



A new Western Pacific Tonguefish (Pleuronectiformes: Cynoglossidae): The first Pleuronectiform discovered at active Hydrothermal Vents

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Abstract

Symphurus thermophilus n. sp., described from 16 specimens collected by submersibles, ROV, epibenthic sled and dredge, occurs on a variety of substrata at several active hydrothermal sites located at 239–733 m between 21°N and 35°S in the western Pacific Ocean. *Symphurus thermophilus*, the only pleuronectiform fish known to inhabit hydrothermal vent areas, is characterized by the combination of a 1–2–2–2–2 pattern of interdigitation of dorsal proximal pterygiophores and neural spines, 14 caudal-fin rays, 5 hypurals, 9 abdominal vertebrae, 47–51 total vertebrae, 88–94 dorsal-fin rays, 74–80 anal-fin rays, 100–112 scales in longitudinal series, ocular-side pigmentation pattern featuring 5–8, black, mostly incomplete crossbands, uniformly white blind side, and black peritoneum. Of specimens examined, seven including the holotype, were collected on Kaikata Seamount off southern Japan; one specimen was collected at the Kasuga-2 hydrothermal vent, Marianas Islands; and six were collected at sites on the Kermadec Ridge. In addition to specimens captured, many other *S. thermophilus* were observed from submersibles and ROVs at hydrothermal sites in the western Pacific including those in the Marianas Islands, at Nikko Seamount near Minami-Iohjima Island, and at Minami-Ensei Knoll, Mid-Okinawa Trough. Many of the specimens examined have skeletal anomalies including fused bones in the caudal skeleton, and missing or partially developed and/or misshapen fin rays.

Key words: flatfish, *Symphurus*, hydrothermal vents

Introduction

SPECIES of *Symphurus* Rafinesque are cynoglossid pleuronectiforms characterized by several distinct features (Chapleau 1988) including the absence of lateral sensory canals on the body, in having the anterior portion of the supraoccipital bone replaced by a cranial fontanelle, and in having a single pterygiophore inserted into the first interneural space (Munroe 1992). These species have been captured at various locations widely distributed throughout temperate and tropical regions of the Indo-West Pacific oceans (Alcock 1889a; Alcock 1894; Alcock 1899; Chabanaud 1954; Chabanaud 1955a; Chabanaud 1955b; Chabanaud 1955c; Chabanaud 1956; Munroe 1992; Munroe 2006; Munroe unpubl. data). In these waters, some 26 nominal species have been described and several undescribed species are known (Munroe unpubl. data) from capture depths ranging from <1 to about 1500 m. The majority of Indo-West Pacific symphurine tonguefishes are small species (adult sizes usually smaller than ca. 100 mm SL) inhabiting substrata located in deep waters, usually at depths >200 m (capture depths summarized in Munroe 1992; see also Krabbenhoft & Munroe 2003; Munroe 2006). Because of their depth of occurrence and relatively small size, many of these species have seldom been captured, and fewer still have been captured in any quantity. Therefore, for most species of *Symphurus* captured