

Active Positioning of Vent Larvae at a Mid-Ocean Ridge

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Supplementary Information
(Table S1, Figs. S1-S6)

Supplementary Table S1. Abundance (no. per 1000 m³) of all larvae and juveniles in pump samples in 2006 (on and 100 m off axis) and 2007 (on and 1000 m off axis) at 3 and 75 m above bottom (mab). Pumps were located at Riftia Field, Tica and Ty/lo vents.

Date/Height	2006/ 3 mab						2006/75 mab						2007/3 mab						2007/75 mab									
Mooring Number	L1	L2	L3	L4	L5	L6	L1	L2	L3	L5	L6	L15	L16	L17	L18	L19	L20	L21	L22	L15	L16	L17	L18	L19	L20	L21	L22	
Location	Ty/lo	Ty/lo	Tica	Tica	Riftia	Riftia	Ty/lo	Ty/lo	Tica	Riftia	Riftia	Tica	Tica	Tica	Tica	Tica	Tica	Tica	Tica	Tica	Tica	Tica	Tica	Tica	Tica	Tica	Tica	
Distance off axis (m)	0	100	0	100	0	100	0	100	0	0	100	0	1000	0	1000	0	1000	0	1000	0	1000	0	1000	0	1000	0	1000	
Volume (m ³)	41.5	41.5	41.5	41.5	41.5	40.4	33.6	33.7	32.1	39.3	41.5	41.5	41.5	41.5	41.5	41.51	41.51	41.5	41.5	37.1	28.8	41.5	34.2	41.5	40.6	41.5	25.2	
MOLLUSCA - GASTROPODA																												
<i>Bathymargarites symplector</i>	0	0	0	0	0	0	0	0	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Clypeosectus delectus</i>	0	0	48	0	48	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Ctenopelta porifera</i>	25	25	72	0	169	49	0	0	0	0	0	0	0	25	0	25	0	0	0	0	0	0	0	0	0	0	0	
<i>Cyathernia naticoides</i>	96	72	25	0	169	0	0	0	0	0	0	145	0	0	0	48	0	120	0	0	0	0	0	0	0	0	0	
<i>Echinopelta fistulosa</i>	25	0	0	0	145	25	30	0	0	0	0	25	0	0	25	25	0	0	0	0	0	0	0	0	0	0	0	
<i>Gorgolettis emarginatus</i>	795	554	1036	120	2144	25	59	0	0	0	0	602	0	96	0	241	0	385	0	27	0	0	0	0	25	0	40	
<i>Gorgolettis spiralis</i>	72	25	96	0	241	74	0	0	0	0	0	0	0	72	0	48	0	25	0	0	0	0	0	0	0	0	0	
<i>Gorgolettis</i> sp. 3	0	0	48	0	25	74	0	0	0	0	0	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	
<i>Eulepetopsis vitrea</i>	0	0	25	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Laeviphitus</i> sp.	120	72	120	25	506	198	0	0	0	0	0	96	0	25	0	48	0	72	0	0	0	0	0	0	0	0	0	
<i>Lepetodrilus</i> spp.	1952	2530	5083	626	8409	2571	476	59	0	0	0	6144	25	1060	0	4289	120	4192	120	54	0	0	0	48	25	25	40	
<i>Lepetodrilus</i> spp. post-larva	0	0	25	0	0	0	0	0	0	0	0	96	72	72	0	49	72	120	0	243	35	25	0	120	25	48	159	
<i>Lepetodrilus</i> -like, 190µm	0	0	24	0	0	0	0	0	0	0	0	24	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Lirapex granularis</i>	0	0	48	25	48	49	0	0	0	0	0	96	25	0	0	0	0	25	0	0	0	0	0	0	0	0	0	
<i>Melanodrymia aurantiaca</i>	48	0	48	25	72	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Melanodrymia galeronae</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0	0	0	0	0	0	0	0	0	
<i>Melanodrymia</i> -like sp. B	0	0	0	0	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Neomphalus fretterae</i>	0	0	72	0	72	0	0	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Neolepetopsis densata</i>	0	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Pachydermia laevis</i> *	25	0	25	0	96	49	0	0	0	0	0	25	0	0	0	25	0	72	0	0	0	0	0	0	0	0	0	
<i>Peltoispira</i> sp	96	48	145	25	120	25	0	0	0	0	0	289	0	25	0	48	0	120	0	0	0	0	0	0	0	0	0	
<i>Phymorhynchus major</i>	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Planorbisella planispira</i> †	0	0	0	25	72	0	0	0	0	0	0	72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Rhynchopelta concentrica</i>	25	25	72	0	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Suttilizona theca</i> ‡	48	169	72	48	386	25	0	0	0	0	0	120	0	48	0	72	25	48	0	0	0	0	0	0	0	0	0	
Unknown A	72	24	72	24	193	25	0	0	0	0	0	96	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	
Unknown 5	96	217	289	72	651	124	0	0	0	0	0	193	0	72	0	169	0	120	0	27	0	0	0	0	0	0	0	
Unknown 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0	0	
unknown 7-type 170-175µm	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Unknown 8	0	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
unknown 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	
Unknown 9660 (tiny)	0	0	0	0	0	49	0	0	0	25	0	48	0	0	0	0	0	24	0	81	0	0	0	0	0	0	0	
Unknown peltospirids - 210µm	0	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Unknown peltospirids - 240µm	48	24	24	24	169	74	0	0	0	0	0	24	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	
unknown gastropod (other)	0	0	0	0	0	0	0	0	0	0	0	48	24	24	0	48	0	0	0	0	0	0	0	0	0	0	40	
mashed gastropods	0	24	24	0	313	74	0	0	0	0	0	193	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	
possibly planktonic gastropods	0	72	120	0	24	49	0	59	93	432	0	145	0	169	24	24	48	24	0	0	0	0	59	0	25	241	159	
MOLLUSCA - BIVALVIA																												
<i>Bathymodiolus thermophilus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0	0	0	0	0	0	0	0	0	
<i>Teredo</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	0	0	0	0	0	24	0	0	0	0	0	
<i>Bathypecten vulcani</i>	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
other possible bivalve, inc D-stage	0	24	0	24	0	25	0	0	0	0	0	72	48	24	24	0	0	0	0	0	0	0	0	0	0	0	0	

