

Fishing Crafts and Gears used in Moutore Reservoir, Purulia District, West Bengal

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ABSTRACT

A study was carried out to investigate different crafts and gears used in the Moutore Reservoir. A monthly survey was conducted for one year from June 2021 to May 2022. During the present study, two crafts and three types of gear were observed in the reservoir. The crafts were wooden plank-built boat and rubber tube platform. The nets were gill net, dragnet, and trap net. The detailed investigation is documented in the current research paper.

Keywords Moutore reservoir, Fishing crafts, Fishing gears.

INTRODUCTION

Moutore Reservoir is a manmade impoundment, situated in Raghunathpur-II block, Purulia district, West Bengal. It is located at 23°34'22"- 23°34'51"N latitude 86°35'04"- 86°34'59"E longitude having a catchment area of 1.32 Km² and water spread area of 77.66 ha at Full Reservoir Length (FRL) with a mean depth 14.6 m. A stream locally called Moutore Jore fed the Reservoir and a channel drain the overflow water to the Damodar River situated on its north side. The reservoir harbours a variety of fish species especially Indian Major Carps, Exotic Carps, Tilapia, Murrel, Folui, and a variety of indigenous species. The socio-economic condition of local fishermen depends upon fish harvest from the reservoir. Fishing crafts and gears used in the Moutore reservoir are traditional, indigenous, and locally manufactured. Several researchers work on the fishing crafts and gears used in Indian reservoirs as reported by Kumar *et al.* (2013), and Bhakta *et al.* (2016) but fishing method practiced in Moutore Reservoir was not documented yet. The present paper documented fishing crafts and gears used in the Moutore Reservoir.

MATERIALS AND METHODS

The present study on fishing crafts and gears in the Moutore Reservoir was conducted from June 2021 to May 2022. The information regarding various fishing crafts and gears and their working procedures were collected through local fishermen's interviews and questionnaires. The personal observation during

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Table 1. Fishing gears used in Moutore reservoir.

Gear	Local name	Shape	Mesh size (cm) (Approx)	Person required	Species caught
	Fande or Fansh Jal	Rectangular	5-12	1	Indian Major Carps, Exotic Carps, <i>Channa</i> sp., <i>Tilapia</i> sp.
Gill net	Ghana jaal/ Puntl jaal	Rectangular	2-3	1	Small-sized IMC, <i>Puntius</i> sp., <i>Esomas danrichus</i> , <i>Amblypharyngodon mola</i> , <i>Trichogaster lalius</i> , <i>Gadusia chapra</i>
Trap net	Chakani jaal	Cubical	1-2	1	<i>Puntius</i> sp., <i>Amblypharyngodon mola</i> , <i>Esomas danrichus</i> , <i>Trichogaster lalius</i> , <i>T.fasciata</i> , <i>Gadusia chapra</i> , <i>Aplocheilus panchax</i> , <i>Parambasis, ranga</i> , <i>Glosogobius giuris</i>
Drag net	Mushari jaal/ Mosquito net/ Bed jal	Rectangular	<0.12	8-10	Indian major carps, Exotic Carps, <i>Puntius</i> sp., <i>Amblypharyngodon mola</i> , <i>Esomas danrichus</i> , prawns

fishing operations by local fishermen in Moutore Reservoir was recorded through monthly sampling.

RESULTS AND DISCUSSION

Moutore Reservoir is one of the main sources of water for surrounding villages for bathing, laundry and family ceremony. It is an important source of earnings for local fishermen. A variety of fish fauna viz., *Labeo rohita*, *Gibelion catla*, *Cirrhinus mrigala*, *Notopterus notopterus*, *Oreochromis tilapia*, *Oreochromis nilotica*, *Channa punctata*, *C. striata* and some indigenous fish is the main species observed in

the Moutore Reservoir. Satellite images of the Moutore Reservoir are shown in Fig. 1. During the present study two crafts and three gears were observed in the Moutore Reservoir. The crafts were wooden plank-built boats and rubber tube platforms, gears were gill net, dragnet, and trap net. All the five crafts and gears used in the Moutore Reservoir are described below. The different fishing gears along with fish species are caught by them are listed (Table 1). Traditional gears are eco-friendly compared to destructive fishing like chemical poisoning, dynamiting, electro-fishing, use of fine mesh-sized nets. Which not only captures the non targeted fishes but also damages the water

