"Beyond the Catch: A Holistic Socioeconomic Evaluation of Aghanashini's Fishing Communities"

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Abstract
Aghanashini river is one of the productive riverine systems of coastal Karnataka with reference to fishery resources which drains into Arabian Sea at Tadadi village of Uttara Kannada District. In order to understand educational back ground, fishery related lively hood and economic status of fishing communities residing across the Aghanashini estuary, a questionnaire was prepared to conduct the interview. Based on the interactions with 250 number of fishermen/women we came to know that total number of persons directly involved in collection of bivalves, clams, oysters etc. are around 600. On an average of 250 fishermen/women venture to harvest bivalves on daily basis particularly during low tide. On an average each person gets the fishes for 16 days in month, each person collects around 14kgs of bivalves in a day. Usually bivalves are sold Rs. 80/kg, October to May is the peak season for the fishery. Around 19 villages are directly involved in fishing which consists of 2398 fishers of which 1548 male and 850 female. Harikantra community is dominant followed by Gowdas, Ambigas, Gabits, Muslims, Patagar and Naik communities, literacy level of majority of these are uneducated, some have done matriculation and few passed secondary school. Fishing is the main source of livelihood to majority of the communities in this area.

Keywords: Aghanashini, Fishing Communities, Bivalves, Oysters

Introduction

Estuary hosts a diverse array of flora and fauna, making it a rich and vibrant ecosystem. The estuary provides a unique habitat for various species to thrive due to the mix of freshwater and saltwater environments. Mangrove forests, seagrass beds, and mudflats are key components of the estuarine landscape, supporting a wide range of organisms. Estuary has several unique species and habitats that contribute to its ecological significance [1]. Mangroves are breeding grounds and shelter for numerous organisms. The diverse array of species helps maintain ecological balance and resilience within the ecosystem. Different species interact and depend on each other for food, shelter, and other resources, forming intricate food webs and relationships. This biodiversity also enhances the estuary's productivity and stability, contributing to its overall health and functionality [2].

The presence of unique species and habitats within the estuary underscores its ecological value and the need for conservation efforts to safeguard these delicate ecosystems. Preserving biodiversity in estuarine environments is essential not only for the well-being of the species inhabiting them but also for the services they provide to surrounding communities, such as fisheries, water purification, and shoreline protection. In the estuarine ecosystem the bivalves are considered to be the natural purifiers due to its filter feeding habitat. These are the economically important as the fishery products provides the livelihood for coastal fishing community. The present study was conducted to study the bivalve species diversity and socio- economic status of fishing community involved in bivalve fishery along the Aghanashini Estuary.

Materials and Methods

A study was undertaken at Aghanashini estuary (Tadadi) for the economic evaluation of bivalve fishery and its associated socio economic status of fishermen. The study area lies between Lat of 14^0.25 to 14^0.55 N and Long of 74^0.29E. The estimated area of clam fishery in the estuary is restricted to 891 acres of land located in close vicinity of the port project area. About 100 acres of rich green mussel bed is located near the mouth of the estuary where abundant rocky stretch is witnessed. The estuary stretches up to 18 km upstream with salinity fluctuation according to tidal amplitude (15-33ppt). The estuary harbours about 25 villages of which 19 villages are associated with traditional fishing practises for their livelihood. Bivalve fishery appears to be a lucrative fishing as it takes 3-4 hrs a day of hard work which fetches high income.

Figure 1: Map Showing Aghanashini River

Figure 2: Map Showing Fishing Villages across Aghanashini Estuary

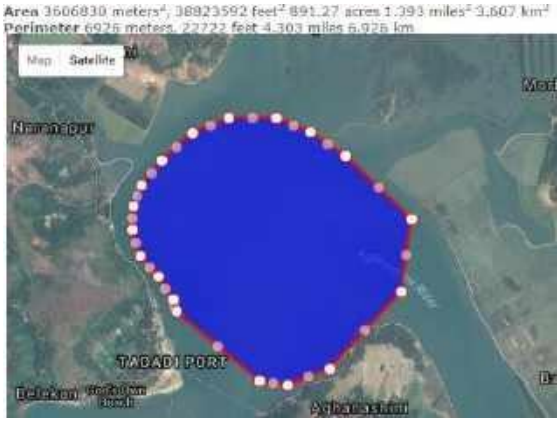


Figure 3: Image showing Bivalve Fishery Bed

Figure 4: Image showing Green Mussel Fishery Bed

A survey was conducted making an observation and interviewing the fishermen and associated fishermens using questionnaires and further documenting the observation with photographs.

Results

In the present study it is found that Clam/bivalve fishery is carried out for nearly 24 days a month involving around 2389 active fishermen representing 19 villages situated acoss the estuary. The general shallowness due to the low tidal amplitude and protected nature of the backwater system permit the fishermen to do the fishing in this estuary almost throughout the year. Major bivalve harvesting period consist of 3 to 5 hrs a day by adapting simple methods such as hand picking at shallow or water exposed area mainly by fisherwomen and children. Bivalve fisheries consist of commercially important five species of clams, one species of mussel and two species of oysters (Table.1).

