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***Lamellibrachia sagami* sp. nov., a new vestimentiferan tubeworm (Annelida: Siboglinidae) from Sagami Bay and several sites in the northwestern Pacific Ocean**

GENKI KOBAYASHI^{1,3}, TOMOYUKI MIURA² & SHIGEAKI KOJIMA¹

¹Atmosphere and Ocean Research Institute, The University of Tokyo, 5-1-5 Kashiwanoha, Kashiwa, Chiba 277-8564 Japan. Graduate School of Frontier Sciences, The University of Tokyo, 5-1-5 Kashiwanoha, Kashiwa, Chiba 277-8561 Japan

²Faculty of Agriculture, University of Miyazaki, Gakuen-Kibanadai-Nishi 1-1, Miyazaki 889-2192, Japan

³Corresponding author. E-mail: genki_k@nenv.k.u-tokyo.ac.jp

Abstract

A new vestimentiferan tubeworm species of the genus *Lamellibrachia* Webb, 1969 is described. It was collected from cold seep areas off Hatsushima in Sagami Bay and at the Daini Tenryu Knoll in the Nankai Trough (606–1170 m depth). *Lamellibrachia sagami* sp. nov. differs from seven congeneric species in the following character states; showing a wider range of diameter of vestimental and trunk plaques than *L. barhami*, *L. luymesii*, *L. satsuma* and *L. anaximandri*; and having more numerous sheath lamellae (3–6 pairs) than *L. juni* (2–3 pairs) but fewer than *L. victori* (7 pairs) and *L. columna* (8–16 pairs).

Key words: *Lamellibrachia sagami*, Siboglinidae, Sagami Bay, vestimentiferan tubeworms

Introduction

Vestimentiferan tubeworms are considered to belong to the family Siboglinidae, Annelida (e.g. Rouse & Fauchald 1997; Halanych 2005; Struck *et al.* 2011; Weigert *et al.* 2014). The family contains the four lineages: frenulates, *Osedax*, *Sclerolinum* and vestimentiferan tubeworms (Hilário *et al.* 2011). Vestimentiferan tubeworms are often dominant in chemosynthetic communities. They depend on organic compounds supplied by endosymbiotic chemoautotrophic bacteria and lack a mouth and gut in the adult phase. These unusual features have driven many scientists to study their ecology (e.g. Laubier & Desbruyères 1985; Tunnicliffe *et al.* 1990), development (e.g. Jones & Gardiner 1989; Rinskaya-Korsakova & Malakhov 2010), larval dispersal (e.g. Young *et al.* 1996; Marsh *et al.* 2001), physiology (e.g. Miura *et al.* 2002; Carney *et al.* 2007), and phylogenetic relationships (e.g. Williams *et al.* 1993; Halanych 2005; Struck *et al.* 2011; Weigert *et al.* 2014).

The genus *Lamellibrachia* Webb, 1969 is characterized by sheath lamellae (=lamellar sheaths in Jones, 1985) and a divided posterior vestimental fold. The genus is more widely distributed horizontally and vertically than other vestimentiferan genera (McMullin *et al.* 2003).

To date, seven *Lamellibrachia* species have been described. Webb (1969) described the first species, *L. barhami* Webb, 1969 from 32° N in the northeastern Pacific. The subsequent six species discovered were *L. luymesii* van der Land & Nørrevang, 1975 from the Atlantic continental slope off Guyana, *L. victori* Mañé-Garzón & Montero, 1985 from off Uruguay, in the South Atlantic, *L. columna* Southward, 1991 from the Lau Basin, in the southwestern Pacific, *L. satsuma* Miura, Tsukahara & Hashimoto, 1997 from Kagoshima Bay, in the northwestern North Pacific, *L. juni* Miura & Kojima, 2006 from the Brothers Caldera, in the South Pacific, and *L. anaximandri* Southward, Andersen & Hourdez, 2011 from the undersea Anaximander Mountains in the eastern Mediterranean. However, *L. victori* remains questionably distinct from *L. luymesii* because of the limited number of *L. victori* specimens (Gardiner & Hourdez 2003).

Although the existence of several undescribed vestimentiferan species in the northwestern Pacific has been