

TITLE: HLY1201 Bottle (CTD+chl+nuts+O18)_DBO_README.docx
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ORIGINAL AWARD TITLE: Chukchi Sea Offshore Monitoring in Drilling Area (COMIDA): Hanna Shoal

DATA ARCHIVE: <http://dbo.eol.ucar.edu/> ; (for more data see - <http://arcticstudies.org/index.html>)

DATASET OVERVIEW:

This dataset contains summary measurements of water samples collected at each station for HLY1201 identified by Station Number (#), Station Name (Stn. Name), Date (mm/dd/yy), latitude (°N), and longitude (°W). Additional parameters are listed in this data file for the bottle file are defined below.

INSTRUMENT DESCRIPTION:

All water samples were collected from rosette bottles on a Seabird Model 19 CTD for parameters such as nutrients, chlorophyll and oxygen-18/16 ratios. Water temperature, salinity, and other parameters were also measured with sensors on the CTD.

DATA COLLECTION AND PROCESSING

Water column collections included water sampling for inorganic nutrients, oxygen-18/16 ratios, and chlorophyll *a* at up to 6 depths at each station from the rosette bottles. Subsamples for inorganic nutrients were collected from the CTD rosette, filtered shipboard, and frozen for post cruise analyses. These samples were returned to the Nutrient Analytical Service's Lab (NASL) at the Chesapeake Biological Laboratory for determination of all 4 nutrients: nitrate + nitrite, phosphate, ammonia and silica. Procedures and techniques used by NASL are available at <http://nasl.cbl.umces.edu/>. Water samples for ¹⁸O/¹⁶O ratios were collected in small vials, sealed to prevent evaporation and returned to CBL for analysis using a Thermo DeltaPlus Stable Isotope Mass Spectrometer. These isotope data will be provided in a future revision. The water column chlorophyll was analyzed 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).

DATA FORMAT

Data File Structure:

File Names (Formats): HLY1201 Bottle (CTD+chl+nuts+O18)_DBO.xlsx

Files Data Parameters:

Title file is cruise=HLY1201 (USCGC Healy, year: 2012)

A Unique ID for sorting

B Station Number - sequentially numbered from beginning to end of cruise
 C Station Name - based on transect names, see cruise report
 D Bottle Position-discrete bottle number on rosette; typically lower numbered bottles were in deeper water
 E Date Time- mm/dd/yyyy (time is in UTC)
 F Lat-Latitude in decimal degrees
 G Long-in decimal degrees
 H Sigma-t00=density, 1000 kg m⁻³
 I OxySat=oxygen saturation (Mm/Kg=micromoles of oxygen per kg)
 J,P,Q Sal=Salinity (multiple sensor values from conductivity measurements)
 K PrDM=Pressure, Digiquartz® pressure transducer; units are in [db]
 L, M T=Temperature (°C) (from multiple sensors)
 N,O C=Conductivity (mS/cm) [multiple sensors 0-2] then converted to Salinity
 R Sbeo=Dissolved Oxygen concentration (mL/L) as measured by Weiss sensor
 sd=standard deviation
 S-V V=raw offset voltage used in calculations by software V1, V2, etc. refer to different sensors
 W Sv=Sound velocity in meters per second, Chen-Millero
 X Time Elapsed time (seconds) based on first scan in data file and sample rate (profiling)
 Y Alt=altimeter depth (in meters above bottom)
 Z Scan=Scan count
 AA pSM=Overall water column Depth (seawater) in meters
 AB Chlorophyll a [Chl-a] =chlorophyll concentration of water (µg/L)
 AC Nitrate+Nitrite=[N] in nitrate+nitrite of water (µmol/L)
 AD Phosphate= [P] in phosphate of water (µmol/L)
 AE Ammonia=NH₄- [N] in NH₄ of water (µmol/L)
 AF Silica=[Si] in silica of water (µmol/L)
 AG δ¹⁸O=(‰ VSMOW)

Data Version Number and Date: Version 1, 06/15/16

Software Compatibility: This dataset will be posted in Microsoft Excel

REFERENCES

Cooper, L.W., M.A. Janout, K.E. Frey, R. Pirtle-Levy, M.L. Guarinello, J.M. Grebmeier, and J.R. Lovvorn. 2012. The relationship between sea ice break-up, water mass variation, chlorophyll biomass, and sedimentation in the northern Bering Sea. *Deep Sea Research Part II* 65, 141-162; doi:10.1016/j.dsr2.2012.02.002.

Cooper, L.W, M.G. Sexson, J.M. Grebmeier, R. Gradinger, C.W. Mordy, J.R. Lovvorn. 2013. Linkages Between Sea Ice Coverage, Pelagic-Benthic Coupling and the Distribution of Spectacled Eiders: Observations in March 2008, 2009 and 2010 from the Northern Bering Sea, *Deep Sea Research Part II, Topical Studies in Oceanography*, 94, 31-43.

http://arctic.cbl.umces.edu/web-content/HLY1201HannaShoal_cruise_report_Final.pdf