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A new species of *Otukaia* (Calliostomatidae) from Alaska

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ABSTRACT A new species of *Otukaia* from the eastern Bering Sea is described from Alaska and is the first member of the genus to be found in the Northeastern Pacific. This species shares many traits with *Otukaia kiheizebisu* (Otuka,1939) from Japan, which is the type for the genus, but exhibits numerous distinctive characteristics.

KEY WORDS Calliostomatidae, *Otukaia*, Alaska, benthic

INTRODUCTION

Otukaia Ikebe, 1942 are deep cold water species in the family Calliostomatidae, superfamily Trochoidea. Recent taxonomic changes have moved a number of species from the Southern Hemisphere and as far north as Japan into multiple genera other than *Otukaia*. We place this new species in *Otukaia* based on shell morphology, and have submitted tissue samples for DNA analysis. As a contractor working for U.S. National Marine Fisheries Service in Alaska, Roger Clark recognized the first *Otukaia* in samples from the northeastern Pacific in 2002.

SYSTEMATICS

Class Gastropoda
Subclass Vetigastropoda
Order Trochida
Superfamily Trochoidea
Family Calliostomatidae
Genus *Otukaia* Ikebe, 1942
Type species *O. kiheiziebisu* (Otuka, 1939)

Otukaia beringensis Tuskes and Clark, new species
(Figures 1 & 2)

Description. Figures 1 and 2. Height 25 mm, width 26 mm; substance thin. Five post nuclear (PN) whorls; whorls 1-4 angular, lightly convex; PN1 two simple primary cords; PN2–4, two primary keeled cords; low secondary cord on shoulder below suture; suture slightly impressed. Body whorl PN5, secondary cord keeled, minimally projecting on shoulder below suture; two keeled, projecting primary cords above peripheral; third primary cord at periphery, keeled, slightly reduced, interspace nearly smooth; secondary cord below peripheral cord, low broadly rounded and delineates upper base of shell. Base, 25+ finely spaced shallow threads between secondary rounded post-peripheral cord and columella, threads proximal to columella broadly flattened, centrally narrow, distally slightly raised, some incomplete; columella/basal scar dull white; umbilicus closed. Aperture oval 12 × 15 mm, outer lip crenulations associated with primary cords, anterior lip smooth; operculum circular, light brown, ten circular growth scars.

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Figure 1. Holotype *Otukaia beringensis*. Apertural view.

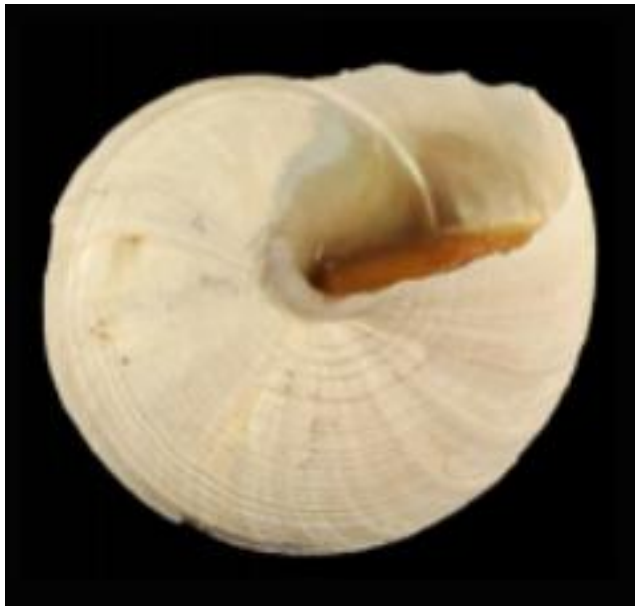

Figure 2. Holotype *Otukaia beringensis*. Basal view.

Variation. Three additional specimens have been examined exhibiting the following variation: secondary cord below suture reduced to a low rounded structure; interspace between primary cords with multiple low threads; fine threads at base between secondary cord and columella may exceed 35; periostracum light brown when present, shell white when absent.