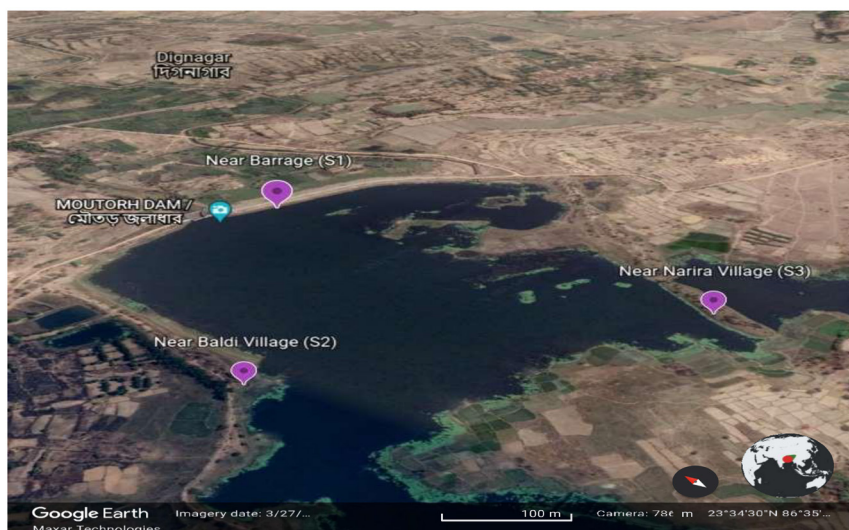


Fig.1. Satellite image of Moutore Reservoir.



Figs 2, 3. Gill net having large mesh size, **Figs 4, 5, 6.** Gill net having a medium-mesh size, **Figs 7, 8, 9.** Gill net having small mesh size, **Figs 10.** Trap net, **Figs 11.** Mosquito net, **Figs 12.** Rubber tube platform, **Fig. 13.** Wooden plank-built boat.

environment as well as the aquatic food chain (Dutta *et al.* 2012).

Fishing gears

Gill net (Figs. 2 to 9): Surface gill net was mainly used in the reservoir by the fishermen due to its low cost. It consisted of a single netting wall and used float and ground lines to keep more or less vertically in the water. Season-wise, different mesh size was used to catch different species. Based on mesh size gill nets

were called adjacent to Jharkhand State fade jaal or fash jaal (5-12 cm mesh) and Ghana jaal or Puntii jaal (2-3 cm mesh size). Local fishermen's weaved gill nets themselves as well as purchased readymade from the local market. Gill nets are the common gears reported by Niture (2019), Kumar and Kumar (2013), Sakhare and Jetithor (2013), Upadhyay and Singh (2013), Chourey *et al.* (2014), Rajeswari *et al.* (2015), Bhakta *et al.* (2016), Reddy *et al.* (2018), Jabeen and Soren (2021), Madhu *et al.* (2021), Gan-

guly *et al.* (2022).

Trap net (Chakani jaal) (Fig. 10): Trap net is made of small mesh size nets. Iron-made rings of 0.4-0.5 m diameter are stitched to the inner body to divide the net into 3-4 chambers. The mouth part has more free net to lure the fish into the trap and the last part of the net gradually narrows like a funnel to capture fishes. Once fish enter the trap net find difficult to escape from the net. Fishermen operated the net in the outlet channel of the reservoir to catch small-sized fish mainly. Baruah *et al.* (2013) confirm the use of trap net/ fyke net in Brahmaputra valley of Assam. Ganguly *et al.* (2022) reported the use of Chakani jaal in Bankura district, West Bengal. Trap nets are cheaper and more efficient than other traditional fishing gears. If proper escape devices are provided in the trap nets to facilitate the escapement of juveniles, they can be made selective. Harvesting is very great and indiscriminate with all sizes being caught by traditional fishing gears. To prevent indiscriminate fishing, mesh size regulation and fishing restrictions during the closed season should implement (Das and Bharat 2014).

