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Bioeconomics of Small-scale Fisheries

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## STUDIES OF INTERACTIVE MARINE FISHERIES OF BANGLADESH

Shrimp Fry Collection

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The Estuarine Set Bagnet Fishery

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The Beach Seine Fishery of Teknaf

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The Marine Set Bagnet Fishery

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The Trammelnet Fishery

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The Bottom Trawl Fishery

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The Bottom Longline Fishery

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Concerned about the effects of the estuarine set bagnet fishery on the shrimp and finfish resources and also on other marine fisheries dependent on the same resources, the Bangladesh Department of Fisheries, with the assistance of the Bay of Bengal Programme (BOBP), conducted a two-year (1989-91) biosocioeconomic assessment of the estuarine set bagnet fishery. In order to make the assessments needed for management purposes, it was necessary to gather information on other interactive fisheries: the marine set bagnet, trammelnet, bottom longline and shrimp trawl fisheries. The only major marine fishery not included was the *Hilsa* fishery, which does not interact with the estuarine set bagnet fishery.

This report contains the information (catch rate, seasonality, catch, effort, biological parameters and cost and earnings) gathered in the estuarine set bagnet and other interactive fisheries, but the socioeconomic information and biosocioeconomic assessment results are published separately as BOBP/WP/90 and BOBP/REP/62.

The authors of the seven parts of this paper were all members of the Management and Development Project, Department of Fisheries, Chittagong, Bangladesh, and were assisted by BOBP's Senior Fishery Biologist, Dr K Sivasubramaniam. The investigations were done under BOBP's "Small-scale Fisherfolk Communities" project funded by DANIDA and SIDA and the reporting under "Bioeconomics of Small-scale Fisheries" funded by UNDP.

The Bay of Bengal Programme (BOBP) is a multiagency regional fisheries programme which covers seven countries around the Bay of Bengal — Bangladesh, India, Indonesia, Malaysia, Maldives, Sri Lanka and Thailand. The Programme plays a catalytic and consultative role: it develops, demonstrates and promotes new technologies, methodologies and ideas to help improve the conditions of small-scale fisherfolk communities in member countries. The BOBP is sponsored by the governments of Denmark, Sweden and the United Kingdom, and also by UNDP (United Nations Development Programme). The main executing agency is the FAO (Food and Agriculture Organization of the United Nations).

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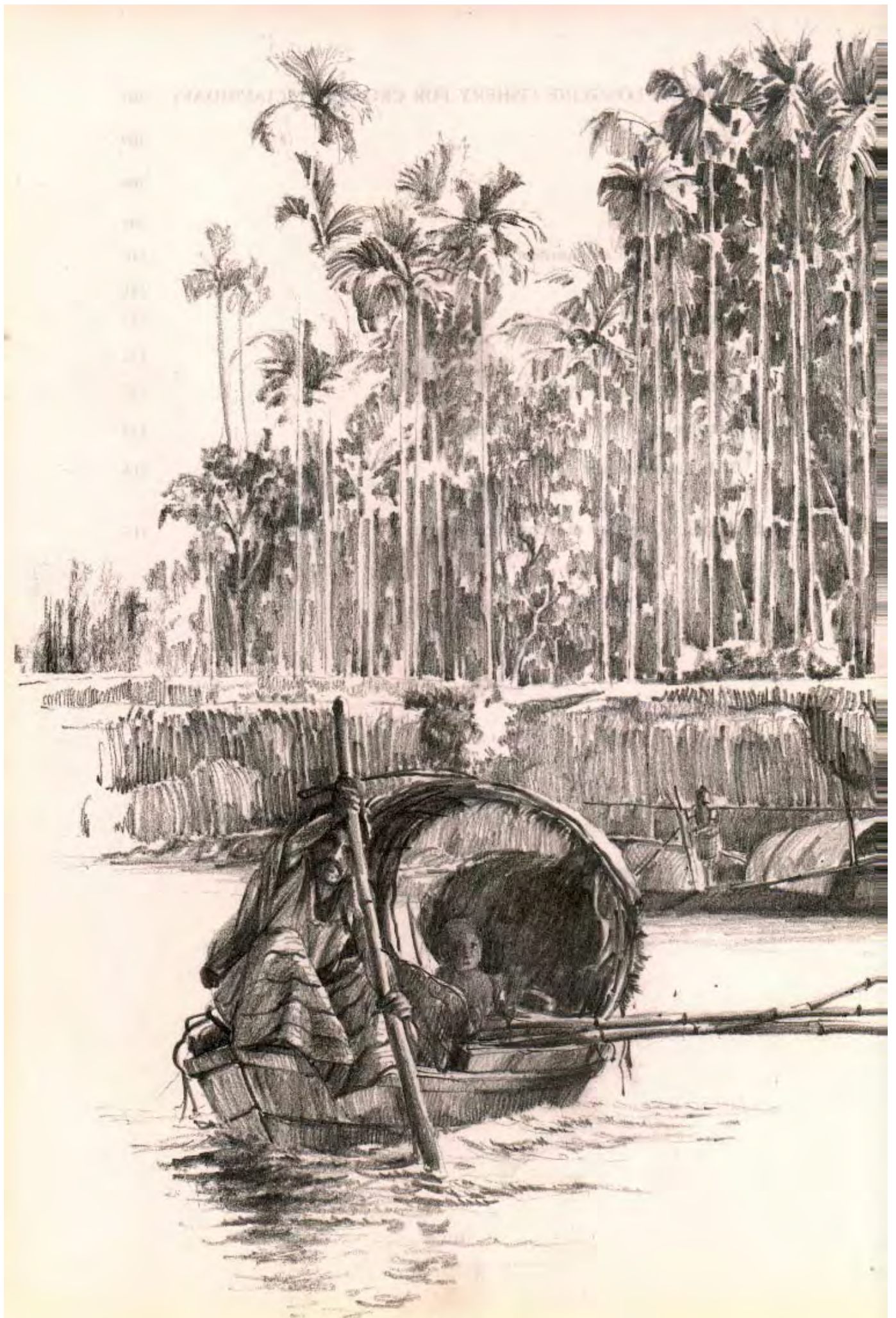
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## PREFACE

