

Fishing Communities and Traditional Fishing Gears in South-West Assam

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Abstract: This study explores the fishing gears used by different communities in South Western Assam including Goalpara, Kamrup and Kamrup Metro districts of Assam, India. Eleven communities living in the area have been found to be involved in fishing. Out of them, Assamese speaking Kaibarta, Bengali speaking Kaibarta, Karbi and riparian Muslim communities are involved in commercial fishing in inland waterbodies and rest fish for household consumption. Twenty-seven different types of traditional fishing gears have been recorded during the study that are used in different types of water bodies including – rivers, hill streams, beels, swamps, marshy areas, water logged fields and manmade ponds. Different locally available materials are used to fabricate the gears that include bamboo, nylon threads, cane, jute rope, metal hooks, metal loads, metal spears, floats etc. Time and modus operandi of the gears vary from type to type. Introduction of mass killing fishing gears and methods in the recent years, have harmed the fishery in the area. Introduction of mosquito net as an alternative to the existing Berjaals and fish poisons have led to reduction in fish catch and today the sustainability of fishing as a traditional livelihood option is in stake.

Keywords: Ethnic communities, Fabrication materials, Fishing gears, Modernization, Traditional livelihood

Date of Submission: 20-04-2019

Date of acceptance: 04-05-2019

I. Introduction

According to the Anthropological Survey of India there are about 300 distinct tribes in North East India speaking over 400 dialects. Sugunan (2001) [1] reported that due to the vast water spread area, fish was abundantly available and about 90% of the ethnic communities living in the Northeast region are fisherian. Sarmah Thakur (2007) [2] has said that a traditional square meal of the tribal people constitute rice, boiled vegetables with chillies, salt and fish or meat curry. In Northeast India, most communities are involved in fishing. But only a few indigenous communities are engaged in commercial fishing. Most of them are small-scale, artisanal fishers, operating on inland freshwater fishery resources. Many of these fishing communities are also involved in activities like making and repairing fishing gears, harvesting, post-harvest processing and marketing of fishes. Women folk in many communities in Assam are also involved in fishing. Communities use different types of fishing gears and technologies to suit the local requirements which are part of their lifestyle. Community-fishing on particular occasions, songs and rituals related to fishing are part of the rich Assamese folk culture.

According to the Food and Agriculture Organization (FAO) [3] of the United Nations, in the last few decades, employment in fishing and aquaculture worldwide has grown faster than the world's population and traditional employment in agriculture. Most of this growth took place during the 1980s and 90s and mainly in Asian countries, where 85.5% of world fishers and fish farmers dwell. Sugunan (2001) had reported that Assam had more than doubled the fish production from 76,000 ton in 1990-91 to 153,000 ton in 1994-95. But, thereafter the growth rate has declined and one of the major causes of the decline is, use of inappropriate fishing gears like mosquito net and mass fishing methods like poisoning and blasting. Eroding value system and loss of traditional gears and techniques has contributed significantly towards the fish depletion. This has far reaching implications on the economy and livelihood of the fishing communities.

References of studies carried out by various authors in different parts of India on the fishing gears, practices and cultural aspects of fisher folk is evident from the works of Kurian (2001) [4], McGoodwin (2001) [5], South Indian Federation of Fishermen Societies (SIFFS, 1992) [6], Kar & Dey (1991, 1993 and 1996) [7], [8], [9], Gurumanyu & Choudhury (2009) [10] have studied various aspects of fishing gears in different parts of Assam. Dey (1984) [11], Deka, Bhuyan, Baruah, & Rahman, (2008) [12], T.K. Deka (2008) [13], Barman & Boro (2008) [14], have studied the community fishing and economic aspects of fishermen communities in Assam. Extensive studies have been carried out on the fishing gears and fishermen communities in Southern India, especially Kerala. Kurian (2001) mentioned that the aquarian ecological context of Kerala has made its

people avid fish eaters from time immemorial, and they devised various techniques to capture fish. According to a Department of International Development (DFID) study, fish is culturally important and an indispensable part of the diet of Kerala, and it accounts for over three-quarters of the animal protein intake of the average Keralite, with an annual per capita consumption of 15-20 kg. But, a similar study is wanting in the North East Indian context, which is another region with a majority of fish-eating population.

