



E-ISSN: 2278-4136
P-ISSN: 2349-8234
JPP 2018; 7(4): 1751-1755
Received: 22-05-2018
Accepted: 24-06-2018

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Indigenous fish attractants, fishing methods, gears and storage: A study in fishing community of Wular Lake of district Bandipora of Kashmir valley

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Abstract

Fisheries sector in Kashmir valley has enormous potential and can contribute significantly to the state GDP. However, the untapped potential needs to be explored fully. Culture fisheries is still in its infancy stage as fishing is confined to harvesting and selling only using the indigenous techniques. The area of culture fisheries is yet to be explored using the technological interventions. For growth and development of culture fisheries, identifying the indigenous fishing methods followed by refinement of traditional methods along with introduction of new technology where ever required is a must. Despite the fact that technology is important for any field to progress, the traditional knowledge of any community can't be ignored. The wealth of knowledge possessed by any community can be utilized efficiently for the benefit of the community. The present study was conducted in district Bandipora (Latitude-34.4, Longitude-74.6), one of the major fish producing districts of Kashmir valley. The study focused on knowing and documenting the indigenous fish bait, gears and storage used by the fishers along with the scope for introducing the new technology. The survey was carried out in 10 villages, situated along the Wular lake. Personal interview and PRA (Participatory Rural Appraisal) methods were used for data collection. The survey revealed that fishing was done using traditional methods with least technological interventions. Fishing was the only source of livelihood for most of the fishers and the income generated from the traditional fishing was hardly enabling them to make both the ends meet. Despite being the inhabitants of Wular Lake that is a Ramsar site and is an important fish habitat, the fishers continue to live in vicious cycle of poverty and underdevelopment.

Keywords: Wular Lake, indigenous fishing, storage methods and PRA technique

Introduction

The State of Jammu and Kashmir is bestowed with natural water resources covering a total water spread area of about 0.40 lacs ha. existing in the shape of torrential cold water streams, lakes, rivers, sars, springs and high altitude lakes. These waters possess great potential for development of varied types of fisheries like cold water fisheries, warm water fisheries, sport fisheries, reservoir fisheries etc. The Wular Lake claimed to be the largest freshwater lake of India spreads over nearly 200-sq-kms is located in District Bandipora, known as the fish bowl of Kashmir, as it accounts for 60% of the fish production of the Kashmir valley. All along its shoreline, the Wular Lake is surrounded by numerous villages of which Bandipur and Sopore are two large towns. The villages are Ashtung, Mangnipora, Pathushai, Watapora, larwal pora, Lankrishipora, Qazipora and Kalusa in the north, Bandipur, Nusu, Gurur, Saderkot-Pain and Ajas in the east; Sadunara, Madwon, Shahgund, Haritar and Tarzu in the south and, Janwara, Watlab, Kinhus and Kanibutchi in the west. The inhabitants of these villages depend either directly or indirectly on the lake resources. Despite being the largest fish producing district, technological development in fisheries was found to be very less in the district. The study aimed to gain a deeper insight and understanding of indegenof fishing and fish storage. Gurumayun and Choudhury (2009) ^[2] described a form of gear by which a fish was impaled by a sharp device.

Similarly Chakravartty and Sharma (2013) ^[1] reported different types of spears from Nalbari district of Assam such as Jongar, Tiara, Pokora etc. Kumar and Kumar (2013) ^[5] found that scoop net was very useful fishing equipment in shallow areas of Dhaura reservoir of Uttarakhand. It was a circular net having a long handle. Asia *et al.* (2014) documented that scoop net locally called as Karwas, were lifting instrument made of non-textile webbing with an uppermost opening in which the fish was caught either by brailing or entrapping. The present study was undertaken with the objective of documenting the scientific design,

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technical specifications and mode of operation of spear and scoop net operated in the two major lakes of Jammu and Kashmir State.

Methodology

The objective of the study was to undertake key aspects of traditional knowledge pertaining to fish harvesting and storage. District Bandipora was selected purposively because it is one of the major fish producing districts in the valley. There are 18 fishing villages in district Bandipora out of which 10 villages were selected randomly. These fishing communities depend directly or indirectly on Wular Lake for their livelihood. The author approached the agriculture officer who also belonged to the fishing community and lives in one of the villages selected for the study. The purpose of the study was explained to the Agriculture officer who accompanied the team to the villages and helped to develop a rapport with the villagers. From each village 18 fishers were selected. Thus total number of fishers selected was 180. Out of 18 fishers from each village, 6 were selected within the age group of 18-35 and 6 from 35-50 and 6 were above 50 years. Apart from the interviewing the respondents individually, group discussions and PRA methods were used for data collection. The interview schedule was pre-tested in the neighboring village and refined after pretesting. The research team took a transient walk along the banks of the Wular to observe the harvesting of fish and storage methods.

