

# Operational and design aspects of spears and scoop net used in Wular and Dal Lake of Kashmir, India

■ NIMAT SYED AND ASHISH S. MOHITE

Received : 26.05.2016; Revised : 18.08.2016; Accepted : 04.09.2016

See end of the Paper for authors' affiliation

Correspondence to :

**NIMAT SYED**

Department of Fisheries Engineering, College of Fisheries, Shirgaon, RATNAGIRI (M.S.) INDIA  
Email : [nimatsyed11@gmail.com](mailto:nimatsyed11@gmail.com)

■ **ABSTRACT** : Wular and Dal Lake are the two largest lakes of Kashmir contributing 70 per cent to the total fish landings of the state. The major catch from these lakes comprised of *Cyprinus* spp. which is exotic and *Schizothorax* spp. being the endemic to the lakes. During the study carried out on the operational and design aspects of scoop net and spears in Wular Lake and Dal Lake it was found that spear and scoop net were used in both the lakes. Two types of spears were used across Wular and Dal Lake *i.e.* multiple head spear, locally called as *Panzri* and double pronged spear, locally called as *Narchoo*. Scoop net, locally called as *Khashiv* and *Kranz zal*, was usually operated as a secondary gear.

■ **KEY WORDS** : Multiple head spear, Double pronged spear, Scoop net

■ **HOW TO CITE THIS PAPER** : Syed, Nimat and Mohite, Ashish S. (2016). Operational and design aspects of spears and scoop net used in Wular and Dal Lake of Kashmir, India. *Internat. J. Agric. Engg.*, 9(2) : 140-144, DOI: 10.15740/HAS/IJAE/9.2/140-144.

**W**ular Lake is located 34km northwest of Srinagar city at an altitude of 1,580 m above mean sea level between 34°20' N latitude and 70°24' E longitude. Wular Lake is the largest freshwater lake within river Jhelum basin and plays a significant role in the hydrography of the Kashmir valley. It is a major fishery resource in the valley supporting a large population living along its fringes. Dal Lake a Sub-Himalyan lake is one of the most beautiful lakes of India and the second largest lake of Kashmir covering an area of 11.56 sq. km. The lake is surrounded by Zabarwan hills on three sides. It is situated between 34°5' N latitude and 74°9' E longitude.

Use of spear as a fishing gear is an ancient method that has been used throughout the world for millennia. In many parts of India spear fishing has been reported to be one of the important fishing method. Gurumayun and Choudhury (2009) described a form of gear by which a fish was impaled by a sharp device.

Similarly Chakravartty and Sharma (2013) reported different types of spears from Nalbari district of Assam such as *Jongar*, *Tiara*, *Pokora* etc.

Kumar and Kumar (2013) 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, technical specifications and mode of operation of spear and scoop net operated in the two major lakes of Jammu and Kashmir State.

## ■ METHODOLOGY

The detailed information regarding spear and scoop

net operated from various fishermen villages of Wular and Dal Lake was collected by interacting with local fishermen and by physically sampling the units. A proper interview schedule was prepared for data collection. The design details of fishing gears were prepared and presented as per FAO catalogue of Fishing Gear Designs. Eight fishermen villages along the banks of Wular Lake and five fishermen villages along the banks of Dal Lake were selected for data collection.

