
Press Releases



February 24, 2016

JAMSTEC

Nihon University

Universidade de São Paulo

Universidade do Vale do Itajaí

Universidade Federal Fluminense

Resemblance of Whale Fall Fauna between Atlantic and Pacific Ocean

-SHINKAI 6500 research provides clue to elucidate deep-sea chemosynthetic communities-

Overview

An international research team with Dr. Hiroshi Kitazato and Dr. Yoshihiro Fujiwara at the Japan Agency for Marine-Earth Science and Technology (JAMSTEC: Asahiko Taira, President) has been studying whale fall fauna discovered at 4,204m depth during research cruise reach by JAMSTEC's manned submersible, *SHINKAI 6500* from April to May in 2013 (Figure 1). As a result, it revealed that the carcass belonged to an Antarctic Minke whale (*Balaenoptera bonaerensis*) and the fauna consisted of a wide diversity of organisms with at least 41 species including *Neanthes*, *Shinkaia crosnieri*, gastropods shell and *Osedax*. Moreover, their taxonomic examination indicated that most of these 41 species are likely to new to science. This project was carried out in collaboration with researchers from the Universidade de São Paulo, Universidade do Vale do Itajaí, Nihon University and Universidade Federal Fluminense.

The detailed taxonomic data indicated that the deep-sea whale fall fauna from the Atlantic resembles that of the Pacific Ocean. It supports Dr. Craig Smith's hypothesis in 1989, which proposed that whale falls may act as stepping-stones for faunal dispersal among different chemosynthetic communities and could contribute to the recolonization of new habitats separated by hundreds of kilometers (e.g. hydrothermal vents and cold seeps). These research results thus provide important data for examining hypothesis about dispersal and evolution of deep-sea chemosynthetic communities.

This study was carried out as part of QUELLE 2013, a round-the-world voyage of *SHINKAI 6500* in 2013. The Japanese-Brazilian joint cruise off the Brazilian coast is named "Iata-piuna."

The above results were published on *Scientific Reports* on February 24, 2016 (JST).

Title : Deep-sea whale-fall fauna from the Atlantic resembles that of the Pacific Ocean

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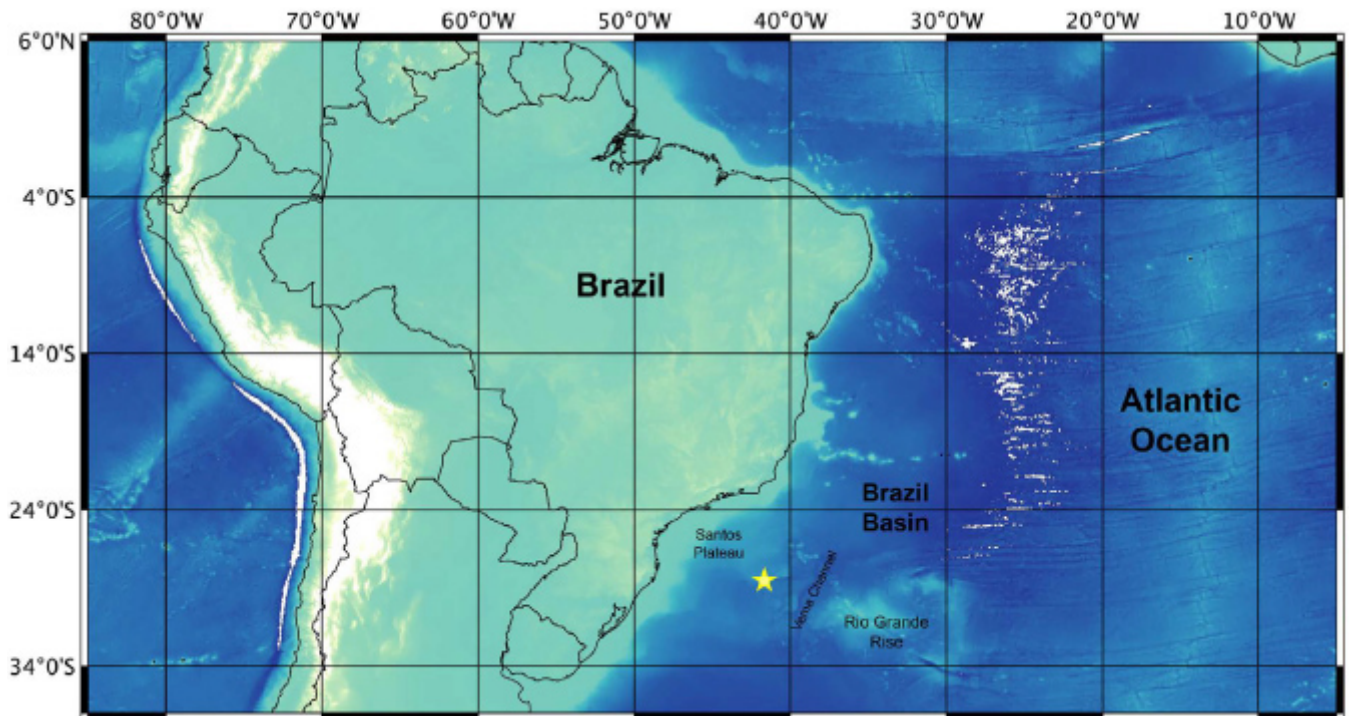


