TITLE: **HLY1201\_Sediment Parameters\_README.docx**

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ORIGINAL AWARD TITLE: Chukchi Sea Offshore Monitoring in Drilling Area (COMIDA): Hanna Shoal

DATA ARCHIVE: COMIDA Hanna Shoal (HS), <http://www.comidacab.org/hannashoal/index.html>

DATASET OVERVIEW:This dataset contains summary measurements of surface sediment collected at each station for HLY1201 identified by Station Number (#), Station name (Stn. Name), Date (mm/dd/yy), latitude (°N), longitude (°W), and station depth (m). The following parameters are listed in this data file for surface sediment (sed) values: grain size (≤0 phi, 1 phi, 2 phi, 3 phi, 4 phi, and ≥5 phi, 1-4 phi=sand, and modal phi size), percent total organic carbon (TOC), percent total organic nitrogen (TON), C/N, del-13 carbon value (per mil), del-15 nitrogen value (per mil), surface sediment chlorophyll (chl a) content, and sediment community oxygen consumption (SCOC).

INSTRUMENT DESCRIPTION:A van Veen grab (0.1 m2 sediment grab), weighted with 32 kg of lead was used in the collection of surface sediment samples for all parameters in this file, except the SCOC. For SCOC experiments, a single or multi (4-barrel) Haps corer (each core = 0.0133 m2) was used to collect sediment cores to measure SCOC. For more information on the HAPS core, see Kanneworff and Nicolaisen (1973).

DATA COLLECTION AND PROCESSING

Sediment was collected from the first van Veen grab used for collection of sediment samples. Surface samples (1 cm) were collected with a cut-off 10 cc syringe and subsequently processed for chlorophyll a content. Sediment chlorophyll was measured shipboard using a Turner Designs AU-20 fluorometer (non-acidification or Welschmeyer method) following a 24-hour in the dark incubation with 90% acetone at 4°C method (see Cooper et al. 2012, 2013 for further details). Another subsample of surface sediment was collected and placed in whirl-pak bags, frozen, and processed post-cruise at the Chesapeake Biological Laboratory. 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/>. An additional subsample of the acidified sediment sample was packaged in small aluminum boats and analyzed on a Thermo Delta+ Stable Isotope mass spectrometer. Sediment community oxygen consumption (SCOC) rates, inclusive of macro, meio, and microfauna (microbes), as well as chemical cycling, were obtained from shipboard incubation experiments conducted at in situ temperatures (Grebmeier et al.1989, Cooper et al. 2013). Duplicate sediment cores for shipboard incubations were collected using a HAPS benthic corer with removable Plexiglass insert sleeves (133 cm2 surface area as described above). Under optimal conditions, the cores recovered were approximately 15 cm deep, with a low degree of apparent disturbance. Sediment–flux measurements for dissolved oxygen followed the methods of Grebmeier and McRoy (1989). Bottom water for these experiments was collected from the CTD rosette. Enclosed sediment cores with motorized paddles were maintained in the dark at in-situ bottom temperatures for approximately 12–24 h. Point measurements were made at the start and end of the experiment, and flux measurements were calculated, based on concentration differences adjusted to a daily flux per m2.

DATA FORMAT

Data File Structure:

File Names (Formats): **HLY1201\_Sediment Parameters.xlsx** is an excel file in Excel 2011.

DATA PARAMETERS:

Cruise-Ship, Year, Cruise # =HLY1201 (HLY=USCGC Healy)

Station (Stn) # - sequentially numbered from beginning to end of cruiseStation (Stn) Name - based on transect names

Date arrived- mm/dd/yyyy

Latitude-decimal coordinates

Longitude-decimal coordinates

Station (Stn) Depth - bottom station depth in metersSed Phi size- percent of surface sediment grain size fraction, 0 phi-largest, 5 phi-smallest, 1 to 4 =sand total

Sed modal size – highest percent of surface sediment grain size phi class in sample

TOC - total organic carbon (%)TON - total organic nitrogen (%)C/N - carbon-to-nitrogen ratio (wt./wt.)

Sed Chl-a - concentration chlorophyll that has settled on one m2 (mg/m2)

Sed 13C\*= Sediment carbon-13 value (per mil, (o/oo)

Sed 15N\*=sediment nitrogen-15 value (per mil, (o/oo)

Sed SCOC=Sediment Community Oxygen Consumption (mmol O2/m2/d)

Data Version Number and Date: Version 1, 05/07/14Software Compatibility: This dataset will be posted in Microsoft Excel 14.3.6 for MAC.

REFERENCES

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