



Present Status of Pengba (*Osteobrama belangeri*) Farming in the Valleys of Manipur

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ABSTRACT

This study was conducted in two districts of Manipur viz. Imphal West and Bishnupur districts based on the prevalence of Pengba fish farmers in the state. A total of 57 respondents were selected after consultation with Department of Fisheries, Government of Manipur and with the village key informants from Hiyangthang and Uchiwa villages of Imphal West district and Lourembam, Pukhrambam, Toubul, Keinou, Moirang and Keirenphabi villages from Bishnupur district. This study was conducted in order to understand the socio-economic status of Pengba fish farmers and the status of Pengba farming in Manipur. The study revealed that majority (57.89%) of the Pengba fish farmers belonged to old age group (more than 45 years) and 96.49 per cent of the respondents were found to be married. Majority (45.61%) of the fish farmers were found to have educational qualification till graduate. 92.98 per cent of the fish farmers had an annual income upto Rs. 50,000 exclusively from Pengba fish farming. Majority (92.9%) of the fish farmers followed extensive or traditional Pengba farming practices. The fish are available in the markets of Manipur at the price range between Rs. 400 to Rs. 800 per kg depending on season and availability of the fish. 54.38 per cent of the fish farmers depended on private fish farms for pengba seeds and majority (92.9%) of the fish farmers used rice bran and mustard oil cake along with locally available aquatic plants like hydrilla for culture in grow out ponds. This study also revealed that majority (91.20%) of the fish farmers encountered the occurrence of EUS (Epizootic Ulcerative Syndrome) disease in their farm.

1. Introduction

Osteobrama belangeri (Val.) is a medium carp which is locally known as Pengba in Manipur and has great demand in the state. *O. belangeri* is herbivorous and is migrated from the Chindwin River of Myanmar to the rivers of the Manipur valley where they settle for breeding and growth (Behera *et al.*, 2010). It has nearly disappeared from the state due to development of hydroelectric power project, degradation of habitats by human activities, pollution, construction of dams and introduction of non-native fish species.

Due to its poor growth, less stress resistance and vulnerability to diseases, very few fish farmers of the state practise Pengba fish farming. Induced breeding of Pengba has successfully been achieved by different fisheries organisations in the state. With application of pituitary gland extract, Ovaprim, Ovateid and Wova-FH, commercial-scale seed production of Pengba in Manipur was achieved in captivity through induced breeding (Behera *et al.*, 2015). As the breeding protocol for seed production is simple as well as cost-effective, it can be easily practised by small and marginal farmers. Consequently, the technique is useful in conservation of the species and in encouraging commercial aquaculture practice of the species throughout the country. Pengba is a highly priced fish ranging from Rs. 650 – 800 per kg and is not found

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in abundance in the market unlike other IMCs. No data on production of Pengba in the state is available till date. Due to its high price, many people in the state cannot afford to buy the fish. In fact, they don't know how Pengba looks like. Taking its advantage, many fish vendors in the state sell Red Bellied Pacu (*Piaractus brachypomus*) in the name of Pengba which fetch lesser price in the market.

Under Rashtriya Krishi Vikas Yojana (RKVY); Mass Scale production of State Fish Pengba was implemented during 2015 to 2016 by the Department of Fisheries, Government of Manipur so as to increase production rate of Pengba fish in the state through 100 beneficiaries with a total amount of Rs. 27 lakhs as subsidy (Annual Administrative Report, Govt. of India, 2016-2017). Hence, the present study was undertaken in order to understand the present status of Pengba fish farming by the fish farmers of Manipur with the following objectives:

- 1) To study the socio economic status of the Pengba fish farmers and
- 2) To study the status of Pengba farming

2. Methodology

The present study was conducted in two Pengba fish farming adopted districts of Manipur viz. Imphal West and Bishnupur districts after consulting the Department of Fisheries, Govt. of Manipur and experts from College of Fisheries, CAU(I), Lembucherra, Tripura. Eight villages were selected based on discussion with village key informants and information gathered from the scheme entitled, "Mass Scale Production of State Fish Pengba" from the selected districts. Hiyangthang and Uchiwa villages of Wangoi block, Imphal West district; Lourembam and Pukhrabam villages of Nambol block; Toubul and Keinou villages of Bishnupur block and Moirang and Keirenphabi villages of Moirang block, Bishnupur district were selected. A total of 57 respondents wherein 27 respondents were selected based on the list of beneficiaries provided under the scheme and the remaining 30 respondents were selected after discussion with the village key informants. Data were collected from the selected respondents after building good rapport with them. Both primary and secondary data were utilized for data collection. The primary data were collected by utilizing constructed and pre-tested structured interview schedule and administered for the collection of primary data from the fish farmers who are practising Pengba fish farming. Statistical analysis like frequency distribution, percentage analysis, mean and standard deviation were used for the study.