Figure 1. Location of the whale carcass found at the base of São Paulo Ridge at 4,204 m depth

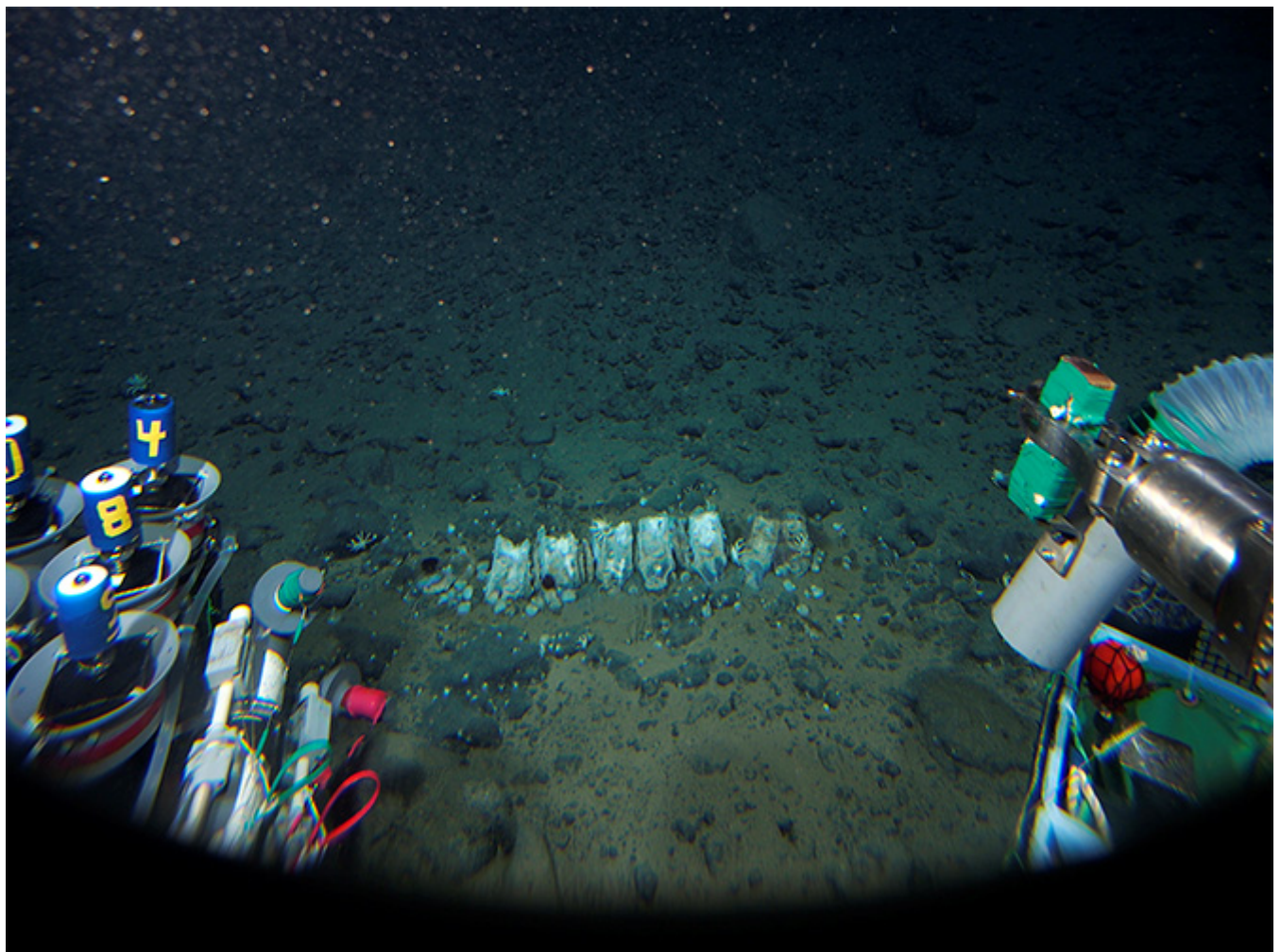


Figure 2. Partial Antarctic Minke whale skeleton (*Balaenoptera bonaerensis*) at 4,204m in the Southwest Atlantic Ocean (found at the deepest so far)