Results

It was found that majority of fishers irrespective of their age in the study area were using the traditional methods of fish harvesting. The ITKs documented are as under:-

Fish attractants

Toml chot (Rice Chappati)

This is used in the traditional long line (Walruz) as a bait. It is prepared from the finely ground rice flour, which is first mixed with water and then chapatti is prepared out of the dough. The chapatti is then boiled on mild heat till it hardens. After cooling chapatti is cut into small pieces and fitted in the hooks as bait. It is an efficient fish attractant due to its white colour as it is easily visible for fish underwater.

Use of live frogs and toads

Live frogs are caught and tied with the help of a nylon twine and kept under water. When the fish comes near its prey; the fisherman attacks the fish with the help of a *panzer* and kills the fish.

Cooked rice (*Batt*), semi broken maize (*Wath*), boiled paddy

The food items like cooked rice (locally known as Batta) Semi broken maize (locally called waath) and boiled paddy are thrown around a specific area in the water body usually in stagnant or slow moving waters. As soon as the fishes get aggregated for consuming the food, a group of fisherman surround the area and operate the cast nets and catch the fish easily.

Fishing Equipments

Tooker (Basket)

Fish basket traditionally called as tooker is one of the extensively used fish traps used in the fast water streams of the Kashmir valley. It is a specially designed basket made from soft twigs of the willow trees; the basket is wide at its

mouth and tapering towards the end. It is fitted in the downstream. The fishes moving with the water get trapped in the tooker.

Gaad hodd (Fishing tunnels)

This method of fish harvesting is practiced around the small streams with mud banks and bunds. A small tunnel or hole is made in the bund of the stream and some feed is kept in the hole. When the fishes enter the tunnel for feeding, the opening is closed and the fishes are collected from the fish hole.

Scare fishing

This is practiced in small streams, in which one or two persons scare the fish by beating the water and banks. Thus the fishes are forced out of their hiding places towards downstream, where a large net called as *Khur* is held across the mouth of the channel into which the fishes are forced to enter and are trapped.

Light fishing

A bright light source such as gas lantern is kept on the tip of the boat after evening hours. The fishes are attracted and get aggregated near the boat and are easily caught with the help of cast net.

Dhar fishing

Large areas varying from 20 to 30 square feet area are occupied by fishers by erecting small poles of willow trees around in a rectangular fashion and this area is filled with small branches of the trees. The flowing water brings along with it variety of materials like twigs, tree branches, grass etc. that gets entangled and a large number of fish find it as safe places for hiding. A lot of food matter in the form of insects and other dead and decaying matter is easily available for the fishes. Fishers then harvest the fish from these dhars by scaring them out and catch them with cast nets.

Fishing Gear

Long line fishing (*Walraaz*)

This method is a primitive type of fishing and principle of capture is based on the feeding and hunting behavior of target species. The long line fishing commonly known as *walraaz*, in which a nylon line measuring about 1000 meters in length, is generally used in the lake. The distance from one hook to the next hook is about 1 m. Hook is either made up of stainless steel or iron. In order to sink the rope in water stone having weight of 50-60 grams are used, the distance between one stone to other stone is 1m. Hooks of standard size with earthworms attached to the line to lure the fish are used. Sometimes maize flour mixed with candy (Gur) is also used as bait. The J&K State Fisheries Act prescribes the length to be not more than 500 m. The period of fishing with long line ranges from 3-5 hours. This method is usually used to catch *Schizothorax* sp and *Cyprinus carpio* in the Lake, Line fishing is mainly done during winter months when the level of water is low.

Cast Net (*Zaal*)

It is most commonly used net locally known as *zaal* and is made up of nylon and cotton thread, generally the fishermen use nylon made cast net. It is circular having the shape of an umbrella. The size range used is between 1.0 to 2.0 m in diameter. The size varies between 1.2 to 3.0 cm bar to bar. The net is provided with iron or lead sinkers of about 5.0 kg weight around the peripheral cord. The cast nets are thrown in

such a way that they fall flat on the water surface, over the fishes due to their weighted edges and close in on them. Great skill is required in casting this gear. The fishermen in Kashmir lake operate this gear throughout the year except from December – February. The Specifications of different local.

