

Preliminary Study on the Mud Crab Fishery in Mannar District

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Introduction

Mannar district situated along the west coast of Sri Lanka lies between north latitude 8.8667° and east longitude 80.0667°. The district is the unique assemblage of marine, brackish and freshwater and adjacent ecosystem with numbers of economically significant wild harvest. *Scylla serrata* (Forsk.), popularly known as mud crab and widely distributed throughout the Indo-West Pacific region is also found here. It belongs to the family Portunidae and to the group of swimming crabs. *Scylla serrata* is locally known as *Kali nandu* (in Tamil) and *Kalapu kakuluwa* (in Sinhala). They are predominantly estuarine but move towards the offshore and mangrove habitats for spawning and early larval life. In recent years, mud crab appears to be the most important export commodity in Sri Lanka and it triggered the continuous and irresponsible exploitation of the species. Hence, the present study was undertaken to study the status of mud crab fishery in Mannar.

Methodology

The present study was carried out during May 2013 to August 2013. Four landing sites, Southbar, Pallemunai, Achankulam and Illuppakadavai were selected after the careful analysis of available literature considering the mangrove density and the mud crab availability. Live mud crab specimens, which were collected from the morning till evening was observed daily in roster basis at each landing center in the evening during the study period. After the cautious observation of the crabs the suitable individuals were selected for the study. The width of carapace (CW) between the ninth teeth of left and right antero-lateral border was measured with a caliper and the body weight was recorded in grams using a digital weighing scale. Identification of mud crab species in the field was performed following Keenan (1994). Additional information regarding the capture method, capture time and number of fishers engaged in this activity were recorded by interviewing the fishermen. The meteorological data were obtained from the meteorological department of Mannar while the monthly harvest data were obtained from the daily records of fishers. The carapace length frequency pattern of *Scylla serrata* was drawn separately for both male and female of each sampling site to observe the length frequency distribution of the harvest.

Results and Discussion

Two species of mud crabs; *Scylla serrata* and *Scylla olivacea* were recorded from Mannar Lagoon. *Scylla serrata* was found in almost all the sites throughout the district but *Scylla olivacea* existed in sites where mangrove forests occur (Table 1). Baited traps, gill nets and hand picking from crab holes using a stick are practiced for catching crabs, but the baited traps was the most dominating gear type used by fishers in all the sites. The size of the trap and the mesh size of the nets vary from lagoon to lagoon.

Table 2. Fishery data of study sites.

Site	Capture species	Capture method	Number of fishers
Southbar	<i>Scylla serrata</i>	Baited Trap, Manual collection	89
Pallimunai	<i>Scylla serrata</i>	Baited Trap	113
Achankulam	<i>Scylla serrata</i> <i>Scylla olivacea</i>	Baited Trap, Net, Manual collection	130
Illuppakadavai	<i>Scylla serrata</i> <i>Scylla olivacea</i>	Baited Trap, Net, Manual collection	48

The size of crabs caught varied from 12 cm to 20 cm carapace width (Figure 1). In Southbar and Pallimunai, crabs with 13-15 cm size dominated the catch and rarely consist with the male sizes beyond 17 cm in Pallimunai. Narrow range of size variation can be seen in Achankulam site as most of the catch fallen between 12 cm to 16 cm. Both males and females Illuppakadavai area is rich with bigger crabs than other sites. In 1991 Jayamane recorded *Scylla serrata* with 28 cm CW and 3 kg of weight in Mannar lagoon. Moreover the size distribution of crabs shows a vast variation but at the present the size distribution of *Scylla serrata* shows a narrow range with the mean carapace width of 15.35 cm and the mean weight of the crab is 600.89 g. The trend shows a declining level of harvest when compare with the previous harvest. From the figure 1 it could be understood that the fishermen are prioritizing the weight as major depended character as it influence the market. Data obtained during the study period has shown that there are two different species harvested despite *S. serrata* was preferred by the fisherman because of the high market value.

