

# ZooSize

## *Crustacean zooplankton community size distributions across a worldwide set of freshwater lakes*

The data call for ZooSize consists of:

- (1) collaboration guidelines (CollaborationGuidelines\_ZooSize.pdf) [this document]
- (2) data sharing form (LakeName\_ZooSize.xlsx)

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### **A. DATA PROVIDERS INSTRUCTIONS**

Dear GLEON members and interested participants,

Thank you for your interest and willingness to contribute data to the [ZooSize project](#). In short, ZooSize aims to get well represented individual crustacean zooplankton body length measurements for freshwater lakes across global lake thermal regions to gain insights on the following fundamental research question:

### **HOW DO SIZE DISTRIBUTIONS OF CRUSTACEAN ZOOPLANKTON COMMUNITIES DIFFER ACROSS THE GLOBE AND HOW ARE THEY INFLUENCED BY BOTTOM-UP AND TOP-DOWN PROCESSES?**

Data requirements consist of full community **individual crustaceans' zooplankton body length measurements** (NOT taxa averages). We are looking for communities from PERMANENT freshwater lakes or reservoirs (minimum water body surface area of  $0.1 \text{ km}^2 = 10 \text{ ha}$ ). Eventually, we aim to get a well-represented snapshot of water bodies situated in different thermal regions (see graph below). Therefore, we only require **ONE "mid-summer" sample**<sup>1</sup>. To homogenise as much as possible the seasonal fluctuations among sites and within data providers that have long-term data, we define "mid-summer" as the time of the year with the peak in zooplankton biomass and/or species diversity during summer stratification period (if any). If unknown, you can take a sample during the peak in surface water temperature. Do NOT share samples close to any

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<sup>1</sup> For this first stage we do not want to focus on changes in long-term datasets. If interested in providing longer-term dataset contact the [ZIG project](#) champions. We are coordinated with them and part of the ZIG Data Harmonization team. If you are already a ZIG data provider, have provided zooplankton individual lengths, and are interested in the ZooSize project, please let us know so we can further work with the provided data from the more extensive ZIG data call request.

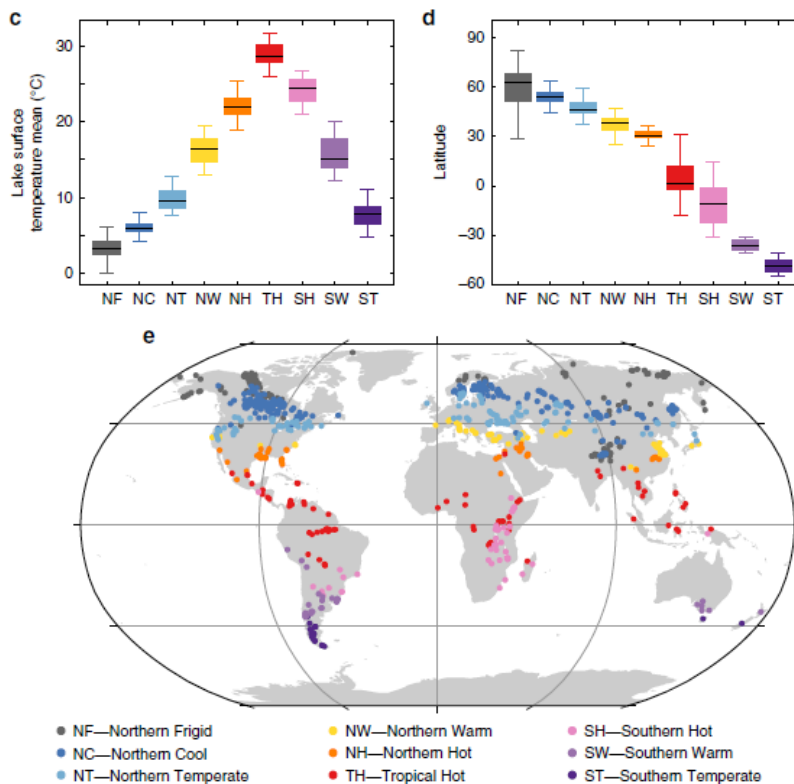
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extreme climatic disturbance events. Data providers must choose the best high-quality data available for the targeted system and with preference for recent years (i.e., since 2010). There is also the possibility to carry out a new sampling campaign specific for this project.

**EXTRA:** If some data providers have enough available data, we aim to get at most 3 more samples representing:

1. OR seasonal variability (same year):
  - a. Mid-winter, mid-spring, mid-autumn
  - b. Mid-wet, mid-dry
2. OR if there were strong modifications in the lake (different years):
  - a. fish, no-fish
  - b. pre- and post- species invasion
  - c. pre- and post- eutrophication or re-oligotrophication...



#### Thermal Regions:

Figure taken from Maberly et al., 2020  
Nature Communications:  
<https://doi.org/10.1038/s41467-020-15108-z>

Northern Frigid  
Northern Cool  
Northern Temperate  
Northern Warm  
Northern Hot  
Tropical Hot  
Southern Hot  
Southern Warm  
Southern Temperate

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We will use data measured by microscope in a first step, but the data call is also fitted for other methods (e.g., Flowcam, optical plankton counter), as there are other interesting questions we can answer with diverse methods. Our goal is to obtain sample data with at least 200 total individual length measurements OR at least 20 individual length measurements per dominant taxa. In case your existing zooplankton measurement protocol does not reach these numbers, we ask you to specify the total target number of individuals measured per sample (target\_count\_by\_sample) and/or the targeted number of individuals measured per taxa (target\_count\_by\_taxa) in the sheet “2. Metadata”, lines 19-20 (see spreadsheet template file LakeName\_ZooSize.xlsx attached). Furthermore, for both the abundance and measurement data (on sheets “4. Zoo counts” and 5. “Zoo size”, respectively), we ask that you differentiate between copepodites and nauplii life stages (only when data are available or if a new campaign is carried out for this project: no need to go back to the sample if it has already been processed). Additionally, to relate crustacean zooplankton size distributions with bottom-up and top-down processes, we aim to get associated limnological data from the targeted site (see “3. Limnodata” sheet in the data call). Finally, in sheet “6. Additional information”, we ask that, if possible, you provide a photo identifying how each taxa or functional group<sup>2</sup> was measured for length, so we are aware of potential protocol differences (e.g., measurements including vs excluding helmets of *Daphnia*).

