

about me: I am a molecular biologist and aquatic ecologist by training, with a passion for mountains and the ocean. I enjoy exploring ecosystems, both through data and in real life. As a curious and open-minded individual, I highly value diverse perspectives and thrive in team settings.

education & industry experience

- Nov 2023 – Dec 2024** **Laboratory & Project Manager at SimplexDNA, Switzerland**
pioneering eDNA-biodiversity monitoring that links to sustainable finance
- Jun 2023 – Nov 2023** **Scientific collaborator with the IndoOcean Project in Nusa Penida, Indonesia**
(Unpaid role). Review of biomonitoring methods for the implementation of an MPA in Bira
- Mar 2019 – May 2023** **PhD at the Swiss Federal Institute for Aquatic Science & Technology (Eawag) and University of Zurich (UZH), Title: "Characterization of Bioindicator Groups in Aquatic Ecosystems: Monitoring or Setting Trends with Environmental DNA?"**
supervised by Prof. Dr. Florian Altermatt
- Sep 2016 – Jun 2018** **MSc in Biology, Swiss Federal Institute of Technology Zurich (ETH)**
Master of Science with specialization in ecology & evolution
- Nov 2016** **Master project at the WSL (Federal Research Institute for Forest, Snow and Landscape, Switzerland)**
Research assistant for the project "Effects of long- and short-term mercury contamination on the earthworm microbiome"
- Nov 2016** **Master project at the Mériscope (Marine Research Station in the St. Lawrence Estuary, Québec, Canada)**
Field assistance, assessing benthic communities in the intertidal zone and processing mink whale biopsies
- Sep 2013 – Aug 2016** **BSc in biology, Swiss Federal Institute of Technology Zurich (ETH)**
Bachelor of Science with specialization in molecular and cell biology

scientific presentations

outreach & presentations

BAFU Workshop "Qualitäts-und Eichworkshop", Dübendorf, November 2022, demonstration of eDNA sampling and concept for NAWA campaign 2023

Outreach presentation, Natural History Museum, October 2022, Title: "Monitoring bioindicators in Swiss rivers using eDNA "oral presentation

Eawag PhD Symposium, Dübendorf Eawag, October 2022, Title: "Monitoring bioindicators in Swiss rivers using eDNA "oral presentation

Scientific Conference, Limnological Society of Germany, September 2022. Title: "Monitoring of bioindicators in Swiss rivers using eDNA"

Scientific Conference, World Biodiversity Forum, June 2022. Title: "Detecting bioindicators in freshwater systems by environmental DNA"

Scientific Workshop on DNA-based Analyses of Biodiversity in Nature Conservation, June 2022. Title: "What options do we have for standardisation?"
Workgroup: Laboratory processing and data analysis

Invited Talk, Round table for the Monitoring of Macroinvertebrates, Mai 2022. DNA-based methods in the Swiss Water Quality Monitoring organised by the Federal Office of the Environment (FOEN), progress report on NAWA TREND

Scientific Symposium, Molecular Diagnostics, Kinderspital Zurich, August 2022. Title "DNA traces from the environment show what the eye can't see",

Outreach presentation, Seminar of the Naturalist Society, Grison, April 2022. Title "Genetic traces in Swiss waters; environmental DNA in research and application", oral presentation

GDC Symposium, online, Title: "Ecological assessment of Swiss rivers using eDNA for the monitoring of macroinvertebrates", oral presentation

Twitter-Seminar of the British Ecological Society, September, online, July 2021. Title: "Environmental DNA is comparable to morphology-based indices of macroinvertebrates in a large-scale ecological assessment", oral presentation at the Symposium of European Freshwater Science

Scientific Conference, UKDNA Working Group Conference, London, 2020, Title "Detection of freshwater pond diversity facing eutrophication using environmental DNA monitoring", poster presentation

scientific publications

- first authorship** **Brantschen J**, Fopp F, Adde A, Guisan A, Keck F, Pellissier L, Altermatt F. (2024). Habitat suitability models reveal the spatial signal of environmental DNA in riverine networks. *Ecography*.
- Brantschen J**, and Altermatt F. (2024). Contrasting strengths of eDNA and electrofishing compared to historic records for assessing fish community diversity and composition. *Canadian Journal of Fisheries and Aquatic Sciences*.
- Brantschen J**, Pellissier L, Walser JC, Altermatt F. (2022). Evaluation of primer pairs for eDNA-based assessment of Ephemeroptera, Plecoptera, and Trichoptera across a biogeographically diverse region. *Environmental DNA*. 00, 1–13.
- Brantschen J**, Blackman RC, Walser JC, Altermatt F. (2021). Environmental DNA gives comparable results to morphology-based indices of macroinvertebrates in a large-scale ecological assessment. *PLOS ONE* 16(9): e0257510.
- Brantschen J**, Gygax S, Mestrot A, Frossard A. (2020). Soil Hg Contamination Impact on Earthworms' Gut Microbiome. *Applied Sciences* 10(7):2565.
- collaborations** Blackman, R, Couton, M, Keck, F, Kirschner, D, Carraro, L, Cereghetti, E, Perrelet, K, Bossart, R, **Brantschen, J**, Zhang, Y, & Altermatt, F. (2024). Environmental DNA: The next chapter. *Molecular Ecology*, 33, e17355. <https://doi.org/10.1111/mec.17355>
- Blackman, RC, **Brantschen, J**, Walser, J.-C., Wüthrich, R, & Altermatt, F. (2022). Monitoring invasive alien macroinvertebrate species with environmental DNA. *River Research and Applications*, 38(8), 1400–1412.
- Keck, F, Blackman, RC, Bossart, R, **Brantschen, J**, Couton, M, Hürlemann, S, Kirschner, D, Locher, N, Zhang, H & Altermatt, F. (2022). Meta-analysis shows both congruence and complementarity of DNA and eDNA metabarcoding to traditional methods for biological community assessment. *Molecular Ecology*, 31, 1820–1835.
- Blackman, RC & Osathanunkul, M, **Brantschen, J**, Di Muri, C, Harper, L, Mächler, E, Hänfling, B, & Altermatt, F. (2021). Mapping biodiversity hotspots of fish communities in subtropical streams through environmental DNA. *Scientific Reports*, 11.
- Blackman, RC, Walser, J-C, Rüber, L., **Brantschen, J**, Villalba, S., Brodersen, J., Seehausen, O., & Altermatt, F. (2023). General principles for assignments of communities from eDNA: Open versus closed taxonomic databases. *Environmental DNA*, 5(2), 326–342.
- Zong, S., **Brantschen, J.**, Zhang, X., Albouy, C., Valentini, A., Zhang, H., Altermatt, F. and Pellissier, L. (2023), Combining environmental DNA with remote sensing variables to map fish species distributions along a large river. *Remote Sens Ecol Conserv*. <https://doi.org/10.1002/rse2.366>
- Berezenko A, Altermatt F, **Brantschen J**, Ord, J., Pisano, S, Adrian-Kalchhauser I, Schmidt-Posthaus H. (2023). "Investigation of Proliferative Kidney Disease in fish at NAWA sampling sites using eDNA", report for the Federal Office of the Environment, collaboration of Eawag and the Fish and Wildlife Department, University of Bern.