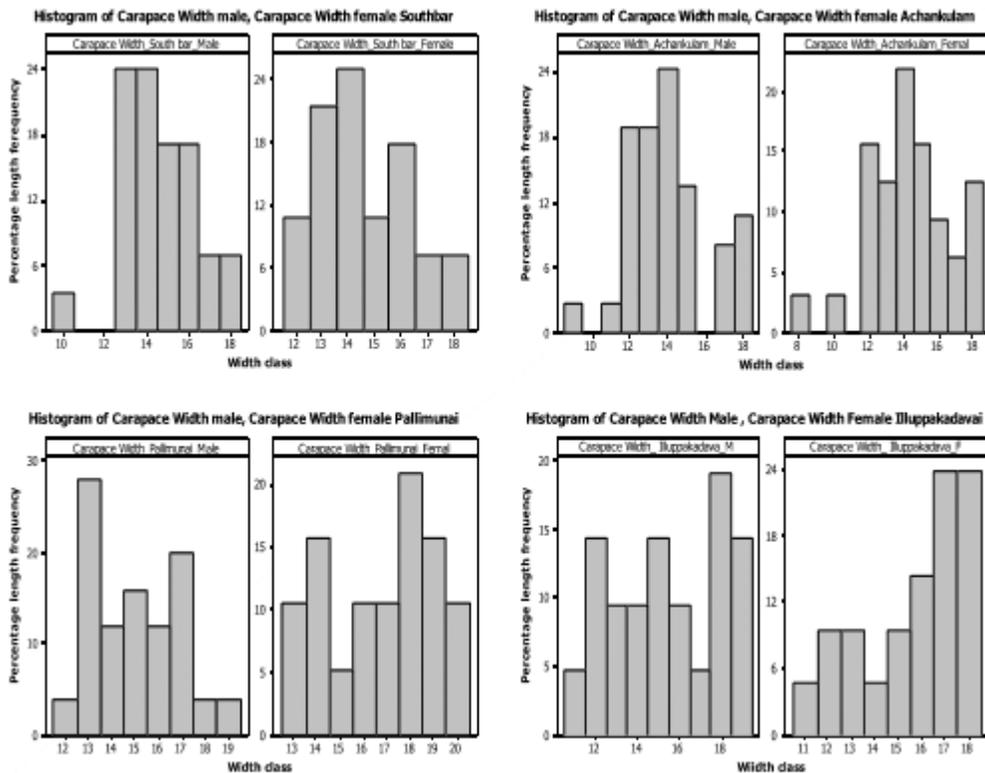


Figure 3. Length frequency distribution of male and female crabs.

Perception towards the harvest of immature crabs has seen from some fishers, but the artisanal fisher folks lack this concept. Seasonal changes influence the crab fishery and the trend of

catches in four sites during the first six months of the year is shown in Figure 2. Highest exploitation of crab was in March and lowest in April during the study period in all the study sites except Achankulam because of unusual water flow in the lagoon which fed by Arivuaru. Highest catch was observed in Achankulam where the highest number of fishermen is available. When catch per fisherman is considered Illappakkadavai shows the highest catch per fisherman. In Mannar, military restrictions existed in Illippakkadavai during the civil conflict, which restricted the mud crab fishing for several years, thus the area consisting with flourishing crab fishery resources as well as fishing effort, as there are only 48 fishers.

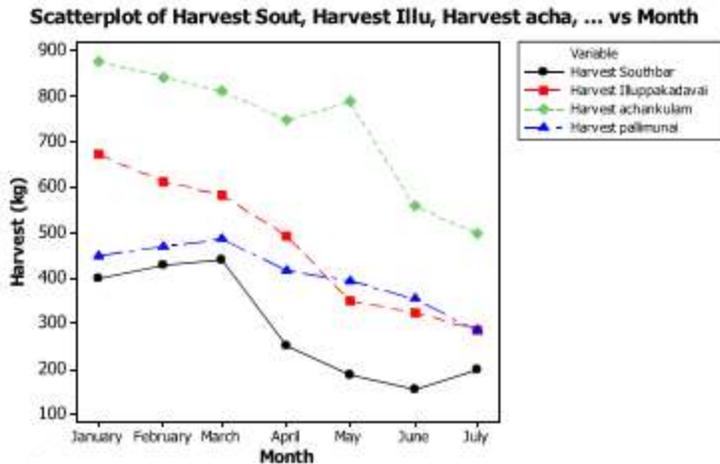


Figure 2. Trend in catches during early six months of year 2013

ConclusionS

Mud crab fishery in Mannar is an important livelihood that is providing employment for considerable number of fisher families, Crabs are an expensive commercial commodity and it is exploited at alarming rate without considering their sustainability. In Mannar, fishermen are not aware of how the fishery should be managed in a sustainable manner. It is important to study the fishery in more detail and find out methods for sustaining this important fishery

References

Jayamanne, S.C., 1991. The mud crab fishery in Sri Lanka. The Mud Crab. A report on the seminar convened in SuratThani, Thailand. pp: 41.