McGoodwin (2001) [5] explained that fishing, one among many ways of providing for human existence, requires certain human adaptations and behaviours, which in turn, help development of certain cultural characteristics. These adaptations are rooted in the requirement of exploiting particular ecosystems with whatever technologies are available at a particular time, and then are ramified through the cultures of the fishing communities. Therefore, it is important to underscore that a fishing community's approaches to fishing, the fishing gear, its uses and its organization of other fisheries activities is usually the result of considerable experimentation over a long period of time. No similar reference on the cultural aspect of the fishers in Northeast India could be found, except some scattered work on the economic aspects of the fisher folks. T.K. Deka(2008) [13] has discussed about the impacts on the livelihood of the fishermen communities around the wetlands of Assam. Dey (1984) [11] has mentioned about the community fishing as a practice in the context of *Beel* fishery.

A study carried out by SIFFS (1992) [6] found out that the 590 km coast line of Kerala was distinguished by atleast 23 types of fishing gears. A study carried out in the South Western Assam covering a geographical range of only about 200 km by this group of investigators could record 27 different types of fishing gears of 7 different modus operandi. Depending on the type of the water body, different types of fishing gears are in used. If any of the gear or technology can be adapted to suit the need of the modern pisciculture and detrimental gears like mosquito net be eliminated, it will help in bringing about sustainability in traditional fishery and fishermen communities.

II. Objectives of the present study

The present study intended to -

- Explore and find out the communities in the study area who are involved in fishing
- Document the types of fishing gears and traditional technologies used for fishing by the communities in the study area
- Study the designs, types of raw materials (particularly bio-resources) used for the fabrication of the gears and the modus operandi of all the gears documented
- Observe the modern trend in fishing technology and its impact on traditional fishery

III. Materials and Methods

The present study was carried out in Goalpara, Kamrup and Kamrup Metro districts in the province of Assam in India. Goalpara district is the second westernmost district in the south bank of the Brahmaputra. The boundary of the district is bound by Kamrup district in the East, Dhubri district in the West, river Brahmaputra in the North and the state of Meghalaya in the South. Kamrup is the third westernmost district next to Goalpara. It has two subdivisions and the Rangia subdivision is located on the northern bank of the Brahmaputra. The Eastern boundary of the Kamrup district is bound by Kamrup Metro and Darrang districts, Western boundary is bound by Goalpara & Barpeta districts, Northern boundary is bound by Nalbari and Baksa districts and the Southern boundary is bound by the state of Meghalaya. The Eastern boundary of Kamrup Metro district is bound by Morigaon district, Western boundary is bound by Kamrup district, Northern Boundary is bound by Darrang and Kamrup districts and Southern boundary is bound by Meghalaya hills.

The study area has different types of water bodies including river Brahmaputra, its tributaries and the two largest wetlands of the valley namely *Urpabeel* and *Deeporbeel*. According to National Wetland Atlas, SAC, ISRO, 2011, [15] the total estimated wetlands area of the state of Assam is 764372 ha out of which 76876 ha, i.e. 10.06% is spread in the 3 study districts. The major wetland types in the three study districts are river/stream accounting for 75.41% of the wetlands (57975 ha), followed by 11.89% water logged areas (9143 ha) and 11.74% areas of lake/ponds (9025 ha).

Apart from recce visits across the districts, specific targeted visits have been made to fishing communities living near the major water bodies including the Brahmaputra; its major tributaries, Dudhnai, Krishnai, Jinari, Jinjiram, Kulsi; and three major wetlands – *Urpabeel*(Goalpara), *Kumribeel*(Goalpara) and *Deeporbeel*(Kamrup Metro).

