazma Sultana Parbin	Female	Sr. Assistant	Darrang
13	Lakshyahira Bania	Female	Jr. Assistant	Darrang
14	Dimbeswar Deka	Male	Jr. Assistant	Darrang
15	Dwijen Kalita	Male	Grade IV	Darrang
16	Saiuddin Ahmed	Male	Grade IV	Darrang
17	Jintu Dutta	Male	Grade IV	Darrang
18	Nazrul Hoque	Male	Grade IV	Darrang
19	Nikimoni Borah	Female	TEF, APART	Kamrup
20	Dipankar Pathok	Male	TEF, APART	Kamrup
21	Sheikh Abdullah	Male	Ornamental fish Hatchery owner	Darrang
22	Paritosh Das	Male	Hatchery owner	Darrang
23	Prasanna Rabha	Male	Hatchery owner	Udalguri
24	Dharmeswar Rabha	Male	Hatchery owner	Udalguri
25	Bishop Basumatary	Male	Hatchery owner	Udalguri
26	Himangshu Sarmah	Male	Hatchery owner	Darrang

SI	Name	Gender	Designation	Address
27	Aminul Hoque	Male	FPC Member	Darrang
28	Sultan Mahamud	Male	FPC member	Darrang
29	Uttam Mandal	Male	Farmer	Udalguri
30	Shahid Ali	Male	Farmer	Darrang
31	Rafiqul Islam	Male	Famer	Darrang
32	Kailash Baro	Male	Farmer	Darrang
33	Balen Deka	Male	Farmer	Darrang
34	Subhash Dutta	Male	Farmer	Darrang
35	Buddhi Das	Male	Farmer	Darrang
36	Mrinmoy jyoti Sarma	Male	Farmer	Udalguri
37	Narendra Chandra	Male	Farmer	Darrang
38	Mayukh Goswami	Male	Farmer	Darrang
39	Arif Ali	Male	Farmer	Darrang
40	Fujail Ahammad	Male	Farmer	Darrang
41	Suleman Ali	Male	Farmer	Darrang
42	Indrakanta Sarma	Male	Farmer	Darrang
43	Janmoni Dutta	Female	Farmer	Darrang
44	Raghu Ram Nath	Male	Farmer	Darrang
45	Thaneswar Narzary	Male	Farmer	Udalguri
46	Anil Kumar Deka	Male	Farmer	Darrang
47	Hiranya Kakati	Male	Farmer	Darrang
48	Balendra Kumar Deka	Male	Farmer	Darrang
49	Manash Pratim Baruah	Male	Farmer	Darrang
50	Lakeswar Baruah	Male	Farmer	Darrang
51	Gautam Saharia	Male	Farmer	Darrang
52	Lakshi Nandan Kalita	Male	Farmer	Darrang
53	Bhargab Kumar Dsa	Male	Farmer	Darrang
54	Dharma Kanta Baruah	Male	Farmer	Darrang
55	Dharani Rajbongshi	Male	Farmer	Darrang
56	Biswajyoti Sarma	Male	Partner hatchery	Darrang
57	Ruhul Amin	Male	Hatchery Consultant	WorldFish

SI	Name	Gender	Designation	Address
58	Sourabh Kumar Dubey	Male	Project Coordinator	WorldFish
59	Kalpajit Gogoi	Male	Technical Coordinator	WorldFish

