



The sea-spiders (Arthropoda: Pycnogonida) of Admiralty Bay, King George Island

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Abstract: Between 1979 and 2007, various sampling projects from the Polish *Arctowski* Research Station in Admiralty Bay, King George Island, Antarctica, collected a diverse assemblage of pycnogonids, *inter alia*. Examination of this material has revealed 24 species in 11 genera and six families: all of this material is described. Samples were from poorly-sorted fine-sand to coarse-silt substrata, at depths between 27 and 405 m. The diverse assemblage was of species consistent with the known pycnogonid fauna of these depths in the South Shetlands and the Palmer Archipelago region, and includes a number of species recorded for only the second time since the types. As typical for Antarctic waters, the predominant and most diverse genus was *Nymphon* (nine species); the prevalent species was *Nymphon eltaninae*, not *Nymphon australe*: implications for the apparent wide-distribution of records of the latter species are discussed. These records increase the biogeographical range of *Nymphon subtile* and *Nymphon punctum* from Subantarctic waters to the Scotia Sea.

Key words: Antarctic, King George Island, benthos, Pycnogonida.

Introduction

The pycnogonids are an entirely marine group of arthropods which form a significant part of the benthos in Antarctic and Subantarctic waters, perhaps more so than in any other part of the World. Munilla and Soler Membrives (2009) have recently produced a comprehensive review of the species recorded from these waters, including a valuable bibliography. This fauna has been studied relatively intensively since the first discovery of a pycnogonid in Antarctic waters by James Eights (Eights 1835), and there are now some 264 species recorded from the Southern Ocean (compared with 1289 named species currently listed for the

World – see Bamber and El Nagar 2010), of which about 170 appear to be endemic to the Antarctic and Subantarctic waters (Munilla and Soler Membrives 2009). Pushkin (1993) provided useful distribution maps for most of the Antarctic species. The earlier major reviews of the Antarctic pycnogonids are those of Fry and Hedgpeth (1969) and Child (1994, 1995), while Turpaeva (1998) gave a check-list for species from the Weddell Sea.

The Antarctic Peninsula, home of numerous research stations, and surrounding waters represent one of the better studied areas for pycnogonids (and other fauna). The present paper describes the species recorded from samples collected along transects in Admiralty Bay, King George Island, by staff from the *Arctowski* Station and the Polish Academy of Science, between 1979 and 2007. Some early pycnogonid material collected by the Polish Antarctic Expeditions in Admiralty Bay was listed by Arnaud *et al.* (1986) from material collected in baited traps, and they also gave a useful description of the Bay. Admiralty Bay is the largest fjord in the South Shetlands Archipelago, with a total area of 120 km². The main channel is 500 m deep, with three shallower (100–200 m) marginal inlets, and it opens to the Bransfield Strait; the water column is well-mixed. Sediments are patchy, comprising poorly- to very-poorly-sorted fine sands to coarse silts with various numbers of larger dropstones (*e.g.* Majewski 2005, 2010).

Methods

The sampling was predominantly by 0.1 m² van Veen grab. The material resides in the collections at the University of Łódź, Poland.

Juveniles are specimens without fully developed appendages, notably lacking the ovigers (where occurring), while subadults are specimens with ovigers (where occurring) present but not fully developed, and no genital pores (or fully regressed chelifora in the Ammotheidae). Higher taxonomy is as in Bamber and El Nagar (2010).

Results

In the 44 samples which contained pycnogonids, from depths between 27 and 405 m, a total of twenty-four species of pycnogonid, in eleven genera and six families, was represented as follows.

Class Pycnogonida Latreille, 1810
Order Pantopoda Gerstäcker, 1863
Suborder Stiripasterida Fry, 1978
Family Austrodecidae Stock, 1954

Austrodecus glaciale Hodgson, 1907

Austrodecus glaciale; Child 1994, 63–67, fig. 6.

