

Heavy landing of *Charybdis smithii* and need for proper utilization

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Heavy landings of *Charybdis smithii* during the January to March, 2020 was documented in Mangalore fisheries harbour. These crabs were the part of trawl discards as geo-coded *in situ* data collection on trawl discards showed that *C. smithii* was available along Karnataka coast during August to December and in May as pelagic or semi-pelagic shoals from a depth range of

more than 100 m. Landing of this species in Fisheries Harbours was generally rare since there was very limited market demand for these crabs. Unprecedented, heavy landings of *C. smithii* in Mangalore Fisheries Harbour and studies thereof is communicated. On 24 January, 2020, ten trawlers landed an estimated catch of 2 tonnes *C. smithii*. In earlier years, these crabs



Figure.1. *C. smithii* landing in Mangalore Fisheries Harbour

were not accepted by fish meal industry and were used only for drying purpose. However in year 2020, *C. smithii* was accepted by fish meal units, @ rate of ₹10 per kilogram (kg) initially and the procurement price increased to ₹13 per kg, when these crabs were landed in good quantity. On February 5th, 2020 15 boats landed each with approximately 500kg and by the second week of February the average landing of *C. smithii* per boat was 200 to 650kg. On 13 February, 2020 above 10 t of crabs were landed by 25 trawlers and this trend extended till end of February. On 28 February, heavy landing of *C. smithii* with a catch rate ranging from 650 to 1,500kg per trawler, which incidentally formed more than one fourth of the total multiday trawlboats' landings of the day was observed. With increase in quantity of landing, the procurement price for the crabs were hiked to ₹13/kg. On 4th March, 2020, with landing per unit between 1,250 to 1,600 kg approximately 24t of *C. smithii* by 17 multiday trawl units was recorded. Quantity of landing of the species reduced thereafter and by 14 March, 2020 landing reduced to 100 to 200 kg per boat and most of the fish meal plants stopped their procurement and price for the crab was reduced to ₹ 5 per kg. Poor catch of commercial species during this period forced the fishermen to land the crabs considered as a "low value species". Implementation of Minimum Legal Size (MLS) for commercial species and restriction of fishing in shallow coastal waters where juvenile fishes are common, was one of the reasons the fishermen moved to deeper waters for fishing. Shellfishes generally not accepted by fish meal industry, were accepted this year for making supplements for poultry feed and fish feed.

The deep-water brachyuran crab, *Charybdis smithii* inhabits the shelf edge and have a wide distribution throughout the coast. Generally caught from deeper

waters, they are mostly discarded in the sea itself due to lack of demand in the market. Mass concentration of this species in the benthic zone of lower continental shelf and upper slope of Indian coasts were well documented as early as the 60s. These crabs play a major role in the trophic structure of the south east Arabian Sea ecosystem by forming a major food of cobia, scombroid fishes, pelagic sharks and other demersal fishes.

Globally, bringing more non-conventional species to meet increasing seafood demand in the markets is evident. Early in 1990s exploratory surveys indicated good prospects of fishery of *C. smithii* and its meat content and proximate studies were estimated. However, regular trawl fishery during that time was restricted within 100m depth, so that the species was not a part of regular trawl catch. From year 2000 onwards the species started appearing on a regular basis while trawling at a depth beyond 100m in trawl catch of Kerala and Karnataka. Even though the meat content is comparatively low (10 to 15%), protein content in *C. smithii* is comparable and even better than that of those of conventional crabs such as *Portunus pelagicus* and *P. sanguinolentus*. The protein content in the meat estimated as 10 to 11% by wet weight (73 to 77% by dry weight), rich in essential amino acid and essential ω -3 and ω -6 fatty acids, which qualifies its meat as excellent for human nutrition. Since the crabs were brought for non-edible purpose, they were brought without proper preservation. If proper preservation, processing and marketing of this species is streamlined, this species will be an asset to meet the crab meat requirements for domestic market as well as meeting the export demand. With proper advisories on preservation and handling, these crabs can become part of the commercial fishery utilised for edible purposes.