Meghalaya State Fisheries Research and Training Institute (MSFRTI)

TRAINING ON
“AQUACULTURE & ADVANCE TECHNIQUE FOR FISH CULTURE”

Training Report:
Batch : 13th (Thirteen) Batch
Date : 05th May – 09th May, 2014.
District : South Garo Hills District.
Number of Trainees : 29 (twenty nine) Nos.

Aims and Objectives :
To Train and build the skill and knowledge of Fish Farmers of the State on Aquaculture as Livelihood opportunity and a source of Employment.

To Bridge the gap from Lab to Land of recent Technologies developed in Fish Culture.

Day 1:

Date: 05.05.2014

Inauguration:

It was facilitated and chaired by The Programme Manager, Smti. E.M.Lyngdoh and inaugurated by the Research Assistant Shri. P.Lamin in the presence of Shri. Giles D. Shira, Fishery Officer, South Garo Hills District and all beneficiaries present in the function. A brief outline was given on the courses offered in the 5(five) day long Training Programme. This was followed by a personal Introduction by all the participants. She encouraged the trainees to take full advantage of the opportunity offered to them and stressed upon the action of utilising the knowledge imparted to them through this programme. She highlighted the need of cooperation in order to promote Fisheries as a sunrise sector in the State of Meghalaya.
1st Session:

**Topic: Introduction to Fisheries and Fish Culture**

Lecturer: Shri. P.Lamin, Research Assistant.

The State of Meghalaya has been blessed with abundant of Natural Resources among them water has been a boon for the promotion of Fisheries in the State.

The lecture stressed upon the identification of these resources and the avenues of fish culture, its prospects in the state and it provided an overview of how fish culture can be taken up, its pros and cons were highlighted along with the types of Culture Systems and Management. The lecture also gave ideas about the site selection of the Fishery Ponds.

2nd Session:

**Topic: Practical on Water Quality analysis for Fish culture.**

Lecturer: Smti. E.M.Lyngdoh, Programme Manager.

Water is a major determinant for a good harvest in Fish Culture, as such a practical knowledge on how to identify a conducive environment for fish culture forms the most basic necessity. A well managed farm having good aquatic environment ensures high rate of survival and growth of fishes. All management practices depend on the Initial water quality of the pond i.e. pH, plankton productivity, temperature and dissolved oxygen. The farmers were given a practical demonstration on Water Quality Analysis and were allowed to carry out the activity themselves.

Day 2:

Date: 06.05.2014.

1st Session:

**Topic**: “Common Carp Breeding: Principles of Wild and Controlled Breeding (Happa)”


Common Carp (*Cyprinus carpio*) is a prolific breeder and readily breeds in the agro-climatic conditions that prevail in our state. The lecture encompassed the vast prospects and principles of Wild Breeding of these carps
which could be easily carried out by any aspiring fish farmer using minimal resources/tools for breeding. The lecture then unfolded another tier of human intervention in this normal breeding process of this carp utilising only a breeding happa and aquatic weeds which is generally known as Controlled Breeding.

The farmers evinced keen interest in this procedure and its practical application and adaptability to local conditions.

2nd Session:

Topic: “Nursery and Rearing pond Management for Raising of Quality Fish Seed”
Lecturer: Smti. E.M.Lyngdoh, Programme Manager.

The maximum mortality of fish seed occur during the transitional growth stage from spawn to fry. Careful management for raising spawn to fry lowers the mortality rate and ensures quality fish seed production. Nursery Management refers to careful raising of spawn to fry for a period of 15 -20 days in specially prepared small ponds of 0.02 Ha to 0.05 Ha size. The lecture aimed at giving a step by step knowledge on Management Practices involved in Nursery Raising of fish seed. Feed and feeding methods were emphasised as they form a crucial part of the management practices.

Fry are very delicate organisms and require proper care and many times they may perish in grow out ponds as they cannot survive the conditions that may prevail there. Fry should be reared till fingerling stage i.e. when they attain a length of 100mm. for a period of 3 to 4 months. The lecture also gave a clear idea on the Pre Stocking, Stocking and Post stocking Management of Rearing ponds. It highlighted the need for this Management Practice to ensure maximum survival of the Fry.

The lecture provided a clear idea on how a fish farmer can do, by simple calculations of his expenditure and expected production or his net income of the activities. The lecture concentrated more on the economic analysis of nursery pond management, rearing pond management and grow out ponds management on fish culture.

3rd Session

Topic : Principles of Composite Fish Culture:
Lecturer: Smti. E.M.Lyngdoh, Programme Manager.