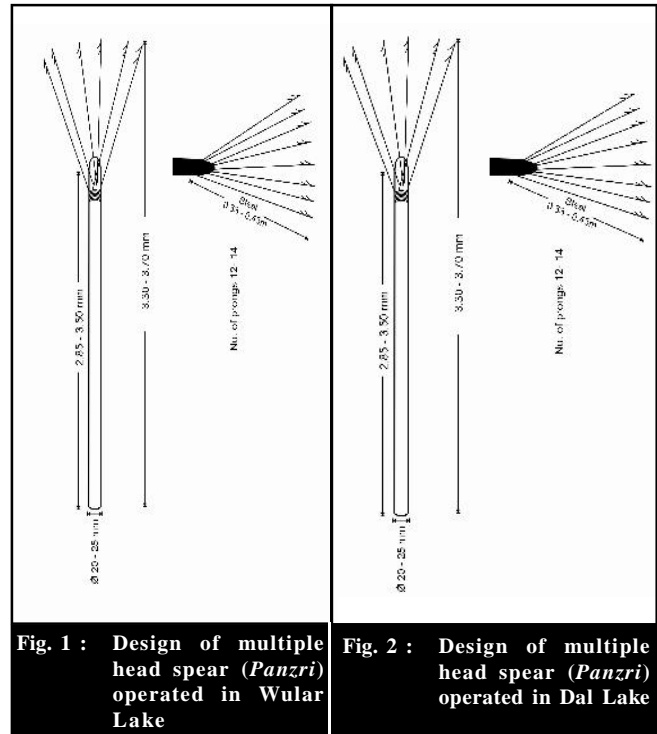
**RESULTS AND DISCUSSION**

The results obtained from the present investigation as well as relevant discussion have been summarized under following heads :

**Spear :**

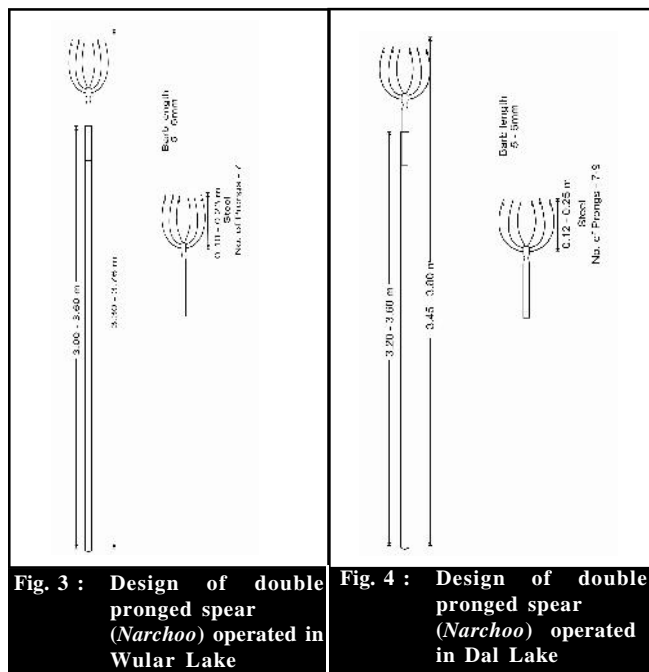
Specifications of the double pronged spear operated from Dal Lake are shown in the Table 1, the design in Fig. 1, 2, 3 and 4 and Plate 1.

Spear is a wounding gear which catches the fish by piercing through it. Two types of spears were observed



**Table 1 : Design specification of spear operated from Wular and Dal Lake**

Name of the gear	Multiple head spear	
Local name	<i>Panzri</i>	
	Wular lake	Dal lake
Total length	3.51±0.05	3.57±0.14
Material of pole	Wood	Wood
Length of pole (m)	3.16±0.08	3.25±0.14
Diameter of pole (mm)	20±0	22±1.89
Length of prongs (m)	0.35±0.04	0.28±0.07
Number of prongs	12.3±0.29	13.6±0
Material of prongs	Steel	Steel
Barb length (mm)	4.42±0.20	5.2±2.5
Number of barbs	2±0	2±0
	Double pronged spear	
	<i>Narchoo</i>	
Total length	3.53±0.06	3.59±0.09
Material of pole	Wood	Wood
Length of pole (m)	3.26±0.08	3.38±0.12
Diameter of pole (mm)	22.42±1.98	21±1.49
Length of prongs (m)	0.19±0.02	0.17±0.03
Number of prongs	7±0	7.8±0.57
Material of prongs	MS Steel	Steel
Barb length (mm)	5.7±0.2	5.8±0.25



**Fig. 3 :** Design of double pronged spear (*Narchoo*) operated in Wular Lake

**Fig. 4 :** Design of double pronged spear (*Narchoo*) operated in Dal Lake

in Wular and Dal Lake *i.e.* multiple head spear and double pronged spear. Multiple head spear was locally called as *Panzri*. It had straight prongs attached to the main pole in a radial position with the help of ropes. Double pronged spear was locally called as *Narchoo*. It had prongs arranged in a circular order and attached to the main pole with the help of ropes.

