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Decapod crustacean diversity of Ratnagiri coastal waters, Maharashtra, India

Kolhe SS and Mogalekar HS

Abstract

Study was undertaken to provide systematic list of decapod crustaceans during January 2016 to January 2017 at Mirkarwada fish landing centre along the west coast of India. A total of 24 species of decapod crustacean under three infraorders, seven families and 13 genera were recorded from coastal waters of Ratnagiri in Maharashtra. About 16 species of shrimp belonging to eight genera and three family, seven species of crabs belonging to four genera and three family and one species of lobster were identified from study area. The most diverse family was Penaeidae with 12 species and six genera, followed by Portunidae with five species and two genera, Solenoceridae and Sergestidae with one species and two genera each, Calappidae, Xanthidae and Palinuridae with one species and one genera each. The results of the present study indicated that coastal waters of Ratnagiri in Maharashtra is endowed rich decapod crustacean fauna. The taxonomically verified checklist of the decapod crustaceans recorded along the coastal waters of Ratnagiri in Maharashtra would be a base document for further studies.

Keywords: Decapod crustaceans, Mirkarwada fish landing centre, Ratnagiri coastal waters, west coast of India

1. Introduction

Decapod crustaceans are important members of tropical benthic communities. In addition to their prominent ecological roles, many of the larger and more abundant species represent important food resources [1]. Decapod crustacean inhabiting the marine ecosystems of India are diverse and fairly well known. In India as many as 437 species of shrimps and prawns [2] and 705 species of brachyuran crab [3] have been recorded so far. Faunal surveys of a given region are essential for the understanding of the local taxonomic diversity, especially in habitats affected by over fishing, where the composition of communities may be significantly altered before it becomes fully documented.

Maharashtra with a coastline of 720 km occupies an important place in the decapod crustacean fishery in India. The marine decapod crustacean fauna of Maharashtra, one of the richest in the India, remains rather poorly documented [4-5]. Henderson [6] was the first to record species of penaeid shrimps from Bombay coast in Maharashtra. Similarly marine crabs were reported by Chhapgar [7] from Bombay coast in Maharashtra. A study on the distribution and abundance of decapod crustacean diversity was lacking in the coastal waters of Ratnagiri along Maharashtra coast due to limited number of investigations. This is the first study that focuses on the diversity and abundance of decapod crustaceans in the Ratnagiri coastal waters of Maharashtra.

2. Materials and Methods

The present investigation was carried out at the Mirkarwada fish landing centre in Ratnagiri coastal waters along the west coast of India. Area of fishing is shown in Fig. 1. Sampling was conducted during January 2016 to January 2017 on weekly basis at morning and evening hours. The decapod crustaceans were caught by the various gears, such as trawl net, sometimes by gill nets and traditionally by traps. The collected sample of representative decapod crustacean fauna were identified up to species level using standard references [8 - 10]. The classification of decapod crustacean fauna was adopted from WoRMS Editorial Board [11].

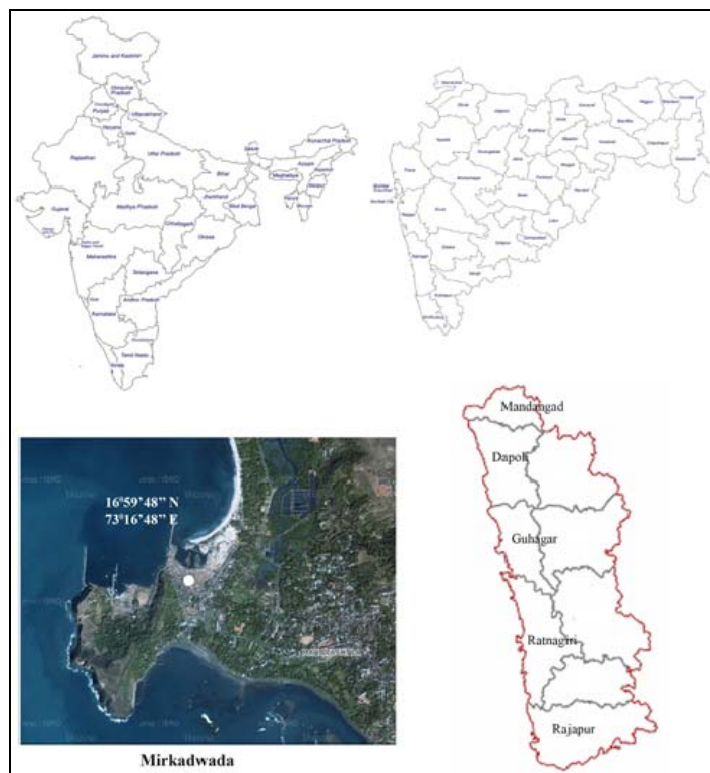


Fig 1: Mirkarwada fish landing centre at Ratnagiri along the west coast of India.

