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Research Article

Various Fishing Equipment Used by the Meitei Community in Nashik

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ABSTRACT

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The Meitei Community of Nashik uses a variety of fishing gear, which is the subject of this research. The Meitei Community earns a living by catching fish using their traditional fishing gear and consuming the fish for home usage. Gill nets, Cast nets, Dip or lift nets, Drag nets, Scoop nets, Surrounding nets, Tajjeps, Tekhao-Lu, Kao, Soralu, Kabo-Lu, Longup or Plunge cover basket Khoitek thaba, Khoisang Thakpa or Longline, Angling or Khoi Choppa or Pole line, and wounding gear were among the approximately 16 different types of fishing gear that were recorded. The current study shows that Manipur's fishermen use antiquated, traditional fishing gear, such as wounding gears, pole and line, hooks, traps, and nets. It also offers information on how to properly conserve and manage these gears as modern fishing gear is developed, which is crucial for improving the socioeconomic status of the fishing community.

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Introduction

Manipur is in the northeastern region of India, sharing borders with Myanmar. Its latitude is 25.83 degrees north and its longitude is 93.93 degrees east. Out of the 22,327 km² total area of state territory, the valley occupies around 1920 sq km; the remaining region is made up of hills that are known for their deep forests and difficult-to-access terrain. Manipur's diverse geography and water resources have bestowed upon it an enormous variety of ichthyofauna [3]. The plain valley region of the state of Manipur is home to a rich and varied fish species, which is mostly concentrated in the state's main rivers, natural lakes, reservoirs, ponds, tanks, marshy regions, submerged farmland, and low-lying fields that serve as the fishes' habitat [3]. Fish play a significant role in Manipur residents' diets. Those who are not vegetarians among the Meitei include fish in their diet. The majority of the state's population gets its fish from fisheries farms, rivers, ponds, etc. Fish are the primary source of animal protein, and the fishing industry is crucial for supplying fish, jobs, earnings, and socioeconomic advancement [1].

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Using the equipment, they try to capture as many fish as they can to sell and make a living. Large, long fish are uncommon on the Manipur plain; they are mostly found in lakes and reservoirs. In Manipur, freshwater fish may be found in lakes, ponds, rivers, streams, and marshy places. The quantity and kind of fishing gear used determine how many or how few people are needed.

It is crucial to research fishing gear in order to understand how it facilitates easy fish capture from fish habitats. The fishing community's wisdom and experience from its predecessors have resulted in the current fishing methods and equipment [6]. The effectiveness of a nation's fisheries is shown by the proper capture of its fish fauna [2]. In order to capture fish from their natural environment, fishermen themselves design and construct their own fishing equipment. Because they are built of inexpensive local materials, these fishing gears are not particularly costly. The many types of fishing equipment are produced in accordance with the size, species, and habitat of the fish. In order to ensure extended durability, various sections of the traditional fishing equipment and gear have recently been replaced with contemporary materials, such as nylon nets for wollen nets, fiber or plastic handles, iron handles instead of bamboo or wooden handles, etc. Fish culture and management may benefit greatly from the ability and creativity of fishermen in using a variety of fishing gear and techniques [5]. An effort has been made in the current research to document the facts pertaining to the fishing equipment utilized by the Meity people in Nashik.

RESOURCES AND TECHNIQUES

The regions of Moirang, Thanga Karang, Thoubal, leimapokpham, and Wangoi have been chosen for the research.

Data collection: By measuring, observing, and having direct conversations with field workers, all pertinent information about the various fishing gears—such as local names, the materials used to make them, the size and weight of the fish species, the fishing season, the kinds of species caught, etc.—is gathered with the locals in the affected regions and the community of fishers. The information was gathered between July 2019 and April 2020 for the research. The various types of gear used at a certain period of time and the fishermen's description of the kinds of fish caught with a particular gear are noted throughout the survey.

The fishermen of Meitei Community in Manipur employ different kinds of fishing gear according to the kind of fish, season, and water environment, based on the functional features. These fishing tools may be categorized as follows based on how they are used and how they work.

A. Nets

Traps (B) and Line Fishing (C)

D. Equipment that causes injuries.

A) Mesh

The Meity people utilize many kinds of nets to capture fish.

Figure 2: A lady using a gill net at Loktak Lake (Moirang)

I) Gill mesh:

Gill nets are single-walled nets with a mesh aperture sized such that, when a fish is suspended in the water, it can only pass its head through the opening. As the fish struggles to escape the net, its gills get entangled in the web. Gill nets capture fish by their gills as a result. Depending on convenience, nets may be used individually or in series. The vertical walls of netting are arranged in a straight line. Gill nets have sinkers and floats attached to them. Plastic ropes are used to make head and foot ropes. The most popular fishing equipment is this one. Gill nets are hung in the water for a few hours before being hauled up, making them passive gear. Fish are lured toward the gill nets in order to improve fish captures.

