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Data questions: Same as author.

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Data set Overview:

The high productivity in the Bering sea coupled with shallow water depths over the shelf result in a large fraction of the productivity reaching the sediments. This fuels the productive benthic ecosystem there. It also results in high benthic oxygen consumption and denitrification rates. The goal of our project is to look at the benthic geochemistry in the BEST study region, especially the benthic cycling of nitrogen. We hypothesize that the tight coupling of surface productivity and the benthic community results in considerable denitrification in the sediments and that this denitrification acts as a negative feedback control on productivity. We also hypothesize that the denitrification rate will be highest at intermediate levels of sedimentary marcofauna. Low macrofaunal densities will limit benthic irrigation and thus within sediment nitrification rates thus limiting the nitrate supply available for denitrification. However, if irrigation rates are too high then irrigation of oxygen into the sediments will begin to limit denitrification. This report contains the pore water nutrient data from the spring 2007 BEST cruise, HLY – 0701 .

Instrument description and Analytical methods

Pore water nutrient concentrations were determined on board using an autoanalyzer (http://chemoc.coas.oregonstate.edu:16080/~lgordon/cfamanual/whpmanual.pdf

Sample collection and processing. Sediment cores were retrieved from the bottom using an Ocean Instruments MC-800 multicorer equipped with eight 10-cm diameter polycarbonate core tubes. Cores used for pore water nutrients were sectioned at 0.5 cm intervals for the first 2 cm and then 1 cm intervals below 2 cm. Sediments were placed in 50-ml centrifuge tubes and centrifuged at 10,000 RPM for 20 minuets to separate the pore water from the bulk sediment. Pore waters were then filtered through 0.2 or 0.45 micrometer filters and stored frozen until analysis. Also from each section a small (~1 to 2 ml bulk wet sediment) samples was stored in a 15-ml polyethylene test tube and frozen for later analysis of sediment porosity. Porosity was calculated from weight loss after drying, assuming dry sediment density of 2.5 g cm^{-3}. All porosities were corrected for salinity effects. Sampling locations, times and depths are given in table 1.

Table 1. Multicore sample locations

Station	Depth	Date (GMT)	Lat. N	Long W
1	1170 m	4/11/'07 05:30	54, 15.723	166,33.974
5	108 m	4/12/'07 00:28	56, 10.120	166, 07.780
30	70 m	4/14/'07 12:12	57, 54.174	169, 03.967
48	72 m	4/16/'07 14:18	59, 54.570	172, 54.005
65	74 m	4/18/'07 11:44	61, 56.289	174, 23.735
74	52 m	4/19/'07 17:55	62, 12.778	172, 19.010
85	86 m	4/21/'07 04:54	62, 12.495	175, 33.037
90	2710 m	4/22/'07 06:00	49, 53.639	179, 24.458
91	629 m	4/22/'07 16:25	59, 53.689	178, 53.645
92	144 m	4/22/'07 22:49	59, 54.11	178, 12.518
105	66 m	4/24/'07 23:53	59, 56.791	170, 20.840
113	57 m	4/25/'07 25:22	58, 35.735	168, 26.445
131	92 m	4/29/'07 03:27	57, 46.611	171, 09.718
132	89 m	4/29/'07 06:42	57, 56.662	171, 04.077
150	1862 m	5/01/'07 14:36	57, 54.083	174, 11.481
152	3468 m	5/02/'07 08:58	57, 30.112	174, 14.207
164	130 m	5/04/'07 05:29	58, 47.258	176, 22.394
177	140 m	5/04/'07 20:39	60, 28.200	176, 53.056

Data Set Overview.

File structure: comma delimited ASCII text
Naming convention: PI name_cruise_data type (Devol_HLY_0701_porewaternutrients.txt)
Data layout: 1 header row, 170 Data rows, 10 columns.
List of variables:

- Station
- Water Depth
- Sampling interval
- Average sample depth
- Porosity
- Nitrate
- Nitrite
- Ammonium
- Phosphate
- Silicate

Missing data designator: -99