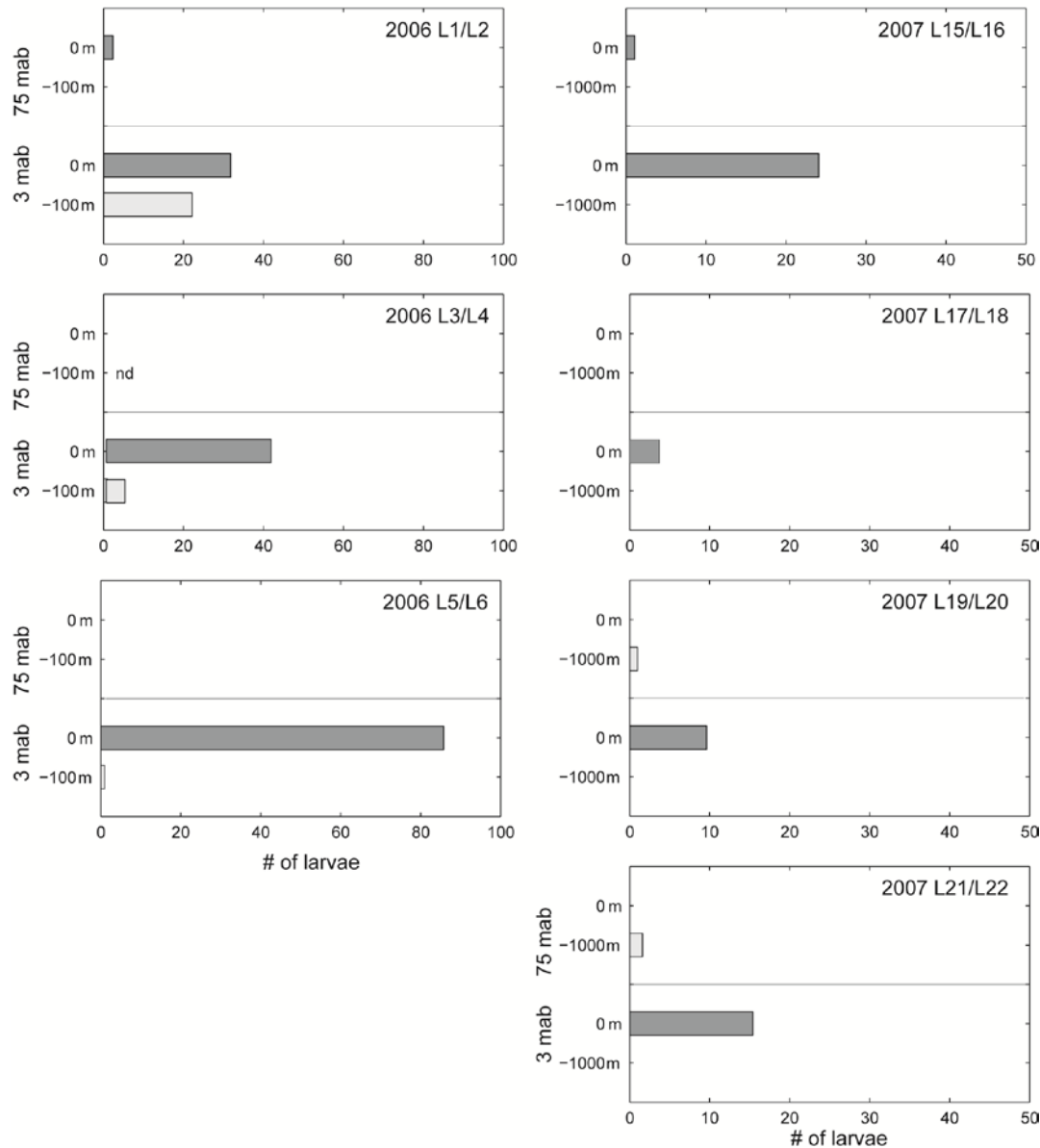
In prior studies, *unknown gastropod 2; †unknown gastropod W; ‡ pointy apex

