

Supplementary Material

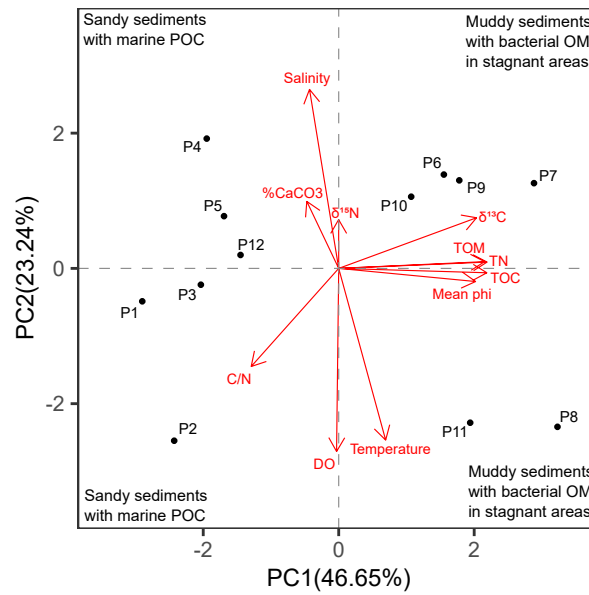


Figure S1. Identified microhabitats in Poza La Arenilla: PCA of hydrological factors, sedimentary organic matter parameters, and granulometry. DO = dissolved oxygen, TOM = Total Organic Matter, TOC = Total Organic Carbon, TN = Total Nitrogen, C/N = TOC to TN ratio, $\delta^{13}\text{C}$ = isotopic signature of the carbon in the bulk sediment, $\delta^{15}\text{N}$ = isotopic signature of the nitrogen in the bulk sediment, %CaCO₃ = carbonate

