First record of Sternaspis thorsoni (Polychaeta: Sternaspidae) from Northern Oman Sea (Chabahar Bay, Iran)

Mehran Loghmani 1*, Ahmad Savari 2, Babak Doustshenas 2, Bita Archangi 2 & Keyvan Kabiri3.
1Department of Marine Biology, Chabahar Maritime University, Chabahar, Iran; Khorramshahr University of Marine Science and Technology, Khoramshahr, Iran
2Department of Marine Biology, Khorramshahr University of Marine Science and Technology, Khoramshahr, Iran
3Iranian National Institute for Oceanography and Atmospheric Science, Tehran, Iran.

* [E-mail: loghmani_mehran@yahoo.com]

Received 10 September 2014; revised 22 November 2014

In this study report of Sternaspis thorsoni from Iranian coasts of northern Oman Sea was undertaken. Sternaspide polychaetes are usually found at different depths of marine habitats ranging from soft bottoms of coastal waters to deep-sea areas. Sternaspis thorsoni was identified as a new species by Sendall & Salazar-Vallejo in 2013.. Sternaspis thorsoni was observed between 3m and 5.5m depths of Chabahar bay during March 2014. Previous record refers this species in the Persian Gulf from 3 to 110m depth.

[Keywords: Polychaeta- Sternaspidae -Sternaspis thorsoni - Chabahar Bay-Oman Sea]

Introduction

Sternaspidae was first reported in the sixteen century and scientifically described in the late 1810s. Sternaspide have been found in a different sediments types, including rocky sand, coarse sand and broken shell, soft mud and deep clays and muds. Sternaspids can be readily recognized by their short inflated body, and reddish ventral sclerotinised plate which is surrounded by chaetae. Sternaspis spread their branchiae over the sediment surface and bury themselves in the ventral shield covering the burrow. Adults are of moderate sizes growing up to 30mm long with about 30-34 segments. Body is very short and plumped. Sternaspis species are commonly deposit feeders utilizing organic detritus. All Sternaspis worms can be easily identified depending on the colorful ventro-caudal shield features. There are seventeen species of family Sternaspidae in a revision by Sendall and Salazar-Vallejo (2013). However in pervious study by Peterson (2000) recorded 13 nominal species and two subspecies. Among these species, there are one or two recorded from many different localities and known as universal.

The sternaspis polychaetes, Sternaspis thorsoni, was initially identified and redescribed as a monotypic species by Sendall and Salazar-Vallejo (2013) based on specimens obtained from museums or institutions worldwide. it was first reported by Wesenberg-Lund (1949) as Sternaspis scutata from the Persian Gulf (localities: Jask, Bushire, Hengam Island, Strait of Hormuz, Kuh-i-Namak Sar, Kharg, Bender Abbas, Quishim) and Andaman Sea. These reports were from depths of 3m (Bandar Abbas) to 110m (Jask).

The above-mentioned studies indicate that the specimens previously reported as Sternaspis scutata from the Persian Gulf and Andaman Sea have been misidentified and Sendall and Salazar-Vallejo (2013) redescribed it as a new species. Sendall and Salazar-Vallejo redescribed a holotype from Jask area in their paper and indicated that this holotype (Sternaspis scutata Wesenberg-Lund 1949) is deposited in Zoologisk Museum, University of Copenhagen, Denmark (ZMUC).

Sternaspis thorsoni is unique and different from the other species of Sternaspidae, in terms of introvert hooks and colour of the posterior fan margin. In this research the sternaspidae worms of Chabahar Bay and northern Oman Sea are identified and reported.
Materials and Methods

Twenty two sampling sites were selected across Chabahar Bay and northern part of Oman Sea attached to this Bay (60° 53′ N, 25° 32′ E). A total of nine sternaspidae specimens were collected from soft bottom of subtidal zone at four stations along Chabahar Bay during March 2014 (Fig. 1, Table 1). Salinity, temperature and oxygen content of the surface water at these four stations, were measured and recorded, respectively as 36.6-36.7ppt ,24.7-25°C and 6-6.2 mg/l. Composition of soft bottom sediments are shown in Table 1.