Mesh sizes range from 0 to 120 and are numbered from smaller to bigger.

Few fisherman in Manipur utilize nets with greater mesh sizes.

The Imphal market sells gill nets as well as auxiliary supplies including foot and head ropes, floats, sinkers, etc. These are sent to Moreh from the Myanmar border.

To let fish get tangled in the net, it is tossed at the lake or pond's surface and left there for a few hours. Either the boat or the dike is used to haul the net.

II) Cast Net (Nupa-il or Shangbren)

A conical or circular net with tiny weights (sinkers) fastened around the bottom end edge is called a cast net, often referred to as a throw net. There is a foot rope around the bottom edge, and many mercury sinkers are fastened to it. To create a peripheral pocket, a section of the net's lower extremity is folded up and sewn to the top part at regular intervals. To pull the net out of the water, a sturdy rope is fastened to the apical section of the net. The cast net is manually tossed over the fish so that it spreads out before falling into the water. By means of the sinkers' pulling power, the cast net descends to the bottom of the water in the shape of an umbrella and instantly covers the fish below. The rope at the top is used to bring up the net. In lakes, rivers, canals, streams, and ponds, one guy typically operates the net.

Locally, cast nets may be divided into two categories based on size, small or large:

(a) The term "Nupa-il" (Shangbren): In Manipuri, "il" signifies net and "nupa" denotes man. It is a single-man operation, tiny cast net. The fisherman casts the net over a school of fish by twisting his body and throwing it with his hand. Because of the sinkers, which resemble umbrellas, the net surrounds the fish and sinks to the bottom. In Manipur, this is a typical gear that is seen and used. In the market, the smaller net costs around Rs 300.

(b) Larger Cast Net "Inphul": At three to four meters in length, Inphul is the larger cast net. Because of this, it needs two or three people to operate. To start, half of the net's rim is submerged at the bottom of the fishing area while the top section is held in place by hand and dragged. The top section is lowered after a little distance. Using a line attached to the cone's end, the net is dragged out of the water. Fish of several kinds may be caught using a cast net. Depending on size, the bigger size Inphul costs around Rs. 1200 at the market, while the smaller size net costs approximately Rs. 300.

The primary place for the utilization of the IL-Jao (Big Dip Net) is the floating mass of aquatic weeds known locally as Phoomdis, which is located in Loktak Lake and is supported by bamboo poles. As a platform, the floating phoom serves. The remaining portion of the net is submerged in water for four to five hours, or even a day, without being disturbed. The net is fastened to the bamboo poles. Fish seeking food are drawn to the net by the distribution of rice bran dough. Typically, the net is raised toward the phomdis by two fisherman operating two boats. After bringing the ropes above the water's surface and untying the two bottom ropes, this net is raised. To push the fish to the location where they are to be gathered, two people beat the net repeatedly with smooth bamboo poles known as POU's. At Loktak Lake, IL Jao is utilized from May through September. Using this gear, fish of all kinds are captured.

IV) The Moonamba drag net

A drag net is constructed from a bunt (loose netting or net bags) that is sewn together and has sinks and floats at the head and foot ropes. The size of the mesh, sinkers, and floats are determined by the length and kind of fish that will be caught. Fish from the fish ponds are captured using nets with the numbers 20 and 120. Fishermen capture fingerlings from the raising pond using a tiny drag net with a mesh size of 0. The opportune time of year is the dry season, when the water is dried up or shallow. Using the net, fish from the dried-out

region or shallow water are pulled out. The net catches fish of different sizes. Two people can typically manage the net. From November to June, this net is in operation.



Fig 2 Operation of woman using gill net at Loktak lake (Moirang)



Fig 3 Cast net (Shangbren)



Fig 4 Women fisherfolks lifting Nupi-il at Moirang (Loktak Lake)



Fig 5 Tunggol



Fig 6 Woman lifting Nupi-il at Wangoi (Imphal West District)



Fig 7 Operation of catching fishes with il-gou at Leimapokpham

V) Encircling or Surrounding Net (Moirang lang)

A surrounding net is a kind of fishing net that surrounds fish and other aquatic life on the sides and beneath in an effort to keep fish from escaping and being trapped. The fishing technique is comparable to purse seine fishing, which involves putting a gill net in the water and encircling a big region or shoals of fish with a wall of netting.

