Hydroids of the genus *Sertularella* (Cnidaria: Hydrozoa: Sertulariidae) from the Pacific coast of Canada in the collection of the Royal Ontario Museum, with descriptions of four new species

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Abstract

Examination of the hydroid fauna of the Canadian Pacific coast in the collections of the Royal Ontario Museum collected between 1934 and 1985 indicates that the genus *Sertularella* Gray, 1848 from the infralittoral zone in the region remains poorly enumerated. The present study shows that several European or northeast Atlantic hydroid species, *Sertularella conica* Allman, 1877, *Sertularella rugosa* (Linnaeus, 1758), *Sertularella tenella* Alder, 1856, *Sertularella polyzonias* (Linnaeus, 1758), and *Sertularella fusiformis* (Hincks, 1861) have been incorrectly reported from the west coast of North America and suggests that assumptions of cosmopolitanism of some species require verification by continuing refinement of regional species-level taxonomy. Four new species, *Sertularella cervicula*, *S. coronata*, *S. sacciformis*, and *S. pacifica* are recognized and described in this paper. *Sertularella gigantea* Hincks, 1874 is recognized for the first time from the Pacific coast of North America.

Key words: Leptothecata, Pacific Biological Station, Queen Charlotte Islands, Haida Gwaii, Vancouver Island, taxonomy, zoological nomenclature, cosmopolitanism, biogeography

Introduction

Systematic accounts of hydroids off the Pacific coast of North America, extending up to Alaskan waters include Clark’s (1877) work on collections made by W.H. Dall and various collectors from 1871 to 1874, Mereschkowsky (1878a) and work on collections made in later expeditions (Nutting 1899, 1901). On the Canadian west coast, particularly around the Queen Charlotte Islands (=Haida Gwaii) and southern British Columbia in localities around Vancouver Island, extensive accounts of the taxonomy and distribution of hydroids were by undertaken by Fraser (1911, 1913, 1914, 1935, 1936a, 1937, 1946) in the early 20\(^{th}\) century. Collectively, those accounts of the late 19\(^{th}\) and early 20\(^{th}\) centuries form the basis of knowledge of the hydroid fauna of the region. Taxonomic revision and nomenclatural updating of the hydroid fauna of the region is needed, particularly in the Leptothecata. Subsequent work on the taxonomy of hydroids of the Pacific coast of Canada and United States has dealt largely with the anthoathecates, including the medusa stage (Arai & Brinckmann-Voss 1980; Brinckmann-Voss 1974, 1980, 1989, 2000; Brinckmann-Voss et al. 1993; Hewitt & Goddard 2001; Schuchert & Reiswig 2006; Miglietta 2006; Brinckmann-Voss & Lindner 2008; Brinckmann-Voss & Calder 2013). Additionally, Calder (1990) and Calder et al. (2009) recognized the need to clarify some of Fraser’s taxonomic assignations from the northwest coast of North America, including those pertaining to species described from southern British Columbia. On biogeographic grounds, confirmation of misidentification of Atlantic or European species in the northwest coast of North America (e.g. Calder 1990) suggests unresolved taxonomic problems, given the geographic isolation between these populations. At the same time, recent successful transoceanic dispersal of Japanese hydroids on debris from the catastrophic tsunami of 2011 (Choong & Calder 2013; Calder et al. 2014) provides impetus for characterizing the hydroid fauna of the North American Pacific coast.
Differential diagnosis. Due to the occasionally acute angle of the outward bend, the square-shaped hydrothecal aperture, and the general rugosity of the perisarc, the hydrothecae of \textit{Sertularella sacciformis} can resemble those of \textit{S. rugosa} (Linnaeus, 1758) or \textit{S. tenella}. ROMIZ B2341 was originally identified as \textit{S. rugosa}, but \textit{S. rugosa} lacks the smooth hydrothecal neck found in \textit{S. sacciformis}. The absence or presence of a notch below the rim on the abcauline wall of the hydrotheca as seen from the side is considered to be a diagnostic feature separating \textit{S. rugosa} from its congers, although its systematic value has been questioned by some authors (Cornelius 1979, 1995; Schuchert 2001). Nevertheless, in \textit{S. sacciformis} this notch is absent, although the appearance of a notch is occasionally approximated by the abcauline incline of the hydrothecal neck and the tumidity of the basal portion. This gives appearance of a notch, but the area below the hydrothecal rim is actually straight. In \textit{S. tenella}, the hydrotheca resembles a broad-necked bottle, rather than the saccate, bent-neck shape of \textit{S. sacciformis}. The nature of the rugosity is also different in all three species. In \textit{S. rugosa} the encircling transverse ridges are sharp, forming deep furrows, which are especially marked on the abcauline side; in \textit{S. tenella}, the sharp ridges which encircle the hydrotheca appear more evenly spaced, but in \textit{S. sacciformis}, the annular segments form uneven, crested folds, widening towards the adcauline side. Moreover, in \textit{S. rugosa} the colony tends to be poorly ramified on a single plane (Naumov 1969). In \textit{S. sacciformis}, the stem is slender, and the hydrothecae are not as closely spaced as in \textit{S. rugosa}.

**Etymology.** The species name refers to the shape of the hydrothecae, from the Latin \textit{saccus} (sack or pouch-shaped).

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**References**


Brinckmann-Voss, A. (1989) \textit{Sarsia cliffordi} n.sp. (Cnidaria, Hydrozoa, Anthomedusae) from British Columbia, with
http://dx.doi.org/10.1139/z89-099


http://dx.doi.org/10.11646/zootaxa.3666.3.9

http://dx.doi.org/10.1017/S002531540800180X

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http://dx.doi.org/10.3391/bir.2013.2.1.05


APPENDIX 1. Sertularella species reported in Fraser (1937).

<table>
<thead>
<tr>
<th>Sertularella species reported in Fraser (1937)</th>
<th>Type locality</th>
<th>Present in the Royal Ontario Museum collection (ROMIZ) of the Pacific coast of Canada</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sertularella albida Kirchenpauer, 1884</td>
<td>Bering Sea: Benngssmeer, Schumagin Islands, Kamtschatka.</td>
<td>Yes</td>
</tr>
<tr>
<td>Sertularella tanneri Nutting, 1904</td>
<td>Pacific coast of Canada: 48°30'00&quot; N, 124°57'00&quot;W (73.2 meters).</td>
<td>No</td>
</tr>
<tr>
<td>Sertularella complexa Nutting, 1904</td>
<td>Alaskan coast: United States.</td>
<td>No</td>
</tr>
<tr>
<td>Sertularella fusiformis (Hincks, 1861)</td>
<td>Devon, England.</td>
<td>=Sertularella pacifica sp. nov.</td>
</tr>
<tr>
<td>Sertularella clarki Mereschkowsky, 1878 (Misspelling)= Sertularella clarkii Mereschkowsky, 1878</td>
<td>Unalaska (M. Petelin), 1847.</td>
<td>No</td>
</tr>
<tr>
<td>Sertularella magna Nutting, 1904</td>
<td>Bering Sea: 52°06'00&quot; N, 171°45'00&quot;W (517 meters)</td>
<td>No</td>
</tr>
</tbody>
</table>