Supplementary Table S1 (continued)

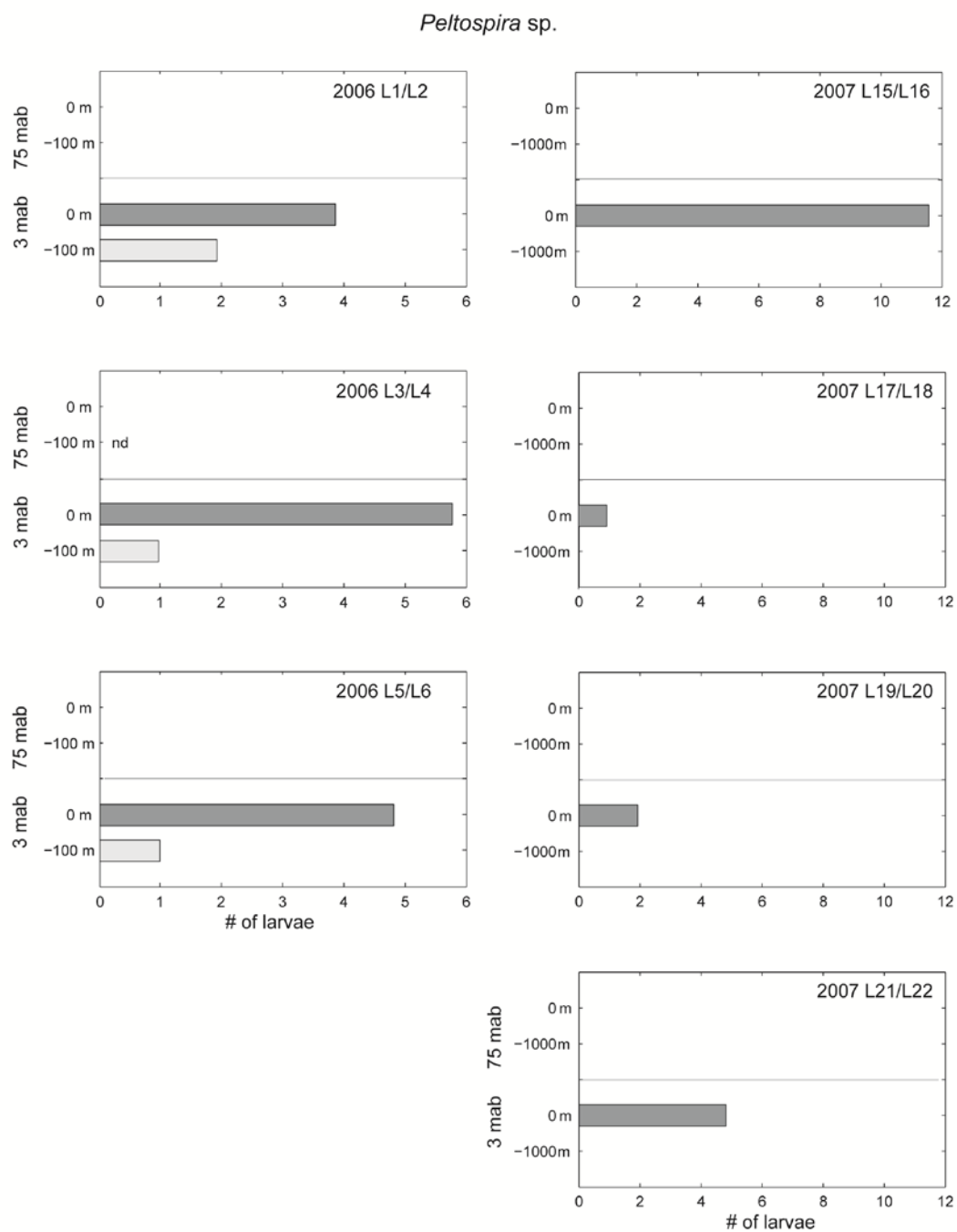
Date/Height	2006/ 3 mab						2006/75 mab						2007/3 mab						2007/75 mab								
Mooring Number	L1	L2	L3	L4	L5	L6	L1	L2	L3	L5	L6	L15	L16	L17	L18	L19	L20	L21	L22	L15	L16	L17	L18	L19	L20	L21	L22
Location	Ty/lo	Ty/lo	Tica	Tica	Riftia	Riftia	Ty/lo	Ty/lo	Tica	Riftia	Riftia	Tica	Tica	Tica	Tica	Tica	Tica	Tica	Tica	Tica	Tica	Tica	Tica	Tica	Tica	Tica	
Distance off axis (m)	0	100	0	100	0	100	0	100	0	0	100	0	1000	0	1000	0	1000	0	1000	0	1000	0	1000	0	1000	0	1000
Volume (m ⁻³)	41.5	41.5	41.5	41.5	41.5	40.4	33.6	33.7	32.1	39.3	41.5	41.5	41.5	41.5	41.51	41.51	41.5	41.5	37.1	28.8	41.5	34.2	41.5	40.6	41.5	25.2	
POLYCHAETA																											
<i>Archinome rosacea</i>	0	25	120	0	120	0	0	0	0	0	0	48	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0
<i>Nereis</i> sp.	0	0	48	25	72	0	0	0	0	0	0	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0
<i>Ophryotrocha akeassoni</i>	265	217	482	96	482	74	0	0	0	0	0	145	72	96	0	145	25	145	0	27	70	0	0	0	0	0	0
chaetosphaerids	193	120	241	120	458	124	0	0	31	0	0	313	169	313	0	651	0	289	0	0	0	0	0	0	0	0	0
glycerid	25	0	0	25	25	0	0	0	0	0	0	72	25	25	0	0	0	0	0	0	0	0	0	0	0	0	0
nectochaete larvae	578	217	193	241	145	124	0	0	31	0	0	337	506	169	120	217	25	72	0	0	0	0	0	0	0	0	0
hesionid	0	0	120	25	96	25	0	0	0	0	0	0	25	25	0	25	0	0	0	0	0	0	0	0	0	0	0
polynoid	0	0	145	217	96	99	0	0	0	0	0	48	0	48	0	72	0	25	0	0	0	0	0	0	0	0	0
spionid	25	0	48	72	241	25	0	0	0	0	0	96	25	25	0	25	0	0	0	0	0	0	0	0	0	0	0
syllid epitoke	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
trochophores	0	0	24	48	0	25	0	0	0	0	0	48	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
unknown polychaete larvae	96	193	24	72	145	0	0	0	0	0	0	169	289	217	0	434	0	169	0	0	0	0	0	24	0	0	0
unknown polychaetes	24	72	241	169	96	25	0	0	0	0	0	0	0	24	0	0	0	0	0	0	0	0	0	25	0	0	0
CRUSTACEA																											
<i>Bythograea microps</i>	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Bythograea thermydron</i>	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MISCELLANEOUS																											
amphipod (adult)	916	626	2096	1108	1518	1038	30	30	31	0	0	3759	289	1831	0	2747	25	3036	0	0	0	0	0	0	0	0	79