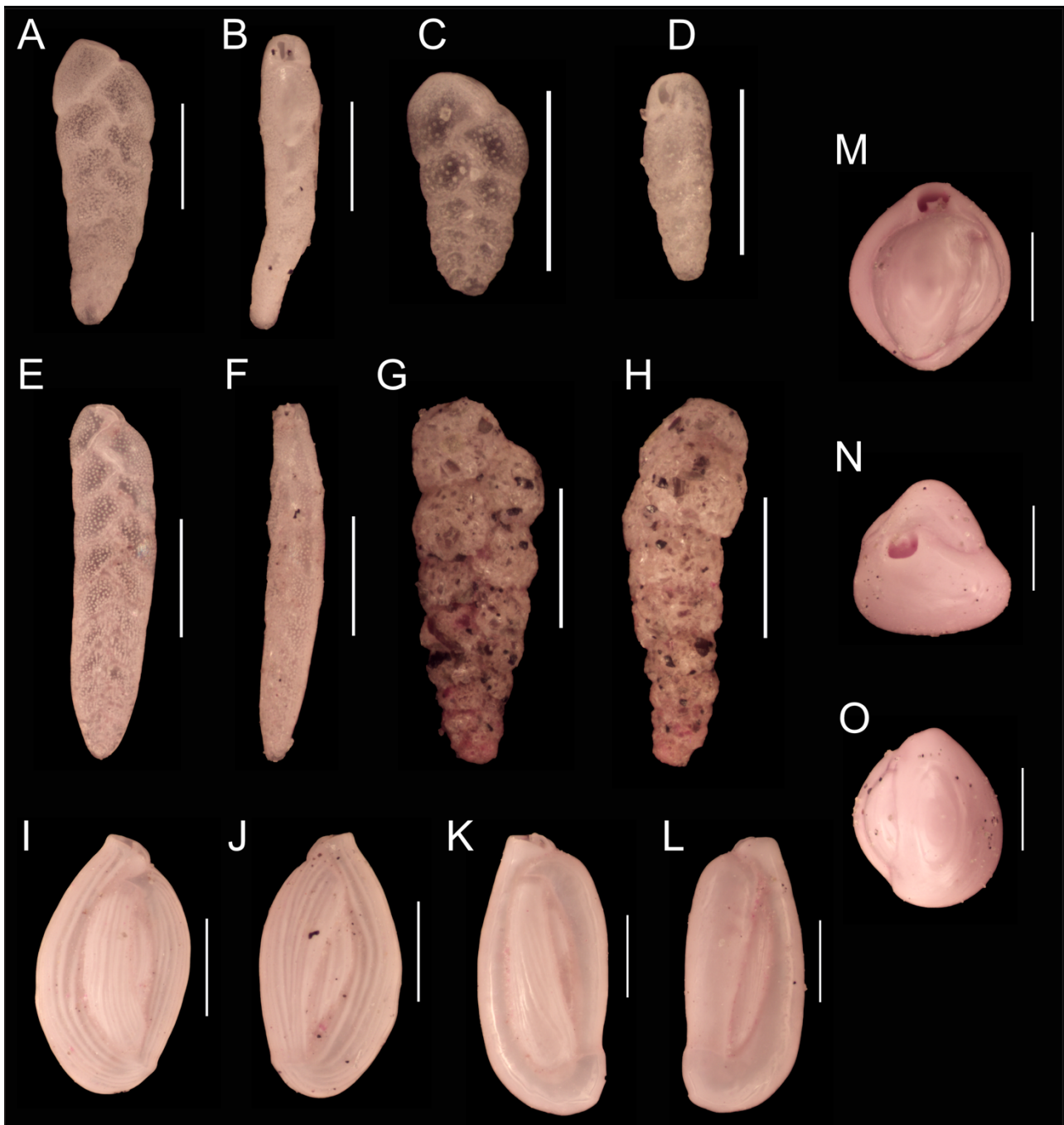


Fig. S2. Non-dominant species. A. *Bolivina* sp1, frontal view. B. *Bolivina* sp1, lateral view. C. *Bolivina* sp2, frontal view. D. *Bolivina* sp2, lateral view. E. *Bolivina* sp3, frontal view. F. *Bolivina* sp3, lateral view. G. *Textularia earlandi*, frontal view. H. *Textularia earlandi*, lateral view. I. 11 *Quinqueloculina costata*, 4-chamber side view. J. *Quinqueloculina costata*, 3-chamber side view. K. *Quinqueloculina laevigata*, 4-chamber side view. L. *Quinqueloculina laevigata*, 3-chamber side view. M. *Triloculina trigoluna*, 3-chamber side view. N. *Triloculina trigoluna*, aperture view. O. *Triloculina trigoluna*, 2-chamber side view. The scale bars represent 150 μm

