Dipolydora (Annelida: Spionidae) from Norway

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INTRODUCTION

Dipolydora Verrill, 1881 is a large group of polydorin spionids currently comprising about forty species that occupy diverse habitats from the intertidal to deep water. The name *Dipolydora* was not in use after its designation by Verrill (1881) until Blake (1996) resurrected it and assigned to it a series of *Polydora* Bosc, 1802 species that, in contrast to species of *Polydora*, had notochaetae on chaetiger 1 and lacked a constriction or manubrium on the shaft of the hooded hooks.

Two *Dipolydora* species, *D. caulleryi* (Mesnil, 1897) and *D. socialis* (Schmarda, 1861) were reported from Norwegian waters by Ramberg & Schram (1983). We examined spionid worms from benthic surveys collected by Akvaplan-niva from Norwegian waters. Here, we describe the morphology and discuss the taxonomy of the Norwegian *Dipolydora*.

TAXONOMY

Dipolydora Verrill, 1881

Dipolydora Verrill, 1881: 320; Blake 1996: 181, resurrected and redefined.

Type species. *Polydora concharum* Verrill, 1879. Designated by Verrill (1881), by monotypy.

List of *Dipolydora* species from Norway

1. *Dipolydora caulleryi* (Mesnil, 1897)
2. *Dipolydora coeca* (Örsted, 1843)
3. *Dipolydora flava* (Claparède, 1870)
4. *Dipolydora quadrilobata* (Jacobi, 1883)
5. *Dipolydora saintjosephi* (Eliason, 1920)
6. *Dipolydora* sp. A
7. *Dipolydora* sp. B
8. *Dipolydora* sp. C

Key to *Dipolydora* species from Norway

1. Branchiae from chaetiger 7, basally fused to notopodial postchaetal lamellae 2
   - Branchiae usually after chaetiger 7, free from notopodial postchaetal lamellae 4

2(1). Chaetiger 5 falcate spines with bifid distal end and bristles between teeth *D. quadrilobata*

   - Chaetiger 5 falcate spines falcate, with bristles on convex side 3

3(2). Pygidium with four almost equal lobes *D. caulleryi*

   - Pygidium small cup with wide dorsal gap *Dipolydora* sp. A

4(1). Posterior notopodia with only capillary chaetae 5

   - Posterior notopodia with modified spines in addition to capillary chaetae 7

5(4). Chaetiger 5 falcate spines smooth *Dipolydora* sp. B

   - Chaetiger 5 falcate with narrow transverse shelf on convex side *Dipolydora* sp. C

7(4). Posterior notopodia with 2-4 awl-like spines in addition to capillaries. Pygidium cup-shaped to disc-like, with or without lateral clefts *D. saintjosephi*

   - Posterior notopodia with fascicles of needle-like capillaries. Pygidium with two dorsal lobes and one larger ventral lobe 8

8(7). Needle-like capillaries in notopodia in posterior 1/3-1/4 part of body, in loose fascicles protruding out of body wall. Small melanophores usually present on anterior chaetigers *D. coeca*

   - Needle-like spines in notopodia from chaetiger 8, in tight packets entirely embedded into body wall *D. flava*

Dipolydora caulleryi (Mesnil, 1897)

Polydora caulleryi Mesnil, 1897a: 88-89, figs. 12-16. McIntosh 1915b: 210-212, pl. 100, fig. 8, pl. 106, fig. 5.

Polydora (Polydora) caulleryi: Hartmann-Schröder 1971: 310.

Dipolydora caulleryi: Blake 1996a: 194, 198.

Diagnosis

Prostomium anteriorly bilobed. Caruncle to end of chaetiger 3. Chaetiger 5 with dorsal superior capillaries, up to 11 falcate spines, and ventral capillaries; falcate spines with brush on top. Posterior notopodia with thin awl-like spines in addition to capillaries. Branchiae from chaetiger 7, basally fused to notopodial postchaetal lamellae, absent from posterior half of body. Pygidium with four almost equal lobes.

Dipolydora coeca (Örsted, 1843)

Leucodorum coecum Örsted, 1843: 39.

Dipolydora coeca: Blake 1996a: 188.

Diagnosis

Prostomium anteriorly bifid. Caruncle through chaetiger 5. Chaetiger 5 with dorsal superior capillaries, up to 12 falcate spines alternating with companion chaetae, and ventral capillaries; falcate spines straight, with weakly developed subterminal enlargement. Posterior notopodia with fascicles of needle-like capillaries protruding out of body wall. Branchiae usually from chaetiger 8, absent from posterior 1/3-1/4 of body. Pygidium with two small dorsal lobes and one large ventral lobe.

Dipolydora flava (Claparède, 1870)

Polydora flava Claparède, 1870: 487–488.

