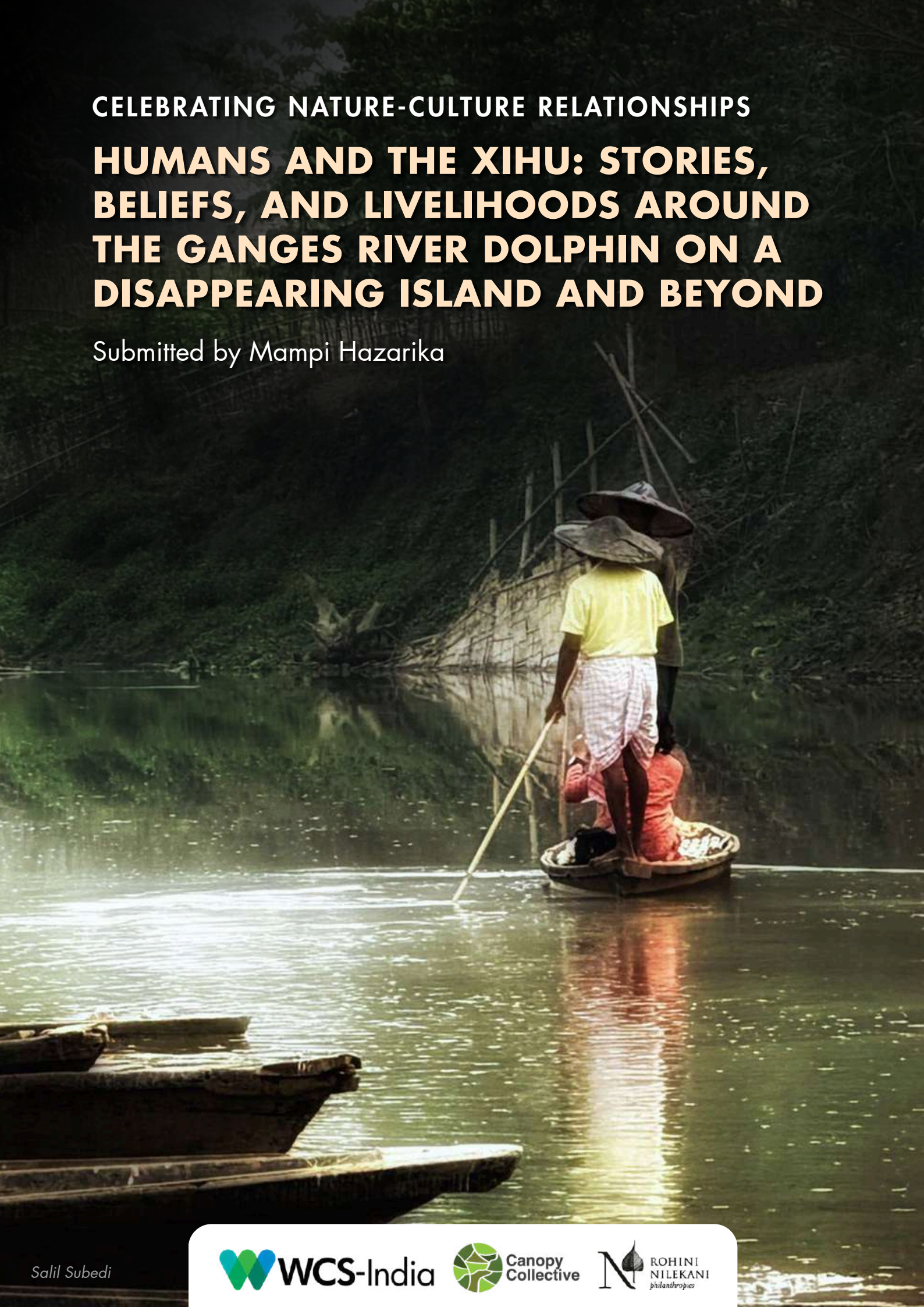
CELEBRATING NATURE-CULTURE RELATIONSHIPS

HUMANS AND THE XIHU: STORIES, BELIEFS, AND LIVELIHOODS AROUND THE GANGES RIVER DOLPHIN ON A DISAPPEARING ISLAND AND BEYOND

Submitted by Mampi Hazarika



Salil Subedi

WCS-India
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ABSTRACT

Human-dolphin interactions exist in complex interplays of ecological, cultural and economic factors, yet there has been comparatively limited attention to the socio-cultural relationships of the people with the Ganges river dolphin (*Platanista gangetica*, called Xihu in Assam) in India. To address this gap, our study explores human-dolphin relationships across riverine communities in two regions- Majuli and Kukurmara, along the Brahmaputra river, key dolphin hotspots in Assam, Northeast India. Using a qualitative approach, we collected data between Feb-May 2026 through semi-structured interviews, participant observation, and participatory mapping. We conducted 27 interviews in total, where we explored cultural beliefs, local ecological knowledge, livelihood practices, and changing perceptions surrounding the river dolphin over time. We found that relationships with dolphins are layered; from reverential to utilitarian, and often overlapping rather than uniformly positive or negative. At one site, for the Mising community, dolphins have connections through symbology and oral narratives, while at another site among fisher communities, dolphins were frequently associated with co-fishing and livelihood support. We found that interactions with dolphins were also shaped by gender and occupation, with fishers and men reporting more frequent firsthand encounters due to their regular presence on the river. Older participants stated that the lesser engagement of the present generation with dolphins was due to declining dolphin and fish populations as a result of dried river channels, erosion, sand mining, and changing livelihoods over time. These nuanced and place-based relationships among people and river dolphins, show that dolphin conservation cannot be understood solely through ecological frameworks, but must also engage with local histories, and changing socio-ecological realities.

