New species of *Scolelepis* (Polychaeta, Spionidae) from the Norwegian coast and Barents Sea with a brief review of the genus

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The species *Scolelepis finmarchicus* sp. nov. is described from the Norwegian and Barents Seas along the northern Norwegian coast and Kola peninsula. The occurrence of this species in the Kola Bay could be seen as a sign of climate warming in the area. Taxonomic issues existing in the genus *Scolelepis* within the area along the Norwegian coast and in the Barents Sea are briefly touched upon. Seven species belonging to *Scolelepis* have recently been recorded from the Atlantic sector of the Arctic. *Scolelepis* (*S.*) *matsugae* Sikorski, 1994 is newly synonymized with *S.* (*S.*) *laonicola* (Tzetlin, 1985). This article provides a brief review of *Scolelepis* together with an identification key for the genus from the Atlantic sector of the Arctic.

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INTRODUCTION

Polychaetes belonging to the genus *Scolelepis* commonly inhabit sublittoral coastal sandy or mixed soft-bottom substrata. This genus does not appear to extend to the continental slope or abyssal depths (Maciolek 1987: 17).

Currently the genus *Scolelepis* contains 86 species, 74 species in the subgenus *Scolelepis* (including the new one) and 12 species in the subgenus *Parascolelepis* (Table 1). The latest articles (e.g., Delgado-Blas 2006, Blake 2006, Delgado-Blas et al. 2009, dos Santos et al. 2009, Rocha & de Paiva 2012) have recognized only about 45 species of *Scolelepis* and 12 of *Parascolelepis* worldwide, while Rocha et al. (2009) reconized a total of about 80 species. Some authors have used *Scolelepis* and *Parascolelepis* as genera rather than subgenera (Blake 2006, Williams 2007). Williams (2007) gave a total of 58-59 species for the genus *Scolelepis* sensu stricto.

The Scandinavian Arctic spionid fauna has been extensively investigated but new species are still found along the Norwegian coast. The new species described in the paper was obtained from material collected during monitoring activities in 2003–2009 along the coast of Norway and the Kola Peninsula in northwest Russia.

Brief comments are given in this paper about some recent changes to faunistic and taxonomic details that concern *Scolelepis* from the Atlantic sector of the Arctic (Sikorski 2001; Vortsepneva *et al.* 2008). An identification key for all the known Arctic species of *Scolelepis* is given with short taxonomic notes.

MATERIAL AND METHODS

The new species was found in 16 samples. Twenty-two specimens (three specimens were lost) were collected with Van Veen grab and by scuba diving from depths down to 150 m at different locations along the northern coast of Norway by the consulting firm Akvaplan-niva AS (Tromsø, Norway) and from the Kola Bay by the Murmansk Marine Biological Institute (Murmansk, Russia). The material was fixed in 4% formalin and then transferred to 75% ethanol. Examination of the material, including the drawings, was done using binocular microscopes (Leica M80 and MZ 12) and transmitted light microscopes (Leica DM2000 and MICMED-6). The type material was deposited in the University Museum of Bergen, University of Bergen, Norway (ZMBN) and in the Zoological Institute of Russian Academy of Sciences, St. Petersburg, Russia (ZISP). All Arctic material from Russian museums (ZISP and the Zoological Museum of the Moscow University (ZMUM) labelled as *Scolelepis* was examined. In addition two tubes from the Natural History Museum, University of Oslo (NHMO), identified and labeled by M. Sars as "*Spio foliosus*" from Grøtø (NHMO C5970) and "*Spio foliosa*" from Øksfjord (NHMO C5971) were examined. The tube labeled by D.C. Danielssen as *Nerine foliosa* from the University Museum of Bergen (ZMBN 2156, from Grøtøy) and eight specimens from the Zoological Museum of Hamburg labelled *Scolelepis squamatus* (Müller, 1806) (ZMH P-16127) were examined. One specimen from ZMBN 2156 and one from ZMH P-16127 are now deposited (after obtaining required permissions from the Bergen and Hamburg museums) in the Zoological Museum of the Moscow University (ZMUM Pl 1815 and 1811 respectively). Two cotypes of *Nerinides tridentatus* Southern, 1914 from the Irish Zoological Museum (Blacksod Bay 42.1910 St. W135 shore March 1910 and Blacksod Bay 448.1910 St. W160 Sept. 1910 – there was no an accession number on the label) were also examined as this name is often used in the species lists produced for the benthic fauna of the Norwegian coast. Material identified as *Nerinides tridentatus* and deposited in the Zoological Museum of the University of Uppsala (UUZM, Sweden) was also looked at and considered. For *S. bonnieri* Mesnil, 1896 taxonomic literature was examined together with numerous specimens collected by Akvaplan-niva AS from the North and Norwegian Seas since 1992 but not deposited in any proper museum collections.

