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Livelihood on crab catching in the Indian Sundarban mangrove swamps – a mini review

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Pramanik SK, Nandi NC
Social Environmental and Biological Association, Kolkata, India

Correspondence: Nandi NC, Social Environmental and Biological Association, Kolkata, India

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Introduction

Crab catching in the Indian Sundarban mangrove region is somewhat primitive, eco-friendly but reasonably labour intensive occupation of the poorest of the poor backward people of Sundarban Biosphere Reserve, a World Heritage Site in India. Crab catchers, irrespective of caste, community, and religion venture to this occupation, being less capital intensive and low technological skill dependent. The poor people in this venture use hook, baited line, and even catch by hand in the mangrove mudflats. They go for fishing with or without any crafts. There are daily, weekly or fortnightly crab fishing trip depending on the distance between the residence and the fishing grounds. Crab catchers of daily fishing trip use light bodied boat (*paukha*, flat bottomed or *dingi nauka*, round bottomed) in the nearby forest, while fortnightly trips are of 10-12days duration mostly participated by three crab fishers use strong bodied non-mechanised boat, venture in distant mangrove forest.[1,2]

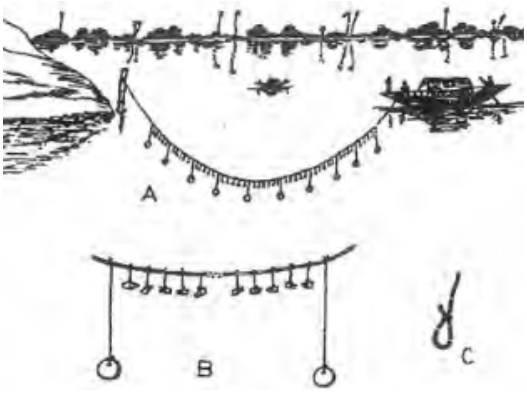

Figure 1 Crab fishing line (*don*) used by the fisherfolk of Sundarban region.

Figure 2 Crab fishing by hook (*sik*) in the mangrove mudflat of Sundarban.

Figure 3 Hand pickers (*Kankra kurano*) using wooden stick to facilitate fishing from the crab hole.

Overview

Crab fishers and fishing techniques

Crab fishers of Sundarban region use varied crafts, gears, and techniques (hook or line) of crab fishing. Accessories are simple, consisting of scoop net, forceps (*chimta*) and baskets for storing crabs. Gears used these crab fishers can be categorized as follows:

Hook fishers: J-shaped iron hook is used in the intertidal mudflats. Crab fishers insert the hooked end into the crab hole to detect the location of crab in the burrow, to hook up the crab.

Line fishers: Multiple baited line (*Don*) is used after the selection of a suitable creek. One end of the rope/ line (*don*) is tied to a bamboo pole driven into the mud, while the other end is tied to a post in the boat. Crabs attracted to the bait tied to the line, is pulled due to the clinging habit of the crabs. Three crab fishers are required for multiple baited line soon after sufficient tension develops on the line. Usually, one crab fisher reels line, another operates scoop net to catch the crabs, and the third person rows the boat towards the fixed bamboo pole. The crab harvest is kept in the hold of boat and in baskets.

***Thopa* fishers:** *Thopa* or single baited lines are mostly used by female crab fishers. They use *dingi nauka* in groups during neap tide for fishing from mangrove mudflats. The bait is tied to the end of the line, made of jute fibre or nylon.

Hand pickers: Crab catching by hand is known as *Kankra kurano*. Hand pickers use their right hand to catch the crabs in the burrow. Some hand pickers use spade, wooden rod, thick pant piece as an aid to hand-picking operation during neap tide time.[3]

General comments

Appreciating reviewer's comments, it is stated that Sundarban Biosphere Reserve (SBR) is a unique World Heritage Site and the only mangrove tigerland in the world, demarcated by Dampier Hodges line in the State of West Bengal, India. The core area of SBR is known as Sundarban National Park (SNP), while the rest of SBR contains one Tiger Reserve, *viz*., Sundarban Tiger Reserve (STR) and three Wildlife Sanctuaries (WLS), such as, Lothian Island, Sajnakhali and Haliday Island. The populated areas of SBR including islands are inhabited by around 50 lakhs poor people who depend substantially on fishing of fishes, prawns and crabs. Fishing is prohibited in the core areas but allowed in the buffer areas with permits. Crab fishers of Sundarban catch mainly two species of mud crabs, *viz*., *Scylla serrata* (Green mangrove crab) and *Scylla tranquebarica* (Purple crab), but there is possibility of catching *Scylla olivacea* (Orange mud crab) in this region. The crab fishers catch mud crabs without differentiating them at the species level. The species *S. tranquebarica* is larger and heavier in size, with purple claws and larger carapace width, its size attracts the export market. It is pertinent to know how mud crab catching is impacting Sundarban mangrove ecosystem. It is a fact that there is increasing impact and livelihood dependence on mud crab catching in the estuaries in and around inhabited islands and estuaries with mangroves. But the mud crab population is maintained in the core as well as buffer areas of SBR with vast mangrove swamps prohibited and or regulated for fishing purposes. It is known that catch per unit effort (CUPE) in fishing of mud crabs without species level differentiation is depleting in the estuarine mangrove swamps. It is natural that there is expected replenishment of mud crabs from the core and buffer areas of SBR to the estuarine ecosystem, islands and inhabited parts bordered by mangrove swamps. The key challenges faced by the crab fishers are tiger attack, and sometimes shark and crocodile bites. However, in general, their poverty is paramount, although they are used to it for generations.

Afterwords

Crab fishers of Sundarban mangrove ecosystem are the poorest people of Sundarban region. But, they are an important part of Sundarban economy. They are found sustainably exploiting the inshore coastal mangrove crab resources over the years. Crab fishing in this region is primitive with no innovation. Improvised crab trap attached to the bag net is of recent addition.[4] Crab fattening (*chamber chas*) now exists which may be helpful for the crab catchers to enhance higher economic return.[5] However, it is felt that this sector needs nursing for socio-economic reasons and for the sake of environment-friendly sustainable exploitation of fisheries resources in this part of the country.[6]

Acknowledgments

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Conflicts of interest

We declare that there is no conflict of interest of any kind.

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