Keywords: Ganges river dolphin; human-dolphin interactions; human-wildlife relations; cooperative fishing; folklore; riverine communities; Assam; Brahmaputra river

Joel Lalaremruata | Green Hub

INTRODUCTION

The foundational beginnings of human life have been influenced by culture, spirituality, and socio-politics, with an underlying permeation of nature (Ross, 1905; Aisher & Damodaran, 2016). People understand and engage with nature through reverential and utilitarian values, which often overlap (Rim-Rukeh et al., 2013; Udoudom, 2021). Paying attention to these relationships helps to get a broader understanding of conservation that is inclusive of societal and cultural dimensions alongside the ecological concerns.

In many indigenous belief systems, nature is interwoven with people in forms of shared kinship and ancestry. More-than-human beings are thus positioned as relational entities embedded within social and ethical worlds rather than as passive resources. For instance, Māori communities in New Zealand conceptualise relationships with land, water, and animals through *whakapapa* (genealogy), which connects humans and more-than-humans through shared ancestry (Belz & Wittek, 2025). In many parts of the Amazon, river dolphins are embedded within local cosmologies, yet their body parts are also used in medicinal and ritual practices (Alves & Rosa, 2008; Arregui, 2019).

Emerging work in aquatic studies highlights that relationships with more-than-human species are often articulated through use, dependence, and livelihood practices. Fishers engage in cooperative fishing with the Lahille's bottlenose dolphins in southern Brazil, the Irrawadi dolphins in Myanmar, and Chilika Lagoon, India, by using the dolphins' movements to guide net-casting and improve their catch (Cantor et al., 2025; Tun, 2007; D'Lima et al., 2014). In the eastern Indian state of Bihar, many fishers are aware that river dolphins are declining due to the pressures created by organised fishing mafia, yet continue due to economic pressures and limited alternatives (Singh, 2022). Along the Sindhudurg coastline in Maharashtra, central India, finless porpoises are often viewed neutrally, while humpback dolphins are associated with economic loss due to net damage and reduced catch, leading to hostile feelings of the fishers towards the species (Jog et al., 2018). Such instances point to the many ways in which relationships with nature cannot be understood through singular categories.

The Ganges river dolphin (*Platanista gangetica*), the National Aquatic Animal of India and the state aquatic animal of Assam (called Xihu), has been studied through a largely ecological focus and through utilitarian relationships like the use of dolphin oil in bait fishing and traditional medicine (Kolipakam et al., 2020). In Assam, declining populations and habitat pressures arising from fishing practices, river modification, and pollution highlight the ecological significance of protecting key habitats such as Kulsi, a tributary of Brahmaputra, and lower Brahmaputra stretches (Wakid, 2009; Qureshi et al., 2017;

Mazumder et al., 2014). While these studies have contributed substantially to understanding the species' ecology, comparatively little attention has been given to the human-dolphin relationships in the region through an ethnographic lens.

Through this study, we explore people-dolphin relationships through a cultural lens in riverine regions of the Brahmaputra river, where life, identity, and beliefs are deeply intertwined with the river. Specifically we seek to: 1) document cultural beliefs, myths, and local ecological knowledge related to Ganges river dolphins among riverine communities in Majuli and Kukurmara regions in Assam, 2) understand how everyday livelihood practices, particularly fishing and river-based activities like dolphin tourism, clay collection for pot making, boating, etc., shape human-dolphin interactions in different socio-ecological contexts, and 3) examine if local perceptions, attitudes, and knowledge about dolphins change over time and sites, and how these are shaped by differing patterns of interaction.

Mampi Hazarika

STUDY AREA

The Ganges River dolphins inhabit the Ganga-Meghna-Brahmaputra river system and its tributaries across India (Sinha & Kannan, 2014), where their presence is intertwined with the lives of riverside communities. The overall estimated population of dolphins in the Brahmaputra River of Assam is 635, with populations now largely confined to only two of its tributaries—the Kulsi and Subansiri rivers (Wakid et al n.d; Kalita, 2025). This study spans Majuli and the Kukurmara in two districts (Majuli and Kamrup) to understand human-dolphin relations.

Majuli

Our study was conducted in Majuli (26°58'33.02"N 94°15'21.52"E), the world's largest river island, located within the Brahmaputra River in the state of Assam, Northeast India (Sarma et al., 2004; Saikia, 2020). Majuli is surrounded by the Brahmaputra River in the south, the Subansiri in the north-west and the Luhit in the north-east (Roy et al., 2020), which are well-known to support populations of the Ganges river dolphin (Bordoloi & Saharia, 2021). Due to the continuous flow and seasonal flooding of the river, the region is characterised by low-lying alluvial land, wetlands, and shifting channels (Roy et al., 2020), which form dynamic riverine habitats for the dolphins. In Majuli, we identified four sites (Xalmora, Kulamua, Balijokaibua and Ratanpur Miri village) based on their habitat suitability for dolphins.

Majuli is also home to Indigenous communities like the Mising, Deori, and Sonowal Kachari, alongside non-tribal groups such as Ahoms, Kalitas, Koch, Koiborta, Kumhar and Assamese Brahmins (Borah, 2011). The mosaic of villages relies largely on river-based livelihoods, particularly fishing, agriculture, and ferry transport (Roy et al., 2020). Because much of the land is surrounded by water or closely connected to river channels and erosion, sustenance is deeply connected with the Brahmaputra. The Mising, Koiborta, and Kumhar communities frequent the river for fishing, clay collection, and daily activities such as washing clothes and collecting water. Majuli is also the centre of Neo-Vaishnavite culture, known for its numerous *satras* (monastic institutions) established by Srimanta Sankardeva in the early 16th century, and for its rich artistic traditions, including the renowned craft of mask-making or *mukha xilpo*, particularly practised in Samaguri satra (Zaman, 2022) (Fig. 1).