Material. — 1♂, Stn OC253, Excurra Inlet, 62°08.000'S 58°29.059'W, 242 m depth, 4 January 1980; 1♀, Stn OC291, in front of Shag Point, 240 m, 1 March 1980; 1♀, Stn OC442, 62°09.270'S 58°27.122'W, 115 m, 21 February 1985; 3♀♀, 3♂♂, Stn OC426, Central Basin, 62°09.130'S 58°26.804'W, 251 m, 30 January 1985; 1♀, 1♂, Stn OC458, Central Basin, 62°09.340'S 58°27.283'W, 46 m, 17 March 1985; 1♀, 2♂♂, Stn OC472, Central Basin, 62°09.100'S 58°26.939'W, 245 m, 27 April 1985; 1♀, 1♂, Stn OC474, Central Basin, 62°09.130'S 58°26.000'W, 263 m, 27 April 1985; 2♂♂, Stn OC478, Central Basin, 62°09.106'S 58°26.878'W, 252 m, 11 May 1985; 10♀♀, 6♂♂, Stn OC479, Central Basin, 62°09.175'S 58°26.745'W, 240 m, 11 May 1985; 1♀, Stn OC481, Central Basin, 62°09.154'S 58°26.929'W, 205 m, 23 July 1985; 1♀, Stn OC486, Central Basin, 62°09.067'S 58°26.797'W, 270 m, 10 August 1985; 1♀, Stn I1, 105 m, March 2007.

The genotype and most commonly recorded species of the genus, *A. glaciale* may be polyphyletic (Child 1994). It has a circumpolar distribution, with a depth range mainly from 0 to 640 m, although there are records from 2100 m on the New Zealand Slope (see Child 1994 for details). The present material ranges in depth from 45 to 290 m, being apparently most abundant below 200 m.

Austrodecus simulans Stock, 1957

Austrodecus simulans Stock, 1957, 54–56, figs 25, 26, 37b, d.

Material. — 1♀, Stn BII3, 62° 09.637' S 58° 30.176' W, 113 m, 27 March 2007.

This species was known previously from numerous records from around the Kerguelen shelf (Stock 1957; Pushkin 1993), from the Weddell Sea (Turpaeva 1998) and most recently from the Bellinghousen Sea (T. Munilla *pers. comm.*: Bentart 2003 cruise), in a depth range from 71 to 545 m. The present record, at 109 m depth, reinforces the possible circumpolar distribution of this species.

Suborder Eupantopodida Fry, 1978

Superfamily Ascorhynchomorpha Pocock, 1904

Family Ammotheidae Dohrn, 1881

Achelia hoeki (Pfeffer, 1889)

Achelia (Ignavogriphus) hoeki; Fry and Hedgpeth 1969, 106–107, figs 152–154, 157, 164–165.

Material. — 1♂, Stn OC458, Central Basin, 62°09.340'S 58°27.283'W, 46 m, 17 March 1985.

Child (1994) regards this as the species “easiest to separate and identify of the known Antarctic group”; he lists the distribution as the Falkland Islands, South Georgia, from the South Sandwich Islands to the South Shetland Islands, and the Palmer Archipelago, but notes the lack of records from the Magellanic region, al-

though Loman (1923) does record *A. hoeki* from Tierra del Fuego. Munilla and Soler Membrives (2009) recorded it from the Bellinghausen Sea. The known depth range is 0 to 256 m.

Ammothea cf. carolinensis Leach, 1814

Ammothea carolinensis; Fry and Hedgpeth 1969, 73–75, figs 104–108.

Material. — 1 postlarva, Stn BIV2, 62°09.463' S 58°29.747' W, 111 m, 28 March 2007.

The present very-juvenile specimen accords closely with the morphology of *A. carolinensis*, the commonest species of *Ammothea* in Antarctic waters (Child 1994). This species is circumpolar, including in the South Shetland Islands (*e.g.* Munilla 2001), found in depths from 10 to 640 m. Arnaud *et al.* (1986) record this species as rare, from depths between 15 and 90 m in the Bay.

Ammothea clausi Pfeffer, 1889

Ammothea (Theammoa) clausi; Fry and Hedgpeth 1969, 77–79, figs 104–105, 112–115.