Date: 5 September 2023

SI	Name	Gender	Designation	Address
1	Bipul Khataniar	Male	DFDO	Darrang
2	Maninul Hoque	Male	AFO	Darrang
3	Subhash Chandra Dutta	Male	AFO	Darrang
4	Nabadeep Nath	Male	FD	Darrang
5	Liku Moni Nath	Male	FD	Darrang
6	Mehboob Alam Sarkar	Male	FD	Darrang
7	Naba Kanta Sarmah	Male	FD	Darrang
8	Biren Baruah	Male	FD	Darrang
9	Dipankar Pathak	Male	TEF, APART	WorldFish
10	Tutu Mani Deka	Female	CRP	Darrang
11	Dulu Mani Deka	Female	CRP	Darrang
12	Dinesh Goswami	Male	Hatchery owner	Nalbari
13	Sambhu Haloi	Male	Hatchery owner	Nalbari
14	Nityananda Barma	Male	Hathery owner	Nalbari
15	Sayed Ali	Male	FPC member	Darrang
16	Mainul Hoque	Male	FPC member	Darrang
17	Hitesh Deuri	Male	Farmer	Udalguri
18	Atul Mandal	Male	Farmer	Darrang
19	Madhab Mandal	Male	Farmer	Darrang
20	Anil Kumar Deka	Male	Farmer	Darrang
21	Osman Ali	Male	Farmer	Darrang
22	Jamal Uddin	Male	Farmer	Darrang
23	Dhireswar Barman	Male	Farmer	Nalbari
24	Deba Kumar Sahary	Male	Farmer	Darrang
25	Kuldip Sahary	Male	Farmer	Darrang
26	Abani Prasad Sharma	Male	Farmer	Darrang

SI	Name	Gender	Designation	Address
27	Dinesh Baruah	Male	Farmer	Darrang
28	Zakariar Akand	Male	Farmer	Darrang
29	Dimbeswar Deka	Male	Farmer	Darrang
30	Abhijit Haloi	Male	Farmer	Nalbari
31	Jongal Rajbongshi	Male	Farmer	Darrang
32	Bhupen Kumar Bania	Male	Farmer	Darrang
33	Dhaneswar Haloi	Male	Farmer	Nalbari
34	Balendra Baishya	Male	Farmer	Darrang
35	Sachin Baglary	Male	Farmer	Darrang
36	Lakhi Ram Basumatary	Male	Farmer	Darrang
37	Bipul Deka	Male	Farmer	Darrang
38	Asraf Ali	Male	Farmer	Darrang
39	Amir Hamza	Male	Farmer	Darrang
40	Imratun Begum	Female	Farmer	Darrang
41	Kushal Bora	Male	Farmer	Darrang
42	Paritosh Das	Male	Farmer	Darrang
43	Narendra Chandra Mallik	Male	Farmer	Darrang
44	Sheikh Abdullah	Male	Farmer	Darrang
45	Nur Jamal	Male	Farmer	Darrang
46	Arif Ali	Male	Farmer	Darrang
47	Biswajyoti Sarma	Male	Partner hatchery	Darrang
48	Ruhul Amin	Male	Hatchery Consultant	WorldFish
49	Sourabh Kumar Dubey	Male	Project Coordinator	WorldFish
50	Kalpajit Gogoi	Male	Technical Coordinator	WorldFish

Annex 3: Certificate template



The certificate template features a blue border with green and orange decorative elements. At the top, it displays logos for WorldFish, CGIAR, the Department of Fisheries Assam (with the slogan 'GROW MORE FISH'), German Cooperation (with the slogan 'DEUTSCHE ZUSAMMENARBEIT'), and GIZ (with the slogan 'Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)').

Certificate of Participation

*This is to certify that has participated in a field level training programme on “**Induced Bredding and Mass Seed Production of Small Indigenous Fish Mola in Assam**” organised by WorldFish in collaboration with Department of Fisheries, Government of Assam at Mangaldai Sanatan Dharma Sabha, Darrang District on 2nd September 2023 under GIZ funded project “Taking Nutrition Sensitive Carp - SIS Polyculture Technology to Scale” . We wish him/her success in future endeavour.*

(Dr. Arun Padiyar)
WorldFish-Lead India &
One CGIAR Country Convenor-India

(Mr. Bipul Khataniar)
District Fisheries Dev. Officer, Darrang
Dept. of Fisheries, Assam

Sourabh K. Dubey
(Dr. Sourabh Kumar Dubey)
Project Coordinator
WorldFish

Annex 4: Media coverage of the event

The Sentinel, 6th September 2023



The Sentinel *of this land, for its people*

Field-level training organized on seed production of indigenous fish

OUR CORRESPONDENT
MANGALDAI, Sept 5: 'World Fish' - a renowned international research organization - has taken a significant step towards promoting sustainable nutrition and addressing malnutrition in Assam by organizing a comprehensive 'Field Level Training Program on Mass Seed Production of Small Indigenous Fish Species'. This two-day workshop, conducted in collaboration with the Department of Fisheries, Assam was organized at Mangaldai from September 2 to September 5.