RESULTS

Scolelepis Blainville, 1828

Type species: *Lumbricus squamatus* Müller, 1806

Diagnosis: Prostomium pointed on anterior margin, sometimes trilobed or rounded, extending posteriorly as narrow caruncle. Occipital tentacle present or absent. Caruncle posteriorly detached or attached to dorsal body wall. Peristomium well developed, with or without lateral wings. Branchiae beginning on chaetiger 2, continuing to near the posterior end of body; in anterior chaetigers, branchiae completely fused to dorsal lamellae or with distal portion free. Capillary noto- and neurochaetae of anterior chaetigers usually arranged in two tiers; notopodial capillaries of the posterior chaetigers in a single tier. Neuropodial hooded hooks present. Notopodial hooded hooks present or absent. Hooks uni-, bi-, tri- or multidentate. Pygidium with oval disc or multi-lobed appendages.
Remarks: The genus *Scolelepis* was divided by Maciolek (1987) into two subgenera, *Scolelepis* and *Parascolelepis*. This division was based on the structure of the hooks.

Scolelepis (S.) finmarchicus sp. nov.

(LSID: http://www.zoobank.org/7F1870B0-EB63-449B-8A52-720C5D8EF7AA)
Figures 1 (A–I), 2
Scolelepis sp. A – Sikorski, 2001: p.284.

Material examined
Type-material: 19 specimens. **Holotype.** Melkøya, Finnmark, Norway, st. 5, grab 3, 70º 41′ 03″ N, 23º 33′ 03″ E, 130 m, 01 August 2006 (ZMBN 95132). **Paratypes**: **Norway**: Melkøya, st. 2, grab 1, 70º 41′ 08″ N, 23º 37′ 19″ E, 62 m, 18 July 2006 (1 specimen, ZMBN 95133); Melkøya, st. 4, grab 1, 70º 41′ 23″ N, 23º 34′ 31″ E, 64 m, 01 August 2006 (1, ZMBN 95134); Melkøya, st. 5, grab 2, 70º 42′ 03″ N, 23º 33′ 03″ E, 130 m, 01 August 2006 (1, ZMBN 95135); Melkøya, st. 4, 70º 41′ 24″ N, 23º 34′ 19″ E, 52 m, 06 August 2008 (1, ZMBN 95136); Mosjøyen, st. 3, 65º 51′ 09″ N, 13º 10′ 49″ E, 41 m, 30 June 2009 (4, ZMBN 95137); Melkøya, st. 4, grab 2, 70º 41′ 24″ N, 23º 34′ 19″ E, 52 m, 23 August 2010 (1, ZMBN 95138); Melkøya, st. 6, grab 1, 70º 38′ 51″ N, 23º 37′ 21″ E, 60 m, 23 August 2010 (1, ZMBN 95139); Finnmark, st. 658, grab 3, 70º 55′ 31″ N, 25º 36′ 47″ E, 150 m, 18 September 2003 (1, ZISP 1⁄50610); Kola Bay, scuba sample, st.11-1, 69º 04′ 46″ N, 33° 11′ 56″ E, 11 m, silty sand, 8º C, salinity 34, 26 September 2006 (1, ZMBN 95140); Storvika st. 3B, 67° 32′ N, 15° 18′ E, 19 m, 21 May 2014 (1, ZMBN 98030); Melkøya Kystovervåking, st. 4, grab 4, 70º 41′ 23″ N, 23º 34′ 31″ E, 64 m, 11 August 2014 (1, ZMBN 99283). **Russia**: Kola Bay, Mishukovo, 69º 03′ N, 33° 04′ E, scuba samples, st.14-2 and 3, 8 m, 7° C, salinity 34,5, silty sand, 18 September 2006 (2, ZMBN 95141 and 95148); Kola Bay, 69º 07′ N, 33° 23′ 35″ E, scuba sample 13-3, 6 m, 6,9º C, salinity 33,5, silty sand with broken shells and pebbles, 21 October 2009 (1, ZMBN 95142; 1, ZISP 2⁄50611).
Non type-material: 2 specimens from Vågsøy 62º 01′ N, 05º 08′ 30″ E, 13 and 18,5 m, silty broken shells with gravel (deposited in ZMUM, but recently lost); Melkøya, st. 5, grab 3, 70º 42′ 03″ N, 23º 33′ 03″ E, 130 m, 01 August 2006 (1 specimen lost during drawing preparation).

Table 1. List of valid species names known today for the genus *Scolelepis* (subgenera *Scolelepis* and *Parascolelepis*).