Sediments were sampled using a Van-Veen grab (0.025m2) from depth of 3-5.5 m. Samples were sieved in the laboratory with 0.5mm mesh seive. Specimens were sorted first, then fixed in 4% formaldehyde buffered with sea water, followed by initial preservation in 70% ethyl alcohol. In laboratory stereo and compound microscopes (Nikon SMSZ 1500; camera DS F11), were used to examine the materials and specimens were identified according to Sendall and Salazar-Vallejo (2013) , Fauvel (1953). The specimens surveyed are deposited in Iranian National Institute for Oceanography and Atmospheric Science (INIO).

<table>
<thead>
<tr>
<th>No.</th>
<th>Station</th>
<th>Latitude</th>
<th>Longitude</th>
<th>Depth</th>
<th>%Silt</th>
<th>%Clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>60.43055</td>
<td>25.37053</td>
<td>3.1</td>
<td>67.67</td>
<td>5.33</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>60.42166</td>
<td>25.38492</td>
<td>5.5</td>
<td>67.8</td>
<td>5.09</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>60.43781</td>
<td>25.41012</td>
<td>3.3</td>
<td>70.11</td>
<td>6.2</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>60.44231</td>
<td>25.40698</td>
<td>5.6</td>
<td>71.85</td>
<td>6.42</td>
<td></td>
</tr>
</tbody>
</table>

Results

TAXONOMY

Sternaspidae Carus, 1863

Sternaspis thorsoni (Sendall and Salazar-Vallejo 2013) (Figures 2A and 2B)

urn:lsid:zoobank.org:act:F1AB89B5-56F7-47F5-B3C2-D9F396CCAD39
http://species-id.net/wiki/Sternaspis_thorsoni

Material examined by Sendall and Salazar-Vallejo (2013)

NNW of buoy near Jask, Iran (ZMUC 2221), Sta. 76 (25°45'N, 57°12'E), 110 m, loose, brown clay, 21-IV-1937, G. Thorson, coll. 6 paratypes: 1 (ZMUC 2222), juvenile, 4 km S Bushire outer Light-buoy, Sta. 28 (no coord.), 7 m, 18-III-1937, G. Thorson, coll. 1 (ZMUC 2223), juvenile, Henjom Island, Strait of Hormuz, Sta. 59 (26°36'N, 55°42'E), 31 m, 10-IV-1937, G. Thorson, coll. 1 (ZMUC 2224), adult, Patrick Steward Bank, Sta. 71B (26°41'N, 56°16'E), 69 m, gray mud, 19-IV-1937, G. Thorson, coll. 3 spec. (ZMUC 2225), juveniles, 17 km SSE off mountain Kuh-i-Namak Sar range, Sta. 114 (27°00'30N, 56°03'E), 13 m, sand with little clay, 4-IV-1938, G. Thorson, coll. (ZMUC), juvenile, 3 km SSW off Kharg, Sta. 8 (29°14'N, 50°19'E), 40 m, soft, grey clay, 5-III-1937, G. Thorson, coll. 8 spec. (ZMUC), juveniles, partly dehydrated, 5.5 km SE Bushire outer Light-buoy, Sta. 28 (no coord.), 7 m, grey-brown clay, 18-III-1937, G. Thorson, coll. 3 spec. (ZMUC), juveniles, off road to Bender Abbas, Sta. 64B (no coord.), 3 m, soft clay, 16-IV-1937, G. Thorson, coll. 3 spec. (ZMUC), juveniles, off road to Bender Abbas, Sta. 64Bx, 3 m, soft clay, 16-IV-1937. 2 spec. (ZMUC), 11 km ENE from Quishim Light-buoy, Sta. 65 (27°01'N, 56°00'E), 18 m, dark sand with clay, 16-IV-1937, G. Thorson, coll.

Type locality

Chabahar Bay (Oman sea, Iran); four stations in western Bay.

Description of specimens from the Chabahar Bay (Oman Sea, Iran), figure 2

Total length in specimen complete, 4.2-4.5 mm length, 2-2.2 mm width, with about 28-30 chaetigers.