Fig 1: Exhibition of mukha (masks) at the Samaguri Satra museum, a significant part of Majuli's identity | Mampi Hazarika

Xalmora, with 800 households, lies in the Eastern part of Majuli (Regon, 2019), is known for its potter community, apart from boat-making and agriculture. The southern channel of the Brahmaputra, which was initially called the Burhi Suti, flows beside the village. The dominant communities living in this flood-prone village are the Kumhar, Kalita, Koch and Koiborta (Regon, 2019).

Kulamua and Balijokaibua are adjacent villages in Central Majuli, with 69 and 94 households, respectively, as per 2011 census data, consisting entirely of the Mising community, who worship Donyi-Polo, an animistic indigenous faith (Pegu, 2020). The people in these villages mostly engage in agriculture, weaving, small scale businesses for a living, and a small section of people have government jobs.

Ratanpur Miri gaon, with the 947 households shown in the 2011 census, is situated in the Upper Eastern part of Majuli. Unlike the three other villages in Majuli, Ratanpur Miri is not situated near a river; it is approximately 8 kms away from the Brahmaputra. Communities like Ahom, Chutia, Deuri, and Mising reside there.

Kukurmara

Kukurmara (26°04'23.73"N 91°25'00.28"E) located in Kamrup district, is a riverine village situated along the banks of the Kulsi River, a tributary of the Brahmaputra River (Centre for North East Studies and Policy Research, 2009). The Kukurmara area is a significant habitat for the Ganges river dolphin, with the Kulsi River being one of the important dolphin-bearing tributaries in Assam (Wakid & Braulik, 2009).

The 2011 census shows that Kukurmara consists of around 540 households, with nearly 88.26% of the population belonging to the Koiborta community, traditionally dependent on fishing as their primary livelihood. In addition to fishing, people are now shifting towards small-scale commercial cultivation of crops such as banana and jujube, and the landscape includes ponds and wetlands.

The region is facing growing environmental pressures, particularly from sand mining and increased sedimentation, resulting in impacts on the livelihoods of the fishermen (Medhi, 2022). In 2012, an awareness campaign called Dolphin Yatra was initiated by the environmental NGO Aaranyak, engaging with different riverside villages, including the study site (Aaranyak, 2023).

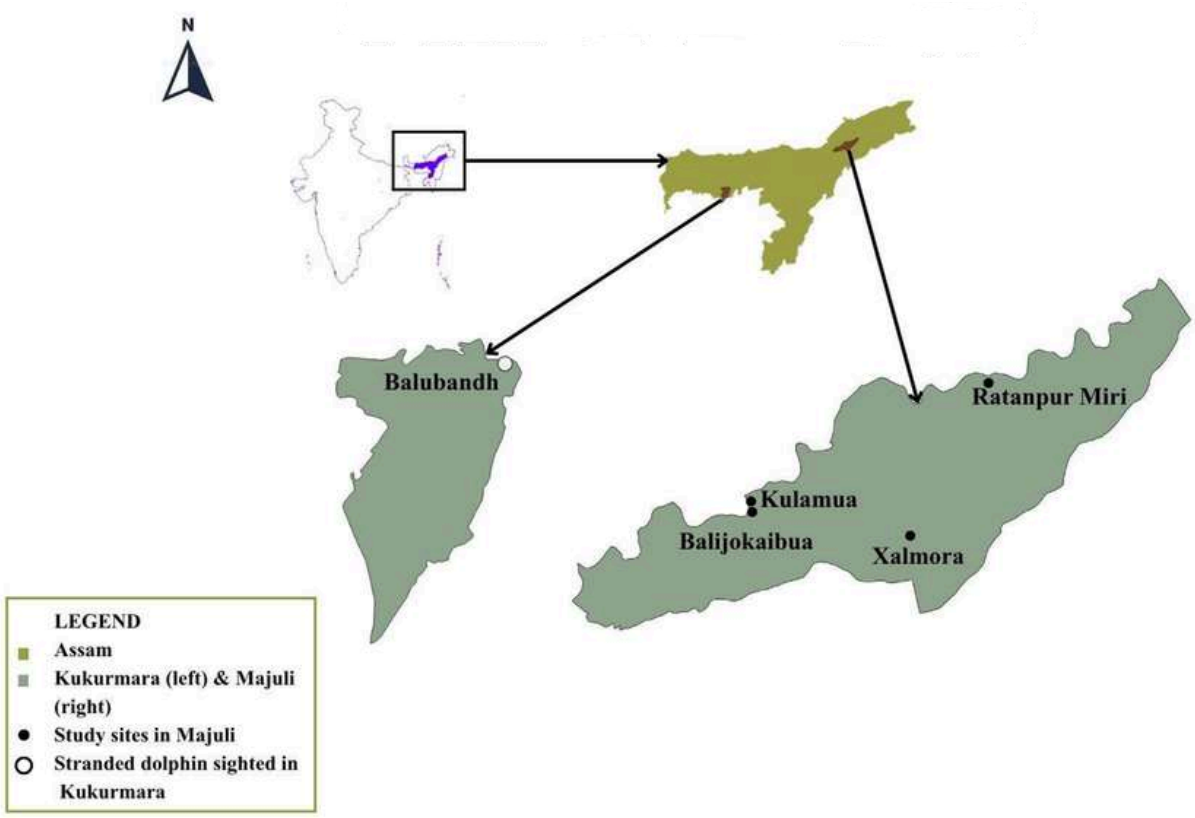

Fig 2: Location of study sites in Assam, India | Aditi Ramchiary & Mampi Hazarika

METHODOLOGY

We adopted a qualitative research approach to explore relationships between local communities and the river dolphin in all the study sites. A qualitative design is appropriate for this study as the research seeks to understand perceptions, experiences, and changes over time (Bernard, 2017).

