

M.Sc. (Final) Semester –IV (Zoology)
Paper IV (a): Fishery Biology- Applied Ichthyology

Methods of fishing in India with particular reference to U. P

Various fish traps made of natural construction materials using indigenous knowledge system are traditionally employed to catch the fishes in inland water bodies eastern Uttar Pradesh. The origin of fish farming in India probably dates back to 1900 AD, it started with the fish seed collected from rivers and their subsequent stocking in the shallow impoundments created at the mouth of tidal inlets. Later, hooks, harpoons, spears, operation of indigenous nets, traps fishing techniques were developed. Selection of fishing method and use of gears are influenced by various factors such as topography of water body, nature of fish stock, behaviour of fish, characteristics of the raw material from which the gears are fabricated. Use of modern fishing devices like synthetic gears, plywood fibre glass motor boat, dynamite, fishing vessels, use of long persistent chemicals for catching fishes have adverse influence on aquatic living organisms including fish.

Indigenous fishing methods for fish catching;

1. **Taap** is a conical basket made out of thin bamboo (*Bambusa* sp.) splits. Length of the bamboo splits is 82.0 cm; and width is 1.2 cm. 65-70 split bamboo strips are closely tied with the help of Sunn hemp (*Crotalaria juncea*) fiber or transparent nylon threads to iron rings having diameter of 15 cm at the top and 50-60 cm at the bottom. The space between the adjacent strips is 3-5 mm, which allow small fry to pass through enabling egg, spawn and fry to grow to bigger size, giving them a chance to spawn at least once. The rings attached at the top and bottom provides two openings respectively. While fishing, the broad opening faces downward and small opening faces upward. Taap is operated in stagnant shallow depth water bodies. The fishers hold the top portion of Taap by left hand and guess the presence of fishes by the movement of water and drop the basket (Taap) encircling a small area. Lower wide mouth opening is little pressed in the soft mud that prevents the escape of fish. The fishermen

put his right hand from the top opening and collect the fish trapped. Taap can be operated by a single or in group of 10-20 people with their individual device.

2. **Ganj** is a hand operated trap made up of either Arhar (*Cajanus cajan*) or split bamboo pieces. A "V" shape mat is woven and the stems are tied with the help of nylon thread. Then it is rolled upon to form a cylinder with the tapering tail end. A small flexible round bamboo strip tied at the mouth of the Ganj keeps its mouth opened. Its length varies from 1.5-2.0 m. The diameter of front end opening varies from 30-45 cm. Water enters through the front end and goes out from the side as well as from the narrow tail end. Sometimes it is also placed in narrow channels. Fishes trapped are collected in the tail end.

3. **Parha** is a passive gear made of flexible bamboo strips or Arhar stems. In some area stalk of Munj grass (*Saccharum munja*) are also used. The length of the strips varies from 1-1.3 m. The strips are woven in the form of a mat and tied up with the help of Sunn hemp fiber or nylon thread. Half of the mat is turned back to make it double and the sides of the mat are again tied up but the front part is kept open to form a pocket. This is placed in the small water channels with the opened end facing the flowing water. The side of Parha are fixed in muddy soil. Water entering the Parha comes out from the space (2-4mm) between the strips and the fish remains inside the pocket. As it is a passive gear no man power is required after fixing its position. It is more common among the poor fishers as can be made from material available in the vicinity and no technical procedures are involved in its operation.

4. **Gadia** is made either of bamboo strips or Arhar stems. Mat woven may vary up to 2×1 m in its length and width. In flowing waters it is fixed horizontally with a down ward slope at the second end. A pit on the side or ahead of the Gadia is dugged. Water flow is directed either left or right of Gadia. As the water falls on Gadia, it is sieved down through the space (2-5 mm) in between the strips, but the larger fishes falling on Gadia cannot escape down along with water. The fish move towards the pit made at the second end of Gadia due to the slope. The fishes fall in the pit and can be collected after certain period of time.

5. **Dugla/Ulcha** This is a basket shape gear which is made from bamboo strips with the piece of leather or polythene mounted on its back. This leather or polythene sheet prevents the escape of water through bamboo strips pores. Two ropes on each side are tied to facilitate easy operation of gear. Seasonal shallow water pools are divided into parts with mud. Two persons hold the ropes and with the help of Dugla, they throw the water to the other side of the mud bundh. They keep on removing the water to an extent they can observe the fish movement. Then fishes are handpicked easily. This is suitable technique to catch the fish in shallow water pools.