In Wular Lake, the length of multiple head spear pole varied from 2.85 to 3.55 m with diameter of 20 mm whereas in case of Dal Lake, it varied from 2.90 to 3.50 m with diameter of 20 to 28 mm. Contrastingly, Kalita *et al.* (2010) reported the use of spears as a fish harvesting method in Karbi-Anglong district of Assam. The spears were made of iron rod having smaller lengths of 60 to 80

cm length and 4 to 5 mm in diameter having a pointed needle like end with other end fixed to the bamboo handle.

Operation of spear requires great skill and expertise on the part of the fishermen. The fishermen held the spear and pushed it into the clear water body to catch normally a big size fish with greater body depth like *Cyprinus* spp.

Prasad *et al.* (2013) studied a type of impaling gear from Uttar Pradesh, locally called as *Pachki* and *Sarhas*. *Pachki* was a trifurcated sharp iron made gear mounted on a 5 to 6ft long rod. On the other hand, *Sarhas* was a gear equipped with sharp, straight metallic 5 to 8 wires of 4 to 5 inches length mounted on a 4 to 5ft long bamboo pole. During the present study, it was recorded that a double pronged spear had 7 to 9 prongs arranged in circular order and with the help of ropes attached to the main pole of lengths ranging from 3 to 3.6m in Wular Lake and 3.2 to 3.6m in Dal Lake. The length of prongs varied from 0.12 to 0.2m.

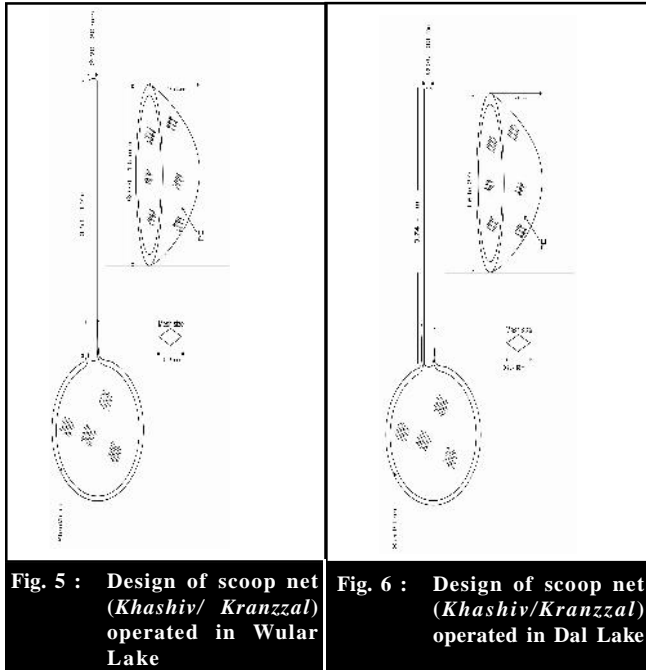
#### Scoop net :

Specifications of the scoop net operated from Wular and Dal Lake are shown in the Table 2, the design in Fig. 5 and 6 and Plate 1.

During the study it was observed that scoop net was used in both, the Wular and Dal lake of Kashmir valley. The net was locally called as *Khashiv* and *Kranz zal*. It was a semicircular bag like net operated in relatively shallow waters of 1 to 1.5m depths. The gear had circular or semicircular frame to which conical bag webbing made of PE multifilament. The frame was attached to wooden pole. Scoop net had a secondary function. It was used to collect the fishes caught by other gears like cast net, long lines and lift net etc and also to

