



Pengba, *Osteobrama Belangeri* (Valenciennes, 1844) A Prospective Species For Diversification Of Carp Polyculture System And Suggestions Towards The Adoption Of Scientific Fish Farming In Haldia, West Bengal.

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ARTICLE INFO

Received: 07. 09. 2020
Revised: 30.09.2020
Accepted: 06.10.2020

Key words:

Pangba,
Potential,
Fish,
Culture,
Haldia.

ABSTRACT

With emphasis on diversification of Indian carp culture, attempts have been made to incorporate other potential candidate species into mainstream carp culture in Haldia. As for field trial of *Osteobrama belangeri* fish, farmers of Haldia stocked in their composite fish culture ponds. *Osteobrama belangeri*, locally known as Pengba in Manipur, India and nga-hpeh-oung and nga-net-hua in Myanmar, is a medium-size cyprinid endemic to the eastern part of Manipur, Myanmar and Yunnan Province in China. Although the species is listed as near threatened by the IUCN, there is a sizable population in Myanmar but is extinct in the wild in Manipur. A few progressive fish farmers in Haldia have tried to culture Pengba. Grow-out of Pengba has been confined mainly to earthen ponds. The culture practice is normally adopted in combination with other carps. An annual production levels of 14-15 t/ha can be achieved with the adoption of scientific carp culture. Pengba is suitable for pond culture because it is herbivorous and thus can be included in composite fish culture in place of grass carp. It has also been possible to produce most of its preferred foods through fertilization of culture ponds and provision of supplementary artificial feeds. Seed production technology and its supply is a major constraint. Hence, intensification of induced breeding and attempts to culture this fish has been given high priority. This article summarizes culture aspects, extra income generation of farmers and future prospects for Pengba in West Bengal.

INTRODUCTION

Osteobrama belangeri a very popular medium-size carp fish species, belonging to *Family-Cyprinidae*, locally known as pengba in Manipur, India and nga-hpeh-oung and nga-net-hua in Myanmar. Present species is available in the eastern part of Manipur, Myanmar and Yunnan Province in China. Although the species is listed as near threatened by the IUCN, there is a sizable population in Myanmar but is extinct in the wild in Manipur. However, availability of the fish decline from the natural habitat due to prohibition of breeding migration of the fish after the construction of Ithai barrage for supply of water to the Loktak Hydro-Electric Project (Singh and Devi, 2012). It has great demand in the state Manipur due to its association with the cultural heritage of the state and its unique taste. Successful induced breeding was achieved after several efforts made by the Indian Council of Agricultural Research (Behera *et al.* 2009). ICAR-CIFA, it has successfully commercialised its captive breeding technology of Pengba. With emphasis on diversification of Indian carp culture, attempts have been made to incorporate other potential candidate species into mainstream carp culture in Haldia. During field trial of pengba fish, farmers of Haldia stocked in their composite fish culture ponds. The constraints to carp seed production in India have been described by Basavaraja (1994) and

reported that, success of aquaculture enterprise is largely depends on the availability of the adequate quantity of quality fish seed to maximize the productivity and increasing production level in the country. Despite its culture potential, no systematic attempt has been made to culture and propagate this species in our region. Although it is a high-value species, especially in the north-eastern states, monoculture may not be a suitable proposition, considering its lower growth potential compared to Indian major carps. Pengba is suitable for pond culture because it is herbivorous and thus can be included in composite fish culture in place of grass carp. The production of quality seed depends on various external and internal factors which regulates the growth and survival of fish larvae (Faruque *et al.*, 2010). It has also been possible to produce most of its preferred foods through fertilization of culture ponds and provision of supplementary artificial feeds. Seed production technology and its supply is a major constraint. Hence, intensification of induced breeding and attempts to culture this fish has been given high priority. This article summarizes culture aspects and future prospects for pengba in West Bengal.

Materials and Methods:

Six fish farmers of Haldia blocks of Purba Medinipur are experimentally cultured Pengba fish in their ponds are given details in table below.

Sl No.	Name & address of farmers	Mouza	Area of pond in acre
1	Arup Mantri, Vill+PO- Dwaribetia, Dist- Purba Medinipur	Dwariberia	7
2	Panchanan Mantri, Vill+PO- Dwaribetia, Dist- Purba Medinipur	Dwariberia	7
3	Sarat Chandra Bhaumik, Vill+PO- Basanchak, Dist-Purba Medinipur	Basanchak	10
4	Sofi Ahamed, Vill- Chaklalur, PO- Barbasudevpur	Chaklalur	5
5	Krishna Prasad Samanta, Vill+PO- Barghasipur	Barghasipur	5
6	Mrinmoy Samanta, Vill+PO-Dwariberia	Dwariberia	5

The traditional scientific process of composite fish farming is followed during the culture of Pengba in combination with Indian major carps.