Material. — 1♂, Stn OC236, Excurra Inlet, 62°09.296' S 58°28.659' W, 27 m, 20 December 1979; 1 juvenile, Stn OC276, Excurra Inlet, 62°09.232' S 58°28.800' W, 86 m, 7 February 1980; 1 subadult, Stn OC411, Excurra Inlet, 62°09.737' S 58°31.124' W, 72 m, 11 January 1985; 1 juvenile, Stn OC474, Central Basin, 62°09.130' S 58°26.000' W, 263 m, 27 April 1985; 1 juvenile, Stn OC486, Central Basin, 62°09.067' S 58°26.797' W, 270 m, 10 August 1985; 1♂, Stn OC526, Ezcurra Inlet, 62°10.152' S 58°34.825' W, 45 m, 6 November 1985; 1 juvenile, Stn OC548, Central Basin, 62°09.106' S 58°26.765' W, 296 m, 8 January 1986. 1♂, Stn B II1, 62°09.703' S 58°30.273' W, 109 m, 27 March 2007; 1♂, Stn B II3, 62°09.637' S 58°30.176' W, 113 m, 27 March 2007; 1 subadult, Stn B II4, 62°09.643' S 58°30.182' W, 112 m, 27 March 2007; 2 subadults, Stn B III/4, 62°09.501' S 58°30.043' W, 145 m, 28 March 2007; 1 subadult, Stn BV3, 62°09.274' S 58°29.503' W 123 m, 29 March 2007.

A frequently recorded species with a circumpolar distribution, including the Falkland Islands, South Georgia, and the South Sandwich Islands to the South Shetland Islands, it shares only with *A. magniceps* the lack of dorsal processes on the trunk ridges. The present material covers a depth range of 27 to 296 m, well within the overall recorded range of 3 to 860 m (Child 1994). Specimens are of the “Magellanic form” of Fry and Hedgpeth (1969). Arnaud *et al.* (1986) record this species as rare, from depths between 30 and 90 m in the Bay.

Cilunculus cactoides Fry et Hedgpeth, 1969

Cilunculus cactoides Fry et Hedgpeth, 1969, 124–126, figs 205–206.

Material. — 1 subadult, Stn OC458, Central Basin, 62°09.340' S 58°27.283' W, 46 m, 17 March 1985; 1 subadult, Stn OC479, Central Basin, 62°09.175' S 58°26.745' W, 240 m, 11 May 1985.

One of only three species of *Cilunculus* Loman, 1908 to have been recorded from Antarctic and Subantarctic waters, *C. cactoides* has been recorded previously from the South Shetland Islands by Fry and Hedgpeth (1969) and Munilla (2000, 2001), otherwise circumpolar (see Pushkin 1993; Child 1994), from a depth range of 38 to 540 m. Both of the present specimens were immature, but add nothing to the known range.

Tanystylum sp. indet.

Material. — 1 chelate juvenile, Stn BIV5, 62°09.459' S 58°29.746' W, 112 m, 28 March 2007.

This specimen is too immature to be certain of its identity, but closely resembles *T. neorhetum* Marcus, 1940, a species showing what Child (1994) called a pan-Subantarctic distribution, in depths between 0 and 410 m.

Superfamily Nymphonomorpha Pocock, 1904

Family Nymphonidae Wilson, 1878

Nymphon adareanum Hodgson, 1907

Nymphon adareanum; Gordon 1932, 98–101, figs 1–2.

Material. — 1 ♀, Stn B I3, 62°09.704' S 58°30.270' W, 110 m, 27 March 2007.

Another widely-distributed species in Antarctic and Subantarctic waters, notably from Argentina, Tierra del Fuego, South Shetland Islands, South Georgia, East of Cape Horn, the Ross Sea, the Antarctic Peninsula and the Palmer Archipelago, in depths from 1 to 903 m (Child 1995).

Nymphon biarticulatum (Hodgson, 1907)

Nymphon biarticulatum; Gordon 1932, 71–73, figs 27d, 31a, c, 32a.