	Species	Type locality
1.	*S.* (*S.*) *squamata* (Müller, 1806)	Denmark
2.	*S.* (*S.*) *longirostris* (Quatrefages, 1843)	English Chanel (Saint-Malo)
3.	*S.* (*P.*) *foliosus* (Auduoin and Milne Edwards, 1833)	France
4.	*S.* (*S.*) *agilis* (Verrill, 1873)	Vineyard Sound
5.	*S.* (*S.*) *bonnieri* Mesnil, 1896	English Chanel
6.	*S.* (*S.*) *perrieri* (Fauvel, 1902)	Casamance, Senegal
7.	*S.* (*S.*) *lefebvrei* (Gravier, 1905)	Red Sea
8.	*S.* (*S.*) *lamellata* (McIntosh, 1909)	Atlantic Ocean, Tangiers Bay
9.	*S.* (*S.*) *alaskensis* (Treadwell, 1914)	Pacific Ocean, Shumagin Islands, Alaska
10.	*S.* (*S.*) *acuta* (Treadwell, 1914)	Pacific Ocean, San Diego, California
11.	*S.* (*S.*) *cantabra* (Rioja, 1918)	Cantabrian Sea
12.	*S.* (*S.*) *antipoda* (Augener, 1926)	New Zealand
13.	*S.* (*S.*) *cirratulus hirsuta* (Treadwell, 1928)	05º32′N, 86º59′W
14.	*S.* (*S.*) *minuta* (Treadwell, 1939)	Gulf of Mexico, Texas
15.	*S.* (*S.*) *squamata saipanensis* (Hartman, 1954)	Pacific Ocean, Saipan, Marianas Islands
16.	*S.* (*S.*) *arenicola* (Hartmann-Schröder, 1959)	Pacific Ocean, El Salvador
17.	*S.* (*S.*) *oligobranchia* Khlebovitsch, 1959	Pacific Ocean, Kurile Islands
18.	*S.* (*S.*) *pigmentata* (Reish, 1959)	Pacific Ocean, southern California
19.	*S.* (*S.*) *knightjonesi* (Silva, 1961)	Ceylon
20.	*S.* (*S.*) *williamsi* (Silva, 1961)	Ceylon
21.	*S.* (*S.*) *maculata* Hartman, 1961	Pacific Ocean, California
22.	*S.* (*S.*) *occidentalis* Hartman, 1961	Pacific Ocean, California
23.	*S.* (*S.*) *chilensis* (Hartmann-Schröder, 1962)	Pacific Ocean, Chili
24.	*S.* (*S.*) *goodbodyi* Jones, 1962	Jamaica
25.	*S.* (*S.*) *mesnili* (Bellan and Lagardère, 1971)	Ile d'Oleron, Charente, France
26.	*S.* (*S.*) *squamata mendanai* Gibbs, 1971	Pacific Ocean, Solomon Islands
27.	*S.* (*S.*) *aitutaki* Gibbs, 1972	Pacific Ocean, Cook Islands
28.	*S.* (*S.*) *unidentata* (Day, 1973)	Atlantic, North Carolina, Beaufort
29.	*S.* (*S.*) *gaucha* (Orensanz and Gianuca, 1974)	Brasil, Rio Grande do sul
30.	*S.* (*S.*) *carunculata* Blake and Kudenov, 1978	Australia, Westernport, Victoria
31.	*S.* (*S.*) *lamellicinata* Blake and Kudenov, 1978	Australia, Westernport, Victoria
32.	*S.* (*S.*) *occipitalis* Blake and Kudenov, 1978	Australia, Burwood Beach, New South Wales
33.	*S.* (*S.*) *phyllobranchia* Blake and Kudenov, 1978	Australia
34.	*S.* (*S.*) *precirriseta* Blake and Kudenov, 1978	Australia, Brisbane, Queensland
35.	*S.* (*S.*) *victoriensis* Blake and Kudenov, 1978	Australia, Westernport, Victoria
36.	*S.* (*S.*) *viridis* Blake and Kudenov, 1978	Australia, Great Barrier Reef, Queensland
37.	*S.* (*S.*) *balihaiensis* Hartmann-Schröder, 1979	Australia, Western Australia
38.	*S.* (*S.*) *vexillatus* Hutchings and Ranier, 1979	Australia, Careel Bay, New South Wales
39.	*S.* (*S.*) *blakei* Hartmann-Schröder, 1980	Australia, Dampier, Western Australia
40.	*S.* (*S.*) *kudenovi* Hartmann-Schröder, 1981	Australia, Western Australia
41.	*S.* (*S.*) *bullibranchia* Rossi, 1982	Pacific Ocean, California
42.	*S.* (*S.*) *eltaninae* Blake, 1983	Antarctic Ocean
43.	*S.* (*S.*) *denmarkensis* Hartmann-Schröder, 1983	Australia, Western Australia
44.	*S.* (*S.*) *bifida* Hutchings and Turvey, 1984	Australia, South Australia

Table 1. Continued.