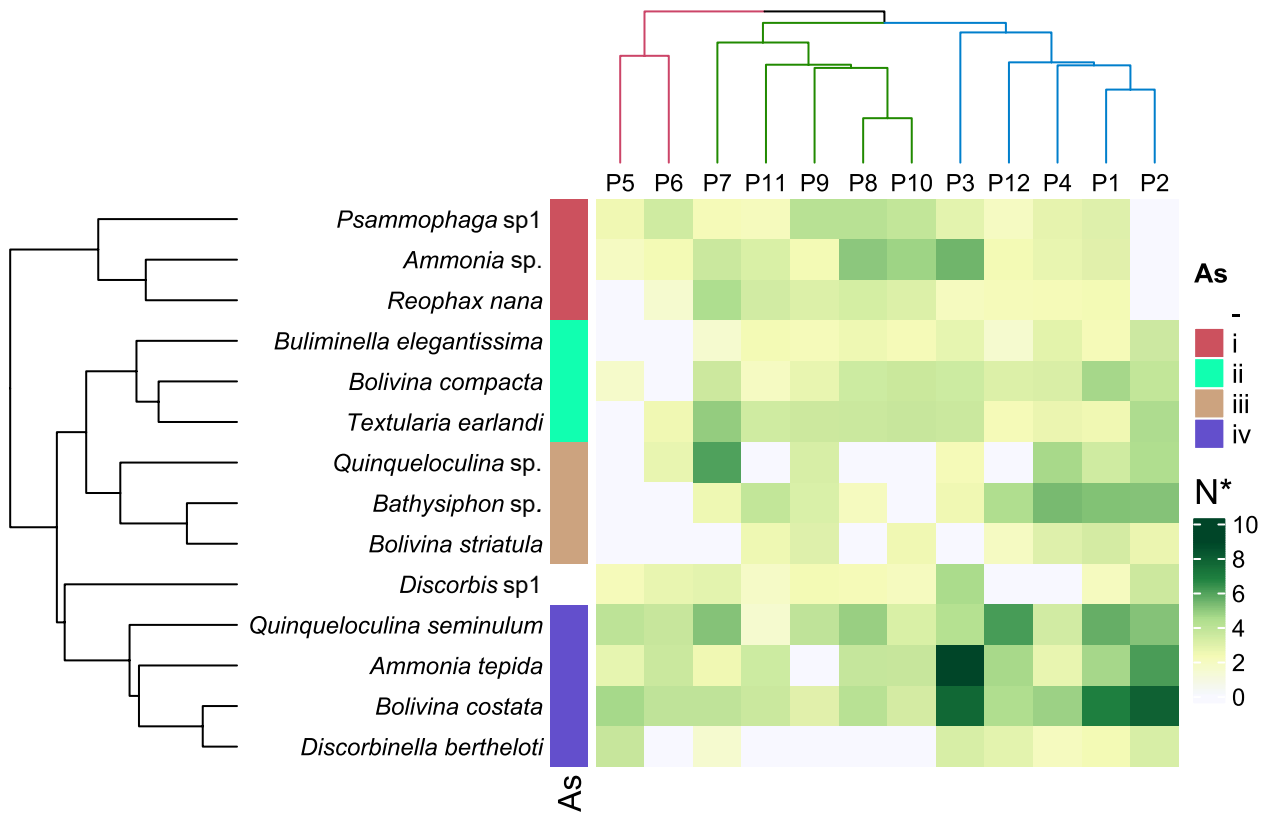


Figure S3. Heatmap of the taphocenosis. N = population density. $N^* = \sqrt[4]{N}$. As = Assemblages