caridean shrimp (juvenile)	25	48	72	72	72	49	0	0	0	51	0	0	0	25	0	0	0	0	25	0	0	0	0	0	0	0	0
leptostracan (adult)	48	0	25	96	48	0	0	0	0	0	0	72	0	25	0	2963	0	1614	0	0	0	0	0	0	0	0	0
cumacean	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
isopods	0	0	0	0	0	0	0	0	0	0	0	48	0	0	0	0	0	24	0	0	0	0	0	0	0	0	0
tanaisid	0	0	0	0	0	0	0	0	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
flatworm	0	0	96	48	193	49	0	0	0	0	0	0	0	0	0	48	0	0	0	0	0	0	0	0	0	0	0
<i>Abyssostherma</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
possibly benthic forams	337	410	891	867	578	494	30	0	62	25	0	5325	4626	4915	819	13035	10216	3951	530	162	35	530	7199	193	2634	6529	7741
barnacle nauplius	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
cyprids (600µm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
cyprids (800µm)	0	0	0	96	169	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zoaea	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	0	0	0	0	0	0	0	0	0
cyphonautes	0	0	0	0	0	0	0	0	0	0	0	72	48	48	0	24	0	0	24	27	35	96	29	0	0	24	40
unidentified larvae	120	4313	6818	843	361	494	327	385	1618	229	48	24	0	0	96	0	96	0	0	0	0	0	0	0	0	0	0
<i>Tretomphalus</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	24	48	96	169	313	72	217	0	0	0	29	72	320	265	0
cephalopod	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
fish	0	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
planula	0	0	0	0	0	0	0	0	0	0	0	24	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
mite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
echinoid juvenile	0	24	0	24	0	0	0	0	0	0	0	24	0	48	0	24	0	48	0	0	0	0	0	0	0	0	0
echinoderm larva	0	0	0	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
crustacean larva	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	0	0	0	0	0	0	0	0
hydroids/polyps	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ophiuroid	0	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
kinorhynch	0	24	72	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
unsegmented worm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	0	0	0	0	0	0	0	0	0
NON-VENT																											
cyprids (large, non-vent)	0	0	0	0	72	0	0	0	31	51	96	0	0	48	0	0	0	0	0	54	139	0	29	145	49	96	40