	Species	Type locality
45.	*S.* (*S.*) *edmondsi* Hutchings and Turvey, 1984	Australia, South Australia
46.	*S.* (*S.*) *hutchingsae* Dauer, 1985	Australia, Lizard Island, Great Barrier Reef
47.	*S.* (*P.*) *laonicola* (Tzetlin, 1985)	White Sea, Kandalaksha Bay
48.	*S.* (*S.*) *pettiboneae* Maciolek, 1987	Atlantic Ocean, Georgia, USA
49.	*S.* (*S.*) *quadridentata* Maciolek, 1987	Atlantic Ocean, Virginia, USA
50.	*S.* (*S.*) *westoni* Maciolek, 1987	Atlantic Ocean, North Carolina, USA
51.	*S.* (*S.*) *anakenae* Rozbaczylo & Castilla, 1988	Pacific Ocean, Easter Island
52.	*S.* (*S.*) *magnus* Ozolinsh, 1990	Pacific Ocean, Peter the Great Bay, Sea of Japan
53.	*S.* (*S.*) *brevibranchia* Hartmann-Schröder, 1991	Pacific Ocean, southerm Chile
54.	*S.* (*S.*) *crenulata* Hartmann-Schröder, 1991	Pacific Ocean, southern Chile
55.	*S.* (*S.*) *branchia* Imajima, 1992	Pacific Ocean, Japan
56.	*S.* (*S.*) *lingulata* Imajima, 1992	Pacific Ocean, Japan
57.	*S.* (*S.*) *planata* Imajima, 1992	Pacific Ocean, Japan
58.	*S.* (*S.*) *sagittaria* Imajima, 1992	Pacific Ocean, Japan
59.	*S.* (*S.*) *variegata* Imajima, 1992	Pacific Ocean, Japan
60.	*S.* (*S.*) *laciniata* Eibye-Jacobsen, 1997	Thailand, Phuket Island
61.	*S.* (*S.*) *marionis* Branch, 1998	Marion Island
62.	*S.* (*S.*) *dicha* Hutchings, Frouin & Hily, 1998	French Polynesia, Tahiti
63.	*S.* (*S.*) *melasma* Hutchings, Frouin & Hily, 1998	French Polynesia, Tahiti
64.	*S.* (*S.*) *vazaha* Eibye-Jacobsen & Soares, 2000	South west Indian Ocean, Madagascar, Cap Est
65.	*S.* (*S.*) *eltaninae nudipalpa* Cantone & Pietro, 2001	Antarctic Ocean, Antarctica, Ross Sea, Terra Nova Bay
66.	*S.* (*S.*) *lighti* Delgado-Blas, 2006	Gulf of Mexico, Tamaulipas: La Pesca
67.	*S.* (*S.*) *vossae* Delgado-Blas, 2006	Florida, Atlantic coast
68.	*S.* (*S.*) *alisonae* Williams, 2007	Philippines, Morong, Bataan
69.	*S.* (*S.*) *magnicornuta* Williams, 2007	Philippines, Diniwid Beach, Boracay
70.	*S.* (*S.*) *villosivaina* Williams, 2007	Philippines, Diniwid Beach, Boracay
71.	*S.* (*S.*) *daphoinos* Zhou, Ji & Li, 2009	northern China seas
72.	*S.* (*S.*) *andradei* Delgado-Blas, Diaz & Linero-Arana, 2009	Caribbean Sea, Venezuela
73.	*S.* (*S.*) *angulata* Zhou, 2014	Yellow Sea (32°59.469'N, 120°53.014' E)
74.	*S. (S.) finmarchicus* sp. nov.	Finnmark, Norway
1.	*S.* (*P.*) *tridentata* (Southern, 1914)	Atlantic Ocean, Ireland, Clare Island
2.	*S.* (*P.*) *papillosa* (Okuda, 1937)	Pacific Ocean, Korea
3.	*S.* (*P.*) *yamaguchii* (Imajima, 1959)	Pacific Ocean, Japan
4.	*S.* (*P.*) *gilchristi* (Day, 1961)	South Africa
5.	*S.* (*P.*) *bousfieldi* Pettibone, 1963	North Atlantic Ocean, Canada, Prince Edward Island, New London Bay
6.	*S.* (*P.*) *globosa* Wu & Chen, 1964	intertidal flat around Zhoushan archipelago, East China Sea
7.	*S.* (*P.*) *quinquedentata* Hartmann-Schröder, 1965	Pacific Ocean, Chile
8.	*S.* (*P.*) *texana* Foster, 1971	Gulf of Mexico
9.	*S.* (*P.*) *towra* Blake and Kudenov, 1978	Australia, Botany Bay, New South Wales
10.	*S.* (*P.*) *carrascoi* (Carrasco, 1981)	Pacific Ocean, Chile
11.	*S.* (*P.*) *burkovskii* Sikorski, 1994	Barents Sea, Kolguev Isl. (69º08′N, 50º22′E; 19 m, sand)
12.	*S.* (*P.*) *korsuni* Sikorski, 1994	northern North Sea (59º57′42″N, 02º23′44″E; 108 m)