Mampi Hazarika (MH) conducted fieldwork for 15 weeks from February 2026 to May 2026, with the support of a field volunteer in Majuli and a local guide in Kukurmara. The volunteer helped in selecting the study sites, identifying potential participants in his area, and, wherever necessary, translated Mising language to Assamese for MH. In Kukurmara, a local guide with prior experience of more than 10 years in dolphin conservation helped find participants through snowball sampling. Prior to this, a one-week recce visit (in January) was conducted to get familiar with the landscape and people in Majuli. During the recce, MH met with the Gram Pradhans of all the selected villages and chose key informants from each village that were identified through snowball sampling and the volunteer's help. The key informants knew their respective areas well, were locally influential and trusted by the locals, e.g., Gram Pradhan, local conservationists, and school teachers. Although participants were chosen from different riverine communities, a larger proportion belonged to the Mising community. This was because the community offered rich opportunities to explore the oral narratives and beliefs that our research concerned with. Importantly, the selected study sites in Majuli were predominantly Mising villages where snowball sampling was conducted, further contributing to their higher representation in the study.

Interviews were conducted using a questionnaire guide which focused on questions to understand the relationships of different participants with dolphins and was piloted with villagers with their consent. Additional tools like participant observation and participatory mapping were also used, along with a story exchange session towards the end of fieldwork in Kulamua, Majuli.

MH collected primary data through semi-structured interviews (n=27), supported by participant observation (Bernard, 2017). We selected participants belonging to the Mising, Koiborta, Kalita, Assamese Brahmin, and Kumhar communities across diverse age groups and social and livelihood backgrounds, including fishers, boat operators, elders, women, and various communities to capture variation in experiences and attitudes. The interviews were audio-recorded after obtaining consent and explaining the objectives of the project.

MH asked questions in Assamese and in Mising, whenever necessary, with the volunteer's help. Open-ended questions allowed participants to narrate their experiences in their own terms, allowing unexpected themes and meanings to emerge. At the same time, interviews steered toward the study's research questions when necessary, ensuring coherence across interviews (Green, 2024). Interviews lasted from 13-70 minutes and were audio-recorded on a cellphone. Field diaries were maintained alongside to note important observations, participant information, and the time and atmosphere during the interview.

At the end of the interviews, participants shared any additional information they felt was not captured, questions or clarifications that enabled inclusion of participant-driven insights beyond the predefined themes. Interviews were conducted while sitting, walking along riverbanks or accompanying fishers on their boats (Fig 3, 4, 5), enabling participant observation of their day-to-day practices and interactions with the river. These shared experiences also helped us build rapport and led to subsequent participatory mapping exercises (Bernard, 2017).

Fig 3: Semi-structured interview with an elderly Mising man in Majuli | Mohatjyoti Pegu

Fig 4: Participant observation with a local fisher in Balubandh, Kukurmara, to observe and document their daily livelihood activities in the river | Salil Subedi

Fig 5: Participant observation conducted during the Ligang festival in Kulamua, Majuli, to understand the Mising community's culture | Mohatjyoti Pegu

MH and the field volunteer conducted participatory mapping exercises with some residents in Kulamua and Xalmora villages to understand their perceptions of their village (Fig 6). It helped identify river areas that are frequently used by people and participants who visit the river frequently. In Kulamua, a pre-drawn outline map of the village was presented to participants during the *Ligang* festival of the Mising community. Participants were invited to identify and mark places within the village that they considered significant. The activity lasted approximately 20 minutes and involved 7-10 male participants. On the riverbank of the Brahmaputra, at the edge of the Xalmora village, another participatory mapping exercise was done with 6-7 fishermen using natural materials such as sticks, leaves, and sand (Fig 7). Participants collectively recreated the spatial layout of the village and the Brahmaputra's flow. This provided additional context that helped in understanding how people navigated the landscape and the rivers. It also helped locate areas of fish and dolphin presence that led us to other fishers. Moreover, during the story exchange session in Kulamua village, 8-10 men shared their personal interactions they had with the dolphins in their childhood, or while fishing and crossing rivers.

Finally, a mood board was prepared on a chart to visualise the findings and the journey throughout and was presented in front of the people in Kulamua and Xalmora (Fig 8). It consisted of photos, quotes from interviews, and pieces of materials like clay, fish net, wood and threads to represent the potter, fisher, boatmen, and the Mising participants. Moreover, the knowledge exchange session brought forward participants' personal experiences that complemented the individual interviews.

Fig 6: Participants in Kulamua village marking important village spaces and resources during participatory mapping | Namishka Borah

Fig 7: A fisherman from Xalmora demonstrating what a dolphin looks like using sand | Mampi Hazarika