Fishing gears used in valley

S. No.	Common name	Local name
1	Long line	<i>Walrazz</i>
2	Cast net	<i>Zaal</i>
3	Multiple head spears	<i>Panzrii & narchoo</i>
4	Bag net	<i>Khurjaal</i>
5	Rod and line	<i>Bislai</i>
6	Gill net	<i>Thani / ptataji</i>

Specifications of different local types of cast nets

Local name	Length (m)	No. of pieces	Total	Mesh size (mm)
Guran Thap Jal	3.2	9	1	10
Thap thap jal	4.5	9	1100	10
Naushuth jal	4	6	900	15-30
Naskhul jal	5.79	7	800	30
Pouch kul	7.62	8	500	50
Naruch	3.66	7	400	25

Mesh size of each piece of cast net used in the lake

Piece	Length (m)	Mesh size (mm)
First piece	1.20	23
Second piece	0.4	12
Third piece	0.4	12
Fourth piece	0.2	13
Fifth piece	0.2	15
Sixth piece	0.4	23

Bag net (*Kurjaal*)

This is a type of dip net commonly known as “*Kurjaal*” having circular or triangular mouth. The diameter of mouth as well as the pouch depth and the length of bamboo handle are one meter each. Another type with larger diameter and deeper bag is called “*sagean*”. These nets are used to catch fish near the water fall.

Multiple head spears (*Panzrii & narchoo*)

Panzri are divided into two parts one part is called *manther* and other known as *shum*. *Manther* having multiple spears 9-15, each having length 13 inch. The spears are made of iron. The other part *shum*, which is made up of wood mainly fir, is used to handle the net to catch the fish; its length is 10-12 ft. This type of fishing method is mainly operated in Nov - January, when water will be less. The use of *panzrii* is however, prohibited by the Jammu and Kashmir State Fisheries Act.

Narchoo

Is another type of wounding gear containing 3-5 spear head fixed on a solid pole of deodar or bamboo. It is about 3.5-5.0 meters long and its spear is made up of iron. Metal weights with barbed points called fish plummets pierce the fish over the bottom as they are dropped down it is used to catch mainly.

Rod and line (*Bislai*)

This is the type of hook and line fishing gear but has bamboo stick to which line is attached. The line is provided with float like structure above the hook which helps in sensing that the fish is taking the bait and is about to be hooked. A mixture of wheat flour and baked rice and grinded trash fish is used as bait. The method is generally practiced as a leisure time hobby by most of the local populace in the lake.

Gill net

These are the most suitable nets for fishing in deeper regions of the lake. The gill nets locally called *Thani/ Ptaji* are 15 to 40m long and 1.5 to 3m wide with mesh size ranging between 45 mm and 75 mm. The use of these nets has seriously affected the regenerative capacity of the fish fauna. It has been observed that the communities themselves had imposed restrictions on the use of lower mesh size nets due to decline in fish catch. Promotion of gill nets was also undertaken by the State Government Department at select locations and due to declining of fish catch in the lake, the Department of Fisheries have imposed ban on gill net. In district Ganderbal and Bandipora fishers have themselves banned the use of gill nets. In district Srinagar gillnets are used without any mesh size regulation.

Fish Storage

Gaad Sandookh (Wooden Box)

The wooden box known as Gaad sandookh (4feet length – 3feet height and 3feet width) is used for storage of the fish. When the fish is available in abundance in the lake the fishers store extra catch in the wooden boxes. Then these fishes are sold in the market during the period when fish is scarce and fetches them higher price. Sometimes the fishers catch small fishes also along with the bigger ones and then store the smaller ones in these boxes and sell them only after they grow bigger in size. The fishers feed the fishes with the kitchen waste.

Discussion

Indigenous technical knowledge of the fishing community of the district Bandipora of Kashmir valley is wide and varied. Fish attractants used by the fishers were also ecofriendly. Most of the fishing gears and storage unit reported during our study are mostly made from the naturally occurring and locally available biodegradable materials, which are cheap and readily available to the fishing communities. Also, as there are no much technicalities or machinery involved in the manufacturing of the gears used in the traditional fishing methods, so they are easily made by the fishers without depending on others. These traditional methods are the best way to conserve the natural bio-diversity of the water bodies as these methods are environment friendly and sustainable way of harvesting fish. The modern devices of fish harvesting like motor boats are costly and difficult to afford for small and poor fishermen of the area. Big fishing gears and crafts are also difficult to operate in small water bodies. Earlier various authors have reported a number of traditional fishing methods and other indigenous traditional knowledge in various parts of India. Prasad *et al.*, 2012 among other fishing methods and gears reported the presence katia (Hook and lines), cloth netting, pot fishing, taap etc., in the Ghaziabad district of Uttar Pradesh. Similarly, Kalita *et al.*, reported various traditional fish harvesting methods including pot fishing, scare fishing, *dalabandi maach maara* etc were observed by the authors.