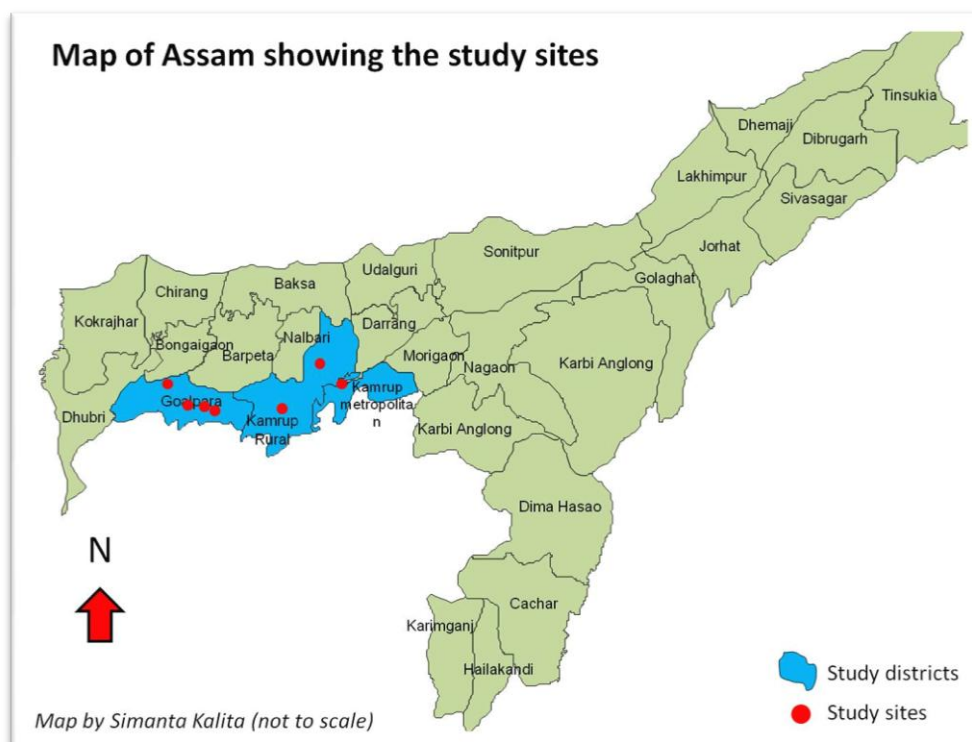


Fig: map of Assam showing the study districts and study sites

The population selected for the research study included the different communities engaged in fishing that lives near the major water bodies including the Brahmaputra and its major tributaries, and three wetlands *Urpadbeel*, *Kumribeel* and the *Deeoporbeel*.

The study has been broadly divided into two parts – documentation through semi-structured interviews and photo documentation. A stratified random sampling was done using a semi-structured questionnaire to collect data about the communities, gears, fabrications, modus operandi and modern trends. A source list was prepared taking clue from the Assam Fisheries Department, Block Development Offices and Researchers in Gauhati University. A sample size of 200 individuals, including representatives from different communities, researchers, Fisheries Department personnel and community leaders was considered for the survey. Secondary data were collected from published papers, and various government departments. Apart from the questionnaire, personal interviews, group interviews, focus group discussions were also carried out. The set of data collected are qualitative and have been tabulated using computers. Digital photo documentation of the gears was done using Nikon make DSLR camera D 7000. The digital photo documentation helped in studying the physical structures and modus operandi.

IV. Results

4.1. Fishing Communities

The research could identify total 11 communities that are engaged in fishing (refer to table 1 below). Out of the 11 communities only 4 communities were found to be engaged in commercial fishing, viz. Assamese Kaibarta, Bengali speaking Kaibarta, Karbi and Riparian Muslim communities. Except Kalitas, Garos and Naths, other communities are also involved in making of some or the other type of fishing gears. While women of 8 communities were found to be involved in fishing, women of Assamese Kaibarta community are also involved in selling of fishes.

Table 1: Communities Engaged in Fishing (in alphabetic order)

Community engaged in fishing	Commercial fishing	For own consumption	Women in fishing/ fish selling	Makes fishing gears
The Bodos	-	+	+	+
Riparian Muslims	+	+	-	+
The Garos	-	+	+	-
The Hajongs	-	+	+	+
The Kaibartas (Assamese speaking)	+	+	+	+
The Kaibartas (Bengali speaking)	+	+	+	+
The Kalitas	-	+	-	-
The Karbis	+	+	+	+

The Koch Rajbongshi	-	+	+	+
The Nathas	-	+	-	-
The Rabhas	-	+	+	+

4.2. Fishing Gears

4.2.1. Traditional fishing gears

Twenty-seven (27) traditional gears were found to be used by different communities (refer to table 2 below), out of which 5 are impaling gears, 6 are scooping gears, 5 are encircling gears, 6 are maze and barricades, 2 hook and lines, 2 are entangling gears and 1 is used for storage of fish while fishing. The materials used in eco-friendly fabrication of these gears include bamboo, nylon nets, jute ropes, lead loads, earthen loads, cork floats, cane wire, plastic wire, iron wire, metal hooks, iron rods etc.