In prior studies, *unknown gastropod 2; †unknown gastropod W; ‡ pointy apex

Gorgolettis emarginatus

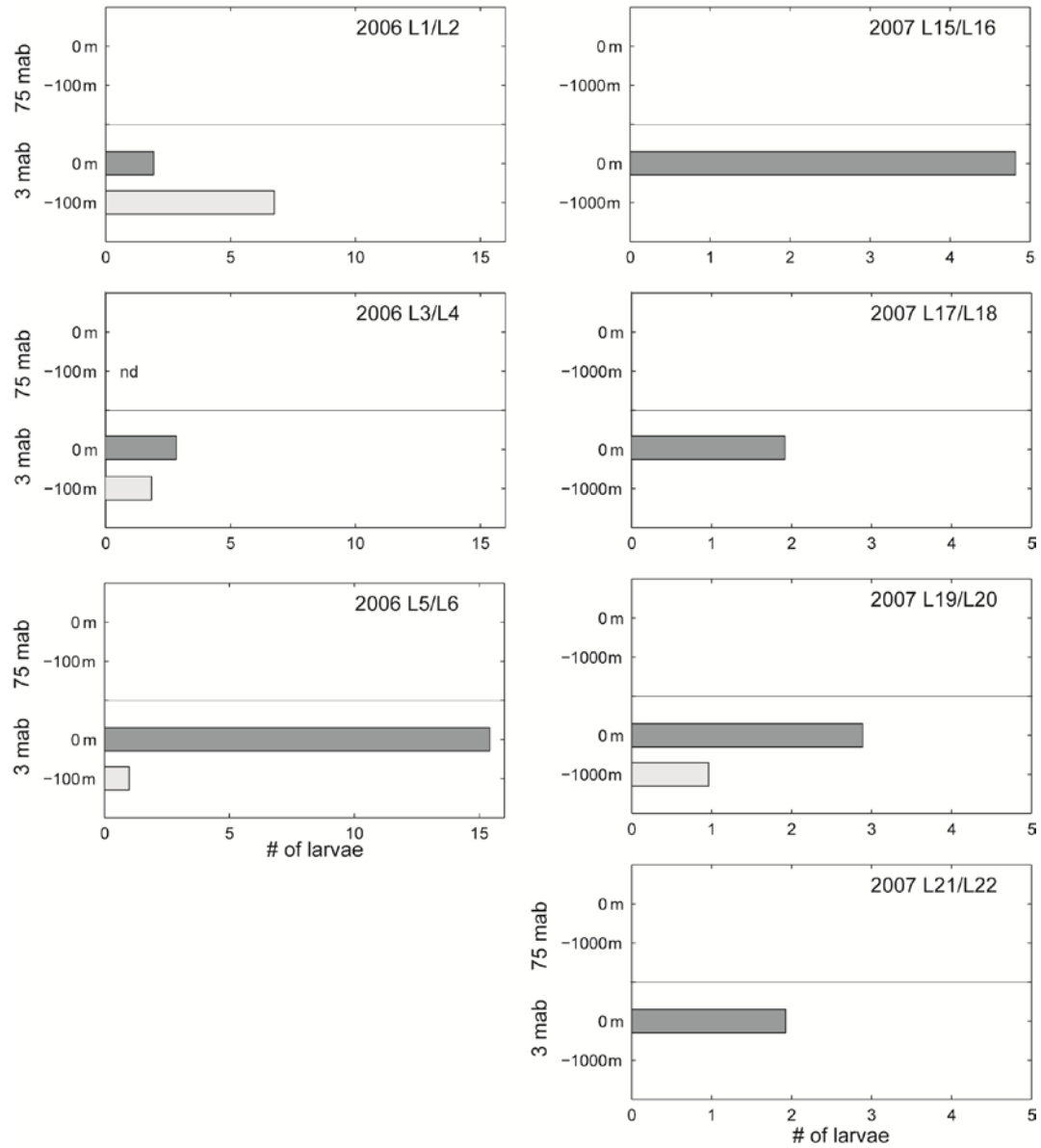


Supplementary Fig. S1. Day-to-day variation in abundance (no. larvae per 40,000 L) of *Gorgolettis emarginatus* (gastropod) larvae in pump samples at heights of 3 m and 75 m above bottom, on axis (dark bars) and off axis (light bars). The L4 pump at 75 mab collected no sample (nd). Off-axis samples were positioned 100 m east of vents (-100 m) in 2006 and 