Result and Discussion

Six progressive fish farmers of Haldia have brought Pengba fish fry from CIFA, Bhubaneswar and stocked in their composite fish culture ponds. So far not much technical information on its culture is available; however, Fish farmers stocked Pengba fish of 2gm size (approx.) along with Rohu, Catla, Silver Carp & Mrigel was stocked @ 20 no per decimal. All other fishes are stocked simultaneously. Catla Fish fingerlings of 300-350 gm size (approx) was stocked @ 4 nos. per decimal. Rohu Fish fingerlings of 100-150 gm size (approx) was stocked @ 20 nos. per decimal. Silver carp Fish fingerlings of 150-200 gm size (approx) and Mrigel fingerlings of 150-200 gm size (approx) was stocked respectively @ 8 nos. and 4 nos per decimal. After four months, there was 600 grams of Rohu and 1 kg of silver carp. Rohu &

Silver were harvested and sold to market. Again, replenishment of harvested species i.e. Rohu Fish fingerlings of 100-150 gm size (approx) and Silver Carp fingerlings of 150-200 gm size (approx) was restocked respectively @ 20 nos. and 8 nos per decimal.

After 8 month the first release of the fishes, pengba (400 gms of average body weight of each pengba) fish was harvested and gradually the rest of the fish was harvested and sold according to the market and get a good profit. 1.5 kgs of catla, 600gms of Rohu, 1kgs of Silver Carp and 1kgs of Mrigel fish was harvested. Total 6kg of catla, 24 kg of Rohu, 16kg Silver Carp, 4 kg of Mrigel and 8kg of pengba fish as per decimal area was sold. As the Pengba fish eats aquatic vegetation including algae of ponds / water bodies, having vegetation - algae is preferred for stocking with this fish species. It feeds on artificial feed readily and grows well in well manured (organic) composite culture pond. There is no need for special care and / or

husbandry, excepting good management practices, recommended for Composite Fish culture. A few progressive fish farmers in Haldia have tried to culture p

Pengba. Grow-out of Pengba has been confined mainly to earthen ponds. The culture practice is normally adopted in combination with other carps depending on the compatibility and type of feeding habits of the fishes. Result depicts that the annual production of 14-15 t/ha can be achieved with the adoption of scientific carp culture procedure. The general practice of Pengba culture includes, control of predatory and weed fishes in pond, stocking of fingerlings at a combined density of 7000-8000 no. /ha, pond manuring and fertilization with organic manures like cattle dung or poultry droppings and inorganic fertilizers, the provision of a mixture of rice bran and mustard seed press cake as supplementary feed, fish health monitoring and water management. They were using “joibo Juice” which play a vital role to maintain water quality as well produced natural food for fishes. Joibo juice is nothing but a fermented product i.e. combination of 300gm Ground nut oil cake, 250gm rice bran, 25 gm Yeast, 300 gm molasses & 10gm wheat powder per decimal water area achieve good result.

CONCLUSION

The present study revealed that it has already drawn up a strategic plan for doubling freshwater aquaculture production through an increase in productivity and area. Because Pengba forms an important component of carp culture as extra income fish, it can be expected

that there will be a major increase in its production in fish farm. Commercial-scale seed production of Pengba can be achieved in captivity through induced breeding by various hatcheries. Because the breeding protocol for seed production is simple and cost-effective, it can be taken up by small and marginal farmers. In this context, Haldia has been making a unique example in diversified aquaculture, fish farming in the successful cultivation of various fish through fish farmers, explaining the importance of fish biodiversity in the fancy initiative of Haldia Block Fisheries Department. The integrated fishery management practices related to proper resource utilization, species diversification with new fish species introduction i.e. Amur Common Carp, Pengba, Milk fish, GIFT Tilapia, Pearl spot and Conservation of indigenous endangered fishes i.e. Pabda, Magur, Singi, Koi, Tengra rearing successfully done by this fish farmers. Fish farmers of Haldia are trends to farming by using “Organic Juice”. As per scientific recommendations has helped in long-term rural livelihood improvement for the fish farmers. Fish farmers also recognized in state as well as National level.

ACKNOWLEDGEMENTS

Author is thankful to the BDO, Haldia and ADF, Pubra Medinipur for their encouragement and help to extend fishery research among the fish farmers of the block., Author is also grateful to Dr. Pratap Das, Principal Scientist, Cifa , Bhubaneswer, for supplying fish seed to the progressive fish farmers of Haldia.

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