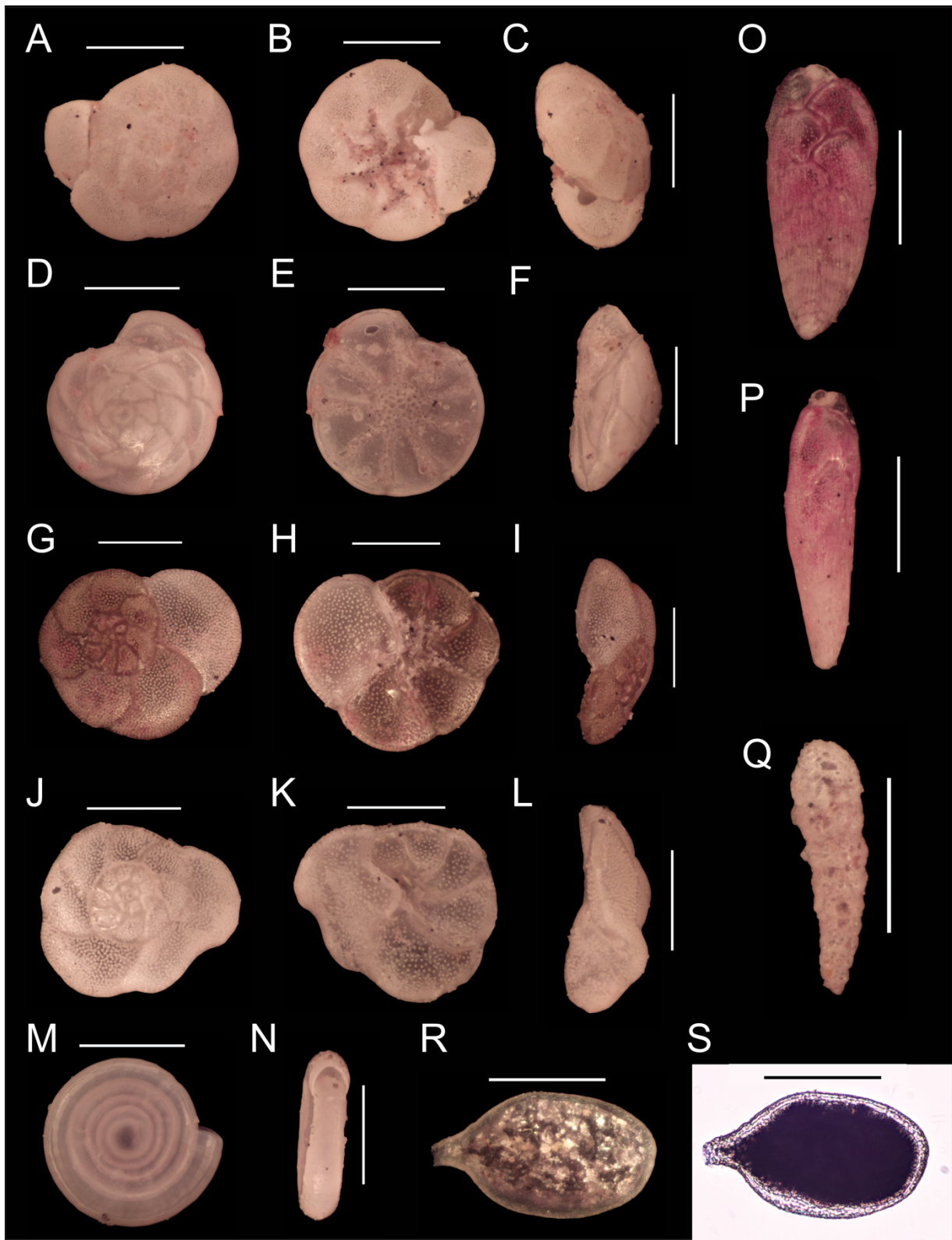


Fig. S4. Non-dominant species. A. *Ammonia* sp., dorsal view. B. *Ammonia* sp., aperture view. C. *Ammonia* sp., lateral view. D. *Buccella peruviana*, dorsal view. E. *Buccella peruviana*, aperture view. F. *Buccella peruviana*, lateral view. G. *Discorbinella bertheloti*, dorsal view. H. *Discorbinella bertheloti*, aperture view. I. *Discorbinella bertheloti*, lateral view. J. *Discorbis* sp1, dorsal view. K. *Discorbis* sp1, aperture view. L. *Discorbis* sp1, lateral view. M. *Cornuspira involvens*. N. *Cornuspira involvens*, aperture view. O. *Bolivina striatula*, frontal view. P. *Bolivina striatula*, lateral view. Q. *Reophax nana*. R. *Psammophaga* sp2, incident light view. S. *Psammophaga* sp2, transmitted light view. The scale bars represent 150 μ m

