



DESIGN CHARACTERISTICS AND OPERATIONAL ASPECTS OF CAST NET OF WULAR LAKE OF KASHMIR

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ABSTRACT

Cast net design characteristics, construction aspects and operational techniques were studied of Wular Lake of Kashmir. The netting material found to be used for the construction of Cast net was PA multifilament. Cast net with 3 to 4 panels were found joined together by seaming. The total length of the net was found varying between 3.70 to 5.70m. Cast net was used to catch large adult fishes of Schizothorax and Cyprinus spp. The cast net was operated throughout the day with the number of casts ranging from 50 to 60 per day. The average catch from cast net per day was 6 to 10kg.

KEYWORDS – CAST NET, FISH CATCH, KASHMIR, WULAR LAKE

INTRODUCTION

Cast net is one of the oldest and most widely used gear throughout the world. Cast net is a type of falling gear. It's a circular net weighted around its periphery by lead sinkers and thrown skilfully into the water so that they fall flat upon the surface water and rapidly sink. Cast net with pockets were in operation in the Wular Lake.

Wular Lake is the largest freshwater lake within river Jhelum basin and plays a significant role in the hydrography of the Kashmir valley by acting as a huge absorption basin for flood waters. Wular Lake with its associated wetlands supports rich biodiversity. It is a major fishery resource in the valley supporting a large population living along its fringes. Some of the economically important fish species of Wular Lake are *Schizothorax esocinus*, *Schizothorax curvifrons*, *Schizothorax micropogon*, *Schizothorax niger*, *Schizothorax longipinus*, *Schizothorax richardsoni*, *Nemacheilus spp*, *Cyprinus carpio communis* and *Cyprinus carpio specularis*. While Genus *Scizothoracthyis* is endemic to Wular Lake, Common carp was introduced in 1959 (Qureshi *et al.*, 2014).

Cast net and its design was studied by Saxena (1966) in the middle reaches of Ganga river system of India. On the Himalyan frontier, Srivastav *et al.*, (2002) recorded fishing by cast net in the streams of the Kumaon region of India. Kar *et al.*, (2007) described cast net as traditional riverine fish catching device of Assam with regards to its structure, operation and selectivity. Therefore, the present study is undertaken with the objective of documenting the scientific design, technical specifications and mode of operation of cast net.

METHODOLOGY

Wular Lake is located 34km northwest of Srinagar city at an altitude of 1,580m above mean sea level between 34°20'' N latitude and 70°24'' E longitude. It is elliptical in shape with a maximum length of 16km and breadth of 7.6km. The lake is surrounded by high mountainous ranges on the north eastern and north western sides (CMAP, 2007). Information on cast net was collected along the Wular Lake. All relevant data about the cast net was collected through field survey with the help of local fishermen. The procedure for specific research includes selection of study area, sampling unit, sampling procedure, data collection and appropriate statistical analysis. Eight fishermen villages/ landing center were selected for data collection (Fig 1).



Fig 1 Map Showing Fishermen Villages / Landing Centers Used For Operation Of Cast Net In Wular Lake.

The data collection at Wular Lake was carried out from the month of August to March, 2015. Fishing is done throughout the year except during winter season when there is a heavy snowfall and the temperature sometimes reaches very low resulting in freezing of some parts of Wular Lake. The design details of cast net was prepared and presented as per FAO catalogue of Fishing Gear Designs (Nedelec, 1975).

RESULTS AND DISCUSSION

Cast net was most commonly observed gear being operated throughout the Wular Lake. The net was operated sporadically throughout the year. Different mesh and pocket sizes were encountered. Cast nets were locally known as *Gol zal*. The net was operated from small and medium sized fishing craft by a single fisherman. The cast net was operated throughout the day with the number of casts ranging from 50 to 60 per day. The average catch from cast net per day was 6 to 10kg. The operation usually started in the early morning. The net was thrown and then hauled as soon as it touched the bottom with the help of a pulling cord. The setting and hauling of the net was carried out from the stern of the boat. The fishes trapped in the pockets were removed either manually or with the help of a scoop net. Design and specifications of the cast net operated from Wular Lake are shown in the Table 1 the design in Fig 2 and 3.

The net was conical shaped and was fabricated with PA 210D×2×2 or 210D×6×3 polyamide multifilament. Similar type of PA twine with specification 210×2×2 was used for construction of cast net, was reported by Rajeswari *et al.*, (2015) from Tandava reservoir, Andhra Pradesh. The current study revealed that for all panels of main webbing of cast net, mesh size varied from 40 to 50mm. Mesh size of smaller range i.e. 5 to 30mm for cast net

locally known as ‘*Jhinguri*’ was seen by Srivastava and Srivastava, (2011) in Suraha Lake, Uttar Pradesh. Srivastava *et al.*, (2002) recorded that, the mesh size of cast net from the streams of Kumaon Himalayan region, varied from 10 to 50mm. Emmaneul *et al.*, (2008) reported the cast net with mesh size of 30mm operated in Lagos lagoon of Nigeria.