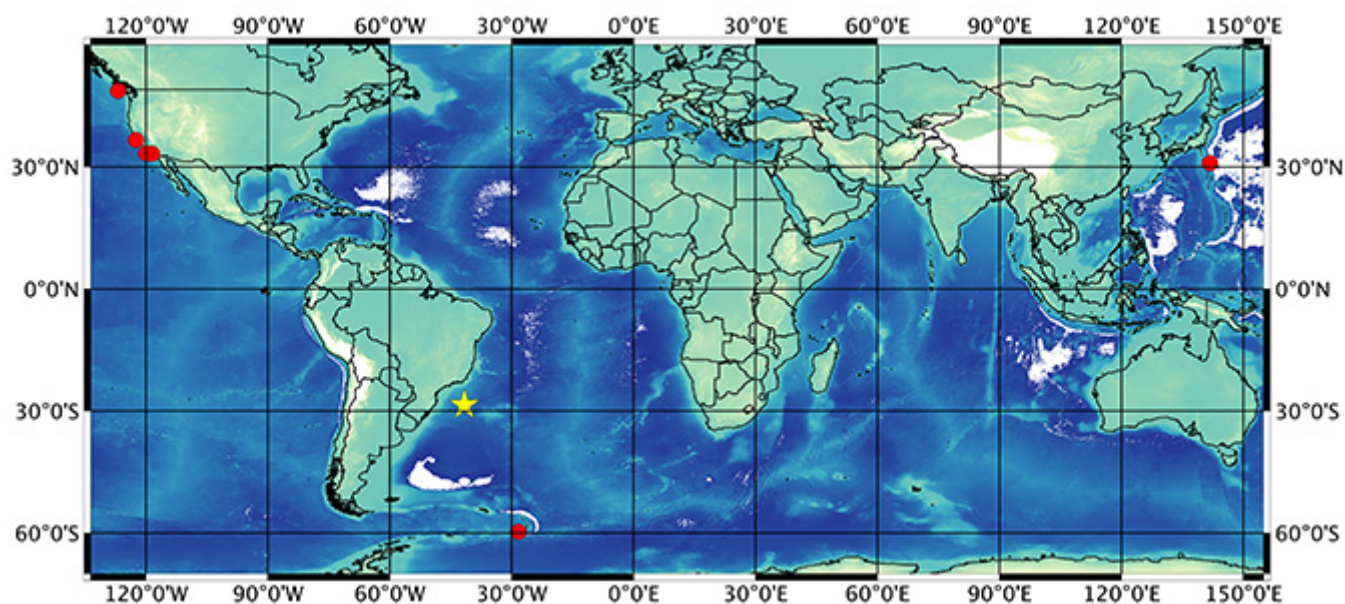


Figure 3. Distribution of whale fall fauna (excluding those formed artificially)

★ Whale fall fauna found off the Brazilian coast (by this project)

● Whale fall fauna found in the past (due to natural death)



