

7th Nordic-Baltic diatom intercalibration/harmonization exercise 2024

Dear Nordic-Baltic diatom colleagues!

(please spread the letter to anybody in our region who might be interested)

Please feel invited to the sixth Nordic-Baltic diatom intercalibration/harmonization exercise. For those unfamiliar with the previous exercises in 2007, 2009, 2011, 2013, 2016 and 2020, please check the webpage <http://www.norbaf.net> for information on the results.

The intercalibration is organized by NorBAF (Nordic Network - Benthic Algae in Freshwater, www.norbaf.net) and the Department of Aquatic Sciences and Assessment, SLU (Swedish University of Agricultural Sciences, <http://www.slu.se/vatten-miljo>).

It is important to harmonize the diatom identification among the Nordic-Baltic diatomists in order to improve comparisons between different diatom studies, especially as diatom monitoring has increased because of the Water Framework Directive. Based on the experience from the activities in former years, the NorBAF participants agreed to continue with diatom intercalibrations every ~ 3rd to 4th year. SWEDAC (Swedish Board for Accreditation and Conformity Assessment) and SYKE (Finnish Environment Institute) are informed about our activities and the participation of Swedish and Finnish laboratories and consultants.

The diatom intercalibration 2024 will be performed as follows:

1. All participants will receive two diatom samples, all untreated. The participants will have to prepare own slides.
2. Preparation, identification and enumeration of the diatoms will follow the Swedish Standard method using diatoms for environmental monitoring ('Påväxt i sjöar och vattendrag – kiselalgsanalys'. In: Handledning för miljöövervakning: Sötvatten, Version 4:2: 2016). Read (translate) especially "4.4 Tillvaratagande av prov och analysmetod". Download method at <https://www.havochvatten.se/download/18.401cc56e183f611641ce098a/1667473582052/overvakningsmanual-pavaxt-i-sjoar-och-vattendrag-kiselalgsanalys.pdf>.
3. Diatom preparation according to Amelie Jarlman, 2007: <https://www.slu.se/en/departments/aquatic-sciences-assessment/laboratories/biodiversity-laboratory/Diatoms/diatom-preparation/>
4. A short English description about how Sweden is using diatoms, including a link to an English description of diatom preparation, can be found here: <https://www.slu.se/en/departments/aquatic-sciences-assessment/laboratories/biodiversity-laboratory/Diatoms/>
5. Find info about NorBAF-agreed solutions on how to identify challenging taxa groups at the NorBAF homepage: www.norbaf.net
6. The Swedish Standard taxa list **and** the standard format **must** be used when reporting results.
 1. The taxa list is found here (please only use the "accepted" taxa when reporting results): <http://miljodata.slu.se/mvm/DataContents/Omnidia>
 2. The standard format to add the found taxa is found at https://www.slu.se/globalassets/ew/org/inst/vom/datavardskap/dataleveranser/kiselalger_mall_20180405.xlsx

Reporting in standard format: Use sheet "Dataleverans", and there the columns AH (year of analysis), AL (your Norbaf-intercalibration ID number), AM (the ID of the sample), then copy from taxa-file (see above) the following for each counted taxon in the following columns: AN (Omnidia-code), AO (Dyntaxa-code), AP (name), AQ (author of name). Then use column AU to give the total count of valves of this taxon, AV to give the number of counts you are not sure about of this taxon (cf.), AW-BA to give the number of deformed valves of this taxon (see more under point 7), BB for the mean width of 10-20 ADMI (see below), BC if the taxon just was seen in an overview, but not counted within the 400 valves, and BG if you have a comment.

Taxa list important information: **Use ONLY taxa which are noted as "accepted" in column B.** If you find a taxon not included in the list, please check FIRST in the list of synonyms. Even if this taxon might have a more current name taxonomically, it is important that you use the accepted name given in the Swedish taxa list to be able to compare results. Welcome to add comments regarding such taxa in column BG. In case you think the taxon is a new species not included in the Swedish standard taxon list at all please use the genus name & code to add the taxon. Then add in the column BG a short description incl. measurements of the valve length, width, and striae density, and any other explanations on why you did not use an accepted name. Furthermore, take a picture, and send pictures and sizes to the data host anders.stehn@slu.se for eventual inclusion to the Swedish list in the next revision.

Note that the taxa list also includes rare taxa. Please make sure that you check all your identified taxa carefully, especially when you find it noted as rare in the literature. In case of doubt, please use the column (AV) in the sheet "Dataleverans" of the standard format to note the number of valves that you decide to add as "cf."

Please also note that it is not required to identify all varieties/species of the *Achnantheidium minutissimum* group with the exception of *Achnantheidium gracillimum* Lange-Bertalot and *Achnantheidium caledonicum* Lange-Bertalot. However, it is necessary to measure the width of 10-20 valves, calculate the **mean** width of those and define by this the size group of *Achnantheidium minutissimum*. Note the average width in column BB.

Use column BC to note a taxon seen after completed counting.

7. The counts will be evaluated according to Kelly (2001). The results of each participant will be compared with the results of three auditors, familiar with the Swedish Standard method and the Nordic flora (Irène Sundberg, Senior miljökonsult, Medins Havs och Vattenkonsulter AB – part of Sweco, Eva Herlitz, Research Engineer, SLU, and Prof. Dr Bart Van de Vijver, Meise Botanic Garden, Belgium).
8. Please note also in the column AW how many valves are deformed. This exercise will be used to evaluate the uncertainty of the Swedish method to count deformed valves. Please separate deformations into the categories 'slightly deformed outline' (column AX), 'strongly deformed outline' (column AY), 'slightly deformed structure' (column AZ) and 'strongly deformed structure' (column BA) for each taxon you find. For examples and pictures of deformed valves, see report: <https://www.diva-portal.org/smash/get/diva2:696189/FULLTEXT01.pdf>
9. All results will be published on NorBAFs homepage. The participants can choose if they wish to be published with name or anonymously. General information on the dominant taxa and most common errors will be published, with photos, on the NorBAF homepage.
10. The results will be discussed during a workshop held at Norr Malma field station, Lake Erken, 21-22 January 2025. All participants are invited to participate and discuss the results, and also discuss solutions to problematic taxa groups. We will also discuss new literature and taxonomical research. You are welcome to bring own samples, or pictures, if you wish. The workshop at the field station will be devoted to the intercalibration samples, and to advanced discussions of diatom identification and taxonomy.
11. To discuss more basic questions of diatom counting & identification related to the results, we will organize an online workshop 17 January 2025.
12. The costs for the intercalibration exercise will be about 300 Euro excl. VAT, including the workshop. More details will be specified later.

Deadlines:

- Before 15 December 2023 – Announcement of participation and address (to which the samples will be sent) to Maria Kahlert (maria.kahlert@slu.se).
- January 2024 – Samples will be sent to the participants
- 30 June 2024- Results must be sent to: Maria Kahlert (maria.kahlert@slu.se). Do not forget to add your Norbaf-intercalibration ID number in column AL.

Kind regards,

Maria Kahlert, NORBAF network coordinator

Reference:

Kelly, M. (2001): Use of similarity measures for quality control of benthic diatom samples. *Wat. Res.* Vol. 35 (11), 2784-2788