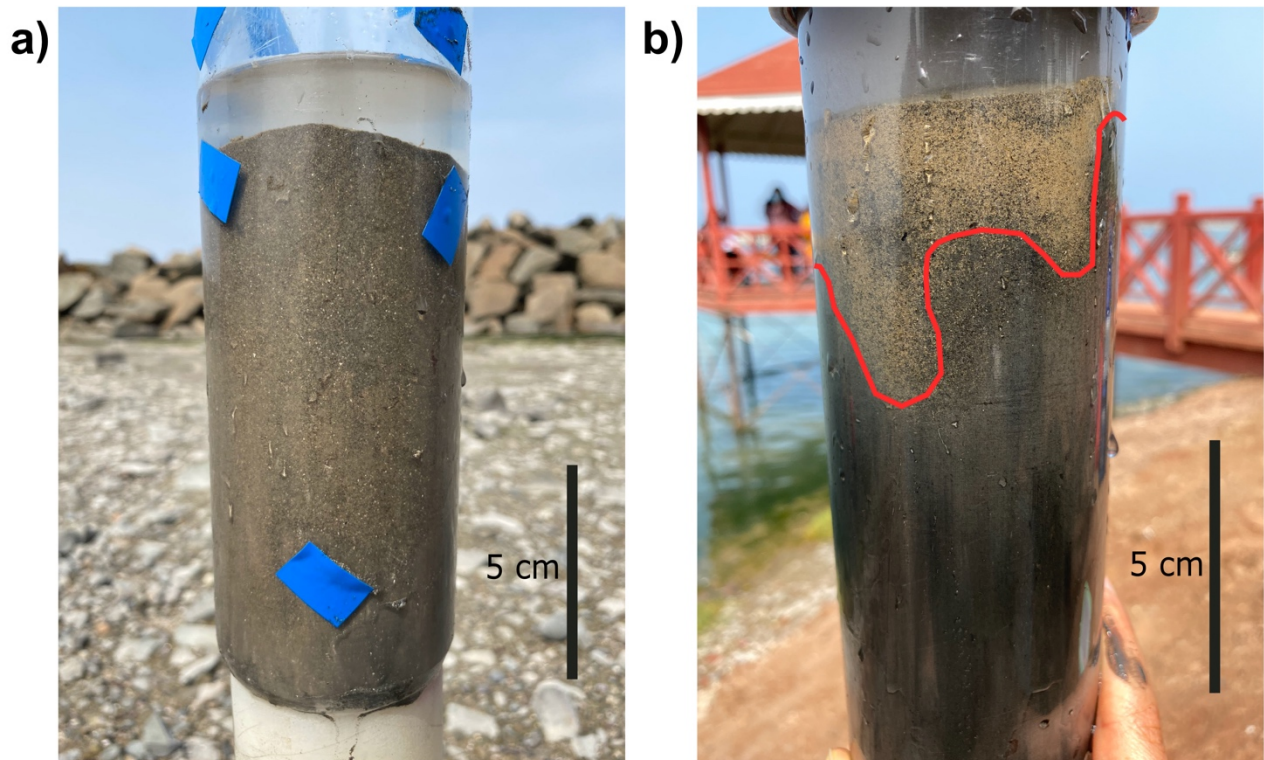


Figure S5. Sediment cores from (a) the inlet (WB1) and (b) the stagnant areas (WB2); Stations P1 and P10, respectively. The scale bar represents 5 cm, and the red line delimits the redox front

Table S1. PCA loadings and their p-values. Variables with significant p-values have bold loading values. DO = dissolved oxygen, TOM = Total Organic Matter, TOC = Total Organic Carbon, TN = Total Nitrogen, C/N = TOC to TN ratio, $\delta^{13}\text{C}$ = isotopic signature of the carbon in the bulk sediment, $\delta^{15}\text{N}$ = isotopic signature of the nitrogen in the bulk sediment, %CaCO₃ = carbonate.

		Mean phi	Temp.	DO	Salinity	$\delta^{13}\text{C}$	$\delta^{15}\text{N}$	TOC	TN	C/N	TOM	%CaCO ₃
PC1	r	0.40	0.14	-0.01	-0.09	0.41	0.00	0.44	0.44	-0.26	0.43	-0.09
	p	2.95E-05	3.20E-01	9.65E-01	5.43E-01	2.02E-05	9.99E-01	4.77E-10	2.02E-10	4.55E-02	6.37E-08	5.05E-01
PC2	r	-0.04	-0.51	-0.54	0.53	0.15	0.14	-0.01	0.02	-0.29	0.02	0.20
	p	0.85	1.34E-03	2.74E-04	5.17E-04	0.45	0.47	0.95	0.93	0.13	0.92	0.32

Table S2. Relative density (%) of each living species per station from the top surface (2 cm). G = Globothalamea, M = Monothalamea, T = Tubothalamea.