Table 2: Traditional Fishing Gears used by the Communities in the Study Area

Name of the traditional gears	Type of water body where used	Type of fish caught by the gear	Fabrication materials	Whether used in commercial fishing
Impaling gears				
1. Jaathi (Spear)	Sallow water	Medium fishes	Iron spear, bamboo pole, iron ring	No
2. Dhanu-kar (Bow and Arrow)	Streams	Medium, large fishes	Bamboo, iron head of the arrow	No
3. Jakra / Pocha / Koch	Sallow water	Medium fishes	Iron pointed hooks, bamboo pole, iron ring	No
4. Daao (Sword)	Shallow, water logged fields	Medium size fishes	Metal daao with a wooden handle	No
5. Jong (kuchia fishing rod)	Banks of the wetlands	Kuchia fish living in digs under soil	A long pointed iron rod fitted with a wooden handle	Occasionally
Hook and line				
6. Boroshi (Hook and line)	Any type of water body	Fishes that eat bait	Metal hook, nylon thread, bamboo stick, cork floats	No
7. Long lines	River, beels	Fishes that eat bait	Metal hooks, nylon threads, cork floats	Occasionally
Maze and barricade				
8. Chepa (Pot gear)	Small streams, water logged fields	Small	Bamboo, cane/ plastic wire	Occasionally
9. Dingora/ Dingori	Streams, beels, water logged fields	Small and medium fishes	Bamboo, cane/ plastic wire	Occasionally
10. Bana	Shallow water, pond, beels	All types of fishes	Bamboo, nylon threads	Yes
11. Baagha	Streams, beels, water logged fields	Small and medium fishes	Bamboo and cane/ plastic wire	Occasionally
12. Juluki	Streams, beels, water logged fields	Small and medium fishes	Bamboo, plastic rope, rubber	Occasionally
13. Kharbandh	At the confluence of Deeporbeel and Khanajan canal	All types of fishes	Bamboo, nylon threads	Yes
Entangling gears				
14. Laangijaal – (Two types – Puthilaangiand Koi laangi)	Streams, wetlands, ponds, water logged fields	Small fishes	Nylon threads, earthen load/ lead load	Yes
15. Thoha / Khokha	Streams/ water logged fields	Small fishes	Bamboo, cane/ plastic wire	No
Encircling gears				
16. Aacharajaal/ Khewalijaal (Caste net)	Streams, beels, ponds where the net can reach the bottom	All types of fishes	Nylon thread, lead loads, jute rope	Yes
17. Polo	Shallow water body, beels, ponds, water logged fields	Medium (mostly <i>Channa species</i>)	Bamboo, cane/ plastic wire	Occasionally
18. Katal	Beels	All types of fishes	Bamboo poles and jute ropes. Sometime also use nylon nets	Yes
19. Clap net	Brahmaputra river	Special net for Ilish fish (<i>Hilsa ilisha</i>)	Nylon net tied to Bamboo	Yes
20. Berjaal / Mahajaal	Streams, large wetlands (It is used to drive the fishes and encircle them)	All types of fish.	Nylon cloth, rubber float, iron beads	Yes
Scooping gears				
21. Chinese dip net (Dhekijaal)	River, streams, beels	All types	Nylon thread, bamboo, jute rope	Yes

22. Haatjaal/ Jaatijaal(Folding dip net)	Streams, beels, ponds, swamps, water logged fields	Small and medium sized	Nylon thread, bamboo, jute rope	No
23. Porongijaal	Streams, wetlands, ponds, water logged fields	Small fishes	Nylon threads, bamboo, jute rope	Yes
24. Jakoi	Shallow water, beels, ponds,	Small	Bamboo, cane/ plastic wire	No
25. Chaloni (Sieve)	Water logged fields, dovas, ponds	Small fishes	Bamboo, cane/ plastic/iron wire	No
26. Ghokajaal	Beels	Small and medium	Bamboo poles, nylon net	Yes
Storage gear				
27. Khaloi	All type of water body (It is used to store caught fish)	Small and medium	Bamboo	Yes

4.2.2. Detrimental fishing gears and methods observed:

Nylon drag nets, popularly known as ‘Mosarijaal’ having small mesh size (about mosquito net’s mesh size) have been introduced in the last two decades. In some of the hill streams (mainly upstream areas of Dudhnai, Krishnai river) poisoning is also done now-a-days to catch fishes.