Composite Fish Culture forms the backbone of Indian aquaculture. It concentrates on the sustainable usage of the pond ecosystem in a way that all
niches of the pond are optimally utilised by stocking fish seed that occupy and feed from these niches in a proportion that ensures sustainability. The lecture highlighted the need and the principles of such culture and its practical relevance to fish culture in the state. He briefed the farmers about the Pre-stocking preparation, Stocking and Post Stocking Management Practices in such a culture.

4th Session:

**Topic : Practical demonstration on Fibre Reinforced Plastic Carp Hatchery : Principles and Operation.**

Lecturer: Shri. P.Lamin, Research Assistant.

Fibre Reinforced Plastic Carp Hatchery, a portable hatchery that has been developed by CIFA, Bhubaneshwar has been installed in the Farm. This technology provides an environment desirable for induced breeding of all major and minor carps. It has a production capacity on one million spawn per cycle. This technology being portable and with much less requirement of land for its set up than that of a chinese carp hatchery is ideal for the aspiring fish seed producers of the hilly region. A hand on demonstration on the principles behind the technology and the operation of this hatchery was imparted to the trainees and they were given the freedom to operate the hatchery in demonstration.

Day 3:

Date : 07.05.2014.

1st Session:

**Topic : Techniques of Fish Production of IMC and Exotic Carps Through Induced Breeding**

Lecturer : Shri P Lamin, Research Assistant.

All Indian Major Carps naturally breed in rivers during the monsoon. For breeding they require running water and river conditions in nature. They do not breed naturally in confined waters like ponds and tanks but can be induced to do so through hormonal injections like pituitary gland extract, HCG, ovaprim or ovatide. The lecture covered all the crucial steps that are essential for induced breeding of fish from brood stock management, preparation of ponds, hatchery management and operation and the breeding operation.
2nd Session:
Topic: “Emerging Opportunities in fish culture : Freshwater Prawn Culture and Minor Carps.”
Lecturer: Shri. Giles D. Shira, Fishery Officer, South Garo Hills District

There is an exclusive visionary component envisaged under the Mission for tapping the emerging opportunities in the fisheries sector and addressing them with scientific backstopping for further exploration. In this lecture a brief introduction on new avenues in fish culture apart from carp species was provided to the trainees. The lecture concentrated on the culture of prized fish like Fresh Water Prawn (*Macrobrachium rosenbergii*) and minor carps.

3rd Session:
Topic: Culture and Breeding of *Clarias batrachus*
Lecturer: Shri. P.Lamin, Research Assistant.

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4th Session :
Topic : Hazards and Disease Management.
Lecturer : Shri. P.Lamin, Research Assistant.

There exist a delicate balance between the host pathogen and the environment in nature. Diseases occur when this balance is upset as a result of intensification of culture systems, poor water quality etc. Such systems stress the host and provide a medium for virulent pathogens to proliferate and attack the host (fish). The lecture concentrated on the need for good management practices in ponds to maintain the balance between host environment and pathogen. It also discussed the various types of common diseases that may occur in fishes and how they can be identified, prevented and controlled. The lecture stressed upon the usage of local natural remedies than any use of chemical or medicines.
Day 4:

Date: 08.05.2014.

Field Visit to:
1) Ward’s Lake, East Khasi Hills District, Shillong.
2) Shillong Peak, East Khasi Hills District, Shillong


A Field Trip was made to Ward’s Lake, East Khasi Hills, Shillong and Shillong Peak. The main objective of the visit was to allow the trainees to have a glimpse of the breeding activities carried out in the lake. The department is also attempting to conserve aquatic resources in their natural habitat which can be achieved only by active participants of the local community and the motive of taking participants to Ward’s lake was an attempt to replicate the idea of conserving our natural fish resources in their natural habitats.

Afternoon Session.
Topic: Overview on Principles of Conservation
Lecturer: Shri. Giles D. Shira, Fishery Officer, South Garo Hills.

Conservation is an act of protection, preservation and careful management of natural resources. Humans utilise these in order to survive but must do so in a way which must not harm the planet or prevent the future generations from using the same resources. The lecture provided a clear idea on the principles of conservation with reference to “Khasaw” a predominant indigenous species of the State which has shown a significant decline in its population due to mass killing of juveniles and also brood fish while migrating upstream for spawning, feeding and descending back after spawning. The indigenous species are the wealth of the state, so strict conservation measures have to be adopted.