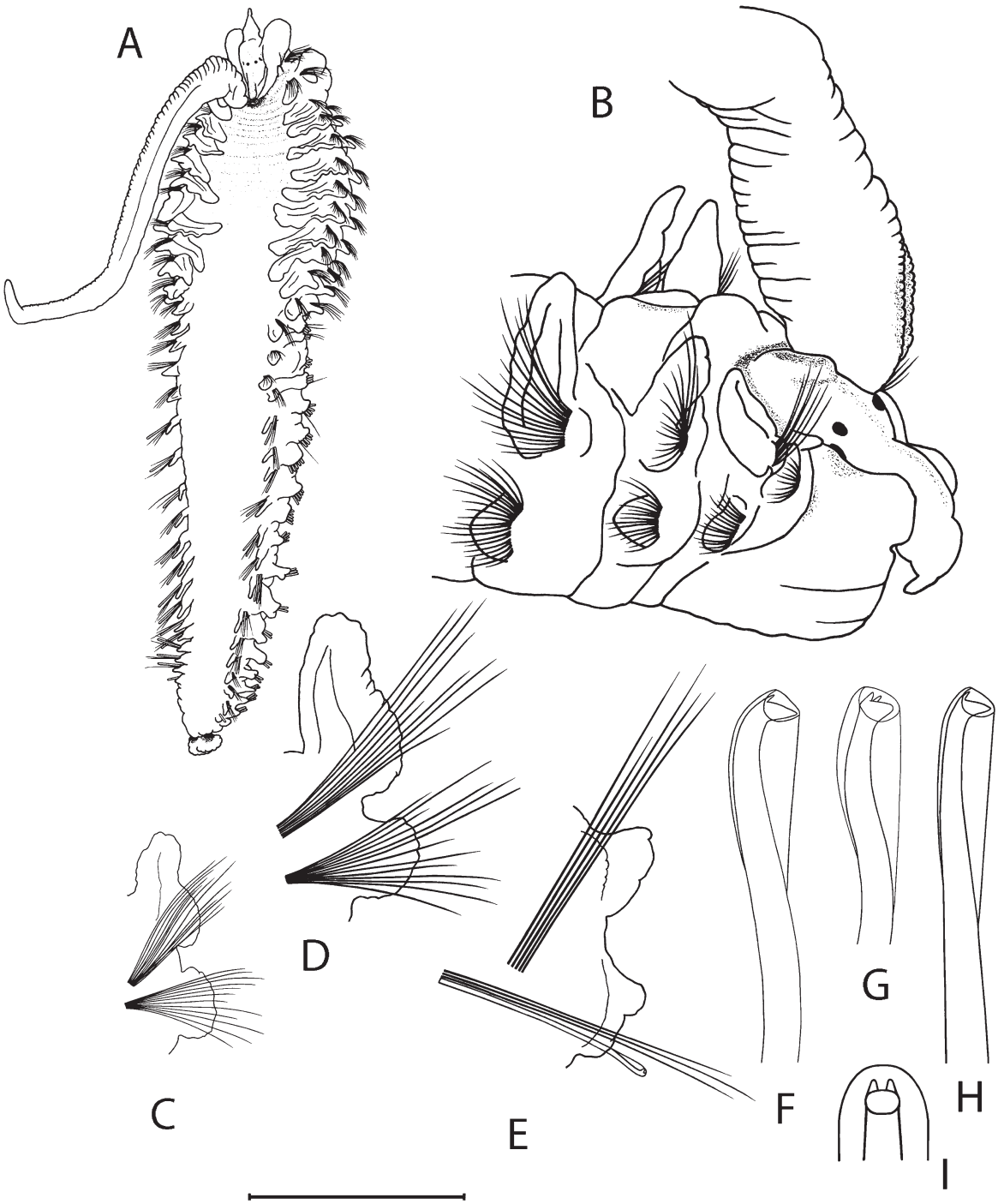

Figure 1. *Scolelepis finmarchicus* n.sp. A. dorsal view of the whole worm; B. anterior part of body, side view; C. parapodium of setiger 5; D. parapodium of chaetiger 12; E. parapodium of chaetiger 15; F. neuropodial hook, side view, chaetiger 17; G. neuropodial hook, three-quarter view, chaetiger 17; H. notopodial hook, side view, chaetiger 17; I. hook full face view, chaetiger 17, scheme. Material: A-B Holotype (ZMBN 95132); C-E – type-locality (lost); F-I – Paratype (ZMBN 95132). Scale: A – 1 mm; B-E – 0.25 mm; F-H – 25µ; I – 12µ.