Arising out of the view among certain sections of the marine fisheries, that the Estuarine Set Bagnet (ESBN) fishery in Bangladesh is destructive to the marine resources and, consequently, affects other marine fisheries, such as the shrimp trawl and shrimp culture, the Department of Fisheries in Bangladesh requested the Bay of Bengal Programme (BOBP) to assist in ascertaining the validity of this opinion and to suggest appropriate action.

The first step was to conduct a pilot study of the ESN fishery in 1984. The results indicated that the gear was predominantly catching juveniles, immature fish and shrimp and that there was justification for a detailed investigation to quantify the impact of this fishery on the resources and other fisheries exploiting the same resources. In 1989, a case study on the biosocioeconomic assessment of the ESN was commenced and conducted by the Marine Fisheries Survey, Management and Development Project of the Department of Fisheries, with support from BOBP.

Realizing that the ESN fishery was catching many commercially valuable species which were also being caught by many other marine fisheries, the assessment of the impact of ESN on the resources and bother fisheries required relevant information on the exploitation of the same resources by the other fisheries interacting with the SBN. Since the required information from other fisheries was not available, investigation of all the major interactive fisheries also had to be undertaken.

However, considering that time, skilled personnel, funds and facilities available were all limited, only a few major species caught by the ESNB could be investigated – Speckled Brown Shrimp (*M. monoceros*), Tiger Shrimp (*P. monodon*), White Shrimp (*P. indicus*), Bombay Duck (*H. nehereus*), Ribbonfish (*L. savala*) and large Croaker (*Johnius* spp.). In Bangladesh, the primary gear used to catch one or more of these species are the pushnet/dragnet/fixed bagnet for Tiger Shrimp fry collection, beach seine and marine set bagnet (MSBN) for the finfish species and some of the shrimp species, trammelnet primarily for shrimp, bottom trawl for finfish and shrimp species and bottom longline for larger Croakers, besides the estuarine set bagnet which catches all the selected species.

The ESNB fishery being the primary fishery investigated, the survey of this fishery was designed and conducted in a proper manner. Again, due to the limitations already mentioned, the investigations of all other interactive gear were carried out by the same group of national staff in whatever time they could spare in between the fieldwork for the ESNB fishery. In the cases of the MSBN and trawl fisheries, considerable data collected during independent surveys, conducted prior to this one, were also used in the final analysis.

This working paper contains the information on all the seven fisheries mentioned above, based on the results of the analysis of the primary and secondary data available. The report on the ESNB fishery is more detailed than the rest for obvious reasons. The descriptions of the various fisheries are arranged in the best possible sequential order in which the animals enter each fishery, from their larval stage to the adult stage. This working paper may additionally be considered useful as a good source of information on many of the marine fisheries in Bangladesh.