The event garnered substantial participation from over 80 key stakeholders, including fish farmers, hatchery operators, seed growers, and district fisheries officials. The primary focus of the training revolved around Small Indigenous Fish Species (SIS), which are endowed with remarkable nutritional potential. The consumption of SIS holds the promise of mitigating malnutrition challenges in nutritionally disadvantaged areas. However, despite their historical abundance and affordability, some SIS species are facing increasing scarcity and costliness, putting them at risk of becoming endangered.

World Fish is actively implementing a project titled 'Taking Nutrition-Sensitive Carp-SIS Polyculture Technology to Scale' across the Indian states of Odisha and Assam. This initiative, funded by the German Federal Ministry for Economic Cooperation and Development (BMZ), places a crucial emphasis on developing scalable mass production techniques for Mola seed, grounded in a standardized protocol for hatchery-based breeding. Under this project, first breakthrough of mola breeding was accomplished in collaboration with the project's partner hatchery of Biswa Jyoti Sarma, who generously provided his hatchery facilities located at village Choto Nagaon near Mangaldai.

Bipul Khataniar, District Fisheries Development Officer (DFDO) of Darrang district, extended a warm welcome to the participants as the chief guest while Dr Sourabh Kr Dubey of World Fish emphasized World Fish's pioneering role in introducing nutrition-sensitive approaches to aquaculture. Dr. Dubey expressed optimism regarding Assam's potential, with its abundant beels, ponds, and aquatic resources, to thrive in SIS cultivation.

Dr Sanjay Sarma, Fisheries Coordinator of the World Bank's APART initiative, underscored the significance of Mola locally known as 'Mowa' in Assam, as a champion species for nutrition-sensitive approaches. He emphasized that Mola is exceptionally rich in essential micronutrients such as calcium, zinc, and vitamins A and B12, making it a vital contributor to recommended dietary micronutrient intakes, particularly for women and children. Dr. Sarma emphasized that this advancement would accelerate the adoption of nutrition-sensitive carp-mola polyculture technology, ultimately enhancing food and nutrition security across Assam's villages. Kalpajit Gogoi, the Technical Coordinator, also took part in the workshop.

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Assam Tribune, 7th September, 2023



The Assam Tribune

Date 7 Sep 2023

idents. party activities and meetings. Donpainon Thaosen, presi-

Training prog on mass seed production of small fish species

CORRESPONDENT

MANGALDAI, Sept 6: A two-day training-cum-workshop on induced breeding and mass seed production of indigenous small fish species organised by WorldFish, an international fish research organization in collaboration with the State Fishery department ended on Tuesday here at Sanatan Dharma Sabha auditorium.

The event garnered substantial participation from over 80 key stakeholders, including fish farmers, hatchery operators, seed growers, and district fisheries officials. The primary focus of the training revolved around Small Indigenous Fish Species (SIS), which are endowed with remarkable nutritional potential. The consumption of SIS holds the promise of mitigating malnutrition challenges in nutritionally-disadvantaged areas. However, despite their historical abundance, some SIS species are facing increasing scarcity and costliness, putting them at risk of becoming endangered.

Bipul Khataniar, District Fisheries Development Officer (DFDO), Darrang and Kalpajit Gogoi, technical coordinator of WorldFish as the resource persons imparted hands-on training to the participants. Dr Sourabh Kr Dubey of World Fish and local progressive fish grower Biswajyoti Sarma, who had successfully conducted induced breeding of *mowa*, *singara* and *gulsa* species in his fishery unit, also interacted with the participants. At the end of the training programme, the participants were provided with certificates.



