

Search...



I WANT TO ▾

LOGIN / REGISTER

Meeting Home Program ▾ Presenters & Chairs ▾ Abstract Submission ▾ Registration ▾ EC & Students ▾ Just for Fun ▾ Travel & Hotels ▾

Organizers, Sponsors & Exhibits ▾



## Adapting to a Changing World

2-7 June 2024

Madison, Wisconsin USA



Times are displayed in (UTC-06:00) Central Time (US & Canada) [Change](#)

## ENVIRONMENTAL DRIVERS OF NIGHT VERSUS DAY ZOOPLANKTON POPULATION ESTIMATES IN LAKES AROUND THE WORLD

Zooplankton play vital roles in aquatic food webs by grazing on phytoplankton, which affects water quality, and transferring energy to higher trophic levels. In freshwater lakes, zooplankton commonly exhibit diel vertical and horizontal migration. During the day, zooplankton descend to deeper waters, or seek refuge in littoral areas or the sediment-water interface, to avoid visual predators, and then migrate to open water at night to feed. Consequently, zooplankton may exhibit higher density and biomass at night versus the day, and estimates and perceptions of zooplankton dynamics can change with the time of day sampling occurs. To better understand these diel zooplankton differences and their environmental drivers, we conducted a standardized global campaign to sample crustacean zooplankton in the full water column at day and night in the pelagic zone of 40 lakes. The lakes spanned a gradient in trophic state, size, and other variables such as dissolved oxygen (DO). Mesotrophic and eutrophic lakes exhibited greater zooplankton biomass at night versus day while oligotrophic lakes did not. Crustacean zooplankton had higher biomass at night versus day in lakes at lower elevation, with higher chlorophyll *a* concentration, and lower hypolimnetic DO levels. Lake area and depth were not related to diel zooplankton density or biomass. We provide one of the first global, standardized studies on environmental drivers of day versus night zooplankton population estimates. This study has important ramifications for our understanding of zooplankton ecology and for sampling regimens.

## ENVIRONMENTAL DRIVERS OF NIGHT VERSUS DAY ZOOPLANKTON POPULATION ESTIMATES IN LAKES AROUND THE WORLD

Scientific Sessions > SS17 - Data-Intensive Research Builds Understanding of Aquatic Ecosystem Responses to Change at Regional to Global Scales

**Time:** 04:15 PM  
**Date:** 4/6/2024  
**Room:** Hall of Ideas I

**Primary Presenter:** Jonathan Doubek, Lake Superior State University ([jdoubek@lssu.edu](mailto:jdoubek@lssu.edu))

**Authors:**

Sadye Goldfarb, Trinity College Dublin  
([skgoldfarb@gmail.com](mailto:skgoldfarb@gmail.com))

Jonathan Doubek, Lake Superior State University  
([jdoubek@lssu.edu](mailto:jdoubek@lssu.edu))

Ana Antão-Geraldes, Instituto Politécnico de Bragança  
([geraldes@ipb.pt](mailto:geraldes@ipb.pt))

Xavier Armengol, Universidad de Valencia  
([Javier.Armengol@uv.es](mailto:Javier.Armengol@uv.es))

Lidia Avilés-Vargas, Instituto Tecnológico de Costa Rica  
([lidiav804@gmail.com](mailto:lidiav804@gmail.com))

Mireia Bartrons, University of Vic – Central University of Catalonia ([mireia.bartrons@uvic.cat](mailto:mireia.bartrons@uvic.cat))

Gökben Başaran Kankılıç, Kırıkkale University  
([gokbenbasaran@gmail.com](mailto:gokbenbasaran@gmail.com))

Stella Berger, Leibniz Institute of Freshwater Ecology and Inland Fisheries (IGB) ([stella.berger@igb-berlin.de](mailto:stella.berger@igb-berlin.de))

Zach Bess, University of Nevada, Reno  
([zabess@ucdavis.edu](mailto:zabess@ucdavis.edu))

Jennifer Brentrup, Minnesota Pollution Control Agency  
([jennifer.brentrup@state.mn.us](mailto:jennifer.brentrup@state.mn.us))

Sandra Brucet, University of Vic – Central University of Catalonia and Catalan Institution for Research and Advanced Studies ([sandra.brucet@uvic.cat](mailto:sandra.brucet@uvic.cat))

Denise Bruesewitz, Colby College ([dabruese@colby.edu](mailto:dabruese@colby.edu))

Sarah Burnet, University of Idaho and US Army Corps of Engineers ([shburnet@gmail.com](mailto:shburnet@gmail.com))

Maria Calderó-Pascual, Dundalk Institute of Technology  
([maria.caldero@uvic.cat](mailto:maria.caldero@uvic.cat))

Cayelan Carey, Virginia Tech ([cayelan@vt.edu](mailto:cayelan@vt.edu))

Sudeep Chandra, University of Nevada, Reno  
([sudeep@unr.edu](mailto:sudeep@unr.edu))

Rosaura Chapina, University of Vermont  
([Rosaura.Chapina@uvm.edu](mailto:Rosaura.Chapina@uvm.edu))

Elvira de Eyto, Marine Institute ([elvira.deeyto@marine.ie](mailto:elvira.deeyto@marine.ie))

Şeyda Erdoğan, Yozgat Bozok University  
([erdogan.seyda@gmail.com](mailto:erdogan.seyda@gmail.com))