3. Results and Discussion

Systematic list of decapod crustaceans from Ratnagiri coast of Maharashtra with note on common names, observed maximum size and local utilization pattern is provided in Table 1. A total of 24 species of decapod crustacean under three infraorders, seven families and 13 genera were recorded from coastal waters of Ratnagiri in Maharashtra (Table 1). About 16 species of shrimp belonging to eight genera and

three family, seven species of crabs belonging to four genera and three family and one species of lobster were identified from study area (Table 1). The most diverse family was Penaeidae with 12 species and six genera, followed by Portunidae with five species and two genera, Solenoceridae and Sergestidae with one species and two genera each, Calappidae, Xanthidae and Palinuridae with one species and one genera each (Fig. 2).

Table 1: Systematic list of decapod crustaceans from Ratnagiri coast, Maharashtra, India

Taxa	Common name (English)	Size	Utilization
Phylum: Arthropoda von Siebold, 1848; Subphylum: Crustacea Brunnich, 1772; Class: Malacostraca Latreille, 1802; Superorder: Eucarida Calman, 1904; Order: Decapoda Latreille, 1802; Suborder: Dendrobranchiata Spence Bate, 1888; Infraorder: Penaeidea Rafinesque, 1815; Family: Penaeidae Rafinesque, 1815; Genus: Fenneropenaeus Perez Farfante, 1969			
1. <i>Fenneropenaeus indicus</i> (Milne-Edwards, 1837)	Indian white prawn	17 cm TL	Consumed Freshly & Exported
2. <i>Fenneropenaeus merguensis</i> (De Man, 1888)	Banana prawn	20 cm TL	Consumed Freshly & Exported
Genus: Marsupenaeus Tirmizi, 1971			
3. <i>Marsupenaeus japonicus</i> (Bate, 1888)	Kuruma prawn	15 cm TL	Consumed Freshly & Exported
Genus: Metapenaeus Wood-Mason, 1891			
4. <i>Metapenaeus affinis</i> (Milne-Edwards, 1837)	Jinga shrimp	17.5 cm TL	Consumed Freshly & Exported
5. <i>Metapenaeus brevicornis</i> (Milne-Edwards, 1837)	Yellow shrimp	15.2 cm TL	Consumed Freshly
6. <i>Metapenaeus dobsoni</i> (Miers, 1878)	Kadal shrimp	12 cm TL	Consumed Freshly & Exported
7. <i>Metapenaeus monoceros</i> (Fabricius, 1798)	Speckled shrimp	14 cm TL	Consumed Freshly
Genus: Melicertus Rafinesque, 1814			
8. <i>Melicertus canaliculatus</i> (Olivier, 1811)	Witch prawn	12 cm TL	Consumed Freshly
Genus: Parapenaeopsis Alcock, 1901			
9. <i>Parapenaeopsis hardwickii</i> (Miers, 1878)	Spear shrimp	13.5 cm TL	Consumed Freshly
10. <i>Parapenaeopsis stylifera</i> (Milne-Edwards, 1837)	Kiddi shrimp	14.5 cm TL	Consumed Freshly & Exported
Genus: Penaeus Fabricius, 1798			
11. <i>Penaeus semisulcatus</i> de Haan, 1844	Green tiger prawn	16.5 cm TL	Consumed Freshly
12. <i>Penaeus monodon</i> Fabricius, 1798	Giant tiger prawn	30 cm TL	Consumed Freshly & Exported
Family: Solenoceridae Wood-Mason, 1891; Genus: Solenocera Lucas, 1849			
13. <i>Solenocera choprai</i> Nataraj, 1945	Ridgeback shrimp	8 cm TL	Consumed Freshly
14. <i>Solenocera crassicornis</i> (Milne-Edwards, 1837)	Udang merah	6.7 cm TL	Consumed Freshly
Family: Sergestidae Dana, 1852; Genus: Acetes H. Milne Edwards, 1830			
15. <i>Acetes indicus</i> Milne-Edwards, 1830	Jawla paste shrimp	2 cm TL	Consumed Freshly
16. <i>Acetes johni</i> Nataraj, 1947	Paste shrimp	2 cm TL	Consumed Freshly
Infraorder: Brachyura Latreille, 1802; Family: Calappidae De Haan, 1833; Genus: Calappa Weber, 1795			