Material. — 1 ♀, Stn OC290, Central Basin, in front of Shag Point, 265 m, 1 March 1980; 1 ♀, Stn OC292, Central Basin, in front of Shag Point, 255 m, 1 March 1980; 2 specimens, Stn OC419, Central Basin, 62°09.019'S 58°26.510'W, 380 m, 18 January 1985; 1 ♀, Stn OC420, Central Basin, 62°09.115'S 58°26.776'W, 280 m, 21 June 1985; 1 juvenile, Stn OC422, Central Basin, 62°09.150'S 58°26.728'W, 290 m, 30 January 1985; 4 specimens, Stn OC426, Central Basin, 62°09.130'S 58°26.804'W, 251 m, 30 January 1985; 6 specimens, Stn OC448, Central Basin, 62°08.894'S 58°26.939'W, 352 m, 9 March 1985; 1 ♂, Stn OC472, Central Basin, 62°09.100'S 58°26.939'W, 245 m, 27 April 1985; 2 specimens, Stn OC478, Central Basin, 62°09.106'S 58°26.878'W, 252 m, 11 May 1985; 6 specimens, Stn OC479, Central Basin, 62°09.175'S 58°26.745'W, 240 m, 11 May 1985; 1 ♂, Stn OC483, Central Basin, 62°09.078'S 58°26.908'W, 258 m, 23 July 1985; 1 subadult, Stn OC486, Central Basin, 62°09.067'S 58°26.797'W, 270 m, 10 August 1985; 7 specimens, Stn OC520, Central Basin, 62°09.077'S 58°26.694'W, 335 m, 3 November 1985. 1 ♀, Stn BI3, 62°09.704S 58°30.270W, 110 m, 27 March 2007; 2 juveniles,

Stn BII2, 62°09.624S 58°30.157W, 116 m, 27 March 2007; 1 specimen, Stn BII4, 62°09.643S 58°30.182W, 112 m, 27 March 2007; 1♀, Stn BIII5, 62°09.519S, 58°29.992W, 132 m, 28 March 2007.

Another member of the *australe*-group with a circumpolar Antarctic-Subantarctic distribution, *N. biarticulatum* has been recorded previously from the South Shetland Islands (e.g. Munilla 2001). The present records fall comfortably within the known depth range of 35–889 m.

Nymphon cf. *charcoti* Bouvier, 1911

Nymphon charcoti; Bouvier 1913, 81, figs 32–34.

Material. — 1 specimen, Stn OC483, Central Basin, 62°09.078'S 58°26.908'W, 258 m, 23 July 1985.

A circumpolar species, this is the largest species of *Nymphon* in Antarctica, considered by Child (1995) to be “very common” in the depth range of 150 to 1080 m (overall records are from 3 to 1200 m). Confusion between this species and *N. gerlachei* Gilat, 1935 (e.g. Child 1995: 36) was resolved by Bamber *et al.* (2001).

Nymphon eltaninae Child, 1995

Nymphon eltaninae Child, 1995, 14–16, fig. 2.

Material. — 2 specimens, Stn OC249, Excurra Inlet, 62°08.927'S 58°29.082'W, 262 m, 4 January 1980; 6 specimens, Stn OC252, Excurra Inlet, 62°08.000'S 58°29.059'W, 240 m, 4 January 1980; 1 specimen, Stn OC253, Excurra Inlet, 62°08.000'S 58°29.059'W, 240 m, 4 January 1980; 1♂, Stn OC417, Central Basin, 62°08.690'S 58°26.000'W, 405 m, 18 January 1985; 2 specimens, Stn OC419, Central Basin, 62°09.019'S 58°26.510'W, 380 m, 18 January 1985; 1♀, Stn OC475, Central Basin, 62°09.101'S 58°26.939'W, 242 m, 27 April 1985; 3 subadults, Stn OC478, Central Basin, 62°09.106'S 58°26.878'W, 252 m, 11 May 1985; 1♀, Stn OC486, Central Basin, 62°09.067'S 58°26.797'W, 270 m, 10 August 1985; 1 specimen, Stn OC548, Central Basin, 62°09.106'S 58°26.765'W, 296 m, 8 January 1986. 1♂, Stn BII2, 62°09.624' S 58°30.157' W, 116 m, 27 March 2007; 2 subadults, Stn BIII/5, 62°09.519' S 58°29.992' W 132 m, 28 March 2007; 1 subadult, Stn BIV2, 62°09.463' S 58°29.747' W, 111 m, 28 March 2007.

Child (1995) distinguished this species in his *N. australe*-group, based, *inter alia*, on its having complete trunk-segmentation (the third and fourth trunk-segments of *N. australe* Hodgson, 1902 being fused). While *N. australe* is the commonest pycnogonid recorded in Antarctic waters, including in the region of the South Shetland Islands, all of the material studied here showed complete trunk-segmentation (and otherwise generally accorded with Child's description), suggesting that previously recorded material may require re-examination. Mahon *et al.* (2008) undertook a detailed molecular analysis of *Nymphon* material from around the Palmer Archipelago in order to interpret potential cryptic speciation within *N. australe*; their geographically closest samples to King George Island were from Livingston Island, from where their *australe*-group material was found

to be distinct from *N. australe sensu stricto*, and it was designated *Nymphon* sp. 1 and *Nymphon* sp. 2.

