



Short Communication

Dovali, the tribal fishing practice in river Narmada, MP, India

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Abstract

Indigenous techniques are the knowledge obtained by individuals or particular community in a particular region that comes from their own observations, experiences, beliefs or perceptions and those utilize low cost natural resources. Detail knowledge of fishing gear, crafts and fishing methods in use is very essential for scientific and judicious exploitation and management of fishery resources. The present inventory was aimed to generate information and document indigenous fishing techniques practiced along the stretches of river Narmada in Madhya Pradesh. During the survey, an indigenous fishing technique 'Dovali' was observed, practiced by the tribes residing around river Narmada at Mandleshwar region, Khargone district, Madhya Pradesh. It is a kind of community fishing which mainly being operated during monsoon and post-monsoon season mainly for catching air-breathing murels. This fishing supports food supply and livelihood to a large segment of the tribes in Madhya Pradesh. In the present paper, a detail about the 'Dovali' is discussed as it is hitherto unreported from different water bodies of India.

Keywords: Indigenous fishing, *Dovali*, River Narmada, Madhya Pradesh.

Introduction

Ichthyo diversity refers to variety of fish species; depending on context and scale, it could refer to the alleles or genotypes within the fish population to species of life forms within a fish community and to species or life forms across the aqua regimes¹. Fish constitutes half of the total number of vertebrates in the world²; live in almost all conceivable aquatic habitats and three in every five vertebrate species are fish³. About 21,723 living species of fish have been recorded out of 39,900 species of vertebrates in the world; out of these 8,411 are freshwater species and 11,650 are marine⁴. India is endowed with vast water resources; is gifted with a river system comprising more than 20 major rivers with several tributaries. India has been included under the top 10 most species-rich countries in the world for freshwater fish⁵ and more than 10% of world's fish resources are present in India⁶⁻⁸. India is one of the mega-diversity countries of the world and occupies the ninth position in terms of freshwater mega-biodiversity⁹⁻¹¹. Out of the 2,546 fish species recorded so far in India, 73 (3.32%) belong to the cold freshwater regime, 544 (24.73%) to the warm freshwater regime, 143 (6.50%) to the brackish water and 1440 (65.45%) to the marine ecosystem¹².

Fishing is the art of catching not only the fish but also other aquatic animals¹³ and it has been considered as an age old profession with a long history when human beings were mainly involved in food collection from nature; be it fishing from water bodies or hunting animals from the wild. Fishing gear is any kind of equipment, implement, tool or mechanical device which is used to catch, collect or harvest the fish; on the other hand,

crafts are used to carry the fishermen and gears to the fishing grounds¹⁴. Selection of fishing gears and crafts depends on number of factors like topography of the waterbody, seasonal changes, types of fish available, behaviour of the targeted species, efficiency of the gear, characteristics of the raw material from which the gears are fabricated etc.¹⁴⁻¹⁶. Detail knowledge of fishing gear, crafts and fishing methods in use is very essential for scientific and judicious exploitation and management of fishery resources. So far numbers of researches have been conducted in different parts of India to document the available traditional crafts and gears which are in use for fishing¹⁷⁻⁴³.

Madhya Pradesh blessed with vast water potential in the shape of ten river basins, large and medium reservoirs constitute one of the major fishery resources of the country^{44,45}. Narmada is the fifth longest river in the Indian subcontinent has great significance in Madhya Pradesh⁴⁶. This river originates from the Maikala range near Amarkantak in Anuppur district, Madhya Pradesh, at an elevation of about 1,057 m. The total length of the river is 1,312 km. This river holds rich fish diversity and fishing commonly support the livelihood for a large number of tribal communities living around this river. These tribal communities use number of traditional gears and crafts for fishing. Most of the ITKs associated with the diverse fishing practices by the tribes prevalent in the Madhya Pradesh are not habitually documented. It is an important area of concern; and therefore the present inventory was conducted to generate information and document indigenous fishing techniques which are in use along the stretches of river Narmada in Madhya Pradesh.

Methodology

Survey was conducted on monthly basis during the period of 2010-11 along the stretches of river Narmada, Madhya Pradesh to document the prevailing fishing practices. The information was documented following scheduled survey, repeated and extensive field visit, on-site (direct) observations, group discussion with the farmers, focused interviews with questionnaire during personal interaction with the fishers and different communities living around river Narmada. An attempt was made to prepare an unbiased, clear, concise, complete and comprehensive interview schedule. Every sincere effort was made to clarify the question by repetition to ensure and collect reliable data from the respondents. 'Dovali' was observed to be practiced by the tribes living around River Narmada at Mandleshwar region, Khargone district, Madhya Pradesh.

Results and discussion

'Dovali' is a unique community fishing, rarely practiced by various tribal communities residing around river Narmada, Madhya Pradesh. This fishing is usually practiced during monsoon; though post-monsoonal operation has also been recorded. This fishing technique is very simple but it requires more man-power, effort and time. 'Dovali' is mostly operated in weed infested, shallow, muddy and calm waters of the river channel.

Mode of operation: *Dovali* fishing mainly requires a semi-circular bamboo frame, net, bamboo pole and 15-20 fishermen (Figure 1-6). At first, a smaller mesh sized net is fixed with the semi-circular bamboo frame. This structure is the primary component of 'Dovali' fishing. The length, width and dimension of the semi-circular bamboo frame vary as per the depth and habitat of the targeted fishing areas of the river; but generally 1.5-2 m length and 2-3 m width are common in practice.

During the fishing operation, fishers are equally divided in groups of two. One group consisting of 8-10 fishers slowly and carefully immerse the gear (netted semi-circular bamboo frame) in one end of the river channel and the other group consisting of rest of the fishers slowly and serially move forward towards the first group by gradually removing the weeds and macrophytes. During this movement, they also beat the bottom and column of the water by the bamboo poles with them to chase the fishes. As a result, fishes move very fast to the opposite direction and finally get trapped in the immersed gear. Then, the fishers holding the gear lift it to collect the trapped fishes.

Target species: The target species for this type of fishing practice is large sized air-breathing murrels. As per tribal, murrels prefer weed infested areas for breeding and are almost available around their breeding grounds to protect their eggs as having parental care nature; thus they are the easily harvested species for 'Dovali' fishing. Apart from murrels, other fish species preferring weed infested areas can be observed in the catch.



Figure-1: Fishers carrying the net fitted semi-circular bamboo frame and bamboo pole.



Figure-2: Setting up of net fitted semi-circular bamboo frame.



Figure-3: Fishers chasing the fishes by the beating of bamboo poles.



Figure-4: Chasing of the fishes.



Figure-5: Chasing of the fishes.



Figure-6: Lifting of the gear to collect the trapped fishes.

Conclusion

In *Dovali* fishing, the harvest size is quite satisfactory and as a result fishers engaged can get a good share of the catch. Variation in catch size in terms of quantity depends upon number of factors like chasing technique, proper settlement of the gear, covered area for fishing, persons involved, duration, month or season of operation etc. Since no scientific expertise is required in this kind of fishing, fishers can easily operate and adapt this indigenous method. This fishing technique has resemblances with other indigenous fishing method such like Kampagudu at Kolleru Lake¹⁴. The only issue that to be considered for this fishing is its operation timing i.e. monsoon and post-monsoon season which is the breeding season followed by the growth phase for many of the fish species and thus has the scope to negatively impact the population of many fish species. This can be solved by certain modifications like increase in mesh size, release of the juveniles captured or a slight shifting of the harvesting period towards post-monsoon.

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