Description

HOLOTYPE (Figure 1 A): Complete specimen 0.7 mm wide and 3.5 mm long for 30 chaetigers. Prostomium pointed anteriorly, not narrowing into a pointed caruncle posteriorly but swollen; with two pairs of eye spots arranged in nearly straight transverse line curving slightly backwards, eye spots of lateral pair are crescent-shaped. No occipital papilla. Palps long, reaching chaetiger 17. Branchiae from chaetiger 2, completely fused to notopodial lamellae, forming comparatively large, broadly rounded notopodial postchaetal lobes on anterior 13 chaetigers, abruptly decreasing posteriorly. Notopodial postchaetal lobes of maximal size on chaetigers 9–10 becoming slightly notched in the lower parts on chaetigers bearing hooks (Figure 1 E). Neuropodial postchaetal lobes small and rounded along the body. Chaetiger 1 lacks notochaetae. Neuropodial hooded hooks from chaetiger 12, up to 4 per fascicle; notopodial hooded hooks from chaetiger 15, 1 per fascicle. Hooded hooks bifid in side view with paired apical teeth (Figures 1 F–I). Pygidium with a rounded bilobed cushion (Figure 1 A). With obvious dark pigmentation posteriorly on prostomium (caruncle), on and around base of palps, base of pygidial cushion with darkest pigmentation.

Description of all type material (holotype and paratypes)

Two paratypes intact (ZMBN 98030 and 99283), 0.5 mm wide and 3.2 mm long with 26 chaetigers. Width of all specimens 0.4–1.1 mm, length less than 4 mm for fewer than 30 chaetigers. Prostomium pointed anteriorly, tip of prostomium of fixed specimens directed ventrally (Figure 1 B), posterior part swollen with two pairs of eye spots arranged in nearly straight transverse line curving slightly backwards, lateral pair crescent-shaped. No occipital papilla (Figure 1 B). Palps are of various lengths reaching to between chaetigers 7 and 17 (Figure 1 A). No sheath at the base of the palp (Figure 1 B). Branchiae from chaetiger 2, completely fused to notopodial lamellae forming comparatively large broadly rounded notopodial postchaetal lobes on anterior 12–15 chaetigers (Figure 1 C–D), decreasing abruptly posteriorly. Maximum size of notopodial postchaetal lobes from chaetigers 9 to 10–12, becoming slightly notched in its lower parts on chaetigers bearing hooks (Figure 1 E). Chaetiger 1 lacks notochaetae; one paratype (ZMBN 95148) with single capillary present. Neuropodial hooded hooks appear from chaetiger 11–14, 3–5 per fascicle; notopodial hooded hooks appear from chaetiger 13–17, numbering 1–2 per fascicle. The distance between appearance of neuropodial and notopodial hooded hooks is 2-5 segments; this character is size-related (the maximum value was observed in the largest specimen: ZMBN 95139). Hooded hooks bifid in side view (Figure 1 F, H): main fang surmounted by a pair of apical teeth placed side by side (Figure 1 G, I). Pygidium with a rounded bilobed ventral cushion (Figure 1 A).

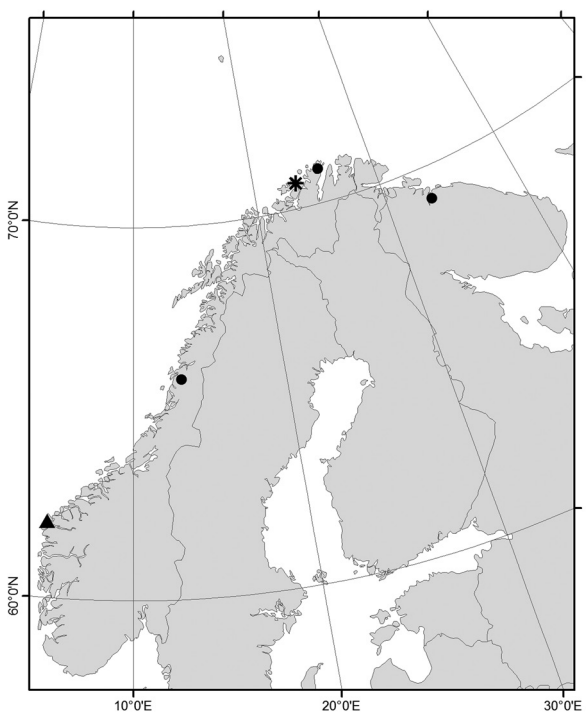

Figure 2. *Scolelepis finmarchicus* n.sp. Distribution of the material belonging to *Scolelepis finmarchicus* n.sp. Asterisk – type-locality; filled circles – paratypes; triangle – non type material (lost).

Color

Obvious dark pigmentation on posterior prostomium (caruncle), on base of palps, around base of palps; darkest pigmentation around base of pygidial cushion. Diffuse dark pigmentation present on dorsal side of anterior 5–10 chaetigers in many specimens. Specimens from the Kola Bay have the most intense pigmentation.

Differential diagnosis and remarks

The material belonging to *S.* (*S.*) *finmarchicus* sp. nov. resembles the type-specimens of *Nerinides tridentatus* (as they were labeled by Southern in 1914) as the branchiae are completely fused to notopodial postchaetal lobes along the body. Type-specimens of *N. tridentatus* are however bigger (more than 60 chaetigers), without hooks in notopodia, with a high prostomial occipital crest and with a prostomium which anteriorly does not become gradually acute but instead has a very small and narrow peak on the anterior margin. We do not know of any other species with such a complex of characters: completely fused (without a notch) branchia and notopodial postchaetal lobes, a prostomium narrowing to acute anteriorly, the absence of an occipital tentacle and the presence of notopodial hooded hooks. *S. finmarchicus* sp. nov. exhibits the traits inherent to subgenus *Scolelepis*, e.g. shape of hooded hooks, the presence of slightly notched neuropodial lamella, notopodial hooks, and the absence of a papillated sheath at the base of palps.

