The following supplement accompanies the article

Living on the edge: single-species dominance at the Pakistan oxygen minimum zone boundary

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Marine Ecology Progress Series: 470: 79–99 (2012)

Supplement 1. Information on infaunal species and diversity and results of SIMPER analyses

Table S1. List of infaunal species inhabiting the Pakistan margin (PM) lower oxygen minimum zone (OMZ), adapted from Levin et al. (2009b). Numbers in superscript denote order of dominance.

Depth (m)	Species
700	[1]Unidentified juvenile polychaete
750	[1]*Prionospio* (*Minuspio)* sp., [1]unidentified juvenile polychaete
800	[1]*Linopherus* sp.
850	[1]*Linopherus* sp., [2]*Prionospio* (*Minuspio)* sp., [3]Tubificidae,
900	[1]*Linopherus* sp., [2]Cumacea, [3]*Prionospio* (*Minuspio)* sp., [3]*Ampharete cf. parvidentata,* [3]Anthozoa, [4]Sipuncula, [5]Hesionidae, [5]Polynoidae, [5]*Acrocirrus* sp., [5]Pectinidae
950	[1]*Linopherus* sp., [2]*Cossura* spp., [3]Cumacea, [4]*Acrocirrus* sp., [5]*Ampharete cf. parvidentata,* [6]*Prionospio* (*Minuspio)* sp., [7]Cirratulidae, [7]*Ampelisca* sp., [8]Ophiuroidea, [8]*Leptaxinus indusarium*, [8]Holothuroidea, [9]Hesionidae, [9]Sabellidae, [9]Gammaridae, [9]Aplacophora, [9]Ampharetidae, [9]Phoronida
1000	[1]*Sphaerodoropsis* sp., [1]Flabelligeridae, [1]*Tharyx* sp., [1]Tunicata, [2]Anthozoa, [2]Sabellidae, [3]*Cossura* spp., [4]*Linopherus* sp., [4]Hesionidae, [4]*Ampharete cf. parvidentata*, [4]Syllidae, [4]Gammaridae, [5]Ophiuroidea, [6]*Aricidea* sp., [7]Aplacophora, [8]*Acrocirrus* sp., [8]Cirratulidae, [8]*Leptaxinus indusarium*
1050	[1]*Tharyx* sp., [2]*Ampharete cf. parvidentata*, [2]*Cossura* spp., [2]*Aricidea* sp., [2]Paraonidae, [2]*Ampelisca* sp., [3]Cirratulidae, [3]Sabellidae, [3]Syllidae, [3]Gammaridae, [3]Aplacophora, [3]Ophiuroidea,
1100	[1]*Cossura* spp., [1]*Aricidea* sp., [1]Nephtyidae, [2]*Sphaerodoropsis* sp., [2]Cirratulidae, [2]Ophiuroidea, [2]Nemertean

Table S2. Diversity indices for lower OMZ sites at the PM calculated from Levin et al. (2009b). n.c. is not calculated.

Depth (m)	Shannon H' (log_e)	Fisher α	Pielou J'
700	0	0.14	n.c.
750	1.09	0.44	0.99
800	0	0.12	n.c.
850	0.46	0.24	0.56
900	1.39	0.70	0.83
950	1.69	0.92	0.83
1000	2.03	1.26	0.92
1050	1.81	0.89	0.98
1100	1.89	0.96	0.97

Table S3. SIMPER analyses of the sterols (relative to dry tissue $\mu g\ g^{-1}$) contributing to at least 50% of the difference between *Linopherus* sp. nov. at 800 m, 850 m and 950 m.

Variable	Mean value	Mean value	Av. Sq. Dist.	Contribution %	Cumulative %
800 m vs 850 m	*800 m*	*850 m*	**3.15**		
$C_{29}\Delta^5$	1.57	0.693		27.01	27.01
$C_{27}\Delta^5$	3.64	2.87		22.83	49.84
$C_{27}\Delta^{5,22}$	1.72	1.83		22.33	72.17
800 m vs 950 m	*800 m*	*950 m*	**0.99**		
$C_{28}\Delta^{5,22}$	1.91	2.42		30.09	30.09
$C_{29}\Delta^5$	1.57	1.22		17.09	47.18
$C_{28}\Delta^5$	0.96	1.26		13.59	60.78
850 m vs 950 m	*850 m*	*950 m*	**4.5**		
$C_{28}\Delta^{5,22}$	1.35	2.42		26.13	26.13
$C_{27}\Delta^5$	2.87	3.86		23.37	49.4
$C_{27}\Delta^{5,22}$	1.83	1.73		15.63	65.03

Table S4. SIMPER analyses of the fatty acids (relative to dry tissue µg g^{-1}) contributing to at least 50% of the difference between *Linopherus* sp. nov. at 800 m, 850 m and 950 m.

Variable	Mean value	Mean value	Av. Sq. Dist.	Contribution %	Cumulative %
800 m vs 850 m	*800 m*	*850 m*	**9.12**		
$C_{22:6\ (n-3)}$	0.634	2.08		26.8	26.8
$C_{20:5\ (n-3)}$	0.447	1.52		14.67	41.47
$C_{22:5\ (n-3)}$	0.265	0.994		7.41	48.88
$C_{16:1\ (n-7)}$	0.942	1.07		6.96	55.84
800 m vs 950 m	*800 m*	*950m*	**8.73**		
$C_{16:0}$	2.57	1.72		12.57	12.57
$C_{16:1\ (n-7)}$	0.942	0.217		11.63	24.2
$C_{20:1\ (n-9)}$	0.442	1.22		9.73	33.93
$C_{20:1\ (n-11)}$	0.311	1.08		8.93	42.86
$C_{18:1\ (n-9)}$	1.69	0.934		8.67	51.53
850 m vs 950 m	*850 m*	*950 m*	**10.69**		
$C_{18:1\ (n-9)}$	2.29	0.934		19.24	19.24
$C_{22:6\ (n-3)}$	2.08	0.912		13.89	33.13
$C_{16:0}$	2.66	1.72		12.15	45.28
$C_{16:1\ (n-7)}$	1.07	0.217		8.5	53.78