Day 5:

Date: 09.05.2014.
1st Session:
Topic: Overview of Integrated Fish Culture.
Lecturer: Smti. E.M.Lyngdoh, Programme Manager.
Basic Principle of Integrated Farming lies in the productive utilisation of the farm waste. Integrated Fish Farming involves fish culture along with livestock raising and/or crop farming in order to maximise per unit production through recycling of waste generated, optimal utilisation of resources ensuring a better return to the farmer from multiple dimensions. The lecture concentrated on fish culture integration with other activities that would provide better income generation. The trainees were sensitised on integrated systems that were location specific and need based like fish cum poultry, fish cum duck and fish cum pig culture among others.

2nd Session:
Lecturer: Shri. P. Lamin, Research Assistant.

Good brooders determine good fish seed, hence a good brood stock is considered very important for successful breeding. If the quality and condition of a parent fish is healthy, fast growing and disease resistant it is contemplated that the offspring would genetically inherit similar characteristics. Feeding the fish is very essential for its growth and resistance to disease. Feed therefore is one of the main factors in fish culture. This lecture gave a clear idea on proper management of brooders as well as the techniques of feed formulation utilising locally available rice bran and oilcake.

3rd Session:
Topic: Practical on Techniques of Feed Formulation.
Lecturer: Shri. P. Lamin, Research Assistant.

Feeding the fish is very essential for its growth and resistance to disease. Feed therefore is one of the main factors in fish culture. This practical gave a clear idea on the techniques of feed formulation.

Afternoon Session:

Topic: Post Training Assessment and Evaluation and Interaction.
Lecturer: Shri. P. Lamin, Research Assistant.

The post training assessment was carried out where all the trainees filled up the post training assessment sheets. Also an interactive session between the trainers and the trainees was carried out. This gave an opportunity for the trainees to clear any doubts they might be having about any session.
The whole training programme was aimed at being Farmer Centric and was scheduled in a manner that would ensure that maximum knowledge is imparted to and retained by the Farmers. As such each Theory Session was always followed by a Practical or Videos of the Topic concerned.

**Topic : Video on Induced Breeding and Hatchery Management.**

Apart from just hearing lectures about Induced Breeding, a video showing the demonstration of Induced Breeding and Hatchery Management was played. This added more to the knowledge gained from the lecture as they are able to see how everything is done.

**Topic : Video on Prawn Culture.**

Apart from just hearing lectures about Prawn Culture, a video showing the demonstration of Prawn Culture and Management Practices was played. This added more to the knowledge gained from the lecture as they are able to see how everything is done.

**Topic : Video on Conservation : Efforts in Meghalaya.**

A video showing the efforts being taken in Meghalaya for conservation of indigenous and endangered species especially the local mahaseer “khasaw” was played. This added more to the knowledge gained from the lecture as they are able to see the need for conservation of khasaw.

**Valedictory Function.**

The Program was chaired by the Research Assistant (Fisheries), Shri. P. Lamin in the presence of Shri. Giles D. Shira, Fishery Officer, South Garo Hills and Shri. Jimison J. Sangma, Fishery Supervisor. The Certificates were distributed to the Trainees after their successful completion of the Training course.
Conclusion

A total of 29 (twenty-nine) nos. of potential fish farmers attended the training, these hailed from Baghmara Development Block, South Garo Hills District. Through the Pre Training assessment taken before the training, the results revealed that about 13% of the Trainees had never received any sort of training on fish culture. The Training could achieve about 97% of success which was calculated as result of the post Training Assessment carried out at the end of the Training. All of the Trainees expressed confidence to take up aquaculture as a mode of building Livelihoods as the training concluded. The Farmers voiced out their concerns that the Department should continue to monitor their progress and be in sync with their (Farmers’) Needs. The Training also provided a two way learning process where Officers were able to learn about the Farmers’ Indigenous technical Knowledge on Fish culture. A success story in the Making of the Institute will continue to better the Performance with each Batch of Training.

Research Officer (F),
Meghalaya State Fisheries Research
And Training Institute, Mawpun.
Feedbacks:

1. When I came here in this Training Institute w.e.f. 5th – 9th May, 2014 for the Training on Fish Culture, I have benefited and learned a lot relating to the rearing of Fish Seed and Brooders, liming and manuring in the pond and breeding technique learned from our Officers and found satisfied.

   Thank you

   By Shri. Sempul N. Sangma

2. I have benefitted a lot on this training, I have got a training about carp culture, breeding & seed production, applying lime and manure in the pond. Integrated Fish Farming also is very interested which may bring source of income to maintain of my family in future.

   Thank you

   By Shri. Salsen N. Marak