Table 1 **SPECIFICATION OF CAST NET OPERATED FROM WULAR LAKE**

Local name of cast net	<i>Gol Zal</i>
Local name of craft used for operation	<i>Naav</i>
No. of fishermen required for operation	1
Material of webbing	PA Multifilament
Specification of webbing	210D×2×2/210D×6×3
Colour of webbing	White
Selvedge mesh size (mm)	63.75±6.73
Number of pockets	91.38±10.94
Length of pockets (m)	0.36±0.03
Mesh no. of pocket	286.25±24.99
Sinkers per pocket	3.87±0.13
Material of sinker line	Polyethylene
Diameter of sinker line (mm)	5-8mm
Length of sinker line (m)	20.54±1.13
Material of pulling chord	Any available textile material
Length of pulling chord	1.06±0.24
Local name of sinker	<i>Mani kor</i>
Number of sinkers	349±30.02
Material of sinker	Lead/Iron
Shape of sinker	Cylindrical
Weight of sinker	33.13±2.48
Distance between sinkers (mm)	38.75±2.95

Okoh *et al.*, (2007) reported the use of cast net having length varying from 3.31 to 4.61m, with a mean length of 3.367 ± 0.55 of a tropical lotic freshwater ecosystem, of Nigeria. Dutta *et al.*, (2012) reported a standard cast net *Khewali jal* in Brahmaputra River, which was smaller in length as compared to cast net operated in Wular Lake i.e. 2.5m. The length of cast net operated in Wular Lake ranged from 3.7 to 5.7m with an average of 5.01 ± 0.22 .

Emmanuel *et al.*, (2008) studied cast net in tropical open lagoon and found that, PVOH (Polyvinyl alcohol) rope with 3 mm diameter was used as foot rope to which 71 numbers of lead sinkers were attached at regular interval each weighing 9g. On the contrary, the present study revealed that the sinker line was made of polyethylene of diameter 5 to 8mm in Wular Lake.

During the present study, the number and length of pockets were found to be ranging from 60 to 150 and 0.3 to 0.5m, respectively. In a similar study, a total of 91 number of pockets which were within the range as observed in the present study were reported by Saxena, (1966) from Ganga river system which were made by folding the net inwards to about $6^{1/2}$ meshes in depth.

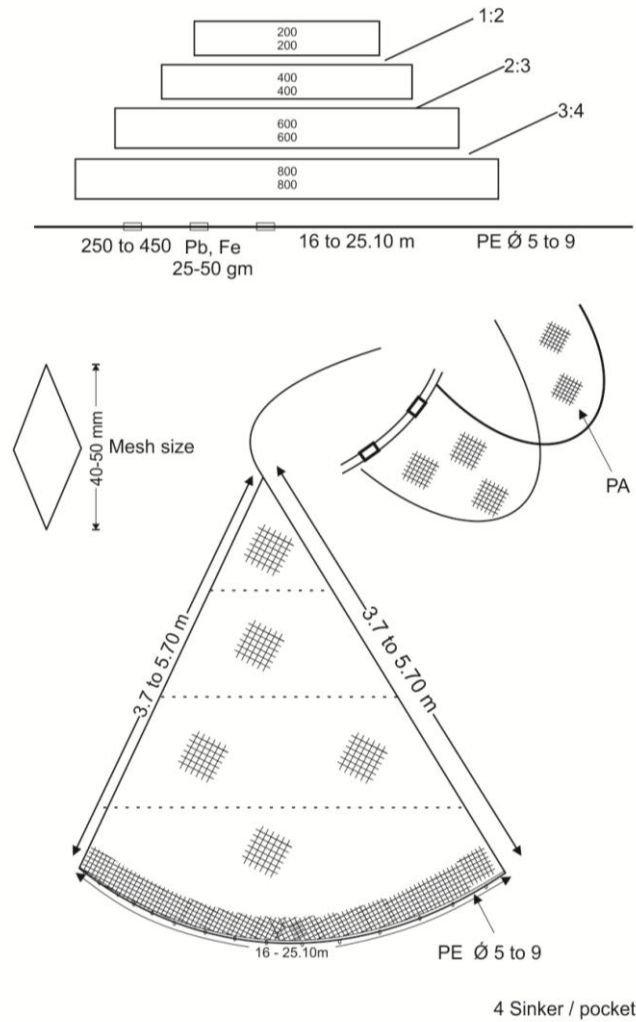


Fig 2 Design of Cast Net Operated From Wular Lake



Attachment of apex to the bridle



Arrangement of pockets



Attachment of sinkers



Operation of Cast net

Fig 3 Gear Accessories, Rigging And Operation Of Cast Net

CONCLUSION

The documented information on the design, technical specifications and operation of Cast net operated in Wular Lake of Kashmir, would serve as a base line information for the technological modifications this gear may undergo to increase its efficiency in the coming years.

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