

Traditional fishing techniques of Adivasi tribes in Tamhini region of Western Ghats

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Abstract:

The traditional fishing technique described is practiced in Tamhini region of Western Ghats, Maharashtra, 18°27' latitude and 73°25' Longitude. *Katkari* a local Adivasi community use various fishing methods since time memorable. This traditional techniques having experienced less socioeconomic impact but sustainable method of fishing and does not harm the local biodiversity. They still relay traditional methods and practices for their livelihood and rich protein intake. In present study it has been found that the traditional knowledge of downstream migration of fishes, behaviors of fishes, geographical features of streams and rivers are used as blend of arts and scientific knowledge of fish harvesting have been evolved by *katkari* using available material and indigenous skills. The *kivate* is arranged as trap in capturing fishes. It has been also noticed that during dry season where the stream are dried an Art and science of fish harvesting have been evolved by these Adivasis.

Keywords: Fishing methods, Streams, Livelihood, *katkari*.

Introduction:

India's freshwater resources consists of 195210 km of rivers and canals, 2.9million hectares of minor and major reservoirs, 2.4 million hectares of ponds and lakes, and about 0.8 million hectares of flood plain wetland and water-bodies⁸. Freshwater fishing contributes 800,000 tones which is 13% of total fishing of India 2007¹². Tribal habitant and rich primitive culture covers many traditions and Fish is an integral part of tribe food habit since time

immemorial for the region. Worth of studying indigenous knowledge is well emphasized¹¹. Community fishing practices have been reported some authors⁵. It has been observed that there is good documentation of traditional fishing technique has been made from north east states of India but there is no any documentation from this part of Northern Western Ghats. By keeping positive gap in consideration present study has been carried out. Traditional knowledge and practices can play a great role in enhancing our understanding for devising fishing technique. Study and documentation of traditional knowledge of techniques to local conditions is need to keep live for next generation¹⁶. The present study area is located in northern western Ghats 18°27' latitude and 73°25' Longitude, a set of medium mountain ranges. The average altitude is 600m above the sea level. Average rainfall is 5500 to 6500 mm. The livelihood of the villager is mainly on agricultural practice. Local Adivasi community *katkari* deprived of own agriculture and mostly work as labor in the field or depend on forest for livelihood. *Katkari* is one of the well known tribe found in tamhini region of taluka Mulashi, District Pune, Maharashtra (India) possesses a wealth of knowledge related to traditional fishing techniques. This area has vast potential of fishery resources comprising ponds, lakes, river, seasonal streams and reservoirs of Mulashi dam by Tata Power Company.

Methodology:

Various types of participatory research tools such as group discussion, semi-structured interviews, key informant survey and on-site observation were taken to acquire insight into the fish harvesting practices followed by *katkari*. Attendance of the fishing sites allowed us to observe directly the construction of devices and procedures followed in harvesting of the fishes, whereas, in rainy season, fishing was observed by going to farm lands, seasonal ponds, small streams where *katkari* were being done fishing. Those were subjected to interview thoroughly while fishing. Their techniques are specialized according to structure, size of stream, season and species of fishes intended to be harvested. The materials and methods used in fish harvesting practices observed during study were as follows.

Preparation of trap for fishing:

Very important and crucial task performed by tribes in first step of fishing is to change the direction of flow of stream which may suits the arrangement of further fishing setup. Stream was blocked by an obstacle made up of the arrangement of stones, boulders, pebbles and soil. A small portion of obstacle is made blank through which water can flow with more speed. This blank portion measures about 5-6 feet. Two ends of the blank portion was bridged by a horizontally placed bamboo. [Fig. 1] Obliquely raised line of parallel bamboo were arrange perpendicular to horizontally placed bamboo. The

obliquely raised line of parallel bamboos was covered with the thin layer of vegetation and grass. This layer was further overlaid by gunny bags. Small stones and mud was spread over this layer and a mat like structure was prepared to camouflage with the natural bottom of stream. This mat was submerged and fixed in the soil to make an obstacle for a flow of water. [Fig. 2 and 3] A small piece of PVC pipe or hollow bamboo was inserted at the center of that mat through which water can flow very fast and accordingly fishes too. [Fig. 3 and 4] Another end of PVC pipe was opened in the *kivate*, a basket prepared from local plant *sherani* was placed beneath the obliquely raised bamboo through which water and small fishes can move out and targeted fishes were trapped. [Fig. 5, 6 and 7]

Kivate:

kivate was made up of the stem of shrub known as *sherani* which was weaved, such as gradually converging the length towards down. It was egg shaped having central horizontal diameter of 20-25 cm. and opening diameter was of 6-8 cm, and height upto 2 to 2.5 feet. The *kivate* was made in such manner that water and very small fishes can escape very easily though the gaps made during formation of *kivate*. The *kivate* was attached with *pipe* for collecting fishes in flowing water coming from the stream. Upper part of *kivate* kept open where as lower part closed, where medium sized fishes mostly get trapped. [Fig. 5]