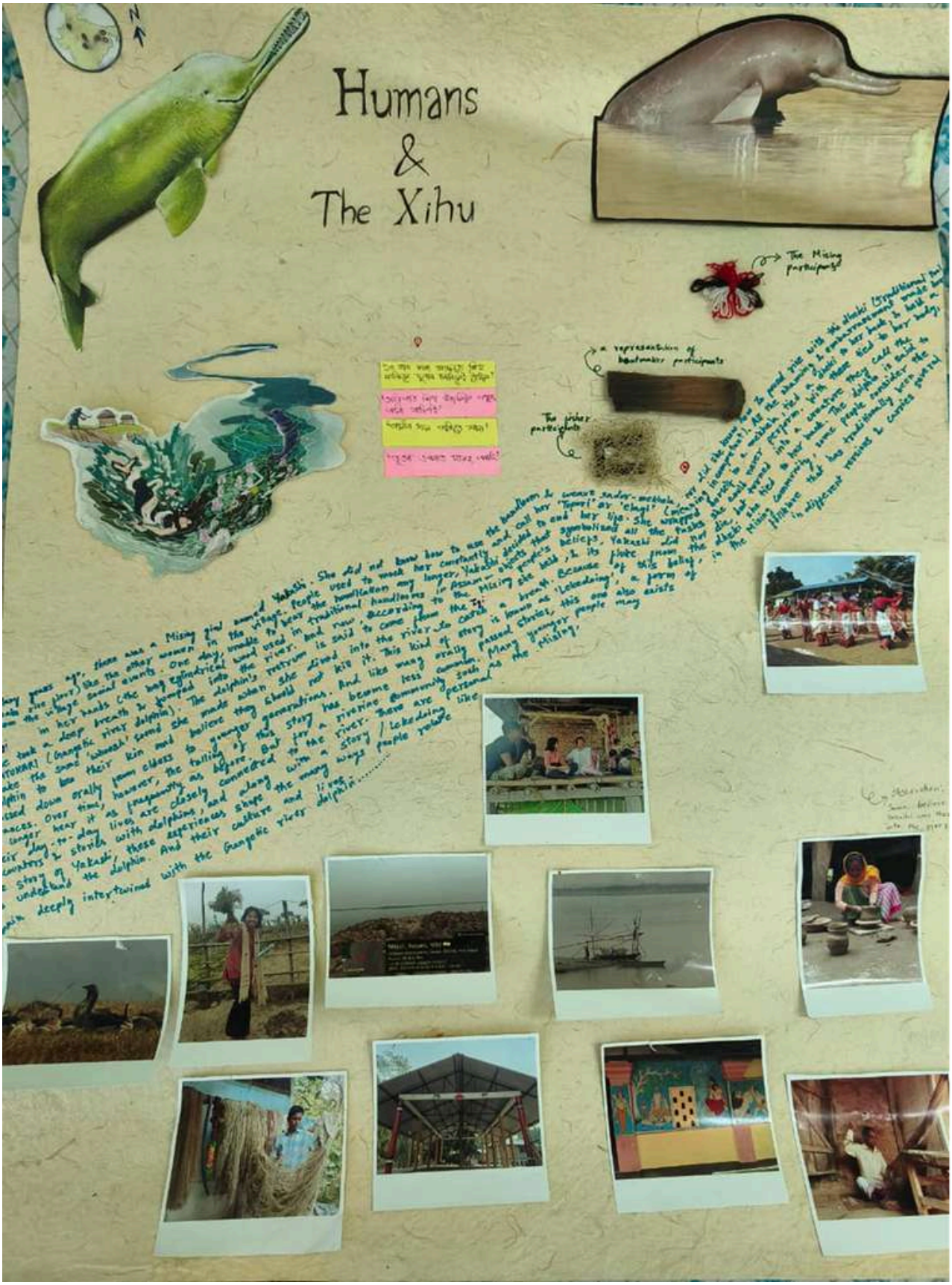

Fig 8: Mood board of the findings by MH | Mampi Hazarika

Ethical considerations

Ethical approval for the study was obtained from the relevant Human Research Ethics Committee (HREC approval no. HREC-2026-03-Mampi) at Wildlife Conservation Society-India, and interviews were conducted only after obtaining this approval. Participants were informed about the purpose of the study, the voluntary nature of participation, and their right to withdraw at any time. Free, Prior and Informed Consent (FPIC) was obtained from all participants before interviews were audio-recorded with their explicit permission.

Participants were also informed about how the information would be used, stored, and reported. To protect privacy and confidentiality, identifying details were removed during transcription and reporting. Given that the study involved discussions on local beliefs and personal experiences, care was taken to respect cultural sensitivities and avoid documenting or sharing restricted knowledge without permission. All data, including audio recordings, transcripts, field notes, and photographs, were stored on a OneDrive link and used solely for research purposes.

Limitations

We conducted this study for a period of seven months, which reflects the perspectives and experiences documented during that period. The short-term nature of our study limited our ability to capture ecological and social transformations across a longer temporal scale. Also, as a qualitative ethnographic-style study, the findings are based on the experiences and perspectives of a limited number of participants and do not aim to represent the views of entire communities. Our study also involved fewer women participants than men. In many instances, MH tried to engage in conversations with some women who were hesitant to talk alone by approaching them during group activities and engaging in conversations where they were more comfortable. Despite that, many women declined and shared discomfort with being interviewed.

Analysis

The interviews were first transcribed in both Assamese and English. Transcripts and field notes were then analysed thematically on an Excel sheet, with attention to recurring patterns of differences in beliefs across generations, and links between cultural beliefs, livelihood practices, environmental change and the nuances of all these things (Green, 2024). Initial coding focused on descriptive codes emerging directly from participants' accounts, such as references to cultural beliefs, daily interactions with dolphins, fishing practices, tourism encounters, and environmental change, etc.

These were then grouped into broader analytical themes aligned with the study's objectives (Braun & Clarke, 2006). The themes were compared across age groups, gender, ethnicity, occupation, and study site. We made three categories of age variations: younger adults (30–44 years), middle-aged (45–64 years), and senior participants (65 years and above). The themes that emerged were then interpreted in relation to the objectives of the study. A study area map was made using QGIS.

RESULTS

A total of 27 interviews were conducted across the two sites (Majuli and Kukurmara, (men=20 and women=7), which were then fully transcribed and coded. Of these interviews, 20 participants were from Majuli (Mising=11 men and 2 women, Kalita=2 men and 1 woman, Kumhar= 2 women, Koiborta= 1 woman, Assamese Brahmin= 1 man) and 7 from Kukurmara (Koiborta=6 men and woman=1). Across all the interviews, people shared different beliefs related to the dolphins. In Majuli, the Mising community were observed to have more culturally embedded relations with the species.