Type Locality. (52° 52' N, 178° 17') W. central Aleutian Islands, Alaska, USA. Depth 1,247 m. Coll. Robert Stone. LACM 3514. Height 25 mm.

Paratypes. 1 mature specimen broken lip, H/W 34 × 34 mm, NOAA/NMFS 94 201201-88. Zemchug Canyon, eastern Bering Sea, Alaska (58°04.27′N, 175°30.48′W), 1,033 m, bottom temperature 2.9°C. Coll. Duane E. Stevens. LACM 3515**;** 1 mature specimen, broken apex and body whorl. NOAA/NMF 94-2010-01-56 East Bering Sea Slope, 818 m, bottom temperature 3.2°C, on bamboo coral *Isidella* sp. (58°37.92′N, 177°44.53′W), trawled R/V Vesteraalen. SBMNH 619398; 1 mature specimen, height 35.2 mm. NOAA/NMFS. SW of St. Matther Island, Bering Sea, Alaska (58°21.9′N, 177°33.9′W), R/V Morning Star, 23 June 2002, 903 m. Collection of R. Clark.

Diagnosis. Two other species of white Calliostomatidae in the North-eastern Pacific; *Calliostoma* of the subgenus *Akoya* and *Xeniostoma inexpectans* McLean, 2012. Compared to *Otukaia beringensis,* the *Calliostoma* (*Akoya*) *platinum* (Dall, 1890) complex are less bulbous and lack the prominent protruding keeled cords present on all post nuclear whorls of *O. beringensis*, and the outer lip of the aperture is smooth in *C. platinum* but crenulate as in *Otukaia*. *Xeniostoma inexpectans* has a smooth glossy white shell that lacks threads/cords, and has a smooth aperture.

Otukaia kiheizebisu (Otuka, 1939), from Japan is the type for the genus *Otukaia,* (Figure 3) and the most similar species to *O. beringensis* in the Northern Pacific. The holotype of *O. kiheizebisu* differs from *O. beringensis* as follows: Cords on the body whorl are more

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protruding and rounded *vs.* keeled in *O. beringensis*; anterior lip of *O. kiheizebius* finely crenate caused by the numerous exterior basal threads, anterior lip of O. *beringensis* with few notable crenations associated with larger keeled cords. Additional illustrations of *O. kiheizebisu* have been published by Sasaki (2000), Habe (1965), and Severns, (2011) who illustrated a deep water specimen of *O. kiheizebisu* from Hawaii.

Figure 3. Holotype *Otukaia kiheizebisu*. Apertural view.

Distribution. Currently all specimens are from the Eastern Bering Sea. Specimens collected along the Aleutian Islands suggest they could occur along the chain at suitable depths. It is not known if the Aleutian Basin or the Aleutian trench, which are deeper than the current known locations, impacts their distribution.

Etymology. From the Bering Sea.

Discussion. This is the first species of *Otukaia* to be collected in the North-eastern Pacific. Unlike many other *Otukaia* species, this new species has no beading on the cords. *Otukaia kiheizebisu* has been taken from Fukushima Prefecture to Tosa Bay, at depths of 200-1000 m Sasaki (2000) in the northern area of Japan, and east to the Hawaiian Islands at a depth of 1200 m Severns (2011). The distribution of *O. kiheiebisu* and *O. beringensis* do not overlap.

Currently, the known depth range of *O. beringensis* is from 818 - 1247 m. Recorded water temperatures at collection sites have been 2.9 to 3.9ºC. With additional sampling, both depth and distribution will be better defined. The Holotype was photographed by Robert Stone during his research via an ROV. The animal was feeding on a gorgonian *Calcigorgia beringi* (Nutting) (Robert Stone, personal communication). A paratype was associated with Bamboo coral *Lsidella sp*. which is also a gorgonian.

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