To collect fish shoals, five to ten gill nets are connected and arranged to make an encircling net. Using this net to capture fish in huge amounts of water is convenient. The Meitei Community uses an encircling net with the lowest mesh size at Loktak Lake to fish using a traditional technique known as "Phum Namba." The length and depth of the net are determined by the size of the phum, or floating mass of weeds. The net keeps the fish encircled and prevents them from escaping.

From November to June, when the water level drops to its lowest point, surrounding net is utilized. The movement of the fish or aquatic weeds in the water, together with the color of the water, may be used to identify shoals of fish. The net is encircling the schools of fish. By making noise while hitting the boat's edge, striking the water's surface with a stick, or utilizing spears from within the encircling net's center, fish are lured to the enclosed net. The kind of fish that can be captured depends on the mesh size.

Longthrai: Like the surrounding net, but with the handle holding up the frame removed. The whole bag is constructed from 2.3 mm-mesh nylon netting, which has a 1 m depth. Pressing amid the weeds allows it to function in the shallow water. It is operated from a boat in the deeper seas. The equipment is put to work all year round. There is a mixed species catch.

B) Snails

These are the immovable objects that are maintained close to the coast, in estuaries, or in streams that are flowing; they let fish arrive but keep them from leaving. These tools are equipped with funnels and other devices that let fish enter freely but keep them from leaving. Some of the traps that are employed in Manipur are listed here. Numerous variables, including the physiography of the water body, the makeup of the fish population, the properties of the materials used to make fishing gear, and the style of life, impact the choice of fishing techniques and equipment [4]. The application of fishing gear varies depending on the fish species, water depth, and season. In order to promote research on the quantity, variety, and methods of fishing gear and techniques that these communities use in Manipur's rivers, lakes, canals, and ponds, the survey was conducted in the areas that are mostly home to fishing communities.

Sixteen distinct kinds of fishing gear were reported throughout the research period under the categories of nets, traps, line fishing, and wounding gear. It is necessary to utilize nets like gill nets, cast nets, dip or lift nets, drag nets, scoop nets, and surrounding nets. The following types of fishing gear are found under line fishing or hooks and line: Khoitek thaba, Khoisang Thakpa or Longline, Angling or Khoi Choppa or Pole line; under trap gears, such as Taijeps, Tekhao-Lu, Kao, Soralu, Kabo-Lu, Longup or Plunge cover basket. Wounding gears are also used in addition to these gears. The fishing gear mentioned above doesn't endanger wildlife or damage the environment. In Manipur, it is forbidden to use certain pesticides, utilize battery-operated fishing equipment, or contaminate fish habitat in order to catch fish. Similar to males, women also employ the conventional fishing gear mentioned above to capture fish.

FINAL VERDICT

In order to promote research on the quantity, variety, and methods of fishing gear and techniques that these communities use in Manipur's rivers, lakes, canals, and ponds, the survey was conducted in the areas that are mostly home to fishing communities. A total of sixteen distinct kinds of fishing gear, including gill nets, cast nets, lifting or dipping nets, drag nets, scoop nets, surrounding nets, traps, line fishing, and wounding gear, were noted. There are gears for line fishing or hooks and line under the categories of Khoitek thaba, Khoisang Thakpa or Longline, Angling or Khoi Choppa or Pole line, and Taijeps, Tekhao-Lu, Kao, Soralu, Kabo-Lu, Longup, and Plunge cover basket. In Manipur, fishing is the principal activity of around 45,000 people. These fishermen employ archaic, traditional fishing gear, including as nets, hooks, traps, pole and line, and wounded spears. The yearly need of 60 thousand tonnes of fish is exceeded by the 32,000 tonnes that may be produced by government and commercial organizations in Manipur.

Therefore, it is crucial to import fish from other states like Andhra Pradesh and Assam in order to satisfy the annual fish need. Modern technology has to be included into the upgrading and improvising of traditional fishing gear. Additionally, it is necessary to increase the abundance of fish resources by using different hatcheries and breeding techniques. These will contribute to the fishermen's improved socioeconomic situation. Understanding fish behavior in relation to fishing gear is crucial for the development of contemporary fishing vessels and equipment. In this case, the material selection is crucial as it improves the gear's effectiveness. For example, synthetic yarn may be utilized in place of natural fibers. The created equipment has

several applications, including the gill net, drag net, and encircling net. In the Meitei Community, it has been noted that traditional fishing gear is primarily used by both men and women. While males have traditionally held the majority in the preparation and maintenance of fishing equipment and vessels, women are also heavily involved in the catch fishery. In order to provide for their families, the fishermen who live in the Manipur state's valley use a variety of traditional fishing tools and equipment to capture fish in lakes, rivers, ponds, and marshy areas. The next generation is taught these antiquated methods and abilities. By using durable material instead of the original, these gadgets are enhanced.

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