To be a Data Provider, please fill in the different tabs of the **LakeName\_ZooSize.xlsx** spreadsheet template with data from your system, and send the excel document back to us **by email**. Find attached a filled template for Lough Feeagh (Feeagh\_ZooSize.xlsx) so you have an example of how to fill this data call.

We aim to receive all datasets by **December 2021**. For data providers considering collecting new data in the upcoming summer the deadline will be extended until the end of September 2022. In the meanwhile, we will keep working on the manuscript design and having regular meetings to keep discussing and developing the project (see project [timeline](#)). Please, share this document with other potential interested participants and colleagues that you may think could be involved. Let us also know if you have any questions or think we should improve or clarify any aspects.

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<sup>2</sup> If all taxa are measured the same way within a functional group, e.g. all copepod length measurements were made from the tip of the cephalothorax to the caudal urosome excluding the furcal rami, please provide a representative photo of the functional group.

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### **B. DATA SHARING POLICY**

[ZooSize project](#) started at the virtual GLEON21.5 meeting in October 2020. Therefore, any manuscripts published by this group must [acknowledge the GLEON](#) community and send a copy of the manuscripts to GLEON. A suggested short acknowledgment in a paper might be:

*“This work benefited from participation in or use of the Global Lake Ecological Observatory Network (GLEON).”* On a slide for a meeting, it might be appropriate to simply list the GLEON acronym or one of the logos where you acknowledge your other collaborators or organizations. ZooSize project will not share data without permission from the data contributor and expects all participants to follow the [GLEON Data Policy](#):

- The Data User realizes that these data sets are being actively used by others for ongoing research and that communication and coordination is necessary to prevent duplicate publication. The Data User also realizes that the data may be misinterpreted if taken out of context. Data are being collected by scientists in academic and other research organizations with the requirement to publish scientific papers. The Data User therefore **agrees to contact the responsible person for each GLEON site** to check on other uses of the data, receive information on data, and discuss collaboration and/or co-authorship.
- **Acknowledgement:** Consistent with the GLEON principle of acknowledgement and attribution (GLEON OPP Paragraph 4), use of the data in publications should include co-authorship and/or acknowledge the GLEON project as well as the responsible person and institution including institutional support or specific funding awards referenced in the metadata or given by the person responsible for the GLEON site. A generic citation for our databases is: <name of data set>, Global Lake Ecological Observatory Network (<http://www.gleon.org>), GLEON, <contact person for data set and Institution >.
- **Acceptable use:** Use of the dataset will be restricted to academic, research, educational, government, recreational, or other not-for-profit professional purposes. Any other uses for the Data Set or its derived products will require explicit permission from the dataset owner.
- The Data User agrees to notify the responsible person for the GLEON site when any derivative work or publication based on or derived from the Data Set is distributed. The Data User is requested and encouraged to send two reprints (or a pdf) of any publications resulting from use of the data to the responsible person for the GLEON site and to the GLEON Program Coordinator (Marilyn Larsen, GLEON Program Coordinator, Centre for Limnology, University of Wisconsin-Madison, 680 North Park St., Madison, WI 53706, [mlarsen2@wisc.edu](mailto:mlarsen2@wisc.edu)). We would like to include such manuscripts in our GLEON publications list.
- **The Data User agrees not to redistribute original data and documentation without permission from the responsible person for each GLEON site or in a manner in agreement with the site policy.**

\*Before submitting the developed manuscript, provided data will be made available in a public repository such as [EDI Data Portal](#)\*

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#### **C. CO-AUTHORSHIP GUIDELINES**

ZooSize project champions will be the main authors of the developed manuscript (co-first authorship). Identified champions expect that all co-authors will contribute significantly to the process of publishing a ZooSize manuscript. All co-authors must sign up on the [google spreadsheet](#) to indicate the ways in which they will contribute. If a co-author believes they have contributed more than the champions during the development of the manuscript, they are welcome to propose themselves as new potential main authors.

#### **To secure authorship, all co-authors are required to contribute by**

(1) Significantly engaging in at least ONE of the following aspects:

\*You can be a co-author without being a data provider

- a) Conceiving the idea for the study
  - b) Contributing to the literature review process
  - c) Designing the manuscript
  - d) Data contribution
  - e) Data analysis
  - f) Drafted figures
  - g) Leadership
- 2) Reading and explicitly approving the final version of the manuscript

Project champions will organize meetings and send emails to all interested participants at various stages of the ZooSize project to keep everyone updated, moving forward, and make sure all co-authors are being provided opportunities to contribute to the final manuscript product. Let us know if you want us to remove or add your name in the [email list](#).

#### **D. PROJECT CHAMPIONS CONTACT**

Thanks a million for your help and interest. We are looking forward to working with you and learning more about crustacean zooplankton size distributions worldwide!

Sincerely, *ZooSize project champions.*

- Lauren Barth – [lauren.barth@mail.utoronto.ca](mailto:lauren.barth@mail.utoronto.ca)
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