

## Curriculum vitae

### MÜLLER BEAT, Ph.D.

Senior Scientist, Department of Surface Waters – Research and Management  
Eawag, Swiss Federal Institute of Aquatic Science and Technology, Kastanienbaum, Switzerland

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### EDUCATION

**Swiss Federal Institute of Technology (ETH) Zürich, and Swiss Federal Institute for Environmental Science and Technology, Eawag Dübendorf, Switzerland.** PhD in Natural Sciences. 1989.

**University of Zürich.** Postgraduate Course in Experimental Medicine and Biology, and medical research project at the Kinderspital Zürich. 1981-82.

**Swiss Federal Institute of Technology ETH Zürich.** Diploma in Chemistry, 1981.

### RESEARCH EXPERIENCE

**Eawag, Swiss Federal Institute of Aquatic Science and Technology,** Kastanienbaum, Switzerland. Department of Surface Waters – Research and Management. a.i. Head of Department 2005-06, 2008-09.

**Curtin University, Perth, Australia.** Adjunct Research Professor. 2008-12.

**University of Western Australia in Perth.** Honorary Research Fellow. 2007-08.

**Swiss Federal Institute of Technology (ETH) Zürich.** Lecturer Environmental Science. 1995-present.

**University of Auckland, New Zealand.** Honorary Research Fellow. 1994-95.

**Swiss Federal Institute of Technology (ETH) Zürich.** Lecturer for water chemistry courses in the graduate program. 1989-93.

### RESEARCH INTERESTS

- Chemical limnology of lakes and rivers. Process studies and systems analysis
- Behavior and transport of nutrients in intensely farmed catchments
- Analysis and modeling of early diagenetic processes in lake sediments
- Assessment and adaptation of chemical sensors in surface waters
- Modeling of chemical and physical processes at the sediment-water boundary in lakes
- Meteorological and climatic factors influencing the chemistry of surface waters
- Interaction of trace metals with natural particulate matter in aquatic systems
- Development of software for chemical modeling of thermodynamic equilibrium reactions

### COMMISSIONS AND WORKGROUPS

- IGKB, International Commission for the protection of Lake Constance.
- ASSAN, Scientific work group for the amelioration of lakes.
- Consultant for the Swiss Federal Office for the Environment (FOEN).

### ACADEMIC HONOURS

**Curtin University, Perth, Australia.** Adjunct Research Professor. 2008-12.

**University of Western Australia.** F. Mosey Visiting Fellowship Award. 2008.

**Swiss Federal Institute of Technology (ETH) Zürich.** Silver Medal for the thesis "On the Adsorption of Metal Ions on the Surface of Aquatic Particles". 1990.

## Peer-reviewed publications (since 2010)

The full list of publications is available from: Google Scholar  
<http://scholar.google.ch/citations?user=cKI6N-4AAAAJ&hl=de>

- J. Saiz, I.J. Koenka, C. Garcia-Ruiz, B. Müller, T. Chwalek, and P.C. Hauser (2015). A micro-injector for capillary electrophoresis. *Electrophoresis* 3. Doi: 10.1002/elps.201400589.
- M. Randlett, S. Sollberger, T. Del Sontro, B. Müller, J.P. Corella, B. Wehrli, and C. Schubert (2015). Mineralization pathways of organic matter deposited in a river-lake transition of the Rhone River Delta, Lake Geneva. *Environ. Sci.: Processes Impacts*, 17, 370-380. Doi: 10.1039/c4em00470a.
- W. Qi, H. Singer, M. Berg, B. Müller, B. Pernet-Coudrier, H. Liu, J. Qu (2015). Elimination of polar micropollutants and anthropogenic markers by wastewater treatment in Beijing, China. *Chemosphere* 119, 1054-1061.
- B. Müller, R. Gächter, and A. Wüest (2014). Accelerated water quality improvement during oligotrophication in peri-alpine lakes. *Environ. Sci. Technol.* 48, 6671-6677. Doi: 10.1021/es4040304.
- H. Zhang, B. Pernet-Coudrier, S. Wen, B. Müller, B. Shan (2014). Budget and fate of phosphorus and trace metals in a heavily loaded shallow reservoir (Shahe, Beijing City). *CLEAN – Soil, Air, Water* 41. Doi:10.1002/clen.201300231.
- N. T. Torres, L. M. Och, P. C. Hauser, G. Furrer, H. Brandl, E. Vologina, M. Sturm, H. Bürgmann, and B. Müller (2014). Early diagenetic processes generate iron and manganese oxide layers in the sediments of Lake Baikal, Siberia. *Environ. Sci.: Processes Impacts* 16, 879-889. Doi: 10.1039/c3em00676j.
- L. Och, B. Müller, A. Wichser, A. Ulrich (2014). Rare earth elements in the sediments of Lake Baikal. *Chem. Geol.* 367, 61-75. Doi: 10.1016/j.chemgeo.2014.03.018.
- W. Qi, B. Müller, B. Pernet-Coudrier, H. Singer, H. Liu, J. Qu, and M. Berg (2014). Organic micropollutants in the Yangtze River: seasonal occurrence and annual loads. *Sci. Tot. Environ.* 472, 789-799. Doi: 10.1016/j.scitotenv.2013.11.019.
- N. T. Torres, P. C. Hauser, G. Furrer, H. Brandl, and B. Müller (2013). Sediment porewater extraction and analysis combining filter tube samplers and capillary electrophoresis. *Environ. Sci.: Processes Impacts* 15(4), 715-720. DOI: 10.1039/C3EM00068K.
- B. Müller, L.D. Bryant, A. Matzinger, and A. Wüest (2012). Hypolimnetic oxygen depletion in eutrophic lakes. *Environ. Sci. Technol.* doi:10.1021/es301422r.
- L. Och, B. Müller, A. Voegelin, A. Ulrich, J. Goettlicher, R. Steiniger, S. Mangold, E. G. Vologina, and M. Sturm (2012). New insights into the formation and burial of Fe/Mn accumulations in Lake Baikal sediments. *Chem. Geol.* doi: 10.1016/j.chemgeo.2012.09.011.
- B. Müller, B. Pernet-Coudrier, M. Berg, W. Qi, HJ Liu (2012). The geochemistry of the Yangtze River: seasonality of concentrations and temporal trends of chemical loads. *Global Biogeochem. Cycles* 26, GB2028, doi:10.1029/2011GB004273.
- F. Heeb, B. Pernet-Coudrier, W. Qi, HJ. Liu, B. Müller, H. Singer, and M. Berg (2012). Mass fluxes of polar organic micropollutants in the Haihe River System downstream Beijing: example of a large-scale wastewater irrigation system driven by a megacity in a water-scarce area. *Environ. Sci. Technol.* 46(16), 8680-8688. doi:10.1021/es301912q.
- B. Pernet-Coudrier, W. Qi, H.J. Liu, B. Müller, and M. Berg (2012). Sources and pathways of nutrients in the semi-arid region of Beijing-Tianjin, China. *Environ. Sci. Technol.* 46(10), 5294-5301. doi:10.1021/es3004415.
- B. Müller, R. Gächter (2012). Increasing chloride concentrations in Lake Constance – Characterization of sources and estimation of loads. *Aquatic Sci.* 74/1, 101-112. doi:10.1007/s00027-011-0200-0.

