

## **A Study on Aquatic Bycatch Mortality Estimation Due to Prawn Seed Collection and Alteration of Collection Method through Sustainable Practices in Selected Areas of Sundarban Biosphere Reserve (SBR), India**

**Authors :** Samrat Paul, Satyajit Pahari, Krishnendu Basak, Amitava Roy

**Abstract :** Fishing is one of the pivotal livelihood activities, especially in developing countries. Today it is considered an important occupation for human society from the era of human settlement began. In simple terms, non-target catches of any species during fishing can be considered as 'bycatch,' and fishing bycatch is neither a new fishery management issue nor a new problem. Sundarban is one of the world's largest mangrove land expanding up to 10,200 sq. km in India and Bangladesh. This largest mangrove biome resource is used by the local inhabitants commercially to run their livelihood, especially by forest fringe villagers (FFVs). In Sundarban, over-fishing, especially post larvae collection of wild *Penaeus monodon*, is one of the major concerns, as during the collection of *P. monodon*, different aquatic species are destroyed as a result of bycatch mortality which changes in productivity and may negatively impact entire biodiversity, of the ecosystem. Wild prawn seed collection gear like a small mesh sized net poses a serious threat to aquatic stocks, where the collection isn't only limited to prawn seed larvae. As prawn seed collection processes are inexpensive, require less monetary investment, and are lucrative; people are easily engaged here as their source of income. Wildlife Trust of India's (WTI) intervention in selected forest fringe villages of Sundarban Tiger Reserve (STR) was to estimate and reduce the mortality of aquatic bycatches by involving local communities in newly developed release method and their time engagement in prawn seed collection (PSC) by involving them in Alternate Income Generation (AIG). The study was conducted for their taxonomic identification during the period of March to October 2019. Collected samples were preserved in 70% ethyl alcohol for identification, and all the preserved bycatch samples were identified morphologically by the expertise of the Zoological Survey of India (ZSI), Kolkata. Around 74 different aquatic species, where 11 different species are molluscs, 41 fish species, out of which 31 species were identified, and 22 species of crustacean collected, out of which 18 species were identified. Around 13 different species belong to a different order, and families were unable to identify them morphologically as they were collected in the juvenile stage. The study reveals that for collecting one single prawn seed, eight individual life of associated faunas are being lost. Zero bycatch mortality is not practical; rather, collectors should focus on bycatch reduction by avoiding capturing, allowing escaping, and mortality reduction, and must make changes in their fishing method by increasing net mesh size, which will avoid non-target captures. But as the prawns are small in size (generally 1-1.5 inches in length), thus increase net size making economically less or no profit for collectors if they do so. In this case, returning bycatches is considered one of the best ways to a reduction in bycatch mortality which is a more sustainable practice.

**Keywords :** bycatch mortality, biodiversity, mangrove biome resource, sustainable practice, Alternate Income Generation (AIG)

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