Etymology
The species is named after a county in the extreme northeastern part of Norway: Finnmark (the county was formerly known as *Finmarkens amt*), the region of its type locality.

Biology and ecology
No eggs or sperm were detected in the specimens examined. Found from 3 to 150 m depth on mixed bottoms.

Distribution
Along the Norwegian coast from Vågsøy (62º01′N 05º08′30″E) north to Finnmark and east to the Kola Bay in the Barents Sea (Figure 2).

DISCUSSION

Seven species of *Scolelepis* have been recorded from the Atlantic sector of the Arctic: *S.* (*S.*) *squamatus* (O.F. Müller, 1806); *S.* (*S.*) *foliosus* (Audouin & Milne Edwards, 1833); *S.* (*S.*) *bonnieri* (Mesnil, 1896); *S.* (*S.*) *laonicola* (Tzetlin, 1985); *S.* (*P.*) *korsuni* Sikorski, 1994; *S.* (*P.*) *burkovskii* Sikorski, 1994 and *S.* (*S.*) *matsugae* Sikorski, 1994. The species *S.* (*P.*) *tridentatus* (Southern, 1914) does not occur in the area examined (see "Differential diagnosis and remarks"). Former records of this name along the Scandinavian coast were usually associated with specimens belonging to the species *S.* (*P.*) *korsuni* – for example *Nerinides tridentatus* (UUZM 2667: Uppsala Exp.-33, Skagerak, St.4, Eh.2) identified by A. Eliason (1962: 263).

Currently there are 86 valid species-names in the genus *Scolelepis* (Table 1). Maciolek (1987) provided an important revision of *Scolelepis* and divided it into two subgenera, *Scolelepis* and *Parascolelepis*. This division is based mainly on the morphology of the hooded hooks (Maciolek 1987: 16–17) and has been used by subsequent authors (e.g., Delgado-Blas 2006; Zhou et al. 2009; Rocha & de Paiva 2012). Some authors have used the two as genera rather than subgenera (Blake 2006, Williams 2007).

The species *Asetocalamyzas laonicola* was described by Tzetlin (1985) from the White Sea based on a small parasitic worm obtained from a specimen of *Laonice cirrata*. The original description was based on a single specimen (Holotype – ZMUM PL 307), which exists today as a series of histological sections. In 2008 Tzetlin and Vortsepneva established that it was actually a dwarf male, which usually parasitizes females of the same species. This statement was supported by genetic analysis (Vortsepneva et al. 2008). Before the genetic analysis, females of this species were identified by Vortsepneva as *S.* (*S.*) *matsugae* (Vortsepneva et al. 2008) based on examination of the type-specimens of *S. matsugae* deposited in Zoological museum of Moscow University (ZMUM Pl818-820). Based on personal discussions, Tzetlin and Vortsepneva both agree with our opinion that *S.* (*S.*) *matsugae* should be treated as a junior synonym of *S.* (*S.*) *laonicola,* although they did not state that conclusion in their paper (Vortsepneva et al. 2008). This case of morphologically different males and females in *S.* (*S.*) *laonicola* demonstrates an extreme type of sexual dimorphism (Vortsepneva et al. 2008). 23 years after type-description a paratype for *A. laonicola* (ZMUM PL 976 – female with two males) was erroneously (pers. comm. Elena Vortsepneva) erected in Vortsepneva et al. (2008). Therefore, the type series consists only of the holotype, which represents just the dwarf parasitic male existing as a series of sections. No type specimen exists for the female. In this case attention should be paid to the erection of a neotype for this species.

The species *S.* (*S.*) *finmarchicus* sp. nov. is described from the Norwegian and Barents Seas (Norwegian coast north of latitude 62ºN and Kola peninsula). It should be noted that despite the fauna of the Barents Sea being one of the best studied in the Arctic (Rzhavsky et al. 2011) and there being regular detailed research of the benthos from the Kola Bay area for over a century the new species described in this paper has never been previously recorded. Moreover, one of the authors of this paper (A. Sikorski) worked on the Barents Sea coast of the Kola Peninsula from 1984 until 1989 with a special interest in the spionid fauna of the coastal biotopes. The genus *Scolelepis* was one of the main objectives of his investigations at that time, but this newly described species was never recorded. The new species was found in several samples from the Kola Bay and it is likely that this species is a recent invasive one and may be indicative of warming in the southern part of the Barents Sea. Similar logic was used by Rzhavsky et al. (2011: 166) to support the statement about "recent invaders". The occurrence of the species *Aonides paucibranchiata* could also be a good example of this statement: it had never been recorded along the coast of the Kola Peninsula before 2007, but is now common in this area (Anisimova et al. 2009; Rzhavsky et al. 2011; Lyubina et al. 2012b – the material collected in 2007; Deart & Britayev 2014). In 1987–1988 A. Sikorski was involved as identifier of Polychaeta in a seasonal and very detailed survey of Jarnyshnaja Inlet which was carried out by the Laboratory of Marine Research of the Leningrad Zoological Institute of USSR Academy of Science (Golikov et al. 1989) and *A. paucibranchiata* was not recorded there. Today, however, it is common in the area (Rzhavsky et al. 2011; Lyubina et al. 2012b; Deart & Britayev 2014).