Table.1. List of Bivalve Fishery

Species	**Common Name**
Phapia malabarica	Short neck clam
Katelysia marmorata	Venus shell
Villorita cyprinoides	Black clam
Meretrix casta	Yellow clam
Meretrix meretrix	Asiatic hard clam
Crassostrea madrasensis	Oyster

Saccostrea cucullata	Oyster
Perna viridis	Green mussel

Among the clams *Phapia malabarica* were dominated followed by *Meretrix meretrix, Meretrix casta* the peak season for the harvest was observed during March to May. The maximum clam collectors are from Aghanashini village with 650 people followed by Kodkanni representing 550 individuals. The green mussel (*Perna viridis*) with the rich bed on rocky stretch located near the mouth of the estuary, November to May is the peak season. Two species of edible oysters are observed and identified as *Crassostrea madrasensis* and *Sacostrea cuculata* ,the oyster fishery is observed throughout the year but the peak harvest was observed from March to May. The maximum people are involved from Aghanashini village followed by Modangi, Nusikotte and Mosalesal. The Fishery of Aghanashini estuary contribute more of Bivalve fishery compared to oyster.

Figure 5: Meretrix casta

Figure 6: Meretrix meretrix

Figure 7: Phapia malabarica

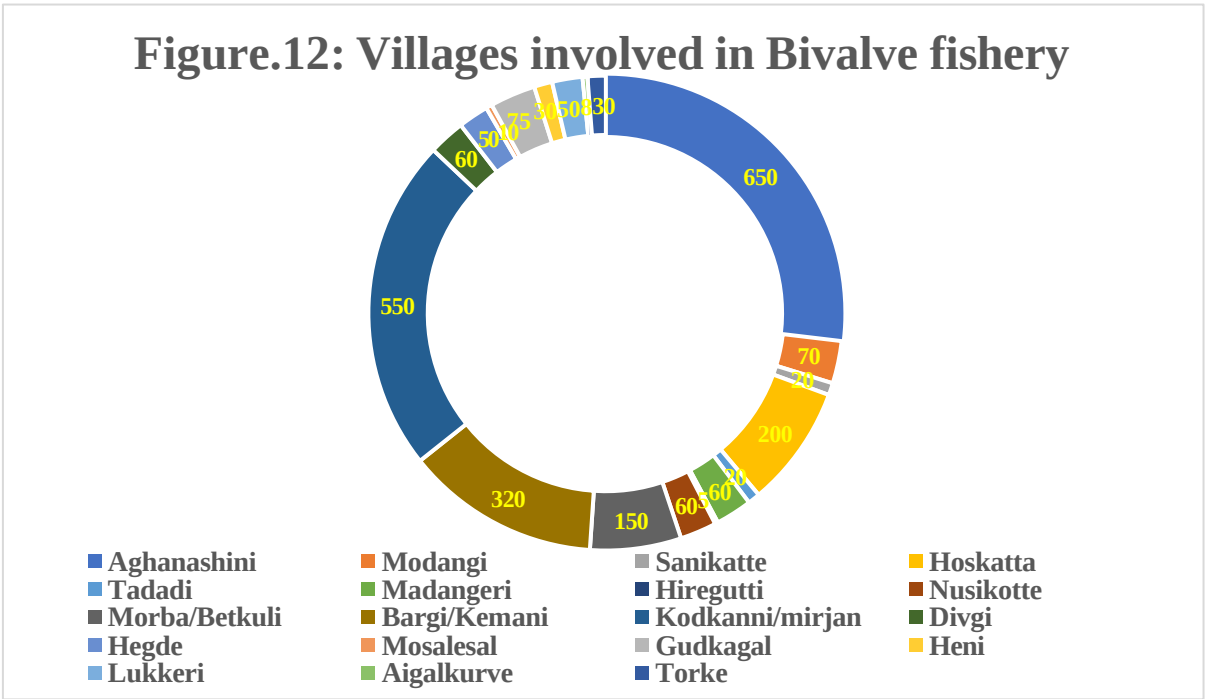
Figure 8: Villorita cyprinoides

Figure 9: Crassostrea madrasensis

Figure 10: Saccostrea cucullata

Figure 11: Perna viridis

Total of 19 Villages across Aghanashini Estuary are involved in the Fishing which consists of 2398 fishers of which 1548 male and 850 female. The major community involved in bivalve harvest are fishermen belongs to Harikantera caste followed by Gowda, Ambigas, Gabits, Muslims, Patagar and Naik community. The bivalve harvesting families are observed to be with moderate literacy level of having 10^{th} to 12^{th} education. The major income source for majority of households is by fishing activity. The bivalve fishing households generate income to the tune of Rs. 1.0 lakh to maximum of 5.0 lakhs per annum. During the absence of bivalve fisheries their income drastically decreases forcing them to find alternative income resources such as going for deep sea fishing boats as daily wage labour, small business and agriculture.



Conclusion

The Aghanashini estuary in Uttara Kannada District, Karnataka, supports a vital and economically significant fishery that is central to the livelihoods of the local communities. The data collected through interviews with 250 fishermen and women reveals that around 600 individuals are directly involved in the collection of bivalves, clams, oysters, and other shellfish, with an average of 250 fishermen/women harvesting daily basis. This activity which attains its peaks from October to May, generates substantial income for the 2,398 fishers across 19 villages, with the Harikantra community being the most dominant. Despite variations in educational backgrounds, fishing remains the primary source of livelihood for these communities. However, the long-term sustainability of this fishery is crucial for the continued sustenance of these organisms,well-being of both the natural resources and the people who depend on them, highlighting the need for sustainable management practices.

Reference

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