Beliefs: Folklore, Symbols and Ecological Indicators

Oral narratives

Leke Do:ying (Mising oral folklore) and *Oinitom* (Mising folk songs) were documented from the Mising participants interviewed across three villages. The most recurring *Leke Do:ying* was the story of Yakashi, a young Mising woman believed to have transformed into a river dolphin. According to the story told by the Mising participants, Yakashi didn't know how to weave or grind rice. Mising women, at that time, were expected to be able to do these things. As a result, Yakashi was constantly teased as tupori or akazi (incompetent) in the village. One day, the teasing took a dangerous turn, and people tied her up with objects that she could not use, and threw her into the river (Fig 9). An elderly woman from Majuli described the transformation through objects associated with women's domestic labour:

"She didn't know how to weave, so people once let her hold onto a long wood from the taat-xaal (traditional handloom), tied a dheki (a traditional tool used to grind rice) on her back, wrapped her in a mekhela (traditional woven clothing) and pushed her into the Subansiri river. But she did not die; she took a deep breath, held her breath underwater and turned into a river dolphin."

Two other elderly men from Majuli added that Yakashi still holds her breath underwater and comes out once in a while to breathe, and that the Ganges river dolphin should not be killed as Yakashi was one of them. Similarly, a middle-aged key informant from Majuli recalled hearing from his grandmother in his childhood that the rostrum of the dolphin came from the long wooden piece of the handloom she held in front of her face and the fluke came from the flat end of the dheki tied on her back. Several younger participants were aware of this story but only in fragments, often recognising Yakashi as a folklore associated with dolphins without recalling the narrative in detail. Among the older Mising

participants, the story of Yakashi emerged as something collectively remembered from their childhood. While the broader meaning of the story remained the same, participants added individual symbolic details to the story.

Fig 9: Illustration of the story of Yakashi | Sourced from: Made by Mahan J Dutta for Hatipoti children's magazine, Majuli

Folk songs on dolphins

Dolphins also feature in the Mising people's *Mibu Aahbang* (hymn sung by the priest) and *Oinitom* (folk song). During an interview with a middle-aged participant from Majuli, he sang an *Oinitom* that talks about how the dolphin is used as a symbolic figure associated with longing and attachment.

Oiya Obonori.....
Kekonol Jaoubon amíng jardunė
Jaoubon amíng jardunė
Ayínoi oinok a:yang mė:pala
Ayínoi asin arab kabdubong
Ayínoi oinok a:yang mė:pala
Ayínoi asin arab kabdubong
Oiyyyaaaa...

(On the other side of the Subansiri River,
Tamarisk trees (Tamarix sp.) are blooming,
And I am crying deep inside my heart
because I can't have your love,
I'm crying deep inside my heart.)

Pétukari mago:dung
Donam ongo légangé
Donam ongo légangé
Ayínoi ngokké asin mago:dung
Ayínoi ménam oinok légangé
Ayínoi ngokké asin mago:dung
Ayínoi ménam oinok légangé
Oiyaaaa...

(The dolphin searching for fish to eat,
Fish to eat,
And my heart is searching for you, dear love,
to find you.
Oh Love.)

Ecological indicator

Some participants from the Mising community associated the pattern of mass movement of dolphins with seasonal floods. A middle-aged participant from Majuli described seeing many dolphins moving upstream after the onset of the monsoon as an indication of the possibility of stronger floods that year, and the movement of dolphins downstream before summer was seen as a sign that the floods were coming to an end. Another participant of the same age group from Majuli explained that this movement of dolphins is due to changes in river conditions. According to him, dolphins tend to move upstream when the river becomes more turbulent during the monsoon, while their downstream movement happens right before the water levels begin to recede before summer in the upstream rivers. Both the participants reflected two unique ways of interpreting an ecological pattern.

Fig 10: Sighting of a dolphin in Majuli | Devraj Doley

Symbol

During participant observation of the *Ali-Aye-Ligang* (Mising agricultural festival) celebrations in Kulamua, dolphin motifs were observed to be drawn on the festival stage. In conversations with the villagers, they shared that the Ganges River dolphin was the logo of the Mising Autonomous Council (MAC). During an interview with a member of the Council, when MH asked why the dolphin was chosen as a community symbol, given the existing narrative of Yakashi, in which the protagonist is portrayed as someone who lacks skills expected of women. In response, he explained: "*Our relationship with dolphins extends beyond that folklore. We are a riverine community; we wanted to select a species for our logo that cannot live without water. There was a discussion about what animal to choose, and our chief came up with the river dolphin. It was done in* 2013-14". He shared that the dolphin is a species associated with resilience, and it is also endangered. Drawing a parallel with the history of the Mising people, he explained that the community too had endured repeated environmental hardships such as floods and displacement due to soil erosion, over generations.

Day-to-day Interactions

Co-fishing: Apart from beliefs and oral narratives, participants from Majuli and Kukurmara also shared tangible connections with the dolphins while fishing, boating, pot-making, and other river-based activities. Participants from the Koiborta community, a traditional fishing community from Assam, in both sites often referred to dolphins as *bondhu* (friend) who fish together with humans (Fig 11). A middle-aged participant from Kukurmara, who learned fishing from his father at the age of 10, explained that when the fish jump into the net out of fear of the dolphins, they get more fish. An older participant referred to the dolphins as his *bhai* (brothers) because of the gratitude he and his elder brother, who has now passed away, had for dolphins. He narrated that 40 years ago, one particular dolphin helped his elder brother catch fish. "*...But one day, while returning from fishing, the dolphin was lying dead near the riverbank with an Aari fish* (*Arius arius*) *caught in its throat. Devastated by the sight in front of him, my brother carried the dead dolphin to his house, buried it, and conducted the rituals that a person does when a family member passes away. He quit commercial fishing after the incident*," he added. "It recognised my brother. It would not follow any outsider's boat ever", referring to the dolphin as an agentive being.

When accompanying three fishers to understand how they spend their day in the river in Kukurmara, the fishers demonstrated their way of communicating with dolphins. They tapped the sides of their boats and made splashing sounds in the water. The local guide shared that they do it to communicate with the dolphins. Shortly afterwards, a dolphin surfaced near the boat.