The case of *S.* (*P.*) *korsuni* Sikorski, 1994 is another good example illustrating the warming of water in the Barents Sea. At the time this species was described in 1992, the author had the only specimen obtained from the Barents Sea. It was collected during a benthic survey in the Barents Sea from the station (R/V "Tunets": st. 105.20, 73°01′N, 22°OO›E, 440–450 m, silt, 0 4.07.1978) on the south-western border of the sea. The entire content of a Sigsbee Trawl was collected. The volume of washed and formalin-fixed sediment was approximately 100 liters. In the following years this sample was offered by Igor Jirkov to students as an exercise at a workshop for sorting at the Department of Hydrobiology, Moscow State University. Only

one specimen of this species was found in the huge volume of sediment that was processed. The species was described only when the author had the opportunity in 1992 to work with benthic material from the North Sea. Today this species is common in the Barents Sea, occurring almost everywhere: in Ambrose et al. (2009) this species was obtained from the Barents Sea from 26 of the 47 stations sampled (P.E. Renaud, pers. comm.). This species is mentioned as a common one from the Barents Sea by Frolova et al. (2011), Matishov et al. (2011 and 2012), and Lyubina et al. (2012a).

Traits given in the key for *S.* (*S.*) *bonnieri* work only for large individuals of more than 0.7 mm wide as smaller specimens of *S.* (*S.*) *bonnieri* do not have a pronounced occipital tentacle and also unidentate hooks are usually detected only in large specimens. *Scolelepis sp.* B mentioned in Sikorski (2001: 285) most likely belongs to *S.* (*S.*) *bonnieri*. In the case of *S. foliosus*, (together with *S.* (*S.*) *squamatus* and *S.* (*S.*) *bonnieri*), the states of different characters (including the shape of hooks, shape of body and several other morphological and numeric characters) should be carefully investigated and described for specimens which are less than 0.7 mm wide, as we can now confidently operate only with characters from large individuals. *Scolelepis* (*S.*) *foliosus* and *S.* (*S.*) *laonicola* are morphologically very close mainly due to the shape of prostomium, the branchiae that are completely fused to notopodial postsetal lobes anteriorly, and the existence of a basal sheath on the palps (Fauvel 1927: 34; Vortsepneva et al. 2008).

With regard to *S. burkovskii*, palps were missing in type specimens but because of the absence of hooded hooks in the notopodia and the absence of notched neuropodia this species may be affiliated with the subgenus *Parascolelepis*.

Identification key for *Scolelepis* from the Atlantic sector of the Arctic:

1. Prostomium narrowing to acute anteriorly 2
- Prostomium anteriorly trilobed or rounded 6

2. Branchiae and notopodial postchaetal lobes completely fused on anterior chaetigers 3
- Tips of branchiae and notopodial postchaetal lobes not fused 4

3. No hooks in middle notopodia; occipital tentacle present .....*S.* (*P.*) *korsuni*
- Hooks present in middle notopodia; no occipital tentacle .....*S.* (*S.*) *finmarchicus* sp.n.

4. Tips of branchiae and notopodial postchaetal lobes on anterior chaetigers rounded (not acute) .....*S.* (*P.*) *burkovskii*
- Tips of branchiae and notopodial postchaetal lobes on anterior chaetigers acute 5

5. Occipital tentacle large; hooks generally unidentate .....*S.*(*S.*) *bonnieri*
- Occipital tentacle absent; hooks bidentate .....*S.* (*S.*) *squamatus*

6. Hooded hooks with 3 apical teeth; fused branchiae and notopodial postchaetal lobes decrease in size abruptly after chaetiger 22–30; hooks appear on chaetiger 11–30. Comparatively small animals: up to 75 chaetigers for 25 mm long, up to 2.8 mm wide (incomplete individual) .....*S.* (*S.*) *laonicola**
* sexual dimorphism is inherent in this species: dwarf male, which usually parasitizes females
- Hooded hooks unidentate or bidentate in smallest individuals; fused branchiae and notopodial postchaetal lobes decrease in size gradually along the body; hooks appear on much more posterior segments. Comparatively larger animals: more than 16 cm long and up to 11 mm wide .....*S.* (*S.*) *foliosus*

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