

TITLE: BEST microzooplankton biomass and composition for TN249  
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Data Set Overview:  
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During the RV Thompson BEST cruise in May-June 2010 (TN249), microzooplankton biomass and community composition was assessed for initial water samples taken for mesozooplankton grazing rate experiments.

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Methods:  
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Microzooplankton abundance, biomass and general community and size composition was determined in whole seawater samples after samples collected at sea were returned to the laboratory. From 25 to 50 ml of 5% final volume acid Lugol-preserved samples were settled for a minimum of 24 hours and then the whole slide inspected. Inverted microscopy combined with a computer digitizing system was used to identify and measure individual microzooplankton and to convert linear dimensions to cell volumes using equations appropriate for individual cell shapes (Roff and Hopcroft, 1986). Samples on slides preserved for epifluorescence microscopy were inspected using an **Olympus BX61 Epifluorescence Microscope with a multi-wavelength filter set** to determine whether dinoflagellates counted in Lugol-preserved samples were heterotrophic or autotrophic; only heterotrophic dinoflagellate morphotypes were included in the microzooplankton data. All ciliate and dinoflagellate cells in each sample were counted, sized, and categorized into the general taxonomic groups of choreotrichous ciliates, oligotrichous ciliates, didinid ciliates, tintinnids, athecate dinoflagellates, and thecate dinoflagellates. From 80 to 460 protist cells were counted and sized in each sample inspected. Data are reported for > 40  $\mu\text{m}$  and < 40  $\mu\text{m}$  sized cells, and for ciliates and heterotrophic dinoflagellates in both size categories. Cell biomass for dinoflagellates was estimated using the non-diatom algorithm of Menden-Deuer and Lessard (2000) and for ciliates was estimated using both the Menden-Deuer and Lessard algorithm and the 0.19  $\text{pgC } \mu\text{m}^{-3}$  value of Putt and Stoecker (1989). Ratios of heterotrophic dinoflagellate biomass as a fraction of dinoflagellate + ciliate biomass, and of > 40  $\mu\text{m}$  sized microzooplankton biomass as a fraction of total microzooplankton biomass were calculated using the 0.19  $\text{pgC } \mu\text{m}^{-3}$  value for ciliates, which is likely more accurate.

Images of ciliates, heterotrophic dinoflagellates, and other protists observed in the spring 2008 Lugol preserved samples are posted on the Sherr Lab webpage at:

<http://bioloc.coas.oregonstate.edu/SherrLab/Microplankton%20images.html>

## References

Menden-Deuer, S., Lessard, E.J., 2000. Carbon to volume relationships for dinoflagellates, diatoms, and other protist plankton. *Limnology and Oceanography* 45, 569-579.

Putt, M., Stoecker, D.K., 1989. An experimentally determined carbon: volume ratio for marine ``oligotrichous'' ciliates from estuarine and coastal waters. *Limnology and Oceanography* 34, 1097-1103

Roff, J.C., Hopcroft, R.R., 1986. High precision microcomputer based measuring system for ecological research. *Canadian Journal of Fisheries and Aquatic Sciences* 43, 2044-2048