Fig 11: Cooperative fishing between the fisher and the dolphin (to the left) in the Kulsi stretch | Salil Subedi

Accessibility: While fishers, through their daily presence near the river, described frequent firsthand encounters with dolphins, not all had access to such experiences with the species, despite belonging to the same village and community. Women participants from both the study sites described that their connectedness to the dolphins was primarily through stories and experiences shared by family members and others in the community. An elderly woman from Majuli shared: "*We only go fishing in the nearby wetlands; you can't see dolphins there. The men would come home in monsoons, and they would tell us about seeing dolphins coming to the nearby river....*" "*Men see dolphins more because they visit the river more. They go there even for 'time pass'.*"

A young woman in Majuli stated: "*I liked going fishing before. I was good at it. I once caught a xol maas* (*Channa striata*) *and brought it home. I got scolded a lot. My dad said that there are spirits caught in such big fish. After that, he would not let me go to the river, and he used to say that there are xihu* (*river dolphins*) *there and they are 'dangerous'...so I stopped going. It was later, when I grew up, that I came to know that dolphins don't even come near people. In childhood, deuta* (*father*) *used to scare me so I wouldn't go to the river* (*laughs*). *"...But he would let my younger brother go fishing with our khura* (*uncle*)."

Fig 12: Men in southern Majuli engaging in fishing as a leisure activity while tending to their grazing cattle | Mampi Hazarika

In another setting, when MH asked the women of the household if they would want to be interviewed, a man responded that the women would not be able to say much as they don't go near the river. On asking why, he replied, "*In our caste, we don't let women go near the river. It is not considered a good thing.*" One of the three *pohori* (women who sell fish from house to house) interviewed in Kukurmara shared that she heard how dolphins chase fish towards the fishermen's nets, but hasn't seen it herself since she doesn't go on boats to catch fish; she just buys them from the market.

Consumptive and non-consumptive relations: There were descriptions of the use of dolphin oil for fish bait and medicinal uses like treating rheumatism, fire burn, and hoof soreness of cattle. Dolphin interactions were also associated with tourism. A local guide in Kukurmara who guided MH during her interviews talked about potential dolphin tourism in the Kulsi River next to Kukurmara. He said,

"I did tourism myself while working on the dolphin project. People from many places used to visit. I don't remember which foreign countries they came from, but there were many foreigners. There were researchers and students who came and talked to me about dolphins. I have given interviews as well. You see, in the Brahmaputra, you cannot always be sure that you will get to see dolphins, but our river, it is a narrow river, so it's easier to see dolphins here. And there are a lot of meanders here. That's why I saw potential in dolphin tourism at that time."

Changes in Human-Dolphin Relationships Over Time

Rivers over the years

Across sites, participants frequently spoke of change while describing their relationships with dolphins. In Kukurmara, these changes were often associated with shifts in the river Kulsi, which has dried up due to excessive machine-based sand extraction over the last decade. One middle-aged respondent shared that Kulsi diverges into two channels, where one flows through the Kukurmara side, and the other channel is through Chhaygaon. The Chhaygaon channel was almost inactive, and the main flow used to happen through the Kukurmara channel. However, due to excessive machine-based sand mining on the Chhaygaon side, the channel deepened and altered the riverbed, resulting in a shift in the river's course in the last decades.

During participant observation in Kukurmara, three local residents guided MH to a narrow channel of Kulsi in the Balubandh area. The channel was disconnected from the main flow along much of its stretch, and there was a stranded dolphin that remained there. A person dumping household waste like diapers and plastic wrappers into the channel was also observed. Participants shared about soil erosion and shallowness of the river due to the changing course of the Brahmaputra River. A middle-aged woman whose family used to collect clay from the Brahmaputra bank to make pots earlier shared that they cannot access the clay anymore from the bank because of the implementation of concrete porcupines to prevent erosion, and it has led to less frequent visits to the river and fewer encounters with dolphins. Xalmora village in Majuli has faced heavy loss of landmass due to erosion over the past decades, which has led to people losing their land and homes, causing mass displacement of many local people away from Majuli.

Generational perceptions

Perceptions of dolphins emerged across interviews with older and younger participants. Participants in Kukurmara shared that the younger generation is shifting modes of livelihood due to changing interests and declining economic returns in fishing. An older participant from Majuli showed discontent over the younger generation's lack of curiosity to learn their local folklore, while two shared how there's a high probability that their children might never see dolphins. However, while older participants often shared experiential knowledge grounded in long-term engagement with the river and folklore, information about public discussions was more commonly found through younger, socially active individuals involved in local councils and community organisations. While discussing the dolphin logo of the Mising Autonomous Council (MAC) with one of the council members and another member of the Takam Mising Porin Kébang (TMPK), the

apex student union of the Mising tribe, both suggested that dolphins can be brought into the youth's interest by spreading more awareness about them being an endangered species and its connectedness to the riverine people.

Dolphin tourism

Occasional tourism used to generate some extra income among fishers in Kukurmara but after the drying up of the river, that became difficult. "*This mining business is bringing more money to the big people in a city like Guwahati, where sand is needed for construction all the time*", added one participant.

Dolphin depiction| Mampi Hazarika

DISCUSSION

Participants frequently described dolphins as having agency and being capable of recognising the fishers and interacting with them in meaningful ways. Perhaps the most striking example emerged from an account where a dolphin used to accompany a fisherman's brother regularly during fishing. Following the dolphin's death, the brother conducted a funeral for the dolphin and, devastated by its death, abandoned fishing altogether. The Yakashi narrative among the Mising participants was also widely prevalent. The central idea of the story said: Ganges dolphins are connected to Mising ancestry, and the moral message was that dolphins should not be harmed. These kin-centric relationships between Mising respondents and dolphins are similar to studies from other communities and species across India. For example, the Idu Mishmi people from Arunachal Pradesh relate to tigers as their brothers, and the Kattunayakan people of South India regard wild animals as *bandhukal* ("relatives") and *swantha ala* ("our own people") (Aiyadurai, 2016; Jolly et al., 2022; Bhattacharyya et al., 2017).

