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New glass sponges (Porifera: Hexactinellida) from deep waters of the central Aleutian Islands, Alaska

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Abstract

Hexactinellida from deep-water communities of the central Aleutian Islands, Alaska, are described. They were mostly collected by the remotely operated vehicle 'Jason II' from 494–2311 m depths during a 2004 RV 'Roger Revelle' expedition, but one shallow-water species collected with a shrimp trawl from 155 m in the same area is included. The excellent condition of the ROV-collected specimens enabled valuable redescription of some species previously known only from badly damaged specimens. New taxa include one new genus and eight new species in five families. Farreidae consist of two new species, *Farrea aleutiana* and *F. aspondyla*. Euretidae consists of only *Pinulasma fistulosum* n. gen., n. sp. Tretodictyidae include only *Tretodictyum amchitkensis* n. sp. Euplectellidae consists of only the widespread species *Regadrella okinoseana* Ijima, reported here over 3,700 km from its closest previously known occurrence. The most diverse family, Rossellidae, consists of *Aulosaccus ijimai* (Schulze), *Aulosaccus schulzei* Ijima, *Bathydorus* sp. (young stage not determinable to species), *Caulophacus (Caulophacus) adakensis* n. sp., *Acanthascus koltuni* n. sp., *Staurocalyptus psilosus* n. sp., *Staurocalyptus tylotus* n. sp. and *Rhabdocalyptus mirabilis* Schulze. We present argument for reinstatement of the abolished rossellid subfamily Acanthascinae and return of the subgenera

Staurocalyptus Ijima and *Rhabdocalyptus* Schulze to their previous generic status. These fauna provides important complexity to the hard substrate communities that likely serve as nursery areas for the young stages of commercially important fish and crab species, refuge from predation for both young and adult stages, and also as a focal source of prey for juvenile and adult stages of those same species.

Key words: new genus, new species, deep-sea sponges, Farreidae, Euretidae, Tretodictyidae, Euplectellidae, Rossellidae

Introduction

The Hexactinellida of the Aleutian Islands and adjacent regions (Bering Sea and northern Gulf of Alaska, from 135°W to 160°E, Fig. 1) are known from a restricted literature of eight publications. Unfortunately, HMS 'Challenger', in its first world survey of deep-sea fauna, bypassed the west coasts of most of South America and all of Central and North America, and its zoological reports provide no information on hexactinellids of these regions. The first collections of deep-water fauna of the interest area were made by USFS 'Albatross' during 1888–1890, from which Schulze (1899) reported one not-fully-identifiable and seven identified hexactinellids in the area, four of the identified species described as new to science. Wilson and Penney (1930) added description and report of a new variety of *Acanthascus* (*Rhabdocalyptus*) *dawsoni* from the Gulf of Alaska coast. Shortly thereafter, Okada (1932) described 15 hexactinellid forms; 14 new to the area and 11 as new species. Koltun (1967) reported 20 hexactinellid forms, of which 15 were new to the area and two species and seven subspecies were new to science. Koltun (1970) reported only two species, one new to the area but none new to science. Tabachnick (2002) described one hexactinellid, a new species of a new genus. Tabachnick and Menshenina (2002) reported two forms (both subspecies) already previously known from this area. Finally Schuchert and Reiswig (2006) reported two hexactinellids, one a well-known and common form, and the other a new addition and a new species but not described or named in that work. The 41 total forms reported from this area of interest are listed in Table 1, along with the origin of each report and their geographic location on Fig. 1.

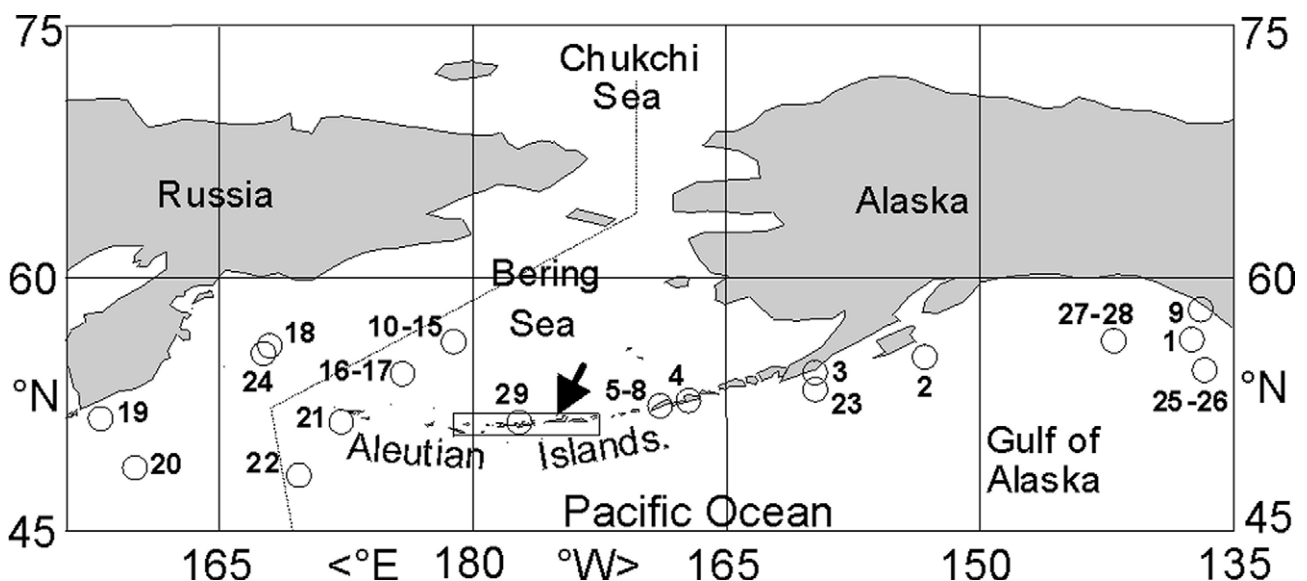


FIGURE 1. Map of the North Pacific Ocean showing locations of previously reported Hexactinellida collections (location numbers refer to species listed in Table 1); this study area is indicated by arrow.

New hexactinellids described in the present report were mostly collected from deep water (494–2311 m) near the central Aleutian Islands during a research cruise of the RV 'Roger Revelle' in July and August 2004. This was the first *in situ* scientific investigation of habitats deeper than 365 m in the region (Stone 2006) and was part of a larger study to document the marine biota and geology of the Aleutian Ridge (Fig. 2). Included here are two specimens from shallow-water (155 m) of the same study area. Studies of the demosponges collected in the study area during these and earlier cruises (Lehnert *et al.* 2005a, b, c; 2006a, b, c) suggest a close faunal relationship with the deep-sea sponges from the Kuril Trench, a deep submarine depression in the western Pacific Ocean between the