1000 m east (-1000 m) in 2007. Collections were made at three different sites in 2006, but at one site in 2007. Mooring deployment IDs are indicated in the upper right of each panel; see Table 1 for details.



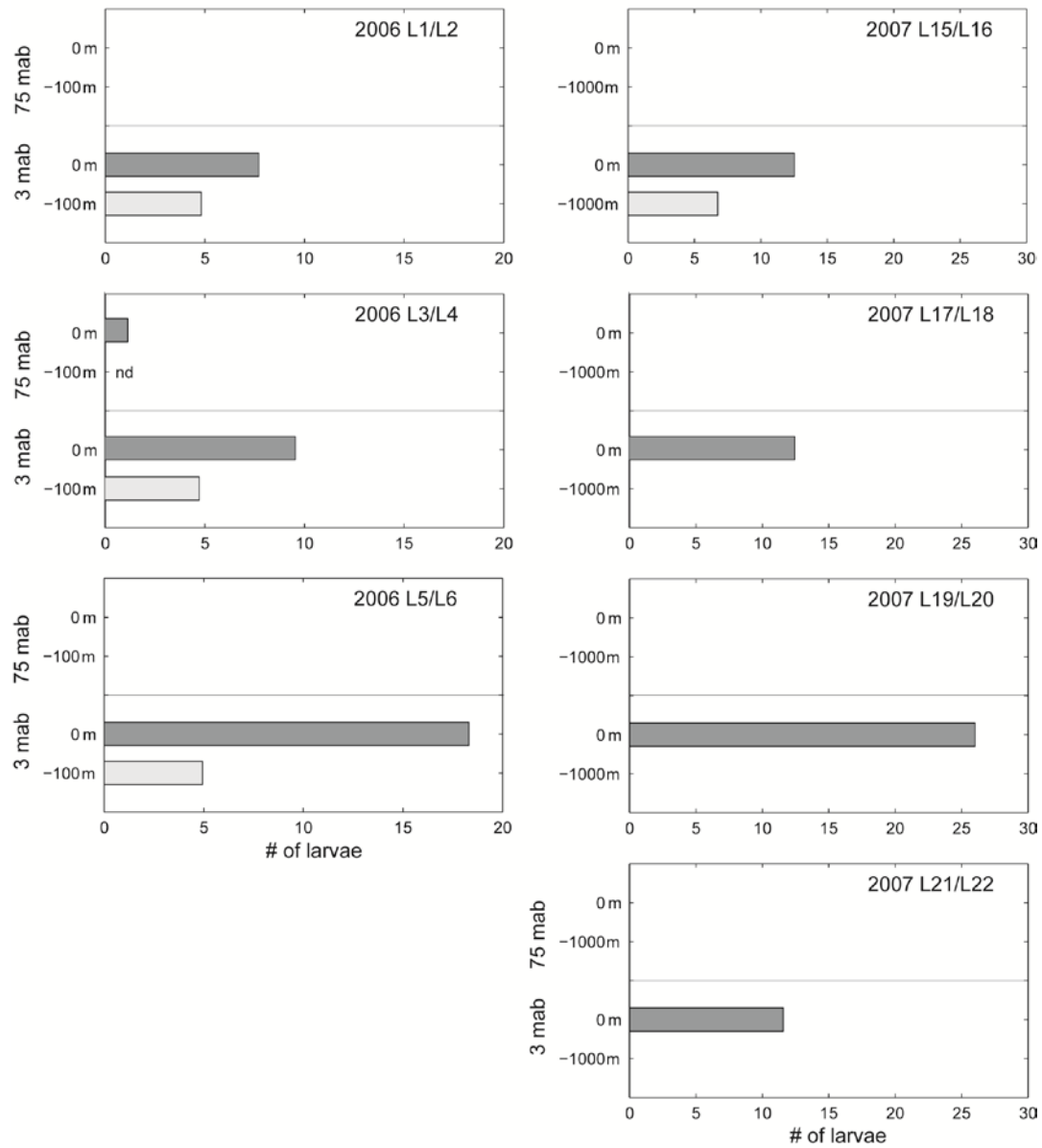
Supplementary Fig. S2. Day-to-day variation in abundance (no. larvae per 40,000 L) of *Peltoospira* sp. (gastropod) larvae in pump samples at heights of 3 m and 75 m above bottom, on axis (dark bars) and off axis (light bars). Details as in Fig. S1.