87% of the respondents said that the introduction of these mass killing nets and methods are unsustainable and have negative implications on the livelihood of the fishing communities, 4% didn’t want to comment on it and 9% said that it is inevitable.

V. Discussion and Conclusion

During the study, the research could identify a total of 11 communities in the study area that are engaged in fishing. Out of the 11 communities only 4 communities were found be engaged in commercial fishing, rest fish for their own consumption. The non-commercial fishing communities also feel that fishing is one of the economic activities that add to their nutritional requirement. While in most cases fishing communities live near the water body, members of Rabha community in Kalyanpur area (Goalpara district) were found to travel about 5-7 km by bicycles to fish in Makribeel near Pancharatna. Interestingly they fish for household consumption and not for commercial purpose. On the other hand, a small population from Bihar, settled in Eastern fringe of Deeporbeel has been engaged in commercial fishing since 1980s. Although they are not traditional fishing community, they adopted fishing as a profession, since no other viable alternative was available to support their economy. This study has not recognized them as a traditional fishing community because their kith and kin living in Bihar are not engaged in fishing. It is only under an economic compulsion, they have adopted fishing as a profession.

Although the Karbis are not traditionally commercial fishers, in Deeporbeel areas in Kamrup district, some Karbi families were found to be engaged in commercial fishing. Except Kalitas, Garos and Naths, other communities are also involved in making of some or the other type of fishing gears. Kalitas, Garos and Naths also make bamboo sieves (chaloni). But the purpose of these chalonis are not primarily fishing. While women of 8 communities were found to be involved in fishing, women of Assamese Kaibarta community are also involved in selling of fishes.

Out of the twenty-seven (27) traditional fishing gears found, 9 are mostly used for non-commercial fishing, 11 gears are often used for commercial and 7 gears are mostly used for non-commercial, but occasionally used for commercial fishing. *Katal* is a typical type of fishing in which floating vegetation is fixed with bamboo poles and ropes so that fishes can take shelter under the floating vegetation. Then the entire area of floating vegetation is encircled with a berjaal and the vegetation cover is removed. All the fishes that took shelter thus get entrapped in the net. In Deeporbeel, *Katal* method is also used for conservation of fishes so that no one can catch the fishes under the *Katal*.

It is noteworthy that 90% of the respondents feel that the introduction of the mass killing nets and methods are unsustainable and have negative implication on the livelihood of the fishing communities. While the *Assam Fisheries Rule, 1958* clearly lays down norms for use of different mesh sizes in different season of the year, mosquito nets are in use all round the year illegally. While the fishermen expressed concern about the use of inappropriate net, they also said that now-a-days they are compelled to use such nets and methods as they don’t get sufficient catch to sell in the market if they strictly follow the prescribed net size. While 100% fishermen said they know that the district administration ban fishing during the breeding season, 94% of them expressed ignorance about the mesh size specified in the *Assam Fisheries Rule*.