Nymphon eltaninae was previously known only from the type-collection from the Ross Sea at 1215–1233 m.

Nymphon gruzovi Pushkin, 1993

Nymphon gruzovi Pushkin, 1993, 128–129, figs 101–102.

Material. — 1 subadult, Stn OC292, Central Basin, in front of Shag Point, 255 m, 1 March 1980.

This is only the third record after the holotype male at 250 m south of the Scotia Ridge (Pushkin 1993), and the record of Turpaeva (1998) from the eastern Weddell Sea. The bifurcate ocular tubercle of this species is particularly distinctive.

Nymphon lanare Hodgson, 1907

Nymphon lanare Hodgson, 1907, 22–23, pl. III, figs 2, 2a, 2b.

Material. — 1 ♀, Stn BIV5, 62°09.459S 58°29.746W 112 m, 28 March 2007; 1 ♀, Stn BV1, 62°09.290S 58°29.439W, 100 m, 29 March 2007.

Another blind, uniunguiculate taxon, this species has been confused in the past with *N. charcoti*. Child (1995: 3) referred to this species as “poorly described and never illustrated”, thus strangely ignoring the original description and plate of Hodgson (1907). Gordon (1944) also included the species in her key to the Antarctic and Subantarctic *Nymphon* species. Previous records were collected from the South Shetlands, the Scotia Sea, the Ross Sea and off Queen Maud Land (Turpaeva 1974; Pushkin 1993; Munilla 2001), from depths between 60 and 848 m.

Nymphon pagophilum Child, 1995

Nymphon pagophilum Child, 1995, 46–48, fig. 14.

Material. — 1 specimen, Stn OC448, Central Basin, 62°08.894'S 58°26.939'W, 352 m, 9 March 1985; 2 ♂♂, Stn OC472, Central Basin, 62°09.100'S 58°26.939'W, 245 m, 27 April 1985; 1 ♀, Stn OC520, Central Basin, 62°09.077'S 58°26.694'W, 335 m, 3 November 1985.

These are the first records of this attenuate species since the types, from the Palmer Archipelago, and Child's (1995) other material from the Scotia Sea, the South Shetlands, the South Orkneys, the Bransfield Strait, and the Weddell Sea at 265 to 1170 m. The species is characterized by the long neck of the cephalon, the long uniunguiculate claw, and large teeth on the chelae, *inter alia*.

Nymphon punctum Child, 1995

Nymphon punctum Child, 1995, 51, fig. 16.

Material. — 1 ♀, Stn OC479, Central Basin, 62°09.175'S 58°26.745'W, 240 m, 11 May 1985.

Nymphon punctum is another of the new species described by Child (1995), previously known only from the female holotype from 415 m depth on the southern New Zealand Plateau. The present specimen extends the distribution to the Scotia Sea region, and to shallower waters. It is characterized by distal spines on the femur and tibiae, as well as the short palp, short tarsus and slender chela.

Nymphon subtile Loman, 1923

Nymphon subtile; Gordon 1932, 43–45, figs 14, 15, 24b.

Material. — 1 specimen, Stn OC252, Excurra Inlet, 62°08.000'S 58°29.059'W, 240 m, 4 January 1980; 1♂, Stn OC422, Central Basin, 62°09.150'S 58°26.728'W, 290 m, 30 January 1985.

An attenuate species, predominantly recorded from Magellanic waters, including the Falkland Islands (*e.g.* Child 1995), at depths between 13 and 304 m, although Pushkin (1993) dubiously records it from Kerguelen. These Admiralty Bay specimens are the first records from the Antarctic side of the Scotia Sea.

Pentanympion antarcticum Hodgson, 1904

Pentanympion antarcticum Hodgson, 1904, 458–462, pl. XIV.