Acknowledgement

The research team is highly thankful to the fishers living around the Wular Lake for providing the valuable information and for their corporation through the study period.

Conclusion

The study revealed that the fishers in the district were using indigenous fishing methods that were eco-friendly. However,

the reason behind their poverty were many other including unexplored post harvest sector in culture fisheries, lack of technical knowhow and expertise in this sector, dominance of money lenders, absence of cooperative efforts in the form of SHGs and JLGs etc. The overall results revealed that the conservation of indigenous knowledge along with the introduction of technical knowledge can lead to overall growth and development of the fisheries sector of the valley.

RIZWANA *et al.*: INDIGENOUS FISHING TECHNIQUES OF KASHMIR FISHERMEN.

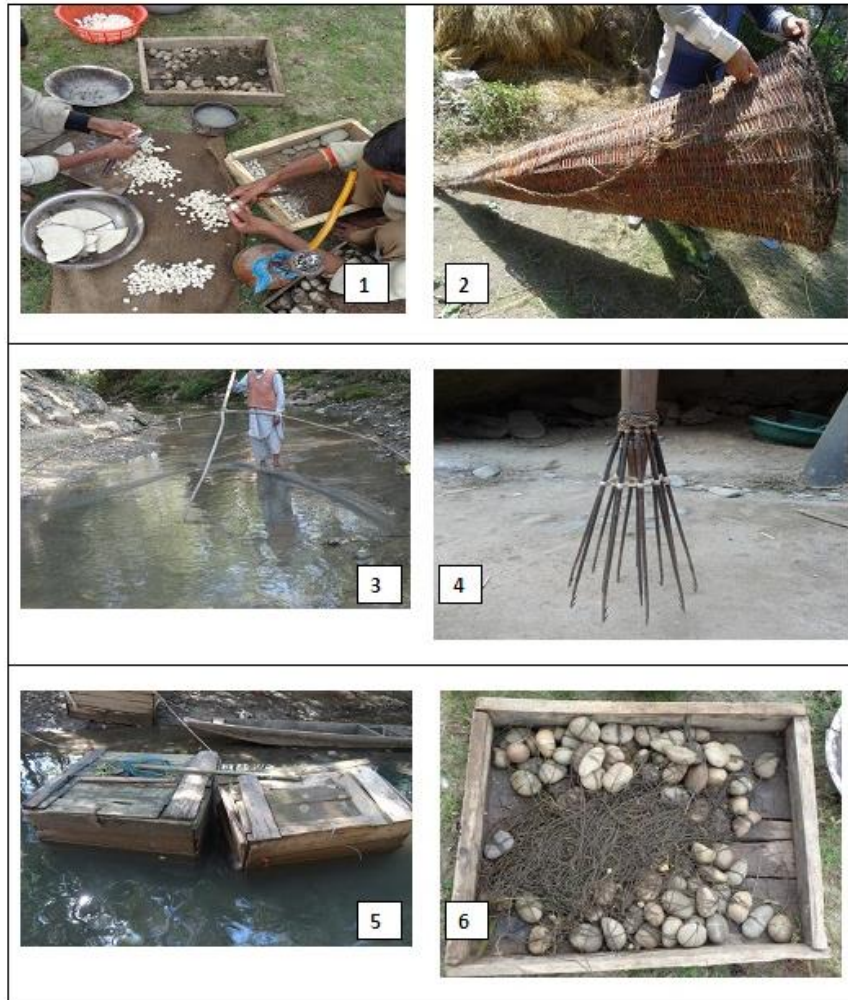


Fig 1-6: 1) Toml Chott; 2) Tooker; 3) Khur; 4) Noruch; 5) Gaad sandook; 6) walrus with stone weights



Fig 7



Fig 8



Fig 9



Fig 10

Fig 7-10: Bag net, Cast net, Hook & Line, Multiple head spears,

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