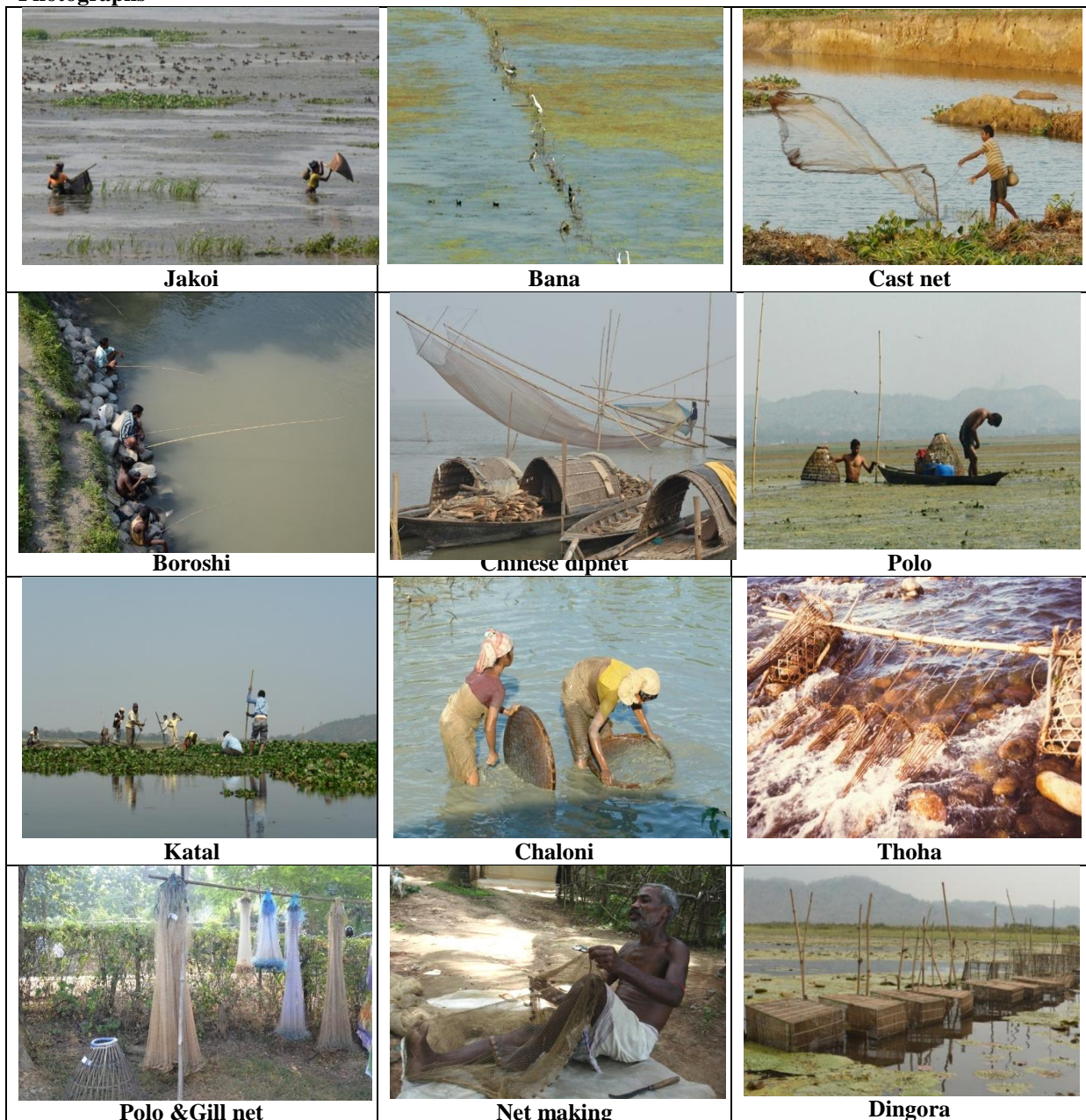
It has been a striking similarity in almost all the ethnic communities that they have a community pond / beel in the village that is a common property resource. The size of the pond varies from place to place. In all cases, a committee looks after the affairs related to the community pond. The committee decides about the release of fingerlings into the pond, harvesting time, mesh size of the net to be used at different seasons etc.

With the advent of bank loans and training facilities, commercial culture fishery is becoming popular. Some youths of Kalita community in Matia area of Goalpara have also set up fish hatchery to produce fish seeds. While the modern technologies of hatching fish seeds and managing the ponds have benefited the fishery sector and have positively impacted the traditional livelihood, on the other hand introduction of the modern detrimental fishing methods have led to the depletion of the fish stock. Strict law enforcement is needed to stop the detrimental fishing gears and methods. Community support in this regard is also essential.

Acknowledgement

The authors express their heartfelt gratitude to the Management of Assam Don Bosco University including the Hon'ble Vice Chancellor, Hon'ble Registrar, Hon'ble Director of Research and the Head of the Department of North East India Studies for allowing to carry out this research under the Department. Field level data collection and entry point activities were supported by Mr. Shankar Patgiri, Mr. Manoj Patgiri, Mr. Jayanta Kalita, Mr. Ajanta Barman, Mr. Jogesh Barman, Mr. Purna Das, Ms. Padumi Rabha, Ms. Dayabati Rabha and Mr. Amiya Roy. The authors are indebted to all of them. Local fishermen cum boatmen in Deeporbeel, Mr. Khagen Das and in Urapadbeel Mr. Dhananjay Barman offered all possible help in documenting the gears and understanding their modus operandi. Hence, the authors offer their acknowledgement to both.

Photographs





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Kakoli Das Kalita et.al. "Fishing Communities and Traditional Fishing Gears in South-West Assam." *IOSR Journal of Agriculture and Veterinary Science (IOSR-JAVS)* 12.5 (2019): PP-01-07.