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Deep-Sea decapod crustaceans (Caridea, Polychelida, Anomura and Brachyura) collected from the Nikko Seamounts, Mariana Arc, using a remotely operated vehicle "Hyper-Dolphin"

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Abstract

Samples and images of deep-water benthic decapod crustaceans were collected from the Nikko Seamounts, Mariana Arc, at depths of 520–680 m, by using the remotely operate vehicle "Hyper-Dolphin", equipped with a high definition camera, digital camera, manipulators and slurp gun (suction sampler). The following seven species were collected, of which three are new to science: *Plesionika unicolor* **n. sp.** (Caridea: Pandalidae), *Homeryon armarium* Galil, 2000 (Polychelida: Polychelidae), *Eumunida nikko* **n. sp.** (Anomura: Eumunididae), *Michelopagurus limatulus* (Henderson, 1888) (Anomura: Paguridae), *Galilia petricola* **n. sp.** (Brachyura: Leucosiidae), *Cyrtomaia micronesica* Richer de Forges & Ng, 2007 (Brachyura: Inachidae), and *Progeryon mus* Ng & Guinot, 1999 (Brachyura: Progeryonidae). Affinities of these three new species are discussed. All but *H. armarium* are recorded from the Japanese Exclusive Economic Zone for the first time. Brief notes on ecology and/or behavior are given for each species.

Key words: *Plesionika*, *Eumunida*, *Galilia*, new species, new record

Introduction

It is well recognized that submersibles and remotely operated vehicles (ROV) have a major advantage in collection of samples of deep-water fauna accompanied with ecological records; examples of usage of these instruments in investigations of non-chemosynthetic communities are, however, rather scarce (e.g., Fujikura *et al.* 2008, 2012; Poupin *et al.* 2012).

During the NT10-13 cruise to the Mariana Arc in the northwestern Pacific, conducted by the R/V "Natsushima" of the Japan Agency of Marine-Earth Science and Technology (JAMSTEC), one dive operation using the ROV "Hyper-Dolphin" was made on the Northeast Nikko Seamount (520–680 m depth), located at the northernmost part of the Mariana Arc (dive #1165). The chief purpose of the operation was to investigate potential hydrothermal activity, but we did not find any hydrothermalism except weak simmering near the top of the seamount. Nevertheless, during the dive, we made a valuable collection of benthic animal samples and video and photo recordings. Very little information on the deep-water non-chemosynthetic communities in the area is available, and thus the use of a ROV offered great opportunity to collect samples and to observe for the first time the habitats and species associations of some deep-water decapods. In this study, we provide taxonomic accounts for the collected species of decapod crustaceans, including descriptions of three new species and some ecological notes observed from video recordings and underwater photography: *Plesionika unicolor* **n. sp.** (Caridea: Pandalidae); *Homeryon armarium* Galil, 2000 (Polychelida: Polychelidae); *Michelopagurus limatulus* (Henderson, 1888) (Anomura: Paguridae); *Eumunida nikko* **n. sp.** (Anomura: Eumunididae); *Cyrtomaia micronesica* Richer de Forges & Ng, 2007 (Brachyura: Inachidae); *Galilia petricola* **n. sp.**, 2007 (Brachyura: Leucosiidae), and *Progeryon mus* Ng & Guinot, 1999 (Brachyura: Progeryonidae). Above species except *H. armarium* are recorded from the Japanese Exclusive Economic Zone for the first time. Other decapod species detected in the video recordings and in situ photographs are also mentioned.

