Density data for Lake Ontario benthic invertebrate assemblages from 1964 to 2018

Lyubov E. Burlakova  
*Great Lakes Center, Buffalo State College*, burlakle@buffalostate.edu

Alexander Karatayev  
*Great Lakes Center, Buffalo State College*, karataay@buffalostate.edu

Allison R. Hrycik  
*Great Lakes Center, Buffalo State College*, hrycikar@buffalostate.edu

Susan Daniel  
*Great Lakes Center, Buffalo State College*, danielse@buffalostate.edu

Knut Mehler  
*Great Lakes Center, Buffalo State College*, mehlerk@buffalostate.edu

*See next page for additional authors*

Follow this and additional works at: [https://digitalcommons.buffalostate.edu/greatlakes_facpub](https://digitalcommons.buffalostate.edu/greatlakes_facpub)

Part of the *Terrestrial and Aquatic Ecology Commons*

**Recommended Citation**  

This Article is brought to you for free and open access by the Great Lakes Center at Digital Commons at Buffalo State. It has been accepted for inclusion in Great Lakes Center Faculty Publications by an authorized administrator of Digital Commons at Buffalo State. For more information, please contact digitalcommons@buffalostate.edu.
Density Data for Lake Ontario Benthic Invertebrate Assemblages from 1964 to 2018

Lyubov E. Burlakova
Alexander Y. Karatayev
Allison R. Hrycik
Susan E. Daniel
Knut Mehler

See next page for additional authors

Follow this and additional works at: https://digitalcommons.buffalostate.edu/faculty_publications
Part of the Biodiversity Commons, Biology Commons, Population Biology Commons, and the Terrestrial and Aquatic Ecology Commons
Authors

Density data for Lake Ontario benthic invertebrate assemblages from 1964 to 2018

LYUBOV E. BURLAKOVA,1,9 ALEXANDER Y. KARATAYEV,1 ALLISON R. HRYCIK,1 SUSAN E. DANIEL,1 KNUT MEHLER,1 LARS G. RUDSTAM,2 JAMES M. WATKINS,3 RONALD DERMOTT,4 JILL SCHAROLD,4 ASHLEY K. ELGIN,5 THOMAS F. NALEPA,6 ELIZABETH K. HINCHEY,7 AND STEPHEN J. LOZANO8

1Great Lakes Center, SUNY Buffalo State, 1300 Elmwood Ave., Buffalo, New York 14222 USA
2Department of Natural Resources, Cornell University, Ithaca, New York 14850 USA
3Alumnus, Fisheries and Oceans Canada, Great Lakes Laboratory, Fisheries Aquatic Science, Burlington, Ontario L7R4A6 Canada
4US EPA Great Lakes Toxicology and Ecology Division, Duluth, Minnesota 55804 USA
5NOAA Great Lakes Environmental Research Laboratory, Lake Michigan Field Station, Muskegon, Michigan 49441 USA
6Water Center, Graham Sustainability Institute, University of Michigan, Ann Arbor, Michigan 48109 USA
7US EPA Great Lakes National Program Office, Chicago, Illinois 60604-3590 USA
8NOAA Great Lakes Environmental Research Laboratory, Ann Arbor, Michigan 48108 USA


Abstract. Benthic invertebrates are important trophic links in aquatic food webs and serve as useful bioindicators of environmental conditions because their responses integrate the effects of both water and sediment qualities. However, long-term data sets for benthic invertebrate assemblages across broad geographic areas are rare and, even if collected, historic data sets are often not readily accessible. This data set provides densities of benthic macroinvertebrates for all taxa collected during lake-wide surveys in Lake Ontario, a Laurentian Great Lake, from 1964 to 2018. This information resulted from surveys funded by the governments of the United States and Canada to investigate the status and changes of Lake Ontario benthic community. Of the 13 lake-wide benthic surveys conducted in Lake Ontario over the course of 54 yr, we were able to acquire taxonomic data to the species level for 11 of the surveys and data to the group level for the other two surveys. Density data are provided for taxa representing the Annelida, Arthropoda, Mollusca, Cnidaria, Nemertea, and Platyhelminthes phyla. Univariate and multivariate analyses revealed that the compositional structure of Lake Ontario invertebrate assemblages differed markedly by depth and were also significantly altered by the Dreissena spp. invasion in early 1990s. The introduction of invasive dreissenids has changed the community historically dominated by Diporeia, Oligochaeta, and Sphaeriidae, to a community dominated by quagga mussels and Oligochaeta. Considering the rarity of long-term benthic data of high taxonomic resolution in lake ecosystems, this data set could be useful to explore broader aspects of ecological theory, including effects of different environmental factors and invasive species on community organization, functional and phylogenetic diversity, and spatial scale of variation in community structure. The data set could also be useful for studies on individual species including abundance and distribution, species co-occurrence, and how the patterns of dominance and rarity change over space and time. Use of this data set for academic or educational purposes is encouraged as long as the data source is properly cited using the title of this Data Paper, the names of the authors, the year of publication, the journal name, and the article number.

Key words: 1964–2018; benthic invertebrates; benthic surveys; Dreissena; invasive species; Lake Ontario; long-term changes.


Manuscript received 26 January 2021; revised 14 May 2021; accepted 24 June 2021. Corresponding Editor: William K. Michener.
9 E-mail: burlakle@buffalostate.edu