



Research article

Indigenous method for freshwater prawn juvenile collection by the tribal community *Katkari* of Thane district, Maharashtra

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ABSTRACT

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The paper deals with the traditional method adopted for collection of freshwater prawn juveniles by the local tribal fishermen “*Katkari*” by employing indigenous cylindrical bamboo traps, commonly known as ‘*dhodali*’ at a Kalu river near a pilgrimage town, Titwala in district Thane (MS). The river Kalu originates from the water sheds of Sahyadri ranges within the same district. This river and its associated water bodies are impregnated with a variety of freshwater prawn juveniles, fishes and other aquatic life forms, which constitute a suitable part of the food of local tribal fishermen and enhance livelihood of the said community as there is a change in the utilization of live prawn juveniles for aquaculture purpose. Four species of *Macrobrachium* were recorded from the habitat with dominance of *M. rosenbergii*. This prawn species has great importance in the aquaculture industry. Every year, season of juvenile collection last for 75 to 90 days depending upon total monsoon period at the natural habitat.

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INTRODUCTION

Wild stocks of freshwater prawn (*Macrobrachium spp*) in commercial quantities are being exploited in many inland waters for a long time (Ahmad, 1986; Subrymanyam, 1987). Juveniles of *Macrobrachium* species are available in plenty on the anicuts in the lower reaches of the various rivers (Rao, 1986; Shre Prakash, 1989; Rao, 1990; Tripathi, 1990). These juveniles are, in some cases, commercially being utilized for human consumption both in fresh and dry conditions. However, there is a change recently in the utilization pattern and live juveniles are being packed in oxygenated polythene bags and transported for stocking in the reservoirs and pond aquaculture. Due to the change in utilization, there is a huge demand for naturally collected prawn juveniles. The live prawn juveniles fetches good price which help in the income enhancement of tribal fishermen. The study analyses the traditional information associated with freshwater prawn juvenile collection practice adopted by the ‘*Katkari*’ community in Thane district of Maharashtra.

The area is situated in the northern part of the Maharashtra between 19.2990° N latitude and 73.2230° E longitude. The region receives a high rainfall with an annual rainfall ranging from 2000 to 3500 mm. The area is impregnated with a network of rivers and streams. The main

river includes Kalu and Bhatsa. The ‘*Katkari*’, a tribal community which inhabits the area is having long tradition of fishing from the rivers and streams. These tribal gathers variety of edibles from aquatic bodies and forests which includes crustaceans, fishes, molluscs, tubers, wild vegetables and meats. Their staple diet is mainly rice, fish and meat. The information was collected from the tribal regarding the collection method and utilization of prawn juveniles from the Kalu river near Titwala village of the district Thana.

METHODOLOGY

The Various participatory tools such as, on site observations, group discussion, interviews of tribal fishermen and aquaculturists, survey etc. were undertaken to know the availability of prawn juveniles, tradition method of capturing by the local tribal community and utilization of collected juveniles etc.

The tribal fishermen ‘*Katkari*’ collects the prawn juveniles during post-monsoon season i.e. from August end to November months every year from the river Kalu at a pilgrimage town known as Titwala in the district Thane of Maharashtra. The Kalu river originates from the water sheds of Sahyadri ranges within the same district. This river

further flow westwards forming estuarine zone and bifurcates into two creeks such as Vasai and Thane joining Arabian sea (Fig.1). A motorable road-cum-barrage is constructed across the Kaluriver. This road-cum-barrage has been with wide water flow gates (Fig.2). The water from the direction of east, flows in westward direction across the barrage via gates and forming many flow streams, because the river water first accumulate behind the barrage and then flows through the gates (Fig.3). Thus, the western base of the barrage with multiple streams of water has been taken up by the local tribal fishermen for traditional collection of the prawn juveniles (Fig.4) with the help on indigenous bamboo traps, locally known as 'Malkat' or 'Malkari' (Fig.5). This system of capturing of prawn juveniles, which is being traditionally exploited by the tribal fishermen for last several years for their livelihood. The prawn juveniles were identified with the help of standard identification key (Almelkar, 1983; Jalihal *et al*, 1988; Jayachandran & Joseph, 1990; Ahmed, 1992).



