

TITLE: Sediment pore-water nutrient profiles

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-Introduction or abstract  
Summary:

These data were collected from several BEST/BSIERP cruises. Sediment cores were collected using an Ocean Instruments MC-800 multicorer, which collected up to eight 10-cm diameter cores in polycarbonate tubes. Cores were cut into depth sections, placed into 50-ml centrifuge tubes, and centrifuged at 10,000 rpm to separate pore water from the solid phase. Pore water was then filtered in a nitrogen glove bag using 0.45- $\mu$ m syringe filters and analyzed for dissolved ammonium, nitrite, nitrate, phosphate, and silicate. The data in this collection were collected during the following cruises: HLY0701, HLY0803, and HLY0902.

Time period covered by these data: 2007-04-10 through 2009-05-12.

Location: Bering Sea  
Minimum Latitude: 55. Max Latitude: 63. Minimum Longitude: 164. Max Longitude: 180.

INSTRUMENT DESCRIPTION:

For HLY0702, nutrients were analyzed using components from Alpkem and Perstorp instrumentation. Analytical methods have been described by Armstrong et al. (1967), Atlas et al. (1971), and Gordon et al. (1993). For HLY0803 and HLY0902, nutrients were analyzed using a SmartChem autoanalyzer. Phosphate was determined using a modification of the EPA protocol 365.1. Sodium dodecyl sulfate was used as the surfactant, ammonium molybdate and antimony potassium tartrate in 2M sulfuric acid solution were the main reactants and ascorbic acid was used as the reductant. Analytical methods were modified from Gordon et. al. (1993). Ammonium was analyzed by the indophenol blue method modified from Gordon et. al. (1993).

Sodium citrate in 0.25M NaOH and 0.034 M EDTA was the buffer, and reactants were phenol, sodium hypochlorite, and nitroprusside. Methods for nitrite, nitrate, and silicate closely followed Gordon et al. (1993), but were adapted to the smaller volume sample size used by the SmartChem analyzer. Nitrate + nitrite was measured following cadmium reduction. Nitrite (measured without Cd reduction) was subtracted from nitrate + nitrite to determine nitrate concentration.

#### DATA FORMAT:

Headers: Station, Core, Depth, Phosphate (uM), Silicate (uM), Nitrite (uM), Nitrate (uM), Ammonium (uM). Station lists the numerical station identifier. Core indicates the number of the replicate core collected from the station. Depth (cm, positive downward) indicates the depth in the sediment where the pore water was collected. The final five columns list the nutrient concentrations in micromoles per liter pore water.

#### REFERENCES:

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- Gordon, L.I., Jennings, J.C. Jr, Ross, A.A. and Krest, J.M. (1993) A suggested protocol for continuous automated analysis of seawater nutrients (phosphate, nitrate, nitrite and silicic acid) in the WOCE Hydrographic program and the Joint Global Ocean Fluxes Study, WOCE Operations Manual, vol. 3: The Observational Programme, Section 3.2: WOCE Hydrographic Programme, Part 3.1.3: WHP Operations and Methods. WHP Office Report WHPO 91-1; WOCE Report No. 68/91. November, 1994, Revision 1, Woods Hole, Mass., USA, 52 loose-leaf pages.