থলুৱা সৰু মাছৰ কৃত্ৰিম প্ৰজনন আৰু বাণিজ্যিক পোনা উৎপাদন সম্পৰ্কীয় কৰ্মশালা

মঙলদৈ : নিজা বাতৰি দিওঁতা, ৬ ছেপ্টেম্বৰ : প্ৰাকৃতিকভাৱে ত্ৰুমাৎ বিলুপ্ত হ'বলৈ ধৰা থলুৱা প্ৰজাতিৰ সৰু মাছৰ কৃত্ৰিম প্ৰজনন আৰু বাণিজ্যিক পোনা উৎপাদনৰ দিশত ৰাজ্যৰ প্ৰগতিশীল মীন পালকসকলক কাৰিকৰীভাৱে দক্ষ কৰি তোলাৰ লক্ষ্যৰে বিশ্বৰ অগ্ৰণী মীন গৱেষণা তথা পৰামৰ্শ সংস্থা ৱল্ডফিছৰ সৌজন্যত আৰু মীন বিভাগৰ সহযোগত মঙলদৈৰ সনাতন ধৰ্ম সভাৰ চৌহদৰ প্ৰেক্ষাগৃহত দুদিনীয়াকৈ অনুষ্ঠিত 'থলুৱা প্ৰজাতিৰ সৰু মাছৰ প্ৰজনন আৰু উৎপাদন' শীৰ্ষক ক্ষেত্ৰভিত্তিক প্ৰশিক্ষণ কৰ্মশালাৰ কালি সামৰণি পৰে। কৰ্মশালাত প্ৰচুৰ পৰিপুষ্টি গুণসম্পন্ন থলুৱা প্ৰজাতিৰ সৰু মাছ যেনে— মোৱা, পুঠি আৰু লাচিম ভাঙনৰ বৈজ্ঞানিকভাৱে কৃত্ৰিম প্ৰজনন জৰিয়তে পোনা উৎপাদন আৰু ব্যৱসায়ৰ জৰিয়তে আৰ্থিকভাৱে লাভ অৰ্জনৰ ওপৰত আলোচনা কৰা হয়। কৰ্মশালাত ৱল্ডফিছৰ কাৰিকৰী সমন্বয়ক কল্পজিত গগৈ আৰু দৰং জিলাৰ মীন উন্নয়ন বিষয়া বিপুল খাটনিয়াৰ সমল ব্যক্তি হিচাপে উপস্থিত থাকি বিষয়বস্তু সন্দৰ্ভত হাতে-কামে প্ৰশিক্ষণ প্ৰদান কৰে। দৰং জিলাৰ লগতে ওদালগুৰি আৰু নলবাৰী জিলাৰ শতাধিক মীনপালক, হেচাৰী চালক আৰু গৰাকীয়ে পৃথকে পৃথকে অংশ লোৱা এই কৰ্মশালাত ৱল্ডফিছৰ প্ৰকল্প সমন্বয়ক ড° সৌৰভ কুমাৰ ডুবে, জিলাখনৰ প্ৰগতিশীল মীনপালক বিশ্বজ্যোতি শৰ্মা আৰু জিলা মীন বিভাগৰ অন্যান্য বিষয়াবৰ্গও উপস্থিত থাকি প্ৰশিক্ষাৰ্থীসকলৰ সৈতে মত বিনিময় কৰে। কৰ্মশালাৰ অন্তত প্ৰশিক্ষাৰ্থীসকলৰ উদ্যোক্তাসকলৰ তৰফৰ পৰা একোখনকৈ প্ৰমাণ-পত্ৰ প্ৰদান কৰা হয়।

About WorldFish

WorldFish is a nonprofit research and innovation institution that creates, advances and translates scientific research on aquatic food systems into scalable solutions with transformational impact on human well-being and the environment. Our research data, evidence and insights shape better practices, policies and investment decisions for sustainable development in low- and middle-income countries.

We have a global presence across 20 countries in Asia, Africa and the Pacific with 460 staff of 30 nationalities deployed where the greatest sustainable development challenges can be addressed through holistic aquatic food systems solutions.

Our research and innovation work spans climate change, food security and nutrition, sustainable fisheries and aquaculture, the blue economy and ocean governance, One Health, genetics and AgriTech, and it integrates evidence and perspectives on gender, youth and social inclusion. Our approach empowers people for change over the long term: research excellence and engagement with national and international partners are at the heart of our efforts to set new agendas, build capacities and support better decision-making on the critical issues of our times.

WorldFish is part of One CGIAR, the world's largest agricultural innovation network.

For more information, please visit www.worldfishcenter.org