TITLE: Readme File- HLY0702masterstn_UCAR_v3.xls

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ORIGINAL AWARD TITLE: Climate-driven changes in impacts of benthic predators in the northern Bering Sea

DATA ARCHIVE: submitted as retrospective portion of project titled "BEST: Benthic Ecosystem Response to Changing Ice Cover in the Bering Sea"

DATASET OVERVIEW:

This dataset contains measurements at each station of benthic parameters, including bottom water parameters (e.g., temperature, salinity), benthic chlorophyll-a values (bottom water chlorophyll-a, integrated water column chlorophyll-a, sediment chlorophyll-a), benthic faunal parameters (abundance, biomass (g/m2), biomass (gC/m2), number of taxa), sediment grain size values, TOC, TON, C/N, and sediment oxygen uptake rates. Samples included in this dataset were collected from May 18-June 16, 2007 from the United States Coast Guard Icebreaker Healy (WAGB-20). Samples collected on the Healy were funded through the National Science Foundation. Benthic fauna data are not yet processed and ready for inclusion in this data submission.

INSTRUMENT DESCRIPTION:

All water samples were collected using a rosette bottle system on a CTD.

A van Veen grab (0.1 m^2 sediment grab), weighted with 32 kg of lead was used in the collection of surface sediment samples and fauna. A multi (4 barrel) Haps corer (each core = 0.0133 m^2) was used to collect sediment cores, which were used for sediment metabolism (respiration) measurements. For more information on the HAPS core, see: Kanneworff, E. & Nicolaisen, W. The "HAPS:" A frame supported bottom corer. Ophelia Supplement 10, 119-129 (1973).

DATA COLLECTION AND PROCESSING

Five van Veen grabs were collected at each station. The first grab was used for collection of sediment samples. Surface samples (1cm) for analysis of sediment chlorophyll-a concentrations were taken w/ a syringe. A spoon was used to collect surface sediment for grain size, TOC, TON, C/N data. The four subsequent successful grabs were sieved on a 1mm screen and infauna were preserved in 10% buffered formalin.

Sediment grain size was determined in the laboratory after removal of organics and of iron oxides following the process of Gee and Bauder (1986). Sediment samples were acidified and provided to CBL's Nutrient Analytical Service's Lab (NASL) for determination of TOC and TON. Procedures and techniques used by NASL are available at http://nasl.cbl.umces.edu/. Infauna were sorted, counted, and weighed (wet weight) to the family level. The biomass is calculated from published carbon conversion values (Stoker 1998, Grebmeier et al. 1989).

DATA FORMAT

Data File Structure:

File Names (Formats): HLY0702_masterstn.xls [and HLY0702bensum.xls will have a separate README file when sent in].

Files will try to adhere to this convention, but sometimes cruises from the same year will be combined for convenience, and the name will reflect the year and the variables included.

Data Parameters:

Cruise-Ship, Year, Cruise # =HLY0702 (HLY: "Healy", USCG Icebreaker WAGB-20; 07: year, 2007; 02: cruise number for the ship for that year
Station# - sequentially numbered from beginning to end of cruise
Station Name - based on transect names, the lower the number the lower the depth
DLN=Dateline, NWC=Northwest Cape, SWC=Southwest Cape, SIL=St. Lawerence Island, SEC=Southeast Cape, NEC=Northeast Cape
Date arrived- mm/dd/yyyy
Lat., Long., - geographic coordinates of sampling station in decimal degrees
Bottom Depth - bottom depth in meters
Bottom Water Temp - temp of bottom water (°C)
Bottom Water Salinity - salinity of bottom water (psu)
Bottom Water Dissolved Oxygen- dissolved oxygen concentration of bottom water (uM/kg) as measured by the CTD and in mg/L based on a conversion equation (see Notes worksheet for explanation)
Bottom Water Silicate- [S] in silicate of bottom water (umol/L)
Bottom Water Nitrite+Nitrate- [N] in nitrate+nitrate of bottom water (umol/L)
Bottom Water Phospate- [P] in phosph ate of bottom water (umol/L)
Bottom Water NH4- [N] in NH4 of bottom water (umol/L)
Bottom Water Chl-a - chlorophyll concentration of bottom water (mg/m3)
Water Column Integrated Chl-a - chlorophyll concentration integrated throughout the water column (mg/m2)
Sed Chl-a - concentration chlorophyll that has settled on 1 m2 (mg/m2)
Sed Phi size- percent of grain size fraction, 0 phi-largest, 5 phi-smallest, 1 to 4 –sand total
Sed modal size – highest percent of sediment grain size phi class in sample
TOC - total organic carbon (mg/g)
TON - total organic nitrogen (mg/g)
C/N - carbon-to-nitrogen ratio

Data Notes:

blank cells indicate “NoData”

Data Version Number and Date: Version 3, 10/04/10

Software Compatibility: This dataset will be posted in Microsoft Excel 03

REFERENCES

Gee, G.W., & Bauder J.W. (1986), Particle-size analysis. p. 383–411. In A. Klute (ed.) Methods of soil analysis. Part 1. 2nd ed. Agron. Monogr. 9. ASA and SSSA, Madison, WI.

Grebmeier, J. M., Howard M. Feder and C. Peter McRoy (1989), Pelagic-benthic coupling on the shelf of the northern Bering and Chukchi Seas. II. Benthic community structure, Marine Ecology Progress Series, 51, 253-268.

Kanneworff, E. & Nicolaisen, W. (1973), The "HAPS:" A frame supported bottom corer. Ophelia Supplement 10, 119-129.

Stoker, S. W. (1978), Benthic invertebrate macrofauna of the eastern continental shelf of the Bering/Chukchi Seas., Ph.D. thesis, University of Alaska Fairbanks.