Material. — 2 specimens, Stn OC270, Central Basin, in front of the *Arctowski* Station, 175 m, 4 January 1980; 2 specimens, Stn OC279, Excurra Inlet, 62°09.066'S 58°28.953'W, 170 m, 8 February 1980; 1♂, Stn OC422, Central Basin, 62°09.150'S 58°26.728'W, 290 m, 30 January 1985; 2 specimens, Stn OC426, Central Basin, 62°09.130'S 58°26.804'W, 251 m, 30 January 1985; 1 specimen, Stn OC472, Central Basin, 62°09.100'S 58°26.939'W, 245 m, 27 April 1985; 1♀, Stn OC474, Central Basin, 62°09.130'S 58°26.000'W, 263 m, 27 April 1985; 1 juvenile, Stn OC475, Central Basin, 62°09.101'S 58°26.939'W, 242 m, 27 April 1985; 1♀, 1 juvenile, Stn OC479, Central Basin, 62°09.175'S 58°26.745'W, 240 m, 11 May 1985; 3 specimens, Stn OC481, Central Basin, 62°09.154'S 58°26.929'W, 205 m, 23 July 1985; 1 specimen, Stn OC486, Central Basin, 62°09.067'S 58°26.797'W, 270 m, 10 August 1985.

This entirely distinctive decapodous species is circumpolar in distribution, frequently recorded, and normally taken in waters of 200 m or less (from as shallow as 3 m), but Child (1995) recorded it as deep as 3277 m. All but two of the present records are from below 200 m. Arnaud *et al.* (1986) record this species as rare, from depths between 60 and 90 m in the Bay. *Pentanympion antarcticum* is the only pentamerous nymphonid species.

Heteronymphon exiguum (Hodgson, 1927)

Heteronymphon exiguum; Gordon 1932, 80–82, figs 38–39.

Material. — 1♀, Stn OC479, Central Basin, 62°09.175S 58°26.745W, 240 m, 11 May 1985.

Of the eight species of *Heteronymphon* Gordon, 1932, only *H. exiguum* occurs in Antarctic or Subantarctic (New Zealand Plateau) waters, where it is common, circumpolar, and found in a depth range of 3 to 415 m.

Family Callipallenidae Hilton, 1942

Austropallene calmani Gordon, 1944

Austropallene calmani Gordon, 1944, 42–45, figs 12a, 13a–c, 14a.

Material. — 1 juvenile, Stn BI1, 62°09.703'S 58°30.273'W 109 m, 27 March 2007; 1 ♀, 2 juveniles, Stn BI4, 62°09.704S 58°30.269'W, 110 m, 27 March 2007; 5 subadults, Stn BI5, 62°09.703'S 58°30.250'W, 107 m, 27 March 2007; 2 ♀♀, Stn BII3, 62°09.637S 58°30.176'W 113 m, 27 March 2007.

The genus *Austropallene* Hodgson, 1915 is exclusive to Antarctic and Subantarctic waters. *A. calmani* shows a circumpolar distribution, having been recorded from the McMurdo Sound, Ross Sea, the southern Indian Ocean Antarctic waters, and the South Sandwich Islands, the New Zealand Slope, South Georgia and the Palmer Archipelago, in a depth range from 163 to 2955 m.

Austropallene cornigera (Möbius, 1902)

Austropallene cornigera; Gordon 1932, 85–86, figs 42–43.

Material. — 1 juvenile, Stn OC426, Central Basin, 62°09.130'S 58°26.804'W, 251 m, 30 January 1985; 1 ♀, Stn OC520, Central Basin, 62°09.077'S 58°26.694'W, 335 m, 3 November 1985.

Austropallene cornigera is another “extremely common circumpolar species in both Subantarctic and Antarctic waters” (Child 1995), having been taken in depths between 3 and 1180 m.

Austropallene gracilipes Gordon, 1944

Austropallene gracilipes Gordon, 1944, 39–41, figs 10a, 11a–c, 14d.

Material. — 1 ♀, Stn OC481, Central Basin, 62°09.154'S 58°26.929'W, 205 m, 23 July 1985; 2 ♂♂, 2 ♀♀, Stn BIV3, 62°09.458S 58°29.745W, 110 m, 28 March 2007; 4 juveniles, Stn BII4, 62°09.643S 58°30.182W, 112 m, 27 March 2007.