Fig. 1 Location map of the study area



Fig. 2 View of collection site



Fig.3 Operation of bamboo trap



Fig. 4 Katkari engaged in collection



Fig.5 Entire view of bamboo trap (Malkat)

RESULTS

The local tribal fishermen 'Katkari' are collecting the *Macrobrachium* juveniles by employing indigenous bamboo traps, these contraptions were studied beforehand. Accordingly, five to six different sizes of bamboo traps, cylindrical in shape were detected. These traps are having the frontal circular facet with a trap door for entry of the prawn juveniles swimming against the water current (Fig.6).



Fig.6 Front view of trap

The circular facial lid leads in to a conical passage which opens into the cylindrical space. Once the juveniles pass through this conical trap door, these cannot revert back. Hence, juveniles are trapped and remain alive due to continuous water flow from the trap wall. On the other side of the cylindrical trap, there is a closed circular lid like device (Fig.7). When the traps are taken out during early morning from the water current, the juveniles are taken out from rear-end square shaped window (Fig.8) which can be opened or closed as desired.



Fig.7 Back view of trap



Fig.8 Opening of trap

A typical bamboo trap can last for four to five seasons. The traditional fishermen have learned by experience to fix the traps in required numbers mainly in co-relation with lunar periodicity and depending upon manageable water current. The traps are laid during night hours at 20 to 21 hrs at maximum numbers during the initial days i.e. up to 100 to 120 numbers followed by gradual decline. The maximum catch was seen on new moon and waning half moon period. This phenomenon appears due to darkness and non-avoidance of the traps laid on such days. High tide catches are more productive than those of low tides (Fig.9).



Fig.9 Collected prawn juveniles

On an average, every day, 25 to 30 thousands of *M. rosenbergii* juveniles are being caught during the season and the season last for 75 to 90 days depends on total monsoon period during the season. Thus, every year, nearly 10 to 30 lakh prawn juveniles are being captured from the site. The collected juveniles are being packed in polyhene bags containing oxygen for further transportation and stocking in the reservoirs and culture ponds. Every year, catch of prawn juveniles is declining and total period of availability is also reducing. There are many reasons for reduction in catch of prawn juveniles, such as aquatic pollution, climate change, less rain fall, use of chemicals and dynamites for fish catching, anthropogenic activities etc. Four species of genus *Macrobrachium* such as *rosenbergii*, *idella*, *scabriculum* and *bombayensis* were recorded from the natural habitat. Among four species, *M. rosenbergii* (Fig.10) is the most dominant followed by *M. idella*.



Fig.10 *M. rosenbergii* juveniles

The other two species are not significant in occurrence. The percentage of availability of *rosenbergii* is more (>90%) during August to September months, thereafter reduces and dominated by *idella* species. It was also observed that size of *M. rosenbergii* juveniles (30 to 50 mm) was uniform during initial period than the late period of collection. *M. bombayensis* and *M. scabriculum* are

compatible species with *M. rosenbergii* as all the three occur simultaneously.

DISCUSSION

Natural prawn seed resources still command importance because of easy availability of the juveniles without much effort and less expenses for prawn aquaculture (Rajdeep & Bhattacharya, 2008). The studies on the different aspects have significant importance for estimating the availability of *M. rosenbergii* juveniles from the selected spot of Kaluriver. Parmeswaran¹⁰ had pointed out that no scientific studies on occurrence and abundance of the freshwater prawn juveniles have been made so far. Ahmad (1992) and Parmeswaran (1994) have reported the use of traps for collection of *M. rosenbergii* and *M. malcolmsonii* juveniles in Sambalpur district of Orissa. In the present study, records were made on extensive catching of *Macrobrachium* juveniles by adopting indigenous bamboo traps by the local tribal fishermen residing in the Thane district of Maharashtra. Presently, the tribal are exploiting maximum numbers of prawn juveniles available in the natural habitat for distribution to the aqua farmers. Thus, awareness among the fishermen needs to be created regarding the capturing of juveniles and illegal fishing for obtaining sustainable catches over the years.

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