Class	Species	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
G	<i>Ammonia confertitesta</i>	3.84	5.31	79.07	-	26.22	6.11	4.55	2.89	-	9.92	10.05	7.81
	<i>Ammonia</i> sp.	-	-	-	-	3.00	-	-	-	-	2.23	-	-
	<i>Bolivina compacta</i>	7.40	4.40	-	2.03	13.48	-	18.18	-	16.54	15.36	11.64	6.68
	<i>Bolivina costata</i>	18.49	0.90	0.29	4.75	-	1.67	45.45	-	12.50	-	24.87	13.85
	<i>Bolivina dilatata</i>	1.34	-	-	-	-	-	-	-	-	-	-	2.27
	<i>Bolivina</i> sp1	-	0.27	-	-	-	-	-	-	3.31	-	7.41	1.13
	<i>Bolivina</i> sp2	0.37	0.14	-	-	-	-	-	-	-	-	2.65	-
	<i>Bolivina striatula</i>	8.97	0.65	-	-	-	-	-	-	36.76	-	10.05	-
	<i>Bulimina acuelata</i>	0.37	-	-	-	-	-	-	-	-	-	-	0.63
	<i>Bulimina marginata</i>	-	-	-	-	-	-	-	-	-	-	-	2.27
	<i>Buliminella elegantissima</i>	8.65	27.50	-	4.75	3.00	-	-	-	-	1.68	4.76	-
	<i>Discorbinella bertheloti</i>	0.37	-	-	-	-	-	-	-	-	-	-	-
	<i>Discorbinella</i> sp.	-	-	-	-	-	-	-	-	-	-	-	1.76
	<i>Discorbis peruvianus</i>	-	-	-	-	-	-	-	-	-	-	-	2.77
	<i>Nonion asanoi</i>	0.37	-	-	-	-	-	-	-	-	-	-	-
	<i>Nonionella auris</i>	0.69	-	-	-	-	-	-	-	-	-	-	-
	<i>Reophax nana</i>	-	-	-	-	-	-	-	-	-	3.31	-	2.77
	<i>Textularia earlandi</i>	0.37	1.04	-	-	-	-	18.18	-	14.34	10.47	-	1.13
	<i>Textularia</i> sp.	-	-	-	-	-	0.78	-	-	-	-	-	-
M	<i>Bathysiphon</i> sp.	43.78	47.87	1.73	80.68	-	-	-	-	4.41	-	-	28.34
	<i>Saccaminid</i> 1	-	-	-	-	-	-	-	-	-	1.68	-	-
	<i>Psammophaga</i> sp1	-	10.59	7.25	-	40.45	80.44	13.64	72.20	4.41	31.70	23.28	-
	<i>Psammophaga</i> sp2	-	-	-	-	5.62	-	-	-	-	2.23	5.29	-
T	<i>Cornuspira involvens</i>	0.69	-	0.86	5.76	-	-	-	-	-	-	-	-
	<i>Miliolinella</i> sp.	-	-	-	-	-	-	-	-	-	-	-	0.63
	<i>Quinqueloculina costata</i>	-	-	0.29	-	-	-	-	-	-	-	-	0.63
	<i>Quinqueloculina laevigata</i>	0.74	0.41	-	1.02	-	-	-	-	-	-	-	1.76
	<i>Quinqueloculina seminulum</i>	3.19	0.52	10.52	1.02	8.24	10.22	-	24.91	4.41	18.16	-	24.94
	<i>Quinqueloculina</i> sp.	-	0.27	-	-	-	0.78	-	-	-	6.56	-	-
	<i>Triloculina</i> sp.	-	0.14	-	-	-	-	-	-	-	-	-	-
	<i>Triloculina trigoluna</i>	0.37	-	-	-	-	-	-	-	-	-	-	0.63

Table S3. Wet-picked specimens along PLA stations.

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
Living (no. of ind.)	185	714	259	106	32	99	23	38	25	57	33	181
Dead (no. of ind.)	492	567	1618	932	476	110	293	458	130	126	297	729
Split size	1/8	1/8	1/4	1/8	1/4	1/8	1/4	1/8	1/8	1/8	1/4	1/8
Volume (cm ³)	80	84	105	145	154	87	100	182	84	94	216	91
Depth (cm)	2	2	2	2	5	2	2	5	2	2	5	2

Table S4. Relative density (%) of each dead species from the top surface (2 cm) per station. G = Globothalamea, M = Monothalamea, T = Tubothalamea.