This species has only previously been recorded twice, by Gordon (1944) as the types from the Eastern Quadrant of the Antarctic Shelf (showing a similar distribution there to her types of *A. calmani*) and by Child (1995) from the Palmer Archipelago, the South Shetland Islands and at Wilkes Station and on the Albatross Ridge. Recorded depths range between 45 and 645 m. The present material is consistent with Child's (1995) records from the South Shetlands.

Austropallene tibicina Calman, 1915

Austropallene tibicina; Gordon 1944, 41–42, figs 12b–d, 14e.

Material. — 1 ovigerous ♂, Stn OC422, Central Basin, 62°09.150'S 58°26.728'W, 290 m, 30 January 1985; 1 specimen, Stn OC481, Central Basin, 62°09.154'S 58°26.929'W, 205 m, 23 July 1985.

This species is not common, but is widely distributed, having been recorded from the Ross Sea, the Palmer Archipelago, the South Shetland Islands, South Georgia and the New Zealand Plateau, normally in depths from 45 to 550 m, although one of Child's (1995) stations was at about 3700 m ("a juvenile, possibly not this species" – Child 1995: 136).

Family Pallenopsidae Fry, 1978

Pallenopsis sp. nov.

Material. — 1 subadult, Stn OC479, Central Basin, 62°09.175'S 58°26.745'W, 240 m, 11 May 1985.

This subadult specimen is sufficiently mature to confirm that it is not consistent with any known species of the genus; while showing affinities to *Pallenopsis spicata* Hodgson, 1915, it has a single heel spine, and tubercles over the chelifora. It will be described elsewhere.

Superfamily Rhynchothoracimorpha Fry, 1978

Family Rhynchothoracidae Thompson, 1909

Rhynchothorax australis Hodgson, 1907

Rhynchothorax australis; Child 1995, 96–99, fig. 9.

Material. — 1 ♂, Stn OC264, Central Basin, in front of the *Arctowski* Station, 30 m, 18 January 1980.

One of the earliest species of the genus *Rhynchothorax* Costa, 1861 to have been described, and one of the most frequently recorded, this species has been collected previously from the Ross Sea, McMurdo Sound and the Weddell Sea, as well as Kerguelen, the Falklands, Marion and Prince Edward Islands, the South Shetland Islands and the Strait of Magellan, mainly at depths between 34 and 450 m (and possibly to 900 m) (see Child 1995, for detailed distribution). While most records are from the eastern Antarctic (see map of Pushkin 1993), the species appears to be circumpolar.

Discussion

Of the twenty-four species listed above, eleven are members of the Nymphonidae and nine are species of the genus *Nymphon*, which is in keeping with the recorded dominance and diversity of this genus in Antarctic waters (*e.g.* Child 1995). The diversity of the endemic Antarctic genus *Austropallene* is also notable. Arnaud *et al.* (1986) recorded (as rare) two further species from Admiralty Bay, *viz.* *Colossendeis scotti*, a widespread Antarctic species occurring at depths be-

tween 36 and 500 m, and *Ammothea spinosa*, a Magellanic-Subantarctic-Antarctic species recorded from an overall depth range of 73 to 1679 m.

All of these pycnogonid species are regionally endemic to the Southern Ocean, and 55 species are currently believed to show circumpolar distributions (Munilla and Soler Membrives 2009), although increased molecular studies may show these to comprise groups of cryptic sibling species in a taxon known to have no obligate dispersive phase, and thus a propensity for allopatric speciation (*e.g.* Bamber 1998).

While this collection of pycnogonids from Admiralty Bay is relatively numerous and diverse, it is consistent with the known pycnogonid fauna of these depths in the South Shetlands and the Palmer Archipelago region.

The conspicuous anomaly is *Nymphon eltaninae*, previously known only from the Ross Sea; but, as mentioned above, the findings of molecular analysis of the *N. australe*-group in this region (Mahon *et al.* 2008) suggest that a number of cryptic species have been mis-identified as *N. australe* in the past (*N. eltaninae* was only recognized in 1995).

Nevertheless, these records are a valuable contribution to the knowledge on distribution of the Antarctic and Subantarctic pycnogonid fauna, including a number of species recorded for only the second time, and commonly reinforce the suggestion of Munilla and Soler Membrives (2009) that, as more data become available, increasing numbers of pycnogonid species are shown to have a circumpolar distribution.

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