3. Results and Discussion

3.1 Socio-economic status of the Pengba fish farmers

3.1.1 Age

This study showed that majority (57.89%) of the fish farmers belonged to old age group (more than 45 years) followed by 35.08 per cent and 7.01 per cent of the respondents who were in the middle age group (36 to 45 years) and young age group (18 to 35 years) respectively.

3.1.2 Caste

Majority (49.12%) of the fish farmers belonged to OBC category followed by 28.07 per cent of the respondents who belonged to General category and 22.80 per cent of the respondents who belonged to SC category.

3.1.3 Marital Status

96.49 per cent of the fish farmers were found to be married and only 3.50 per cent of the respondents were found to be unmarried.

3.1.4 Educational Status

Majority (45.61%) of the fish farmers were graduate followed by 31.57 per cent, 7.01 per cent, 5.26 per cent and 1.75 per cent of the respondents who had educational level upto high school, middle school and primary respectively. Only 8.77 per cent of the respondents, were found to be illiterate.

3.1.5 Experience in Pengba farming

Majority (33.33%) of the fish farmers had 16 years and above experience in Pengba fish farming followed by 24.56 per cent of the fish farmers who had 11 to 15 years of experience in Pengba fish farming. Only 22.8 per cent and 19.29 per cent of the fish farmers had experience of 6 to 10 years and upto 5 years respectively.

3.1.6 Annual Income

Majority (92.98%) of the fish farmers had an annual income upto Rs. 50,000 from Pengba fish farming exclusively while only 5.26 per cent of the fish farmers had an annual income between Rs. 50,001 to Rs.1,00,000 followed by 1.75 per cent of the fish farmers whose annual income ranged between Rs. 1,00,001 to Rs.1,50,000.

Table 1. Profile of Pengba fish farmers (N= 57)

Variables	Attributes	N	%	
Age	Young (18 to 35 years)	4	7.01	
	Middle (36 to 45 years)	20	35.08	
	Old (more than 45 years)	33	57.89	
Caste	SC	13	22.8	
	OBC	28	49.12	
	General	16	28.07	
Marital Status	Married	55	96.49	
	Unmarried	2	3.5	
Educational Status	Graduate	26	45.61	
	Higher Sec.	18	31.57	
	High School	4	7.01	
	Middle school	3	5.26	
	Primary	1	1.75	
	Illiterate	5	8.77	
Experience in Pengba farming	Upto 5 years	11	19.29	
	6 to 10 years	13	22.8	
	11 to 15 years	14	24.56	
	16 years and above	19	33.33	
Annual Income	Pengba Farming	Upto Rs. 50,000	53	92.98
		Rs. 50,001 to Rs. 1,00,000	3	5.26
		Rs. 1,00,001 to Rs. 1,50,000	1	1.75

3.2 Status of Pengba Farming

3.2.1 Types of Pengba fish farming system

Majority (92.9%) of the fish farmers followed extensive or traditional Pengba farming practices followed by 7.01 per cent of the respondents who practised semi-intensive farming practice.

3.2.2 Culture period

Majority (75.43%) of fish farmers cultured Pengba for 9-12 months whereas only 24.56 per cent of the fish farmers had culture period of 6 to 8 months.

3.2.3 Sizes at which Pengba are stocked

All the pengba fish farmers were found to stock the Pengba fish seed at the size of 3 to 5 cm in their fish ponds.

3.2.4 Prices of Pengba

Price of Pengba fish in the markets of Manipur ranged between Rs. 400 to Rs. 800 per Kg depending on season and availability of the fish. During festive seasons, Pengba is even sold at Rs. 1000 per kg.

3.2.5 Market

Pengba are generally sold at different local markets or at their own farms. They are also available in major markets of the state viz. Ima market, Moirang market, etc.