The Mising people sing *Oinitom* to express feelings and thoughts, often through metaphors drawn from animals and the natural world (Gogoi et al., 2024). The *Oinitom* documented during this study positions the river dolphin as a metaphor for human longing and desire, and as a figure through which emotions of attachment and separation are expressed. In Serbian folk music, animal sounds, movements, and characteristics are similarly incorporated into songs and dances, reflecting long-standing relationships between humans and the animal world (Petrović & Ljubinković, 2011). These findings highlight the importance of documenting folklore, songs, and local ecological knowledge of these communities. A locally demonstrated form of interspecies communication, involving rhythmic tapping on boats and splashing water, further illustrates communication and interaction with dolphins.

Beyond stories, songs, and kinship narratives, participants also described their relationships with dolphins through fishing practices. Studies on Ganges River dolphins and fishers' interactions have revealed dynamics of spatial overlap, raising concerns regarding prey competition and accidental entanglement in fishing gear (Kelkar et al., 2010). In our study, many fishers did not describe dolphins as competitors but as cooperative partners that drive fish towards nets and riverbanks. Dolphins were frequently referred to as *bondhu* (friends) and even *bhai* (brothers), suggesting that the relationships extend beyond resource sharing into domains of kinship, reciprocity and trust. Similar cooperative fishing relationships documented between fishers and Irrawaddy dolphins in Odisha and Myanmar, and Lahille's bottlenose dolphins in Southern Brazil complement these findings (Tun, 2007; D'Lima et al., 2014; Cantor et al., 2025).

While dolphins are hunted for oil for traditional medicinal purposes, bid fishing, and even for consumption (Kolipakam et al., 2020; Sinha, 2002; Alves & Rosa, 2008), our findings reveal that these relations cannot be strictly categorised as either protective or exploitative. Dolphins are associated with kinship stories alongside utilitarian values (deliberate consumption of dolphin meat in the past and instances where dolphins accidentally died after entanglement in nets). This points towards the overlapping and multifaceted nature of human-wildlife relationships, where reverence, kinship, and use may coexist within the same community and even within the same individual (Bhatia et al., 2020; Rim-Rukeh et al., 2013; Udoudom, 2021).

Across different cultures, local communities use the behaviour of animals as indicators of nature's patterns and ecological transitions (Alves et al., 2018). Different species of dolphins act as indicators of river health and ecosystem condition (Fury & Harrison, 2011; Gomez et al., 2012). In our study, movements of dolphins were interpreted as signals of seasonal hydrological processes such as monsoons, floods and water turbulence. Such interpretations of Ganges river dolphin's movements as indicators of flood dynamics need more attention and highlight how local communities generate environmental knowledge through deep observation of the river.

While many participants shared common understandings of dolphins, our findings also reveal that these relationships were shaped by social differences, particularly gender and caste. Environmental knowledge and experiences are often unevenly distributed, and feminist political ecologists have demonstrated that men and women frequently interact with nature differently due to differences in labour responsibilities, mobility, and resource access (Banerjee & Sharma, 2022). Across our study site, the women participants revealed that they relate to dolphins mostly through stories and knowledge shared by others, and not through many direct encounters. These differences weren't simply individual choices; they were linked to broader social norms governing access to river spaces. The women participants described restrictions on fishing activities during both childhood and adulthood, while some male participants explicitly stated that women in their community were discouraged from going near the river. The gendered dimension of Yakashi's portrayal with the societal expectations of women's domestic labour may also be examined in future studies. Fishing occupations in the Koiborta community and non-fishing communities carry social distinctions in Majuli, often stating that members of their caste were not involved in commercial fishing or discussing practices within the tribal groups who fish, even when this information was not explicitly requested.

Human-dolphin relationships were also discussed in the context of broader environmental transformations across the river landscape. Changing river conditions like erosion, sand extraction, and altered courses were also linked to discussions related to

dolphins (Medhi, 2022). These changes have not only led to a decline in fish and dolphin populations, but also affected the lives of residents. In Majuli, erosion has wiped out villages and displaced families over the decades, while in Kukurmara, declining fish populations and changing aspirations have pushed some younger people to pursue alternative livelihoods outside fishing, like agriculture and horticulture, and some were pushed to do daily wage work (Sahay & Roy, 2017; Medhi, 2022). The changes in livelihoods have also affected the transmission of cultural knowledge associated with the dolphins. Several older participants expressed concern about how the younger generations are becoming unfamiliar with local knowledge, songs, and oral narratives related to the dolphins. Beyond cultural significance, these narratives and knowledge serve as repositories of decades of experience and observation that can contribute to understanding environmental change and future conservation practices. Importantly, while the Ganges river dolphin is often framed within conservation discourse as an endangered species requiring protection, our findings suggest that it also occupies an important place within local cultural and relational worlds. This may suggest the importance of recognising dolphins as beings of cultural significance rather than solely biological beings.

Fig. 13: Dolphin tourism station at the Bhomoraguri beat, Assam | Mampi Hazarika

Our findings do not point only towards loss but also towards the transformation of human-dolphin relationships. New forms of conservation awareness, symbolic representation, and tourism are creating alternative ways through which people engage with dolphins. The Mising Autonomous Council's adoption of the dolphin as a cultural symbol and the emergence of dolphin tourism initiatives in Bhomoraguri and Tezpur illustrate these evolving relationships. At the same time, experiences from places such as Kukurmara remind us that tourism opportunities are often shaped by ecological conditions and political processes that remain beyond the control of local communities. The long-term implications of such initiatives remain uncertain and will require attention to both social and ecological dimensions, including dolphin behaviour, sensitivity to disturbance, visitor expectations, and regulation of boat traffic (Arregui, 2019; D'Lima et al., 2018; Higham et al., 2009).

Mampi Hazarika in field | Joel Lalaremruata | Green Hub

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