Drag net (Mashari jaal/ Mosquito net/ Ber jaal) (Fig. 11): Drag net locally called Mashari jaal/ Mosquito net/ Ber jaal operated in the summer season in shallow water body of the reservoir. It was rectangular in shape having head rope carrying floats and foot rope with or without sinkers. The mesh size was less than 0.12 cm. The net operated by taking one end remains on the shore and taking other end of the net in a semicircular fashion by a boat and bringing it back near the shore. A batch of 8-10 people brings net to the margin of the reservoir by giving exerts effort to pull up the rope attached to both the ends of wings. After surrounded the fish, the working people drag the wings at both ends to the shore and hauled the fish from the packet of net. Sakhare and Jetithor (2013) observed the use of drag net in summer season when water level goes down in reservoirs of Marathawada region, Maharashtra. Upadhyay and Singh (2013) mentioned the use of ber jaal in Tripura. Chourey *et al.* (2014) reported the use of mahajal/chata jaal in the Bhopal district, Madhya Pradesh. Rajeswari *et al.* (2015) confirm the use of a stick-held drag net in the Tandava reservoir, Andhya Pradesh. Bhakta *et al.* (2016) mentioned use of Drag net/ Mahajal/ Masari in

Ukai reservoir, Gujrat. Reddy *et al.* (2018) reported the use of drag net in Dowleswaram reservoir, Andhra Pradesh. Ganguly *et al.* (2022) reported the use of Masari jaal in Bankura district, West Bengal.

Fishing crafts

Rubber tube platform/Tube (Fig. 12): Rubber tube platform locally called tube was mainly used in the Moutore Reservoir. It was a single-man-operated craft, 0.9 m in diameter, and propelled by a shoe/ wooden stick. A rope tied tightly in middle of tube. It was mainly used for settling and hauling of gill nets. It needed periodic air to float with no maintenance cost. Manna *et al.* (2011) reported the use of Rubber tube platforms in the Krishna River. Chourey *et al.* (2014) reported the use of tire tubes in the water bodies of Bhopal district, Madhya Pradesh. Bhakta *et al.* (2016) mentioned the use of a Rubber tube platform/ Tube in the Ukai reservoir, Gujrat. Reddy *et al.* (2018) reported the use of rubber tube platform in Dowleswaram reservoir, Andhra Pradesh. Niture (2019) confirms the use of motor vehicle air-filled rubber tubes in the Siddheswar Reservoir, Maharashtra.

Wooden plank-built boat / Nauka (Fig. 13): This boat is non mechanized, manually operated boats mainly made up with wooden plank were used in the summer season. It has flat bottom and oval in shape. The anterior portion is blunt and posterior part is moderately pointed. It was propelled by oar and used to operate a mosquito net. This wooden locally manufactured boat is painted by synthetic paints for protection against water. It was propelled by oar and used to operate a mosquito net. . The average length, breadth and height were as 12-13 ft in length and 3-4 ft wide having a narrow flat bottom boat. Two fishermen untimely can propel this boat with the help of bamboo stick at the two end points. The nouka is used for the operation of gill net. The carrying capacity of Nauka is about 80-120 Kg in weight. Chourey *et al.* (2014) reported the use of the wooden boat in the Bhopal district, Madhya Pradesh. Rajeswari *et al.* (2015) confirm the use of the plank-built boat in the Tandava reservoir, Andhya Pradesh. Bhakta *et al.* (2016) mentioned the use of Noa in the Ukai reservoir, Gujrat. Madhu *et al.* (2021) observed the use of Nouka in Sunderban, West Bengal.

