

Intensive operations of non-selective artisanal shrimp dragnet fishing: a potential threat to sustainability of export oriented blue swimming crab industry off Northern Sri Lanka

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The real effect of uncontrolled and intensive small-scale fisheries, due to open-access and common-property right nature, is rarely evaluated. Such a small-scale fishery is operated for shrimps in shallow coastal waters off Jaffna using drag nets. The dragnet catches have been observed which comprise with large amount of very small blue swimming crabs (BSC) (*Portunus pelagicus*). Therefore, this study aimed to analyse the non-targeted BSC catch and the effects of this drag net fishery on BSC industry. Weekly samples of BSC which randomly collected from dragnet landing were analysed from June to December 2015, the peak fishing period of dragnet. Around 140 fishermen from Saanthai were found to be migrating 8-45 km daily to Ponnalai, Velanai and Punkuduthivu fishing grounds, which are abundant with sea grass beds and adjacent mangrove, to operate dragnet: 1.5 x 5 m long; 1.27 cm stretched mesh net piece connected to strong poles at either sides, and in between lighter wooden poles to facilitate dragging by two fishers from both sides. At the fishing grounds 70 ± 3 gear units were operated per day. Catch per unit effort was 26.58 ± 9.62 kg per day. During the study period Shrimp: by-catch ratio varied from 1:5 to 3:1, while Shrimp: BSC ratios were 3:4 to 95:1 in weight basis. Of BSC, 72 % was smaller than the L_{50} , 7.68 cm carapace width which has been calculated by Sivanthan and De Croos (2012). Among them, 40 % of BSC individuals were 5 times smaller than the L_{50} number. Moreover, 60.5 % of BSC were immature individuals probably caught while migrating towards sea from the nursery ground. Per day 23 % of these smaller BSC was discarded while seaweeds and sea grass discards were 33 %, indicating the damage caused on the important nursery habitat for juvenile BSC. This study emphasises the importance of implementing and monitoring BSC resource management regulations even on the other multispecies fisheries and their by-catches.

Keywords: By-catch, Discards, *Portunus pelagicus*