

# Abstracts of the 25th International Diatom Symposium

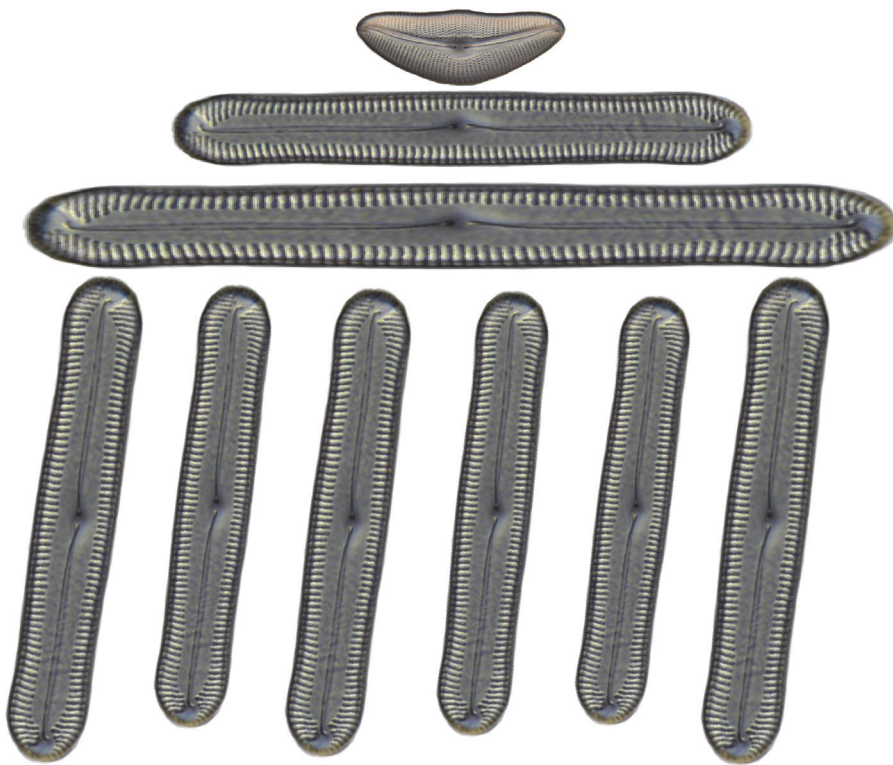
Berlin 25–30 June 2018



Freie Universität  Berlin

Botanic Garden and Botanical Museum Berlin, Freie Universität Berlin

Abstracts of the  
25th International Diatom Symposium  
Berlin 25–30 June 2018 – Botanic Garden and Botanical Museum Berlin  
Freie Universität Berlin





Published by BGBM Press  
Botanic Garden and Botanical Museum Berlin  
Freie Universität Berlin

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ISBN 978-3-946292-27-2

doi: <https://doi.org/10.3372/ids2018>

Published online on 25 June 2018 by the Botanic Garden and Botanical Museum Berlin, Freie Universität Berlin – [www.bgbm.org](http://www.bgbm.org)

CITATION:

Kusber W.-H., Abarca N., Van A. L. & Jahn R. (ed.) 2018: Abstracts of the 25th International Diatom Symposium, Berlin 25–30 June 2018. – Berlin: Botanic Garden and Botanical Museum Berlin, Freie Universität Berlin. doi: <https://doi.org/10.3372/ids2018>

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Front cover: IDS 2018 Logo by N. Abarca; back cover: images of living diatoms by O. Skibbe

## How do newly-described diatom species affect biomonitoring? – An example of *Gomphonema paratergestinum* vs. *G. tergestinum*

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Over the past decade a great number of new diatom taxa have been described, as well as many re-definitions and delimitations of taxa from different species complexes. The reasons for the constant increase in the number of described diatom taxa are numerous: unexplored habitats, improved light microscope resolution and digital cameras with accompanying softwares, scanning electron microscopy, and molecular studies. For most of the newly-described species, only morphological characteristics are known. What about their ecological preferences?

OMNIDIA is a widely-used software for evaluation of ecological status of water bodies based on diatoms. The database from the first version of the software up to today has grown from 2035 to more than 23.000 diatom taxa. However, for the most newly-described taxa there are no indicator values.

In our study, we evaluated the ecological status at six sites in Lakes Ohrid and Prespa, respectively, based on different biological quality elements (diatoms, macrozoobenthos and macrophytes) as well as water chemistry. In two out of six sites in lake Ohrid, and five out of six sites in lake Prespa, *Gomphonema paratergestinum* Levkov & al. was a dominant or subdominant species (33.5-69.66% in Ohrid Lake and 9.95-65.34 % in Prespa Lake). In the OMNIDIA software, there currently are no indicator values for *G. paratergestinum*. However, the very similar species *G. tergestinum* (Grunow) Fricke has well known indicator values. *G. paratergestinum* resembles *G. tergestinum* with respect to some morphological characteristics (e.g. valve outline), but can be differentiated by the stria density. Both species were present in Lakes Ohrid and Prespa, however, with dominance by *G. paratergestinum*. Based on the diatoms recorded at a site, OMNIDIA calculates diatom index values. How could *G. paratergestinum* with abundances up to 69.66% influence diatom indices? If we “experiment” and substitute *G. paratergestinum* with *G. tergestinum*, the obtained diatom index values indicated a completely different ecological quality class.

Every newly-described species is important since it increases our knowledge about diversity, biogeography and distribution of diatoms. However, there still is a gap between taxonomy and biomonitoring. How can we overcome this problem? According to the International Code of Nomenclature for algae, fungi, and plants no note or suggestion regarding ecology or ecological preferences of a species is required for description. Perhaps a possible solution could be that in the description of the species, ecological data, such as pH, conductivity, total phosphorus, concentrations of different anions etc. should be included. Scientists today could join forces to review material and species collected by Kützing, Ehrenberg, Grunow, Van Heurck, Cleve etc. In the same way, ecological data of newly-described species could be assembled and their indicator values calculated.

Project: “Assessment of ecological status according to the Water Framework Directive – intercalibration among W-Balkan countries”, funded by Norwegian Ministry of Foreign Affairs (No RER-14/0008).