

Supplement of Biogeosciences Discuss., 12, 16755–16801, 2015
<http://www.biogeosciences-discuss.net/12/16755/2015/>
doi:10.5194/bgd-12-16755-2015-supplement
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Supplement of

Benthic phosphorus cycling in the Peruvian oxygen minimum zone

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Table S1: Concentrations of TPP, PIP, POP and POC for water column particles [mmol l^{-1}] and sediments [mmol g^{-1}]. The standard deviation for the concentrations of TPP, PIP and POP from the water column particles was calculated from the duplicate measurements of the stations I, IV and V. The standard deviations of TPP, PIP and POP are 10%, 7% and 10%, respectively. The standard deviation for sedimentary TPP and PIP concentrations was derived from repeated measurements of the sediment standards MESS-3 and SDO-1. The standard deviation for TPP is 4% and 6% for PIP and POP. The POC measurements have a standard deviation of 2%. The POC/xP (where xP = TPP, PIP or POP) ratios were calculated from these concentrations.

Water									
Station	depth (m) / sediment depth (cm)	TPP [mmol l^{-1}] [mmol g^{-1}]	PIP [mmol l^{-1}] [mmol g^{-1}]	POP [mmol l^{-1}] [mmol g^{-1}]	POC [mmol l^{-1}] [mmol g^{-1}]	POC/TPP	POC/PIP	POC/POP	
Water column									
I	10	0.146	0.097	0.049	12.88	89	133	277	
	20	0.127	0.071	0.056	10.37	82	147	185	
	50	0.134	0.058	0.075	10.40	78	178	141	
	65	0.152	0.077	0.074	14.55	96	189	195	
	70	0.202	0.078	0.123	15.31	76	197	126	
Sediment									
I	0.25	0.063	0.036	0.027	5.056	81	140	191	
	0.75	0.065	0.039	0.026	4.970	77	128	194	
	1.25	0.044	0.031	0.013	3.111	71	100	245	
	2.25	0.041	0.030	0.011	2.773	68	91	264	
	3.25	0.040	0.027	0.013	2.908	73	109	226	
	4.25	0.042	0.033	0.010	2.826	67	86	291	

Water column	5.5	0.052	0.041	0.011	2.590	50	63	246
Water column	20	0.105	0.054	0.051	8.94	85	165	174
III	50	0.070	0.037	0.033	7.43	107	202	227
	125	0.118	0.064	0.054	8.03	68	125	149
Sediment								
	0.25	0.082	0.077	0.005	5.650	69	73	-
	0.75	0.046	0.024	0.022	5.745	124	235	262
	1.25	0.049	0.030	0.019	6.664	137	225	351
	1.75	0.052	0.031	0.021	7.012	136	229	335
III	2.25	0.051	0.030	0.021	6.997	137	231	336
	3.25	0.052	0.031	0.021	5.883	114	188	287
	4.25	0.052	0.031	0.021	6.863	132	221	328
	4.75	0.050	0.029	0.021	6.940	139	237	337
Water column	10	0.171	0.088	0.083	17.59	103	200	220
	20	0.069	0.038	0.031	6.31	93	165	219
IV	50	0.061	0.028	0.033	7.66	125	274	234
	100	0.090	0.038	0.052	7.39	82	199	143
	141	0.075	0.025	0.050	7.09	94	291	142

Sediment

0.25	0.080	0.048	0.032	6.455	81	134	205
0.75	0.065	0.038	0.027	7.749	119	204	283
1.25	0.065	0.042	0.023	7.919	122	189	343
2.75	0.051	0.031	0.020	7.182	142	232	364
3.25	0.053	0.032	0.020	7.391	140	228	361
4.25	0.060	0.040	0.020	7.592	127	192	376
5.5	0.062	0.044	0.019	7.972	128	183	430

IV
36MUC10

Water column

50	0.058	0.013	0.045	6.93	119	548	174
100	0.069	0.017	0.053	7.08	106	451	138
190	0.072	0.023	0.049	8.90	132	385	213

V
279CTD81

Sediment

0.25	0.092	0.038	0.054	12.881	140	340	238
0.75	0.076	0.034	0.042	9.286	122	270	222
1.25	0.068	0.027	0.040	11.027	163	405	273
1.75	0.075	0.056	0.019	13.730	182	245	-
2.25	0.078	0.036	0.042	11.188	143	314	264
3.25	0.079	0.035	0.044	10.890	138	314	245
4.25	0.072	0.032	0.040	10.009	140	314	252
5.5	0.071	0.033	0.038	11.080	156	341	289

A
247MUC45

Water column

10	0.986	0.579	0.407	89.09	91	155	234
50	0.045	0.020	0.025	3.98	88	197	158
100	0.028	0.015	0.013	5.05	179	335	384
150	0.049	0.025	0.025	4.65	95	189	190
200	0.041	0.017	0.024	5.44	133	326	225
240		0.020	0.051	4.45	62	217	87

92CTD24
VI

Sediment

0.25	0.102	0.059	0.043	8.666	85	146	201
0.75	0.086	0.041	0.045	10.164	118	250	225
1.25	0.091	0.047	0.044	12.334	136	263	282
1.75	0.093	0.046	0.047	12.072	130	263	258
2.25	0.091	0.051	0.040	11.360	125	225	282
3.25	0.084	0.040	0.044	12.342	147	309	280
3.75	0.093	0.059	0.034	13.184	141	222	388
5.5	0.093	0.047	0.046	13.439	144	288	289

198MUC34
VI

Water column

30	0.135	0.096	0.039	16.16	120	169	414
50	0.043	0.024	0.019	5.96	138	244	318
150	0.030	0.012	0.018	2.98	99	258	161
250	0.021	0.006	0.014	2.23	108	363	155
350	0.020	0.007	0.013	2.83	143	420	217
407	0.037	0.017	0.020	3.55	96	209	178

66CTD16
VIII

Sediment	0.25	0.730	0.712	0.019	5.504	8	8	296
	0.75	1.346	1.321	0.025	5.062	4	4	201
	1.25	1.580	1.551	0.029	4.114	3	3	141
	2.25	2.372	2.327	0.045	3.676	2	2	81
VIII	3.5	1.027	1.017	0.010	6.219	6	6	653
	4.5	0.622	0.611	0.011	7.251	12	12	653
	5.5	0.480	0.470	0.010	7.788	16	17	791

107MUC23

Figure S1: Phosphate (PO_4^{3-}) concentrations of the benthic lander chambers BIGO I (red) and BIGO II (blue). The yellow dots show the PO_4^{3-} concentration of the ambient bottom water. At stations IV, V and VII concentrations were only measured in one chamber.