T.D. Mai, S. Schmid, B. Müller, P.C. Hauser (2010): Capillary electrophoresis with contactless conductivity detection coupled to a sequential injection analysis manifold for extended automated monitoring applications. *Anal. Chim. Acta* 665, 1-6.

C.J. Schubert, F.S. Lucas, E. Durisch-Kaiser, R. Stierli, T. Diem, O. Scheidegger, and B. Müller (2010): Oxidation and emission of methane in a monomictic lake (Rotsee, Switzerland). *Aquatic Sci.* doi10.1007/s00027-010-0148-5.

A. Matzinger, B. Müller, P. Niederhauser, M. Schmid, and A. Wüest (2010). Hypolimnetic oxygen consumption by sediment-based reduced substances in former eutrophic lakes. *Limnol. Oceanogr.* 55/5, 2073-2084. doi:10.4319/l0.2010.55.5.2073.

## Book chapters

N. Pasche, F. Muvundja, M. Schmid, A. Wüest and B. Müller (2012). Nutrient cycling in Lake Kivu. In: *Lake Kivu: Limnology and biogeochemistry of a tropical great lake*, ed. J.P. Descy. *Aquatic Ecology Series 5*, doi 10.1007/978-94-007-4243-7\_3. Chapter 3, p. Springer Science+Business Media Dordrecht 2012.

## Consulting reports

Müller B. (2015): Beurteilung der Auswirkungen von SwissZinc auf die Konzentration von Chlorid und Sulfat in Fliessgewässern. Gutachten zu handen der Stiftung Zentrum für nachhaltige Abfall- und Ressourcennutzung (ZAR), Emmenspitz, Zuchwil.

Müller B. (2015): Prognostizierung des Sauerstoffbedarfs für den Baldeggersee. Gutachten zu handen des Kt. Luzern

Müller B. und A. Wüest (2013): Entwicklung der Sauerstoffzehrung im Hallwilersee. Gutachten zu handen des Kt. Aargau.

Müller B., L. Och und A. Wüest (2012): Entwicklung des Phosphorhaushalts und der Sauerstoffzehrung im Sempacher- und Baldeggersee. Uwe Luzern.

Müller, B., and M. Schmid (2009). Oxygen and Phosphorus Budgets of Murtensee, SEN Fribourg und SESA Vaud.

## Research Proposals

*Research proposals accepted by the Swiss National Science Foundation:*

Müller B., and M. Schmid (2012): Prediction of organic matter mineralization in lakes during re-oligotrophication. Accepted financing: 268'000.

Müller B., P.C. Hauser, G. Furrer, and H. Brandl (2011): Quantification of environmental effects on the weathering state of rock surfaces. Accepted financing: 172'000.

Müller B., A. Vögelin, and A. Ulrich (2009): Diagenetic evolution and mineral composition of Fe/Mn layers in the sediments of Lake Baikal. Accepted financing: 256'000.

Wüest A, P. Isumbisho, R. Ngendahayo, M. Schmid, F. Anselmetti, P. Spaak, B. Müller (2008). Lake Kivu: Learning from the past for managing its future, proposal for a research partnership with developing countries in 2009-2011. Accepted financing 400'000 CHF

Wüest A., and B. Müller (2008): Turbulence and fluxes in stratified natural waters. Accepted financing: 161'000.

Müller, B. (2007): Development and application of chemical sensors. Accepted financing: 3000.

Wüest A., and B. Müller (2006): Turbulence and fluxes in stratified natural waters. Accepted financing: 224'000.

Wüest A., and B. Müller (2004): Turbulence and fluxes in stratified natural waters. Accepted financing: 220'000.

Wüest A., and B. Müller (2002): Turbulence and fluxes in stratified natural waters. Accepted financing: 242'000.

Wehrli, B., B. Müller, and P. Reichert (2000): Calcite dissolution in lake sediments – dynamic modeling based on high-resolution profiles from ion-selective electrodes. Accepted financing: 182'000.

Hauser, P.C., B. Müller, and B. Wehrli (1997): Electrochemical sensor for dissolved methane and application in the high-resolution analysis of methane gradients in lake sediments. Accepted financing: 116'000.