

TITLE: Readme File-"PacMARS Benthic infaunal parameters 1970-2012_README.doc

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ORIGINAL AWARD TITLE: Pacific Marine Arctic Regional Synthesis (PacMARS)

DATA ARCHIVE: PacMARS EOL data archive <http://pacmars.eol.ucar.edu>

DATASET OVERVIEW:

This dataset contains summary measurements of average benthic macroinfaunal taxa to the family level collected at each station for the identified cruise, with parameters of station, abundance, wet weight biomass (gww/m²), carbon dry weight biomass (gC/m²), number of taxa, Shannon-Weaner diversity and evenness indices, and number of grabs collected/station.

INSTRUMENT DESCRIPTION:

A van Veen grab (0.1 m² sediment grab), weighted with 32 kg of lead, was used in the collection of macroinfauna.

DATA COLLECTION AND PROCESSING

On average, 3-5 van Veen grabs were collected at each station for macroinfauna. The number of replicates collected at each station is provided in the data set. The grabs were normally sieved on a 1 mm screen and macroinfauna were preserved in 10% seawater formalin, buffered with hexamethylenetetramine, in plastic containers for post-cruise sorting. However, the following data sets were sieved through different sieve sizes as noted in parentheses the lead scientist's name: Broad (0.42 mm), Carey (0.5 mm) and Stoker (3 mm). Infauna were sorted, counted, and weighed (wet weight) either to family or species level, although this composite data file here is standardized to the family level. The carbon biomass was calculated from published carbon conversion values (Stoker 1998, Grebmeier et al. 1989). Most samples were subsequently archived in 50% propanol. Note that some of these benthic data parameters are available within specific project data archives, such as SBI, <http://www.eol.ucar.edu/projects/sbi/>; BEST, <https://www.eol.ucar.edu/projects/best/>; COMIDA CAB, <http://www.comidacab.org/>; and COMIDA Hanna Shoal (HS), <http://www.comidacab.org/hannashoal/index.html> (in progress).

DATA FORMAT

Data File Structure:

File Names (Formats): "**PacMARS Benthic infaunal parameters 1970-2012.xlsx**"

Data Parameters:

- CruiseID=Cruise number or other identifier (e.g. HLY0601 (HLY: "Healy", USCG Icebreaker WAGB-20; 06: year, 2006; xx: cruise number for the ship for that year); Other ship acronyms, sequential IDs: AK47: Akademik Korolev, HX=Alpha Helix; PSEA=USCGC Polar Sea; PSTAR=USCGC Polar Star; SWL=CCGS (Canadian Coast

Guard Ship) SWL=Sir Wilfrid Laurier; NOAA ships BLU=Bluefin; OCE=Oceanographer, OH=Ocean Hope III; SU=Surveyor, and WWW=Westward Wind; Carter Broad and Wacasey data sets are the name of lead PIs that collected those data (see citations below); CHINARE-Chinese Arctic Expedition sampling on the Xuelong; COMIDA=Chukchi Sea Monitoring in Drilling Area program sampling on HX in 2009 and Moana Wave in 2010; RUSALCA=Russian-American Long-term Census in the Arctic project on Okean (OK) and Khromov (KR); Shell08 on Norseman II, Shell09 on HX, and Shell10 on Moana Wave; Stoker 1970-74 (multiple cruises listed in Stoker 1978)

- StationNum= equals station number from beginning to end of cruise
- StationNme=Station Name – based on transect name, see cruise reports
- DataDate=yyyymoday
- DataYear=year of collection
- DataTime=hour and minutes of collection
- TimeZone=UTC
- UTCOffset= offset (hours) from UTC
- Latitude=in decimal degrees
- Longitude=in decimal degrees
- Depth (m)
- Bot_Depth-station bottom depth (m)
- Abundance – station average number of macroinfaunal animals per m2 (no/m2)
- BiomWW – station average biomass of macrofauna in grams wet weight per m2 (gww/m2)
- BiomGC-station average biomass of macroinfauna in grams dry weight carbon per m2 calculated from carbon conversion numbers (gC/m2)
- TaxaNum – station average number of taxa per m2 (number)
- Shannon-Weaver Index H (SWI)-a commonly used diversity index that takes into account both the type (e.g. number of family or species) in a data set and evenness of those types (e.g. abundances in each family) present in the community. The value of a diversity index increases both when the number of types (families) increases and when evenness of entities measured (e.g. abundance within each family) increases.
- Shannon-Weaver Evenness E_H (SWE)-measures the evenness of a community (e.g., abundance within each family) and ranges between 0 and 1, with 1 being complete evenness (e.g. equal abundance values in each family at that station)
- GrabNum-number of replicate grabs used to attain the average value for each parameters in this file

Data Version Number and Date: Version 1, 05/12/14

Software Compatibility: This dataset will be posted in Microsoft Excel 14.3.6 for MAC.

REFERENCES

- Broad, A.C., 1980. Intertidal Organisms and Habitats (File 030). National Oceanographic Data Center, Washington, DC.
- Carey, Jr., A.G., Boudrias, M.A., Kern, J.C., Ruff, R.E., 1984a. Selected ecological studies on continental shelf benthos and sea ice fauna in the southwestern Beaufort Sea. Final Report. Outer Continental Shelf Environmental Assessment Program, Fairbanks, AK, 23, 1-164.
- 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, Mar. Ecol. Prog. Ser., 51, 253-268.

Grebmeier, J.M., L.W. Cooper, H.M. Feder, and B.I. Sirenko, 2006a. Ecosystem dynamics of the Pacific influenced Northern Bering and Chukchi Seas. *Prog. Oceanogr.* 71, 331-361.

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

Wacasey, J.W., 1975. Biological productivity of the southern Beaufort Sea: Zoobenthic Studies. Beaufort Sea Technical Report #12b. Department of the Environment, Victoria, B.C., 39pp.