6. **Fhekua Jal (Cast net)** It is a kind of encircling gear, conical in shape woven with the silk, cotton or synthetic fibre like nylon. Its diameter ranges between 4-5 m. The metallic rings at the base of the gear facilitate sinking of the gear at a faster rate minimizing the chances of fish escape when operated. The Fhekua jal is thrown by the right hand, when thrown its lower portion spread out to form a circle. A rope tied at the top, which is used to drag the net, the fishes trapped are removed and kept in basket. It is operated by one man and repeated attempts can be made.

7. **Fasla Jal (Gill net)** is passively operated entangling gear used to catch variety of fishes. Mostly fishing by Fasla is operated in water bodies where operation of active gear is comparatively difficult due to the depth and presence of weed. With the help of two poles, net is fixed vertically across the streams or in the pools from surface to column of water. Since, the net is mostly made of transparent nylon, silk or cotton fibre their visibility remains less and the fishes get caught in it by the gills. The mesh size varies according to the size of fish targeted.

8. **Haluka** is made of small size mesh cloth. Cloth is fixed with the help of two bamboo poles crossed and bent at the centre. The fisher holds the crossed bamboo along with net and is dipped in water bodies, dragged to the shore. The umbrella shape of gear retains fish inside and the water is drained out.

9. **Pachki** is a trifurcated sharp iron made impaling gear. It is mounted on 5-6 feet long. When fish of more than 3 kg are visible, the fishers throw the Pachki on the fish. It impales the fish body. The injured fish either remain pierced in Pachki or show erratic movement. Generally Pachki is used in water bodies of more than six feet where capturing fish by hand is difficult.

10. **Sarhas** is gear equipped with sharp, straight metallic 5-8 wires of 4-5 inches length mounted on 4-5 feet long bamboo pole. The fishes are observed for their movement or visibility. Sarhas is thrown the sharp metallic wires penetrate fish body. The fish remains entangled with or the wound created by Sarhas disturb its swimming. The fishes are then caught by hand.

11. **Khanchi** is a commonly used scooping basket. It is made of either bamboo splits or Arhar stems. Its diameter varies from 2-2.5 feet. During summer season when water level remains low in derelict or seasonal ponds water is disturbed vigorously till it become muddy. Due to silt respiration problems arises and fish starts surfacing. Khanchi is used to sieve the surfacing fishes. As Khanchi is light in weight, it is mainly used by women to catch fishes with pectoral spines for example Singhi (*Heteropneustes fossilis*) and Mangur (*Clarias batrachus*).

12. **Pot fishing** is a common method used to catch the fish in perennial ponds. The out dated soil pots with small perforations around are kept at the bottom of the water body. Sometime, these pots are also facilitated with fish food materials. After a gap of 1-2 days they are taken out with care. The pot mouth is covered with some cloth or hand.

13. **Katia** (Hooks and lines) In this method a thin flexible bamboo rod tied with cotton thread or nylon twine fixed to a sharp metallic barbed hook are used for fishing. The principle of this kind of fishing is to offer natural or artificial bait to entice fishes that get hooked and then lifted. Generally, earth worm or wheat flour is used as bait to attract fish. For

large carnivorous predatory fishes like *Clarias* sp., *Mystus* sp., *Channa* sp., *Wallago* sp. small frogs and fishes like *Puntius* are used as bait. A small stone as sinker or a float of 3-5 cm may or may not be used. The baited hooks are thrown in the water and the floats or thread lines used are observed for its movement. When baited hook is swallowed by fish the thread is then with a little jerk. The fish is caught and hook engulfed by the fish is removed.

14. Cloth netting In this method the small mesh size cloth or mosquito net is held by two or more person in both sides while others are involved in disturbing the water to direct the movement of fishes towards the pocket of cloth. Persons holding the clothes moves ahead with keeping lower portion of cloth close to the bottom of pool and they lift the cloth to observe the fish caught. This is a general practice followed in many parts of the state mostly used for catching fish for domestic consumption in derelict or small water pools.

15. Hand picking In the small water pools fishes are caught simply by hands. The water level in the pond is reduced by manual draining or by using water engines. Then it is disturbed so that water becomes turbid and muddy. Due to the heavy silt dissolved the gills become blocked and fish is not able to see and carry respiration properly. The fishes starts surfacing and are caught by hand easily.