

A revision of the genus *Saccoglossus* (Hemichordata: Enteropneusta: Harrimaniidae) with taxonomic descriptions of five new species from the Eastern Pacific

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Abstract

Here we describe five new North Eastern Pacific species of acorn worms in the genus *Saccoglossus* (*S. porochordus*, *S. rhabdorhyncus*, *S. shumaginensis*, *S. sonorensis*, and *S. palmeri*) on the basis of morphology. Notes on the habit and localization of each species are provided. A summary table lists the morphological characters defining the five new species and ten previously described ones in the genus *Saccoglossus*. Observation on the biogeography of Enteropneusta suggests that it is an ancient and declining group.

Key words: Enteropneusta, acorn worms, Harrimaniidae, new species, zoogeography

Introduction

Saccoglossus is the most speciose enteropneust genus, even after Deland et al. (2010) transferred five species of *Saccoglossus* to other genera. It contains 18 species worldwide including two (*S. pusillus*, *S. bromophenolosus*) from the Eastern Pacific. It may be more speciose than some ptychoderids because it does not have a pelagic larva and thus a low dispersal distance, increasing opportunity for speciation. Its richness with respect to other harrimaniids, also direct developers, is more difficult to explain but may be due to its unusually long proboscis allowing it great success in surface deposit feeding. Whatever the explanation for the speciosity of the genera, the outcome is that they are well known from several locations along the Eastern Pacific shorelines.

Saccoglossus is the most common genus of acorn worms occurring in the Eastern Pacific. It has been collected from Barkley Sound, BC, Coos Bay, OR, San Pedro, San Diego, La Jolla, Anaheim, and Newport Bay, CA, Ensenada, Mexico (*S. pusillus*) and Willapa Bay, WA (*S. bromophenolosus*) but more often than not the species has remained unknown.

Here we present 5 new species based on specimens from the collections of Ritter and Bullock, deposited at the Smithsonian Museum (US Natural History Museum, Washington). The *S. shumaginensis* specimens were taken by W.E. Ritter on the Harriman Alaska expedition of 1899 and the others have been collected by T.H. Bullock, G.E. MacGinitie and J. McNab between 1938 and 1971.

The species descriptions are accompanied by photographic illustrations and discussions of zoogeography, species characters and relationships. A table listing the characteristic features of each species of the genus should be a useful tool for species identification. It is hoped that these contributions will make the work useful to non-specialists.