

Aquatic Invasions Records

The occurrence of the Indo-Pacific swimming crab *Scylla serrata* (Forskål, 1775) in the Southwestern Atlantic (Crustacea: Brachyura: Portunidae)

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Abstract

The Indo-Pacific swimming crab *Scylla serrata* (Forskål, 1775) is reported here for the second time from the Southwestern Atlantic (Brazil). The species had been previously recorded from Brazil in the early 1980's. On both occasions individuals were captured near port areas.

Key words: alien marine species, ballast water, Indo-Pacific, Western Atlantic, Brazil, Uruguay, Argentina

Introduction

During the Oligocene and throughout the Miocene, species of *Scylla* De Haan, 1833 inhabited the Atlantic Ocean (Tavares and Mendonça Jr. 1996). However, all the recent species in the genus are currently restricted to the Indo-Pacific. Among the four recent species is *Scylla serrata* (Forskål, 1775), which naturally occurs from the Red Sea, South Africa and Mauritius to Japan, Taiwan, Philippines, Timor, Indonesia, Western and Eastern Australia, Fidji, Solomon Islands, New Caledonia, Western Samoa, Panay Islands, and Tahiti (Keenan et al. 1998). In 1926 *S. serrata* was intentionally introduced to Hawaii, where it has self-maintaining populations (Carlton and Eldredge 2009). In the early 1960's *S. serrata* was also intentionally introduced into the Gulf coast of Florida for aquaculture purposes (Park 1969). The species did not become established in the USA.

A transient female of *Scylla serrata* has been captured by fishermen off the coast of São Paulo (Melo 1983) and this remains the only known record from the Southwestern Atlantic to date (Tavares 2011; Tavares and Mendonça Jr. 1996; 2004; Junqueira et al., 2009). More recently, a second Brazilian specimen of *S. serrata* was captured on 7 April 2011 and this record is discussed.

Material

A large female *Scylla serrata* (Figure 1) weighting 1.9 kg was captured around 9 meters depth by fisherman Paulo Fernando dos Santos on 7 April 2011 in a tangle fish net set for sole off Sino beach, Marambaia Island, Sepetiba Bay, Rio de Janeiro, Brazil (approximately 23°04'53"S-44°00'30"W). Incidence of carapace fouling included several acorn barnacles, *Chelonibia* cf. *patula* (Ranzani, 1818). The specimen, whose carapace length and width are 148 mm × 238 mm, respectively, is kept in the Museum of Zoology, University of São Paulo (MZUSP 24232).

Discussion

The introduction of *Scylla serrata* in Florida clearly cannot explain the presence of *S. serrata* in both São Paulo (in 1983) and Rio de Janeiro (in 2011). However, the likely introduction point is Itaguaí Port (also known as Sepetiba Port), located at Sepetiba Bay as this is, one of the biggest ports of Latin America. In terms of modes of introduction, it is unclear whether larvae of *S. serrata* arrived at the harbor with discharged ballast water or alternatively adult live *S. serrata* were carried on board ship as fresh food and possibly thrown overboard into the harbor.



Figure 1. Female *Scylla serrata* (Forskål, 1775) captured on 7 April 2011 at Sino beach, Marambaia Island, Sepetiba Bay, Rio de Janeiro, Brazil.

Box 1. Key to native and non-native Brazilian portunids.

1.	– Carapace antero-lateral teeth 3 to 6	2
	– Carapace antero-lateral teeth 9 to 11	4
2.	– Antero-lateral teeth 3. Front subentire. Antenna excluded from orbit	<i>Coenophthalmus</i> (1 sp.) <i>C. tridentatus</i> A. Milne-Edwards, 1879
	– Antero-lateral teeth 5 to 6	3
3.	– Antero-lateral teeth 5	<i>Ovalipes</i> (1 sp.) <i>O. trimaculatus</i> (De Haan, 1833)
	– Antero-lateral teeth 6	<i>Charybdis</i> (1 sp.) <i>C. hellerii</i>
4.	– Movable portion of antenna not excluded from orbit	5
	– Movable portion of antenna excluded from orbit by a prolongation of its basal article. Antero-lateral teeth alternately large and small	<i>Cronius</i> (2 spp.)
5.	– Chelipeds robust, palm inflated and smooth, not costate	<i>Scylla</i> (1 sp.) <i>S. serrata</i>
	– Palm costate and usually with spines	6
6.	– A longitudinal ridge on the palate	7
	– No longitudinal ridge on the palate. Superior fissures of orbit open, V-shaped	<i>Arenaeus</i> (1 sp.) <i>A. cribrarius</i> (Lamarck, 1818)
7.	– Anteroexternal angle of merus of third maxillipeds not strongly produced laterally; carpus of cheliped with mesiodistal spine; male abdomen triangular	8
	– Anteroexternal angle of merus of third maxillipeds strongly produced laterally; carpus of cheliped without mesiodistal spine; male abdomen T-shaped	<i>Callinectes</i> (6 spp.)
8.	– Pterygostomial region of the carapace without a stridulating ridge	<i>Portunus</i> (7 spp.)
	– Pterygostomial region of the carapace with a stridulating ridge	<i>Laleonectes</i> (1 sp.) <i>L. vocans</i> (A. Milne-Edwards, 1878)

Scylla serrata can attain a weight of over 2 kg and is highly aggressive (Motoh 1979). It inhabits estuarine and mangrove regions and is essentially carnivorous feeding upon a variety of food items, including fish, mollusks, smaller crabs, shrimps, and other small invertebrates. The species is not established in the Western

Atlantic. However, if it succeeds to establish self-sustaining populations, and depending on its abundance, it could well be a serious threaten to sensitive ecosystems such as the mangroves. *Scylla serrata* is the host for the parasite dinoflagellate *Haematodinium* sp. In Alaska this parasite causes BCD (Bitter Crab Disease)

considered a serious problem for the commercial fishery of *Chionoecetes bairdi* Rathbun, 1893 (Hudson and Lester 1994).

To date thirteen marine alien species of decapod crustaceans have been recorded from the Southwestern Atlantic, seven identifications based on single specimens. Five species of alien decapods have established local populations: *Charybdis hellerii* (A. Milne-Edwards, 1867) (Brazil), *Eurypanopeus depressus* (Smith, 1869) (Uruguay and Argentina), *Palaemon macrodactylus* Rathbun, 1902 (Argentina), *Pyromaia tuberculata* (Lockington, 1877) (Brazil and Argentina) and *Rhithropanopeus harrisi* (Gould, 1841) (Brazil). Only *C. hellerii* is of Indo-Pacific origin.

The following key (adapted from Rathbun 1930) can be used to distinguish the Indo-Pacific swimming crabs *Scylla serrata* and *Charybdis hellerii* from native Brazilian portunids (Box 1). Between brackets is the number of species known from Brazilian waters.

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