3.2.6 Sources of Pengba fish seeds

Seeds of Pengba are generally made available by Department of fisheries, private fish farms and their own farms. 54.38 per cent of the fish farmers were found to depend on private fish farms for Pengba seeds, followed by 40.35 per cent of fish farmers who collected the seeds from Department of Fisheries, Govt. of Manipur whereas only 5.20 per cent of the fish farmers used seeds which are produced in their own farms.

3.2.7 Feeds and source of feeds

The study revealed that majority (92.9%) of the fish farmers used rice bran and mustard oil cake along with locally available aquatic plants like Hydrilla, locally known as ising Charang. Only 7.01 per cent of the respondents used artificial supplementary feed. The study revealed that the growth of Pengba got compromised when cultured with grass carp. Therefore, no fish farmers cultured both Pengba and grass carp together at present. This finding is in line with the study done by Basudha and Vishwanath (1999).

3.2.8 Source of water

Majority (94.73%) of the fish farmers depend on river as the source of water for farming of Pengba whereas only 5.26 per cent of the fish farmers depended on rain, canals and other water sources for Pengba fish farming.

3.2.9 Occurrence of disease

Majority (91.20%) of the fish farmers had encountered the occurrence of disease in their farm. It was also found that EUS (Epizootic Ulcerative Syndrome) was the major cause of fish mortality. The fish larvae fed with enriched live feed along with micro-particulate diet prepared in a balanced proportion which contains all the essential nutrients results to better growth and survival rate. (Ramesh *et al.*, 2014). Therefore, routine monitoring of fish health and water parameters is essential to reduce the risk of disease occurrence.

3.2.10 Compatible fish species cultured along with Pengba

Only 7.01 per cent of the Pengba fish farmers cultured Pengba exclusively whereas 28.07 per cent of them cultured Pengba along with IMCs (Indian Major Carps). However, majority (64.91%) of the fish farmers cultured Pengba along with IMCs and indigenous carp, Ngaton (*Bengana dero*).

Conclusion

One of the serious problems faced by the fish farmers of Manipur is the unavailability of suitable, domestically available, cheap and well-balanced fish feed. Pengba which is a highly priced fish in the state is extremely rare in the wild. Unavailability of quality seeds, poor survival and production rates, occurrence of EUS are the major constraints encountered by the fish farmers. These factors may be responsible for the low annual income of the fish farmers. Another factor responsible may be due to the practice of Pengba farming by the fish farmers in traditional way. Many of these constraints can be mitigated to a great extent by imparting more training on scientific farming of the fish to the potential fish farmers and also by establishing strong convergence among the relevant stakeholders from public as well as private sectors. More seed production units and farms should be established to meet the requirement of Pengba fish seeds by the fish farmers.

Regular monitoring of water and soil parameters of the farms should be conducted to prevent or combat the occurrence of diseases in the fish ponds. Being a delicacy in the state, Pengba has lot of scope in terms of its market and production. Pengba is one of the least cultured and ignored fish species in the state with limited available data in terms of its production, seed availability, marketing, *etc.* However, with the intervention of scientific farming practices of the fish and with coordination of different institutes, the production of the fish can be enhanced.

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References

- Basudha CH, and W Vishwanath (1999). Food & feeding habits of an endemic carp, *Osteobrama belangeri* (Val.) in Manipur. *Indian Journal of Fisheries* 46(1): 71-77.
- Behera BK, Das P, Singh NS, and AK Sahu (2010). Captive breeding of an endemic medium carp pengba, *O. belangeri* (Val.) with WOVA-FH in Manipur. *J. Aqua*. 18: 23-29.
- Behera BK, Meena DK, Das P, Singh NS, and S Pakrashi (2015). Pengba, a prospective species for diversification of carp polyculture: Conservation and future prospects. *World Aquacult.* 46(4): 52-54.
- FDM (2017). Annual Administrative Report 2016 - 2017. Fisheries Department of Manipur. Government of Manipur.
- Ramesh R, Dube K, Reddy AK, Prakash C, Tiwari VK, Rangacharyulu PV, and G Venkateshwarlu (2014). Growth and survival of pengba, *Osteobrama belangeri* (Val.) larvae in response to co-feeding with live feed and micro particulate diet. *Ecology Environment Conservation* 20(4): 1715-1721.