Oxana Erina, Lomonosov Moscow State University  
([erina.oxn@gmail.com](mailto:erina.oxn@gmail.com))

Stephanie Figary, University of Vermont  
([sef92@cornell.edu](mailto:sef92@cornell.edu))

Gretchen Gerrish, UW Madison Trout Lake Station  
([ggerrish@wisc.edu](mailto:ggerrish@wisc.edu))

Lucas Glass, Lake Superior State University  
([lglass@lssu.edu](mailto:lglass@lssu.edu))

Brett Johnson, Colorado State University  
([Brett.Johnson@colostate.edu](mailto:Brett.Johnson@colostate.edu))

Martin Kainz, WasserCluster Lunz – Biological Station  
([martin.kainz@donau-uni.ac.at](mailto:martin.kainz@donau-uni.ac.at))

Anthony Kalingali, Tanzania Fisheries Research Institute  
(TAFIRI) ([anthonykalingali@tafiri.go.tz](mailto:anthonykalingali@tafiri.go.tz))

Samiullah Khan, University of Otago  
([sami.khan@postgrad.otago.ac.nz](mailto:sami.khan@postgrad.otago.ac.nz))

Ismael Kimirei, Tanzania Fisheries Research Institute  
(TAFIRI) ([ismaelkimirei@tafiri.go.tz](mailto:ismaelkimirei@tafiri.go.tz))

Barbara Leoni, University of Milano–Bicocca  
([barbara.leoni@unimib.it](mailto:barbara.leoni@unimib.it))

Fabio Lepori, University of Applied Sciences and Arts of  
Southern Switzerland ([fabio.lepori@supsi.ch](mailto:fabio.lepori@supsi.ch))

Valerie McCarthy, Dublin City University  
([valerie.mccarthy@dcu.ie](mailto:valerie.mccarthy@dcu.ie))

Veronica Nava, University of Milano–Bicocca  
([veronica.nava@unimib.it](mailto:veronica.nava@unimib.it))

Jens Nejtgaard, Leibniz Institute of Freshwater Ecology and  
Inland Fisheries (IGB) ([jens.nejtgaard@igb-berlin.de](mailto:jens.nejtgaard@igb-berlin.de))

Žiga Ogorelec, National Institute of Biology  
([ziga.ogorelec@nib.si](mailto:ziga.ogorelec@nib.si))

Catherine O'Reilly, Illinois State University  
([cmoreil@ilstu.edu](mailto:cmoreil@ilstu.edu))

William Pate, Colorado State University  
([wm\\_pate@hotmail.com](mailto:wm_pate@hotmail.com))

Michael Paterson, IISD–Experimental Lakes Area  
([mpaterson@iisd-ela.org](mailto:mpaterson@iisd-ela.org))

Lorena Pinheiro–Silva, University of Maryland and University  
of Missouri–Columbia ([lorena.biuni@gmail.com](mailto:lorena.biuni@gmail.com))

Qianlinglin Qiu, Chinese Academy of Sciences  
([llqq@iue.ac.cn](mailto:llqq@iue.ac.cn))

David Richardson, State University of New York at New Paltz  
([richardsond@newpaltz.edu](mailto:richardsond@newpaltz.edu))

James Rusak, Ontario Ministry of the Environment and  
Queen's University ([Jim.Rusak@ontario.ca](mailto:Jim.Rusak@ontario.ca))

Douglas Silver, Colorado State University  
([DUGAG@AOL.COM](mailto:DUGAG@AOL.COM))

Dietmar Straile, University of Konstanz ([dietmar.straile@uni-konstanz.de](mailto:dietmar.straile@uni-konstanz.de))

Erin Suenaga, University of Nevada, Reno  
([esuenaga@unr.edu](mailto:esuenaga@unr.edu))

Barbara Tartarotti, University of Innsbruck  
([barbara.tartarotti@uibk.ac.at](mailto:barbara.tartarotti@uibk.ac.at))

Ülkü Nihan Tavşanoğlu, Çankırı Karatekin University  
([unyazgan@gmail.com](mailto:unyazgan@gmail.com))

Maria Tereshina, Lomonosov Moscow State University  
([martereshina@yandex.ru](mailto:martereshina@yandex.ru))

Gerardo Umaña-Villalobos, Universidad de Costa Rica  
([gerardo.umana@ucr.ac.cr](mailto:gerardo.umana@ucr.ac.cr))

Tim Walles, Leibniz Institute of Freshwater Ecology and  
Inland Fisheries (IGB) ([tim.walles@gmail.com](mailto:tim.walles@gmail.com))

Heather Wander, Virginia Tech ([hwander@vt.edu](mailto:hwander@vt.edu))

Wayne Wurtsbaugh, Utah State University  
([wayne.wurtsbaugh@usu.edu](mailto:wayne.wurtsbaugh@usu.edu))

Yaoyang Xu, Chinese Academy of Sciences  
([yyxu@iue.ac.cn](mailto:yyxu@iue.ac.cn))

Vyacheslav Zhikharev, Lobachevsky State University  
([slava.zhikharev@bk.ru](mailto:slava.zhikharev@bk.ru))

Jason Stockwell, University of Vermont  
([jason.stockwell@uvm.edu](mailto:jason.stockwell@uvm.edu))