17. <i>Calappa lophos</i> (Herbst, 1785)	Common box crab	10 cm CW	Preparation of Chitin & Chitosan
Family: Portunidae Rafinesque, 1815; Genus: Charybdis De Haan, 1833			
18. <i>Charybdis annulata</i> (Fabricius, 1798)	Banded-legged swimming crab	7 cm CW	Consumed Freshly
19. <i>Charybdis feriatius</i> (Linnaeus, 1758)	Crucifix crab	20.0 cm CW	Consumed Freshly
20. <i>Charybdis lucifera</i> (Fabricius, 1798)	Yellowish brown crab	4.6 cm CW	Consumed Freshly
Genus: Portunus Weber, 1795			
21. <i>Portunus pelagicus</i> (Linnaeus, 1758)	Flower crab	20.0 cm CW	Consumed Freshly
22. <i>Portunus sanguinolentus</i> (Herbst, 1783)	Three-spot swimming crab	20.0 cm CW	Consumed Freshly
Family: Xanthidae Mac Leay, 1838; Genus: Atergatis De Haan, 1833			
23. <i>Atergatis integerrimus</i> (Lamarck, 1801)	Red egg crab	7.8 cm CW	Preparation of Chitin & Chitosan
Suborder: Pleocymata Burkenroad, 1963; Infraorder: Achelata Scholtz & Richter, 1995; Family: Palinuridae Latrille, 1802; Genus: Panulirus Weber, 1795			
24. <i>Panulirus polyphagus</i> (Herbst, 1793)	Mud spiny lobster	40 cm TL	Consumed Freshly & Exported

TL = Total Length; CW = Carapace Width

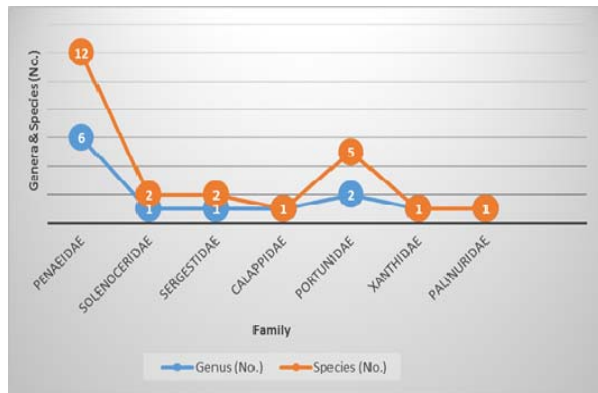


Fig 2: Number of genera and species under each family of the order Decapoda reported from Ratnagiri coast.

Sarode and Patil ^[12] recorded 15 species of decapod crustaceans belonging to seven family and 11 genera from Dahanu coastal waters in Palghar district of Maharashtra state along west coast of India. Mogalekar *et al.* ^[13] recorded 20 species of decapod crustaceans belonging to five family and 10 genera from Vembanad Lake along west coast of India. However, present record of 24 species is quit higher compared to above reports. Similarly, present record of 24 species is less than Pati *et al.* ^[4], Devroy and Rath ^[5], Pawar ^[14] and Beleem *et al.* ^[15]. Pati *et al.* ^[4] documented 91 species of marine crabs from Maharashtra coastal waters. Devroy and Rath ^[5] provided list of 26 Penaeid prawns of Maharashtra belonging to 11 genera. Pawar ^[14] reported 26 species of decapod crustaceans representing 18 genera and 12 family from mangrove ecosystem of Uran (Raigad) in Navi Mumbai along West coast of India. Beleem *et al.* ^[15] reported 22 species of crabs under 22 genera belonging to 11 families from Gulf of Kachchh Marine National Park. The results of the present study indicated that coastal waters of Ratnagiri in Maharashtra is endowed rich decapod crustacean fauna. The taxonomically verified checklist of the decapod crustaceans recorded along the coastal waters of Ratnagiri in Maharashtra would be a base document for further studies.

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