

Range extension of the deep-sea polychaete worm *Neopolynoe acanellae* in Canada

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Specimens of the deep-sea scale worm Neopolynoe acanellae (Verrill, 1881) (Polychaeta, Polynoidae) were collected at depths between 466 and 1405 m in Canadian waters while still attached to their host, the pennatulacean coral (sea pen) Pennatula grandis Ehrenberg, 1834. The present records extend the northern latitude of occurrence of N. acanellae in North America by 17° (~2000 km) to include the northern continental shelf of Newfoundland and Labrador and the lower Arctic, off the southern coast of Baffin Island (Canada). Analysis of the worm's intestinal content confirmed the presence of sea pen soft tissues and sclerites, suggesting that this species feeds on its host and is therefore parasitic.

Keywords: deep sea, Polychaeta, Polynoidae, distribution, coral, association, North Atlantic

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INTRODUCTION

The deep-sea polychaete worm *Neopolynoe acanellae* (Verrill, 1881) is reported from Western Greenland, Iceland, the Faroes Islands, Denmark, south to the Canary Islands in Europe, and from the Flemish Cap (46°N, off south-eastern Newfoundland) south to North Carolina (USA) in North America, at depths of 460–1919 m (Pettibone, 1963; Bock *et al.*, 2010). It has been found in association with various deep-sea corals, including *Acanella arbuscula* (Ditlevsen, 1917), *Acanthogorgia armata* (Verrill, 1881) and *Anthomastus grandiflorus* (Ditlevsen, 1917), and with a sponge of the genus *Chondrocladia* Thomson, 1873. Pettibone (1963) mentioned that it was also found on *Pennatula grandis* Ehrenberg, 1834 in the north-eastern United States and classified it as a commensal symbiont. Martin & Britayev (1998) later indicated that this association was facultative with all known hosts. The present contribution confirms that the species occurs in north-eastern Newfoundland, along the coast of Labrador as well as in the lower Arctic (63°N), thereby bridging with the European geographic range on the western coast of Greenland and supporting a temperate and polar distribution throughout the North Atlantic and lower Arctic. Observations in the present study also provide evidence of the parasitic nature of *N. acanellae* relative to its host *P. grandis*.

MATERIALS AND METHODS

A total of 12 scale worms were found on the pennatulacean coral *Pennatula grandis*, collected as bycatch during

multispecies trawl surveys and also collected by the At-Sea Observer Program conducted by Fisheries and Oceans Canada (DFO). Specimens (23–41 mm in length) were obtained in August 2004, July, August, October and November 2006, July 2007 and November and December 2013 along the north-eastern continental slope of Newfoundland, Labrador and the lower Arctic at depths ranging from 466 to 1405 m (Table 1, Figure 1). Two of the worms were dissected under a stereomicroscope to isolate the content of their digestive tracts. A specimen and its host (*P. grandis*) were deposited at the Canadian Museum of Nature in March 2014 (catalogue number CMNA 2014-0001).

RESULTS AND DISCUSSION

The scale worms were identified as *Neopolynoe acanellae* (Verrill, 1881) based on the presence of the following characters: >50 segments; bilobed prostomium with cephalic peaks; large eyes with anterior pair located dorsolaterally on widest part of prostomium (Figure 2A); lateral antennae inserted ventrally; antennae and cirri smooth; 15 pairs of elytra inserted on segments 2, 4, 5, 7, 9, ..., 23, 26, 29 and 32, leaving long tail uncovered; elytral surface covered by numerous conical microtubercles, elytral margin with few, scattered short papillae (Figure 2B); long ventral cirri reaching beyond tip of neuropodia (Figure 2C); neuropodia with slender, digitiform supra-acicular process (Figure 2C); notochaetae stout with blunt tips, neurochaetae unidentate (Bock *et al.*, 2010; Barnich *et al.*, 2012). *Neopolynoe acanellae* is easily distinguished from the two other species in the genus – *Neopolynoe antarctica* (Kinberg, 1858) and *Neopolynoe paradoxo* (Storm, 1888) – by the shape of its supra-acicular process and the length of its ventral cirri. For detailed descriptions of these two other species, see Bock *et al.* (2010) and

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