Sutilizona theca



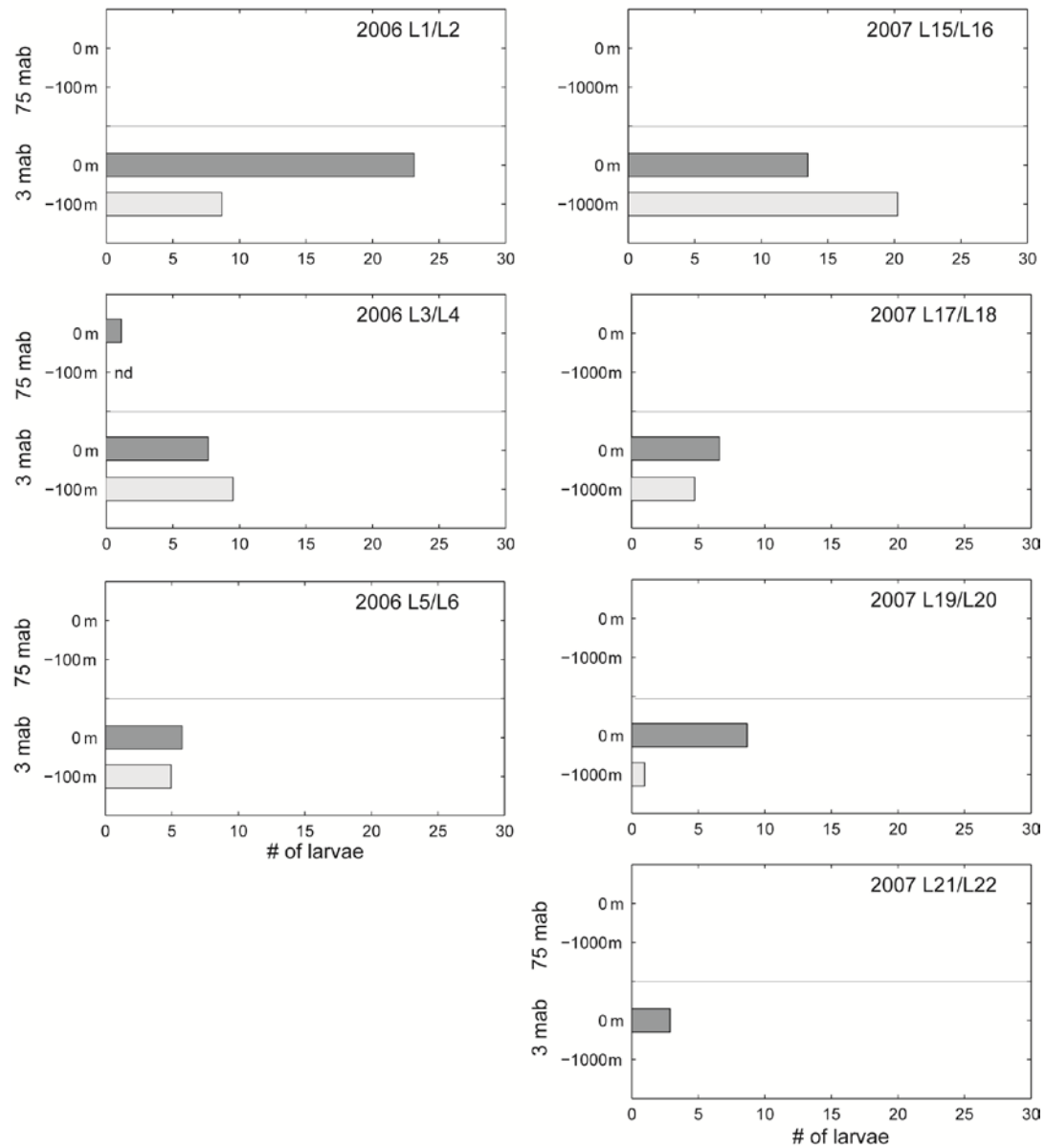
Supplementary Fig. S3. Day-to-day variation in abundance (no. larvae per 40,000 L) of *Sutilizona theca* (gastropod) larvae in pump samples at heights of 3 m and 75 m above bottom, on axis (dark bars) and off axis (light bars). Details as in Fig. S1.