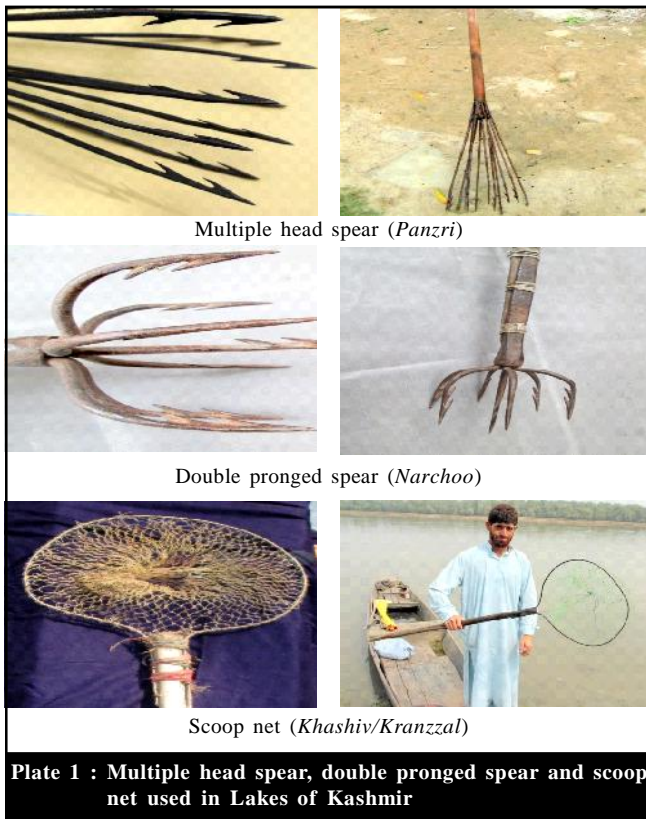
**Table 2 :** Design specification of scoop net operated from Wular and Dal Lake

Name of the gear	Scoop net	
Local name	<i>Khashiv, Kranz zal</i>	
	Wular Lake	Dal Lake
Material of webbing	PE	PE
Mesh size (mm) of webbing	12.14±1.01	10.74±3.78
Material of frame	Steel/Iron	Steel/Iron
Diameter (m) of frame	0.4 to 1.5	1.84±0.08
Depth (mm) of frame	0.64±0.07	1.1±0.24
Material of pole	Wood	Wood
Length (m) of pole	0.83±0.08	0.87±0.05
Diameter (mm) of pole	25.71±2.29	24.6±2.17



**Fig. 5 :** Design of scoop net (*Khashiv/ Kranzzal*) operated in Wular Lake

**Fig. 6 :** Design of scoop net (*Khashiv/Kranzzal*) operated in Dal Lake



**Plate 1 :** Multiple head spear, double pronged spear and scoop net used in Lakes of Kashmir

scoop out fishes from storage boxes and nets.

Devi *et al.* (2013) documented the fishing with the help of various types of scoop nets locally know as

*Longthrai* from central valley region of Manipur. They found that in central valley region of Manipur, scoop net was constructed using nylon netting or mosquito net which was mounted on the bamboo frame or jute frame with long handle attached to the frame. Scoop net, fabricated of twine of PA multifilament were used for the construction of webbing of 1.5m long with 0.7m diameter at mouth; was recorded by Remesan (2009) in Kerala. In Wular Lake, the mesh size of the webbing varied from 10 to 15mm whereas in case of Dal Lake, it varied from 0.7 to 18mm. The diameter of the frame ranged from 0.4 to 1.5m in Wular Lake whereas in case of Dal Lake, it ranged from 1.6 to 2 m. The author also reported that, the mesh size of webbing ranged from 20 to 25 mm. Manna *et al.* (2011) studied the fishing crafts and gears of river Krishna. They observed that, circular scoop net of 1.5m long and 0.3m diameter long handle was used to attract the fishes with light at night and then capture the fish by lifting the net. In daytime, scoop net was used to catch slow moving fishes. In the shallow waters of 0.5 to 1.5m depth, fishes were visible from the surface and were easily caught with this net.

The documented information on the technical specifications, design and operation of spears and scoop net in Wular Lake and Dal Lake of Kashmir, would serve as a base line information for the technological modifications these gears may undergo to increase their efficiency in the coming years.

**Acknowledgement :**

The authors wish to thank the authorities of College of Fisheries, Ratnagiri (Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli) for providing necessary facilities, their kind encouragement and guidance during the course of the investigation.

**Authors' affiliations:**

ASHISH S. MOHITE, Department of Fisheries Engineering, College of Fisheries, Shirgaon, RATNAGIRI (M.S.) INDIA  
Email : ashishmohite@yahoo.com

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