CONCLUSION

The traditional fishing crafts and gears are eco-friendly required low energy and gears are made from locally available materials that required minimum cost. This traditional fishing practice leads to poor harvest as well as less income for the farmers. Gill nets with different mesh sizes are used to catch all types of fish in all seasons. Dragnet is used in the summer season for a bulk catch. A trap net is set in the outlet channel of the reservoir to catch small-sized fish all the season. Catching of small juveniles by using a small mesh dragnet has to be prohibited for the long-run sustainability of fishery in the Reservoir. Trap net can be made selective fishing gear if proper escape devices are provided to protect indigenous fishes. These traditional fishing practices can be modernized to improve the socio-economic condition of fisherman who solely depends on the reservoir.

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REFERENCES

- Baruah D, Dutta A, Pravin P (2013) Traditional fish trapping devices and methods in the Brahmaputra valley of Assam. *Ind J Trad Knowl* 12(1): 123.
- Bhakta D, Manna RK, Meetei WA, Solanki JK, Sah RK (2016) Traditional fishing crafts and gears of Ukai Reservoir, Gujrat, India. *Int J Fish Aqua Stud* 4(4): 142-145.
- Chourey P, Meena D, Varma A, Saxena G (2014) Study on fishing craft and gears of Bhopal district, Madhya Pradesh, India. *Int J Theor Appl Sci* 6(2): 65-67.
- Das RK, Barat S (2014) Fish gears operated in lentic and lotic water bodies of Cooch Behar district, West Bengal, India. *Ind J Trad Knowl* 13(3): 619-625.
- Dutta NN, Borah S, Baruah D (2012) Traditional gears used for capturing and preservation of fish by mishing community of northern bank of the Brahmaputra River, Assam, India. *Sci Vision* 12(4): 152-158.
- Ganguly A, Konari U, Kundu A, Chatterjee S, Nandi S, Guin RK, Duari M, Mandal A, Pradeep K, Mohapatra PKD (2022) Traditional fishing gears of Bankura District, WB, India: Some uniqueness in fish catching. *Notulae Scientia Biologicae* 14(1): 1-18.
- Jabeen F, Soren AD (2021) Fishing crafts and gears of the River Manas in Assam, India. In: Barthakur M and Borthakur MK (eds) *Advances in Scientific Approach for Sustainable Development*. AkiNik Publications, New Delhi 17: 172-184.
- Kumar V, Kumar K (2013) A preliminary study on fishing craft and gears in Dhaura Reservoir, Uttarakhand, India. *Int Res J Biol Sci* 2(8):76-78.
- Madhu NR, Sarkar B, Acharya CK (2021) Traditional fishing methods used by the fishermen in the Sundarban region, West Bengal. *VEETHIKA-An Int Interdis Res J* 17 (3):1-8.
- Manna RK, Das AK, Rao KDS, Karthikeyan M, Singh DN (2011) Fishing crafts and gear in river Krishna. *Ind J rad Knowl* 10(3): 491-497.
- Niture SD (2019) Gears and crafts used in Siddheshwar Reservoir, Hingoli district, Maharashtra, India. *Journal of Emerging Technologies and Innovative Research* 6(3): 615-619.
- Rajeswari G, Raghu PR, Sreedhar U, Swamy KM (2015) Studies on fishing Crafts and Gears in Tandava reservoir, Andhra Pradesh, India. *Int Res J Biol Sci* 4(11):38-42.
- Reddy N, Ramaneswari K, Sridhar D (2018) Fishing crafts and gears used in the Dowleswaram Reservoir of Godavari River, Andhra Pradesh, India. *Int J Res Anal Rev* 5(3): 1025-1029.
- Sakhare VB, Jetithor SG (2013) Crafts and gears used in Reservoirs of Marathawada regions, Maharashtra. *Sustaina Agri Food Environm Res* 1(1): 46-51.
- Upadhyay AD, Singh BK (2013) Indigenous fishing devices in use of capture fishing in Tripura. *Ind J Trad Knowl* 10 (1) 149-156.