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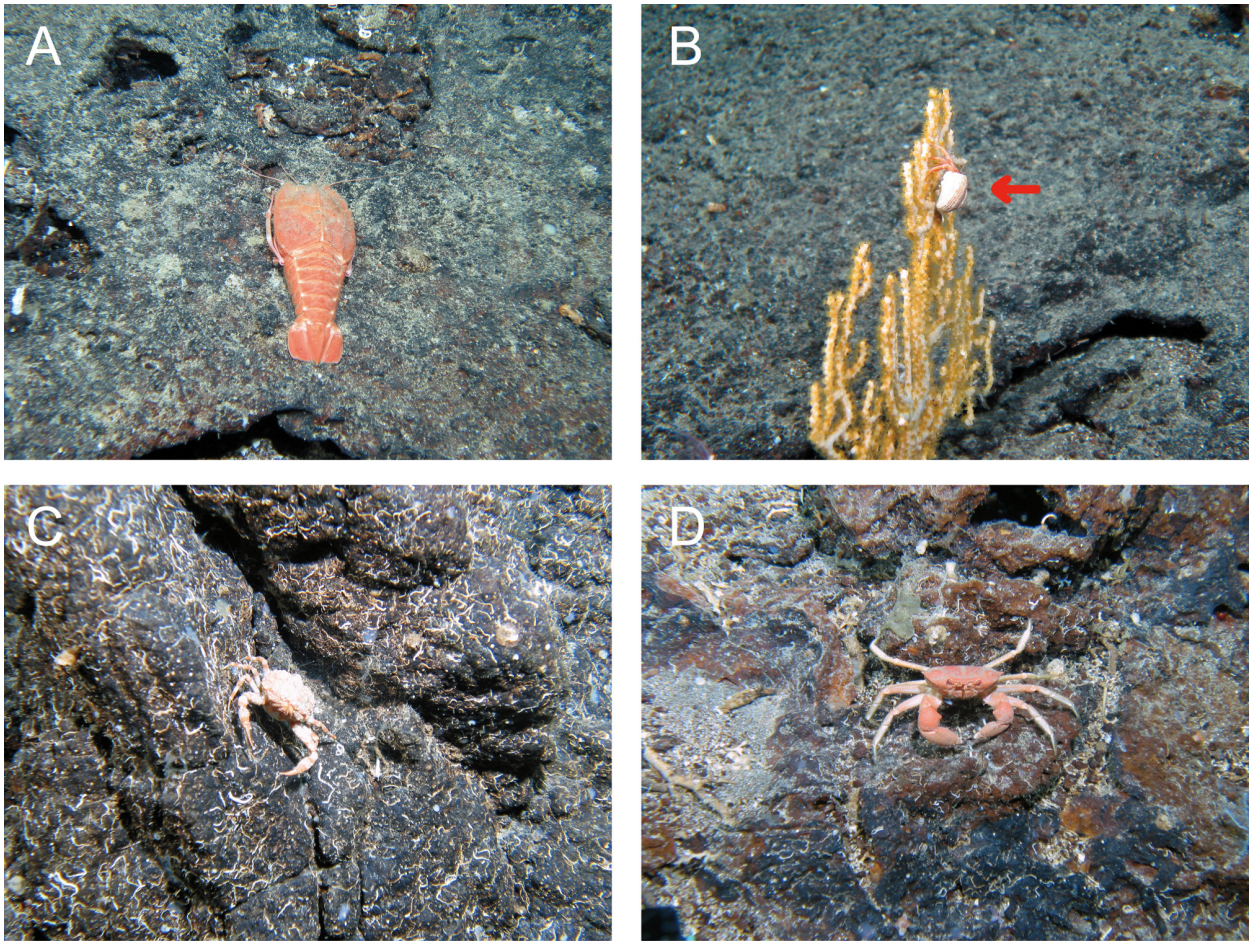

FIGURE 30. Photographs in situ. A, *Homeryon armarium* Galil, 2000, resting on rock, ovigerous female (cl 65.0 mm), JAMSTEC 081538; B, *Michelopagurus limaturus* (Henderson, 1888), climbing on soft coral; C, *Galilia petricola* **n. sp.**, ovigerous female (22.2 × 25.0 mm), JAMSTEC 081532, walking on steep slope of rock; D, *Progeryon mus* Ng & Guinot, 1999, male (27.2 × 34.3 mm), JAMSTEC 081539-1, walking on rock.

During the dive, we often encountered squat lobsters (most probably species of *Munida*) of more than one species, but our efforts of collection with slurp gun were not successful. Only one juvenile specimen, which could not be identified to species, was collected. The animals effectively escaped by tail flap, or avoided being sucked by clinging to the substrate. Unfortunately, the deep-water decapod crustacean fauna of the non-chemosynthetic communities in waters around the Ogasawara Islands remains poorly known (e.g., Tokeshi 2003; Baba 2005; Komai 2011). Conventional sampling techniques, especially traps or dredges, are the only way to capture specimens for correct identification of these species.

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