Class	Species	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
G	<i>Ammonia confertitesta</i>	7.51	15.89	52.50	1.82	4.47	18.29	0.87	7.25	-	11.24	13.34	13.28
	<i>Ammonia</i> sp.	1.19	-	7.23	1.82	1.10	3.35	4.22	24.06	2.24	29.33	8.56	0.96
	<i>Astrononioninae</i>	0.26	-	-	-	-	-	-	-	-	-	-	0.16
	<i>Bolivina aenariensis</i>	-	-	-	0.23	-	-	3.47	-	-	-	3.68	-
	<i>Bolivina</i> cf. <i>beyrichi</i>	0.61	-	-	-	-	-	-	-	-	-	-	-
	<i>Bolivina compacta</i>	7.48	2.53	1.17	3.75	0.67	-	3.97	5.55	3.93	10.29	1.29	2.73
	<i>Bolivina costata</i>	36.65	46.95	27.87	19.76	37.32	25.32	5.83	10.92	5.63	6.96	15.00	11.24
	<i>Bolivina dilatata</i>	-	-	-	-	-	-	0.99	-	-	-	-	1.80
	<i>Bolivina</i> sp1	-	-	-	-	0.67	-	0.12	-	-	-	1.43	-
	<i>Bolivina</i> sp2	-	-	-	-	-	-	-	-	-	-	-	0.28
	<i>Bolivina</i> sp3	-	-	-	-	-	-	-	1.17	-	-	-	-
	<i>Bolivina spathulata</i>	-	-	-	-	-	-	-	-	0.69	-	-	-
	<i>Bolivina spissa</i>	-	-	0.04	0.12	-	-	0.37	-	-	-	-	-
	<i>Bolivina striatula</i>	1.92	0.53	-	3.02	-	-	-	-	6.01	2.14	3.59	0.43
	<i>Bolivina</i> subaenariensis	-	-	0.12	-	-	-	-	-	-	-	-	-
	<i>Buccella peruviana</i>	0.25	1.35	0.36	-	5.73	-	-	3.14	-	-	-	-
	<i>Buccella</i> sp.	-	-	0.04	-	-	-	-	-	-	-	-	-
	<i>Bulimina acuelata</i>	0.25	-	-	0.35	-	-	-	-	-	-	-	0.16
	<i>Bulimina marginata</i>	-	-	-	-	-	-	0.12	-	-	-	0.46	0.16
	<i>Buliminella elegantissima</i>	0.40	1.73	0.42	2.59	-	-	0.12	1.47	1.62	1.67	2.67	0.16
	<i>Cibicides</i> sp.	-	0.07	-	-	1.10	-	-	-	-	-	0.92	-
	<i>Criboelphidium incertum</i>	-	-	-	-	-	-	-	-	-	-	-	0.56
	<i>Discorbinella</i> sp.	-	-	-	-	-	-	-	-	-	-	-	0.68
	<i>Discorbinella bertheloti</i>	0.51	1.22	0.83	0.66	15.84	-	0.12	-	-	-	-	1.92
	<i>Discorbis</i> sp1	0.25	1.81	3.28	-	1.85	5.52	1.49	0.87	2.47	0.95	0.83	-
	<i>Discorbis</i> sp2	-	1.66	-	1.93	-	-	-	-	-	-	-	-
	<i>Discorbis</i> sp3	-	-	-	-	-	-	-	-	-	-	0.92	-
	<i>Elphidium</i> sp.	-	-	-	-	-	0.54	-	-	-	-	-	1.12
	<i>Fursenkoina</i> cf. <i>squammosa</i>	-	-	0.04	-	-	-	-	-	-	-	-	-
	<i>Fursenkoina</i> sp.	-	0.34	-	0.23	-	-	-	-	-	-	0.46	-
	<i>Globigerina</i> sp.	-	-	0.04	-	-	-	-	-	-	-	-	-
	<i>Globocassidulina</i> sp.	-	-	-	-	-	-	-	-	-	-	-	0.16
	<i>Lenticulina</i> sp.	0.25	-	-	-	-	-	-	-	-	-	-	-
	<i>Leptohalysis</i> cf. <i>scotti</i>	-	0.07	-	-	-	-	-	-	-	-	-	-
	<i>Leptohalysis scotti</i>	0.13	-	-	0.12	-	-	-	-	-	-	-	-
	<i>Nonion asanoi</i>	0.40	-	-	-	-	-	-	-	-	-	-	-
	<i>Nonion</i> sp.	0.48	-	-	-	3.20	-	-	-	-	-	-	-
	<i>Nonionella auris</i>	0.25	-	-	0.12	-	-	-	-	-	-	-	-
	<i>Nonionella</i> sp.	-	-	-	-	-	-	-	0.30	-	-	-	-
	<i>Nonionidae</i>	-	-	0.13	-	-	-	-	-	-	-	-	-
<i>Reophax catenatus</i>	-	-	-	0.23	-	-	-	-	-	-	-	-	
<i>Reophax nana</i>	0.48	-	0.13	0.89	-	0.54	9.43	4.23	6.71	5.12	11.32	0.68	

