

Supplementary Text 1. Morphological description of *Polydora websteri* from Washington State Pacific oysters (*Crassostrea gigas*).

***Polydora websteri* Hartman in Loosanoff and Engle, 1943**

Morphology of adults

Complete specimens of up 60-100+ chaetigers, approximately 1.0-mm wide at chaetiger 7.

Prostomium bilobed anteriorly (Figures 3A; 4A, C), sometimes appearing weakly notched but specimens must be examined *en face* (Figures 3D, 4D) or ventrally to determine the bilobed nature. Caruncle extending posteriorly to end of chaetiger 2 (Figures 3B, 4A, B) or chaetiger 3 (Figure 3A); small, round, black eyes variable in number, commonly 4 present in trapezoidal pattern between palps; occipital tentacle always absent (Figures 3A-D; 4A-D). Palps extending posteriorly for approximately 10-15 chaetigers, palps with a ventral food groove lined by frontal cilia, non-motile cirri on papillae along lateral edges of food groove and scattered on the abfrontal surface (Figures 3E, 4E). When contracted, palps exhibit scalloped lateral edge (Figure 3E); when relaxed, palps exhibit straight lateral edge (Figure 4E). Longitudinal dusky, black band found along lateral edge of palp corresponding the position of the cirri on papillae. Color of body in alcohol opaque white to light tan. Methyl green staining (NY specimen) occurred on ventral sides of chaetigers 1-4, along the sides of the caruncle (midway and between the palps), and as granular patches on dorsal surface near base of branchiae from middle segments posteriorly.

Chaetiger 1 with neurochaetae, without notochaetae, with digitiform notopodial lobes (Figures 3A-D, 4A-D). Cilia of lateral organs present between notopodial and neuropodial lobes

of chaetiger 1 and present between notopodial and neurochaetae of chaetiger 2 (additional lateral organs may be present on more posterior chaetigers but have been lost during fixation). Winged capillary notochaetae of chaetigers 2–4, 6 and subsequent chaetigers arranged in three successive rows, reduced to thin notochaetae in posterior chaetigers; no specialized posterior notochaetae. Winged capillary neurochaetae of chaetigers 2–4, 6 and subsequent chaetigers arranged in two vertical rows; 5-8 bidentate hooded hooks begin on chaetiger 7, not accompanied by capillaries, increasing to 8-10 in series at chaetiger 9; hooks with approximately right angle between main fang and shaft, with constriction on shaft; glandular pouches near base of ventral-most hooded hook in chaetigers 7–8, observed by the external portion of secretory cells which appear as small papillae.

Chaetiger 5 almost twice as large as chaetigers 4 and 6, with slightly curved row of 5–7 exposed major spines and additional embedded spines, major spines alternating with pennoned companion setae, sometimes exhibiting frayed tips; anterior dorsal fascicle of 4–6 geniculate notochaetae present and tips directed posteriorly, ventral fascicle of 4–6 winged capillary neurochaetae below row of major spines (Figures 3F-H, 4F-H). Major spines falcate, with shallow lateral flange, most visible in younger, posterior spines (Figures 3G, H, 4G, H); older, anterior spines may appear to have lateral tooth but this is the remains of the worn flange (Figure 4H).

Branchiae from chaetiger 7 (Figures 3A, B, 4A-C), free from notopodial postsetal lamellae, reaching full size at chaetigers 9–10 and overlapping middorsally, diminishing in length posteriorly and absent from posteriormost chaetigers; ciliary bands present on dorsal surface of chaetigers between branchiae (Figures 3A, 4A, B).

Pygidium broad, cup-shaped with dorsal gap.

Remarks

The specimens of *P. websteri* from WA and NY match the taxonomically important features of those in the original description (Hartman in Loosanoff and Engle 1943), redescription (Radashevsky 1999), and more recent reports (Read 2010, Sato-Okoshi et al. 2013, Ye et al. 2017, Rice et al. 2018). One of the specimens from WA (USNM 000000 H3-61-4; Fig. 3B) had hooded hooks beginning on chaetiger 6, but this seems to be an abnormal specimen; all other reports and specimens examined herein show that the hooded hooks begin on chaetiger 7.

The palps of this species may have a dusky, black longitudinal line along the lateral edge of palp; however, when the palps are contracted (Fig. 3E) this more diffuse pigmentation can become concentrated and appear as dark bars (as noted by other researchers for this species: Fig. 1a in Ye et al. 2017, Rice et al. 2018), other specimens may retain the lateral black line in fixed specimens (compare to Fig. 1 in Read 2010). The methyl green staining pattern is similar to that observed by Read (2010), although he noted granular staining in anterior branchiae. Major spines are falcate, with shallow lateral flange (Figures 3G, H, 4G, H); although older anterior spines may appear to have a lateral tooth, this is the remains of the worn flange (Figure 4H). Lateral organs (=lateral ciliated organs; see Radashevsky 2005) were present on chaetigers 1 and 2, but presence/absence on posterior chaetigers should be confirmed based on specimens fixed in glutaraldehyde.

In addition to *P. websteri*, some specimens of *Boccardiella hamata* were confirmed from the oyster samples collected in WA, based on morphological and molecular (see main text) analyses. The worms can be distinguished from *P. websteri* based on the presence of gills in anterior chaetigers (2, 3, and 6), presence of accompanying capillary chaetae with the hooded

hooks, presence of large recurved notopodial hook in posterior chaetigers, and morphology of the pygidium (see Blake 1966, Radashevsky 1993).

Literature cited

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