Polydora (Polydora) flava: Hartmann-Schröder 1971: 305.

Diagnosis

Up to 21.5 mm long and 0.8 mm wide for 145 chaetigers. Prostomium anteriorly bifid. Caruncle to end of chaetiger 4. Chaetiger 5 with dorsal superior capillaries, heavy falcate spines alternating with companion chaetae, and ventral capillaries; falcate spines with spoon-like hollow on concave side and weak subterminal swelling below hollow. Tight packets of needle-like spines in addition to capillaries in notopodia from chaetiger 8; packets entirely embedded into body wall. Branchiae usually from chaetiger 8, absent from posterior half to 1/3 of body. Pygidium with two small dorsal lobes and one large ventral lobe.

Dipolydora quadrilobata (Jacobi, 1883)

Polydora quadrilobata Jacobi, 1883: 1-87, 2 pls. McIntosh, 1915: 209-210, pl. 98, fig. 13, 17, pl. 100, fig. 9, pl. 106, fig. 4. Blake, 1971: 13-15, fig. 9. Radashevsky, 1993: 18-21, fig. 9.

Polydora (Polydora) quadrilobata Hartmann-Schröder 1971: 308-310, fig. 104. Hobson & Banse 1981: 40.

Dipolydora quadrilobata: Blake 1996a: 194, 198, fig. 4.32 I-N.

Diagnosis

Prostomium anteriorly bilobed. Caruncle to end of chaetiger 2. Chaetiger 1 with only ventral capillaries. Chaetiger 5 with dorsal superior capillaries, up to 11 falcate spines, and ventral capillaries; falcate spines with brush on top. Posterior notopodia with thin awl-like spines in addition to capillaries. Branchiae from chaetiger 7, basally fused to notopodial postchaetal lamellae, absent from posterior half of body. Pygidium with four almost equal lobes.

Dipolydora saintjosephi (Eliason, 1920)

Polydora Saint Josephi Eliason, 1920: 49.

Diagnosis

Prostomium anteriorly bifid. Caruncle to end of chaetiger 4. Chaetiger 5 with dorsal superior capillaries, up to 6 major falcate spines alternating with companion chaetae, and ventral capillaries; falcate spines with spoon-like hollow on concave side and weak subterminal swelling below hollow. Posterior notopodia with 2-4 awl-like spines in addition to capillaries. Branchiae usually from chaetiger 8, absent from posterior half of body. Pygidium cup-shaped to disc-like, with or without lateral clefts.

Dipolydora sp. A

Diagnosis

Prostomium anteriorly bilobed. Caruncle to end of chaetiger 2. Chaetiger 5 with dorsal superior capillaries, up to 6 falcate spines, and ventral capillaries; falcate spines with brush on top. Posterior notopodia with thin awl-like spines in addition to capillaries. Branchiae from chaetiger 7, basally fused to notopodial postchaetal lamellae, absent from posterior half of body. Pygidium small cup or disc with wide dorsal gap.

Remarks

Worms appear similar to *D. caulleryi* but differ in having pygidium small cup or disc with wide dorsal gap instead of quadrilobate pygidium.

Dipolydora sp. B

Diagnosis

Prostomium anteriorly bifid. Caruncle to end of chaetiger 3. Chaetiger 5 with dorsal superior capillaries, up to 4 simple smooth falcate spines, and ventral capillaries. Posterior notopodia with only capillaries. Branchiae usually from chaetiger 8, absent from posterior 1/3-1/4 of body. Pygidium with two small dorsal lobes and one large ventral lobe.

Remarks

Worms appear similar to *D. coeca* but differ from the later in having fewer falcate spines in notopodia of chaetiger 5, and presence of only capillary chaetae in posterior notopodia.

Dipolydora sp. C

Diagnosis

Prostomium anteriorly bifid. Caruncle to end of chaetiger 4. Chaetiger 5 with dorsal superior capillaries, up to 3 falcate spines, and ventral capillaries; falcate spines with narrow transverse shelf on convex side. Posterior notopodia with only capillaries. Branchiae usually from chaetiger 8, absent from posterior 1/2-1/3 of body. Pygidium with two small dorsal lobes and one large ventral lobe.

Remarks

Worms appear similar to *Dipolydora* sp. B but differ from the later in having chaetiger 5 falcate spines with narrow transverse shelf on convex side instead of being smooth.

CONCLUSIONS

1. *Dipolydora* in Norwegian waters are diverse and include more species than currently recorded.
2. Subtle morphological differences between the Norwegian *Dipolydora* species complicate their identification based only on morphological characteristics. Molecular analysis is needed to clarify their identities.

Acknowledgements

Financial support was provided by the Norwegian Research Council (Project 233635/H30 “Environmental management of petroleum activities in the Barents Sea: Norwegian-Russian collaboration”)