Body anteriorly swollen, slightly brighter than posterior region. Body color is whitish. The anterior part formed of the five cylindrical segments. There are many papillae in the posterior part of epidermis. Ends of the body are raised and middle body narrowed. Eyespots not seen. There are no indistinctive parapodia. Peristomium small and oval form, paler than surrounding areas. Mouth small, globular, covered with small papillae. Prostomium is slightly more spherical than peristomium. Prostomium is without appendages as a simple conical lobe and in the first three introvert segments there are rows of acicular chaetigers with approximately 16 golden thin spines which are useful for digging in muddy bottoms, each with subdistal dark areas, capillaries not seen.

Bristle spines around mouth segments are stout and short. Papillae uniformly distributed throughout body.

In intersegmental groove between segments 7 and 8 at the anterior end or first median achaetous segment, observed one pair genital papillae, small, blunt. Pre-shield region with 7 segments, capillaries not seen.

Ventral shield in posterior body region starts on segment 13. The ventro-caudal shield pale reddish, rounded, surface with ribs and concentric lines, suture visible throughout shield, left ventro-caudal shield 0.54-0.65 mm long with 0.50-0.63 mm wide. Anterior depression deep and anterior margins angular, anterior keels visible and not exposed. Ribs or concentric lines visible. Lateral margins slightly expanding posteriorly. Marginal chaetae fascicles include 10 lateral ones, chaetae ovaly arranged, and 6-7 posterior fascicles. Peg chaetae robust, forming thin, long spines, close to posterior margins, delicate chaetae.

Fan shallow notched, barely developed, margin barely crenulated, Posterior corners projected beyond fan margin. In the extreme posterior end, there are a many number of retractile branchial filaments, interbranchial papillae long and spirally. retractable anal cone visible. Some of the morphological features of Sternaspis thorsoni illustrated in figure 3.

Geographic distribution

This species was originally described from Persian Gulf, in muddy bottoms in shallow water (3–110 m). Probably reaching as far as the Andaman Sea (Sendall and Salazar-Vallejo, 2013). S. thorsoni is being newly reported from the northern Oman Sea of Chabahar Bay.
Figure 2: *Sternaspis thorsoni* specimens from Chabahar Bay (Oman sea, Iran). A-B Dorsal (right) and ventral (left) body view. C-D-E Ventro-caudal shield, frontal view. Bars: A-B, E 1 mm, C-D 0.5 mm.
Figure 3: Morphological features *Sternaspis thorsoni* from Chabahar Bay, A Anterior end, frontal view B Golden, slightly falcate hooks in anterior end C A pair genital papillae between 7 and 8 segment D Marginal chaetae fascicles in Ventro-caudal shield E Anal cone plate.
Remarks
The Chabahar Bay specimens corresponds well with the main morphological features of the original description of the species from the Persian Gulf (Jask).

Discussion
In this study, identification of species from northern Oman Sea was confirmed by comparing the results with detailed description of the S. thorsoni by Sendall and Salazar-Vallejo (2013) and Fauvel (1953). In S. thorsoni posterior corners, in beyond fan margin, is projected which was recognizable in specimens of this study (Fig 1D).

S. thorsoni has a pale delicate introvert hooks. The other sternaspid species have fewer, thicker and darker hooks. In addition, in figure 2b the bright golden introvert hooks from Chabahar Bay (Oman Sea) specimens is observable. The ventro-caudal shield of S. thorsoni has a truncate posterior margin that in other species, S. princeps, S. rietshi, S. spinosa and S. thalassemaeides is apparent, in this study we observed resemble it that illustrated in figure 1. The colour of the shield is variably inconsistent ranging from a sulfur yellow to rust-red, and even green to purple-black Fauvel (1932). Sendall and Salazar-Vallejo (2013) reported the distribution depth range of S. thorsoni in Persian Gulf between 3-110 meters. They also reported this species from Andaman Islands of India. We recorded this species at four of our twenty two stations at depths of 3 to 5.5 meters, whereas other stations with depths of 10 to 15 meters lacked this species.

Acknowledgments
Authors would like to thank Khoramshahr Marine Science and Technology University for providing necessary facilities to complete this work.

References