Result:

There is well developed traditional knowledge for fishing by using this method. During study altogether nine species of fishes belongs to family Balitoridae, Parapsilorhynchidae and Cyprinidae were collected, namely *Parapsilorhynchus tentaculatus*, *Garra mullya*, *Nemacheilus evezardi*, *Nemacheilus mooreh*, *Ganoproctopterus kolus*, *Rasbora daniconius*, *Lepidocephalichthys thermalis*, *Puntius ticto*, *Puntius sophore*. Present study of the traditional fishing and investigations of ways of encouraging more effective use of existing fishing skills and technology are vital to sustainable fisheries. The considerable catch of up to 1-2 kg. were found at each trap, subsequently such traps have been arranged at different localities depending on geographical conditions of stream. Per day the considerable amount of fish catch do get by the *katkari* from this area.

Discussions:

Traditional fishing techniques will vary considerably in detail from region to region, but an analysis of the range of techniques employed show that the techniques and tools used depend on the type of habitat being exploited. Various traditional fishing practices are being used in the country including ichthyotoxic plants hand picking, nets & baskets made are of various natural

materials⁷ called *Nagwidawh* (Areal trap) by making obstacle of stones & boulders keeping a door open at a point. In present study it was found that the same type of obstacle of bolder and stones was made and the door open made was at the bottom of stream. The door was made up by hollow PVC pipe or hollow bamboo is approximate length up to 1 feet & diameter of 3 inches kept obliquely, to open in the *kivate*. The floor of the stream where trap placed was covered by gunny bags covered by vegetation, grass, small stones and pebbles, to camouflage and work as an obstacle to direct the water to flow through centrally opened door only. When the fish face the obstacle, they move towards the opening at the bottom with water and trapped in *kivate*.

During rainy season, many types of fishing pots (*kivate*), bamboo frame, Pipe etc. are commonly used in running as well as staged water¹³. They are widely adopted in small to large flow of water for individual to collective form of fishes. Comparative catch of fishes is very low but the tribes living in such a area where this much catch is sufficient to sustain¹⁸.

The present study also reveal that though *katkari* of this area are familiar with knowledge of habit, habitat and reproductive behavior of fishes found in this area even though they do get very small fish catch which they consider as a sufficient. The present study further reveal that *katkari* in this area are quit conscience to protect their biological resources and practices sustainable fishery.

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Fig 1: Arranging the setup of trap for fishing



Fig 2: The Trap on the stream

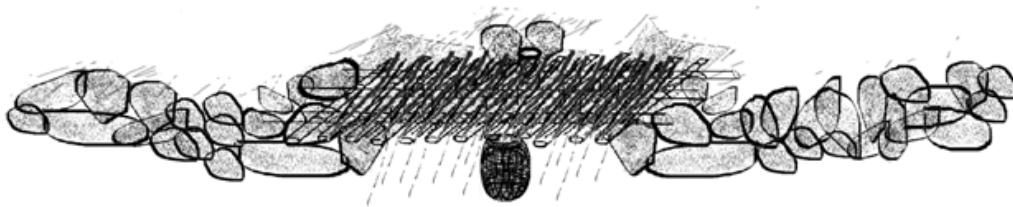


Fig 3: Diagrammatic representation for arrangement of fishing trap.