Class	Species	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
	<i>Reophax</i> sp.	-	-	-	0.12	-	-	-	-	0.93	1.43	-	-
	<i>Rosalina</i> sp1	-	-	-	0.12	-	-	-	-	-	-	-	-
	<i>Rosalina</i> sp2	-	0.67	0.13	-	-	-	-	-	-	-	-	-
	<i>Textularia earlandi</i>	0.61	4.60	1.29	1.74	-	3.90	14.39	6.42	11.87	11.18	12.88	0.84
	<i>Trochammima inflata</i>	-	-	0.08	-	-	-	-	-	-	-	-	-
M	<i>Bathysiphon</i> sp.	11.92	8.11	0.28	31.40	-	-	0.99	0.60	6.94	-	19.23	11.64
	<i>Psammophaga</i> sp1	1.22	-	0.48	2.28	3.12	15.04	0.62	10.77	21.67	12.61	1.75	0.43
	<i>Psammophaga</i> sp2	-	-	-	-	-	-	-	-	-	-	0.46	-
T	<i>Cornuspira involvens</i>	1.22	0.14	0.52	3.67	-	-	1.86	1.62	0.69	-	-	0.68
	<i>Cornuspira</i> sp.	-	-	0.13	-	-	0.54	-	-	-	-	-	-
	<i>Cribrospiroculina</i> sp.	0.25	-	-	-	-	-	-	-	-	-	-	0.16
	<i>Miliolids</i>	-	-	-	-	-	-	-	0.60	-	-	-	-
	<i>Miliolinella</i> sp.	-	-	-	-	-	-	-	-	-	-	-	0.16
	<i>Pyrgo</i> sp.	-	-	-	-	-	0.54	-	-	-	-	-	-
	<i>Quinqueloculina</i> cf. <i>bicostoides</i>	-	-	-	-	-	-	0.99	-	-	-	-	0.84
	<i>Quinqueloculina costata</i>	3.33	0.07	0.04	0.23	-	-	0.50	0.30	0.69	-	-	1.12
	<i>Quinqueloculina laevigata</i>	2.16	0.07	0.04	0.12	-	1.08	-	-	1.39	-	-	0.99
	<i>Quinqueloculina seminulum</i>	16.79	7.98	2.49	4.91	21.74	19.81	17.25	20.70	18.12	5.65	0.46	43.95
	<i>Quinqueloculina</i> sp.	2.28	4.19	0.20	16.67	-	5.52	32.26	-	8.40	-	-	-
	<i>Quinqueloculina</i> cf. <i>vulgaris</i>	-	-	-	0.89	-	-	-	-	-	-	-	2.61
	<i>Spiroloculina</i> sp.	0.25	-	-	-	-	-	-	-	-	-	-	0.16
	<i>Triloculina</i> sp.	-	-	0.16	-	2.11	-	-	-	-	-	2.21	-
	<i>Triloculina trigoluna</i>	0.71	-	-	0.23	1.10	-	-	-	-	-	-	-
Density (ind. 50 cm ⁻³)		6057	8607	12603	2586	1187	924	4030	2647	1297	1681	1087	3222