Chaetosphaerid



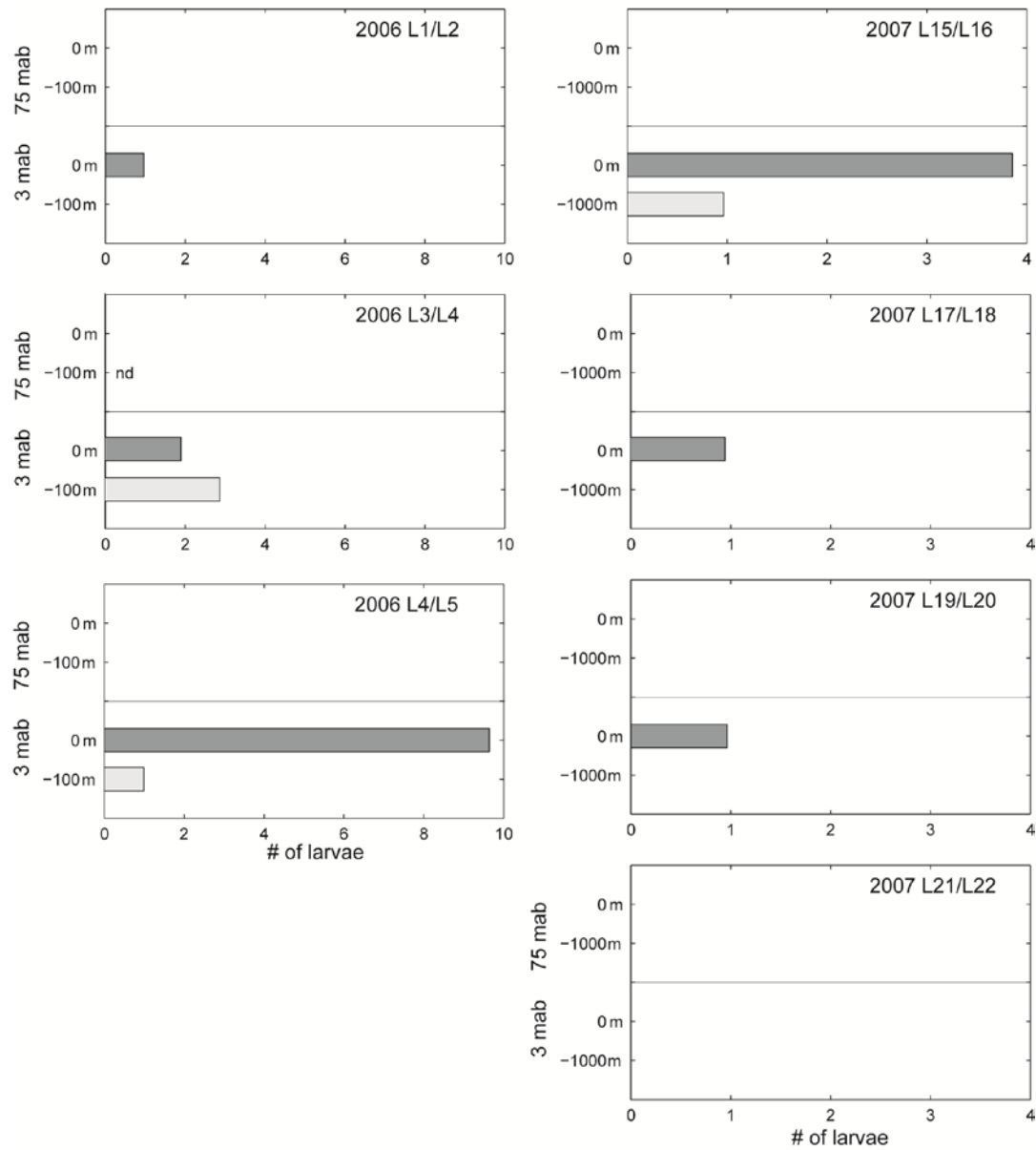
Supplementary Fig. S4. Day-to-day variation in abundance (no. larvae per 1000 m³) of chaetosphaerid (polychaete) larvae in pump samples at heights of 3 m and 75 m above bottom, on axis (dark bars) and off axis (light bars). Details as in Fig. S1.

Nectochaete



Supplementary Fig. S5. Day-to-day variation in abundance (no. larvae per 1000 m³) of nectochaete (polychaete) larvae in pump samples at heights of 3 m and 75 m above bottom, on axis (dark bars) and off axis (light bars). Details as in Fig. S1.

Spionid



Supplementary Fig. S6. Day-to-day variation in abundance (no. larvae per 1000 m³) of spionid (polychaete) larvae and post-larvae in pump samples at heights of 3 m and 75 m above bottom, on axis (dark bars) and off axis (light bars). Details as in Fig. S1.