Figure 4. Species composed of whale fall fauna off the Brazilian coast

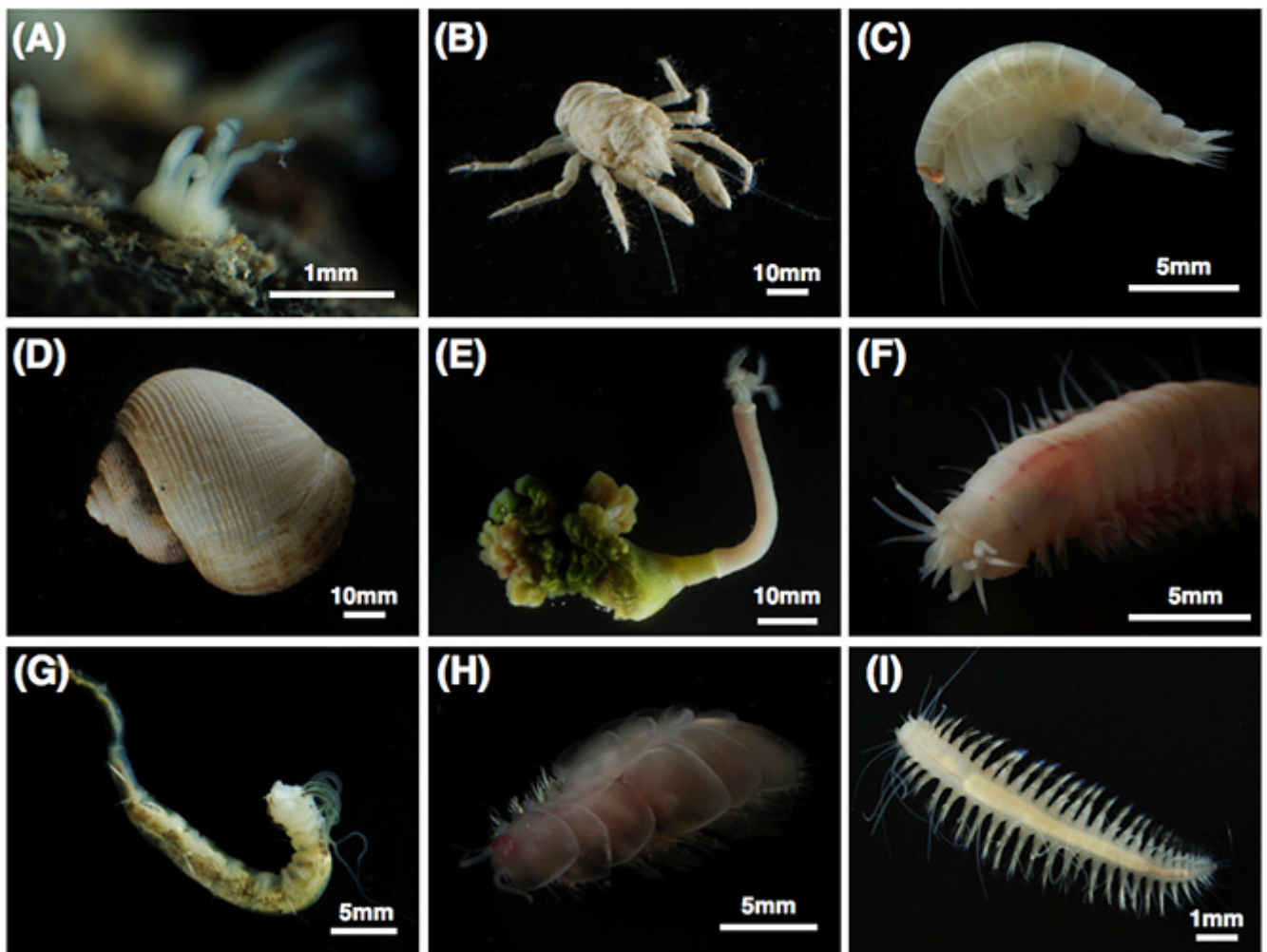


Figure 5. Some of the most abundant organisms collected at the 4204 m depth whale fall in the São Paulo Ridge, Southwest Atlantic Ocean. (A) Unidentified sea anemone inhabiting the rocks surrounding the whale skeleton; (B) Large *Munidopsis* sp.; (C) The amphipod *Stephonix* sp.; (D) *Rubyspira* sp. nov.; (E) *Osedax* sp. nov.; (F) *Neanthes* sp. nov.; (G) cf. *Grassleia* sp.; (H) *Bathykurila* cf. *guaymasensis*; (I) *Vrijenhoekia* sp. nov.



Figure 6. Whale bone ate up by one of species of *Osedax* sp.

This *Osedax* species was described as *Osedax braziliensis* in 2019.

<https://zookeys.pensoft.net/article/28869/>

Whale fall fauna discovered at deep-sea off the Brazilian coast during research cruise by *SHINKAI 6500* (Video)

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