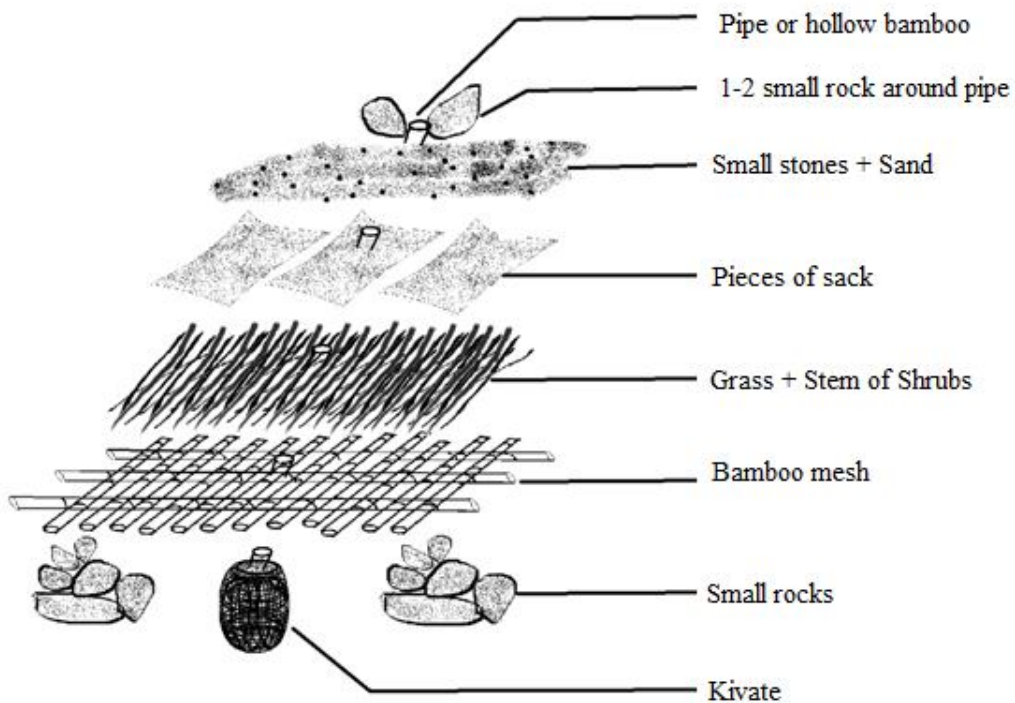


Fig. 4: Diagrammatical representation of layers in preparing fishing traps



Fig 5: Photograph of *kivate*.



Fig 6: Fish caught by trap



Fig 7: Fish trapped in *kivate*

References :

- [1] Nightingale B Devi, SK Mishra, Lipi Das, NA Paear & Th. Ibemcha Chanu(2013) Traditional fishing methods in central valley region of Manipur, India, Indian Journal Of Traditional Knowledge Vol.12(1), January 2013, pp. 137-143
- [2] MAHAPATRA B. K. AND K. VINOD (2011) Reproductive biology and artificial propagation of chocolate mahseer *Neolissocheilus hexagonolepis* (Mc Clelland) in Meghalaya, India *Indian J. Fish.*, 58(2) : 35-40, 2011
- [3] Chandra Prakash Kala (2005) Ethnomedicinal botany of the Apatani in the Eastern Himalayan region of India, *Journal of Ethnobiology and Ethnomedicine* 1:11
- [4] Jayakody D.S. TRADITIONALLAGOON FISHERIES IN NEGOMBO National Aquatic Resources Agency Crow Island, Colombo 15
- [5] Dutta R. and Bhattacharya B.K., An indigenous community fishing practice of Tirap district, Arunachal Pradesh. Indian Journal of Traditional Knowledge 7(4)2008.
- [6] Tynsong H & BK Tiwarin(2008) Traditional knowledge associated with fish harvesting practices of war khasi community of Meghalaya Indian Journal Of Traditional Knowledge Vol.7(4), October 2008,pp. 618-623
- [7] Lalthanzara H. and P. B. Lalthanpuii(2009) Traditional fishing methods in rivers and streams of Mizoram, north-east Indi, Science Vision 9 (4), 188-194
- [8] India-National fishery sector overview. Food and Agriculture organization of the united nations 2006.
- [9] Yumnam J Y & O P Tripathi (2013) Ethnobotany: Plants use in fishing and hunting by Adi tribe of Arunchal Pradesh Indian Journal of Traditional Knowledge Vol. 12(1), January 2013, pp. 157-161
- [10] Manna Ranjnan K, Archan K, Krishna Rao DS, Karthikeyan M & Singh DN(2011) Indian Journal Of Traditional Knowledge Vol. 10(3), July 2011, pp. 491-497
- [11] Mundy P. & Campton J. L., Indigenous communication and indigenous knowledge. Development Communication report 74(3)(1991). 1-4.
- [12] NFSO, India 2007.
- [13] Nightingale Devi B., Mishra S.K, Das Lipi, Pawar N.A. and Th. Ibemchana (2013) Traditional fishing methods in central valley region of Manipur, India Indian Journal of Tradtional knowledge, Vol.12(1) 37-143.
- [14] Norman J. QUINN and Barbara L. KOJIS (1987) Coastal Fisheries in Papua New Guinea Kagoshima Univ. Res. Center S. Pac, Occasional Papers, No. 13, p. 24-30, 1987
- [15] Norman J. Quinn Traditional Mmethods f Fishing (Southwest Pacific) The role of food agriculture, forestry and fisheries in human nutrition-Vol.2

- [16] Pradhan Adikant, Nag S K & Patil S K (2011) Traditinal fishing techniques of tribes in bastar region of Chattisgarh Indian Journal of Traditional Knowledge Vol. 10(2), April 2011, pp. 386-387
- [17] Gurumayum S D & M Choudhury(2009) Fishing Methods in river of Northest India, Indian Journal Of Traditional Knowledge Vol. 8(2), April 2009, pp. 237-241
- [18] Tysong H and Tiwari B.K (2008), Traditional Knowledfe associated with fish harvesting practices of War Khasi Community of Meghaaya. Indian Journal of Traditional Knowledge Vol. 7(4), 618-623
- [19] Wasantha S Weliange Fishing Practices in Prehistoric Sri Lanka