

Dr. Lena Mutzner

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Languages: German, English, French, Spanish



EDUCATION

- 2015 – 2019
 Jan - Mar
PhD, Swiss Federal Institute of Technology (ETH Zurich) & Swiss Federal Institute of Aquatic Science and Technology (Eawag)
 Defense date: 20. March 2019
 Dissertation: Spatiotemporal variability of micropollutants in sewer overflows
 Supervisors: Prof. Dr. Max Maurer, Dr. Christoph Ort
- 2009 – 2012
 Sep - Aug
MSc in Environmental Engineering, ETH Zurich
 Specializations: Urban water management and Resource Management
 Supervisors: Prof. Dr. Eberhard Morgenroth
- 2005 – 2008
 Sep - Aug
BSc in Environmental Engineering, ETH Zurich

EMPLOYMENT

- 2022 – present
 Oct -
Tenure track Group Leader, Eawag, Switzerland
 Department of Urban Water Management
- 2020 - 2022
 Oct - Mar
SNSF Postdoctoral Fellow, Technical University of Denmark (DTU)
 Urban water systems group (Prof. Peter Steen-Mikkelsen, Dr. Luca Vezzaro)
 Research: Data-driven analysis and statistical modelling of trace contaminants in urban wet-weather discharges
- 2020
 May - Sep
SNSF Postdoctoral Fellow, Stanford University, USA
 Environmental Engineering department (Prof. Richard Luthy's group)
 In home office due to Covid-19
 Research: Stormwater monitoring and treatment for groundwater recharge
- 2019 – 2020
 Apr - Feb
Postdoctoral researcher, Eawag, Switzerland
 Department of Urban Water Management (Dr. Christoph Ort)
 Research: From research to practice – how to deal with trace contaminants in sewer overflows in Switzerland

- 2015 – 2019
Jan - Mar **PhD researcher, Eawag & ETH Zürich, Switzerland**
Department of Urban Water Management
Research: Development of passive sampling method for trace contaminants in sewer systems and assessment of spatiotemporal variability
- 2017
Nov - Dec **Visiting researcher, University of Queensland, Australia**
Emerging Environmental Health Risks Group (Prof. Jochen Müller)
- 2012 - 2014
Aug - Oct **Teaching Assistant and Co-Lecturer, ETH Zürich, Switzerland**
Chairs of Urban Water Management (Prof. Eberhard Morgenroth, Prof. Max Maurer and Prof. em. Willi Gujer)
- 2011
Jan - May **Internship, cantonal office for water and waste in Bern, Switzerland**
- 2008 - 2009
Oct - Mar **Internship, engineering company TBF AG, Switzerland**
- 2008
Jan - May **Student assistance, ETH Zurich, Switzerland**
Chair of Urban Water Management (Prof. em. Willi Gujer)

INSTITUTIONAL RESPONSIBILITIES

- 2023 - present **Equal Opportunity Committee, Eawag**
- 2017 - 2019 **PhD representative in Equal Opportunity Committee, Eawag**

APPROVED RESEARCH PROJECTS AND FELLOWSHIPS

- 2022 **Swiss National Science Foundation Ambizione Fellowship**
TraceStorm: Quantifying trace organic contaminants for stormwater use in circular water systems
Applicant: Lena Mutzner
Funding: ~400'000 CHF
- 2020 **European Commission's Marie Curie Global Fellowship**
Rethink, reduce, reuse urban stormwater: removal of trace organic contaminants before groundwater recharge
Applicant: Lena Mutzner
Postdoc institutions: Stanford University, USA (19 months), Newcastle University, UK (12 months). Funding: ~250'000 EUR (declined)
- 2019 **Swiss National Science Foundation Early Postdoc.Mobility Fellowship**
Alternative urban stormwater systems - exploring the risks of trace organic chemicals
Applicant: Lena Mutzner
Postdoc institutions: Stanford University, USA (4 months), Technical University of Denmark (14 months). Funding: ~120'000 CHF

- 2014 **Swiss Federal Office for the Environment: PhD research funding**
DIMES II: Spatiotemporal variability of micropollutants in sewer overflows
Applicants: Lena Mutzner, Dr. Christoph Ort, Prof. Max Maurer
Funding: ~200'000 CHF

PRIZES, AWARDS

- 2020 **ETH medal for doctoral thesis, ETH Zürich**
- 2017 **Poul Harremoes Award Finalist, 14th International Conference for Urban Drainage, Prague.**

SUPERVISION OF JUNIOR RESEARCHERS

- 2024 Master's thesis, Laura Waldner (main supervision)
- 2023 - present PhD student Fabienne Maire, ETH Zürich (main supervision)
- 2023 Master's project thesis, Nizar Boulajoul (main supervision)
- 2023 Master's thesis, Marisa Poggioli, ETH Zürich (main supervision)
- 2022 Master's thesis Leonie Schweiger, DTU, Denmark (co-supervision)
- 2022 Master's thesis George Soare, DTU, Denmark (co-supervision)
- 2021 Master's thesis Chiara Scarpellini, DTU, Denmark (co-supervision)
- 2020 – 2022 PhD student Chandler Brown, Stanford University (co-supervision)
- 2018 Master's thesis, ETH Zürich: Christoph Bohren (main supervision), Yuanfang Zeng (co-supervision)
- 2016 - 2017 Research assistant Manuel Blum (main supervision)
- 2016 Research internship Gregor Pfalz (main supervision)
- 2016 Bachelor thesis Mario Weber, ETH Zürich (main supervision)
- 2015 Master's thesis Selina Zehnder, ETH Zürich (Co-supervision)
- 2014 Bachelor theses, ETH Zürich: Nicole Hippenmeyer (co-supervision), Matthias Thalmann (main supervision), Arnold Mauchle (co-supervision)
- 2013 Bachelor theses, ETH Zürich: Benjamin Schegg (main supervision), Katja Briner (main supervision), Simon Mosch (main supervision), Valentin Faust (co-supervision), Tobias Kraft (co supervision), Laurenz Fischer (main supervision), Tobias Mohrhauer (co-supervision), Deniz Akyol (co-supervision), Adrian Haas (co-supervision)

TEACHING ACTIVITIES

2012 - 2014 **Teaching coordination, ETH Zürich, Switzerland**
Chairs of Urban Water Management (Prof. Eberhard Morgenroth, Prof. Max Maurer and Prof. em. Willi Gujer)
Courses: Urban water management I & II, Process Engineering I & II, Systems Analysis and Mathematical Modelling, Infrastructure Systems, Field Excursions, Wastewater modelling computer lab

MEMBERSHIPS AND SCIENTIFIC REVIEWING

International Water Association, Co-Chair of International Working Group on Emerging Contaminants of Joint Committee of Urban Drainage

Founding board member of the Swiss association for female water engineers (NeWI)

Member of equal opportunity committee at Eawag (2017 – 2019, 2023 - present)

Scientific Review: Water Research, Environmental Science & Technology, Journal of Environmental Management, International Conference on Urban Drainage, Blue-Green Systems

ORGANISATION OF CONFERENCES

Workshop on combining models with water quality data, UDM, California, 2022

Workshop on water quality monitoring, Novatech, Lyon, 2023

CAREER BREAKS

2020 - present Part-time 80%

2019 - 2020 Maternity leave (8 month, full-time)

Aug - Mar

2020 50% work in home office due to dual-career family and travel restrictions
Apr - Sep (Covid-19) finally resulting in change of Postdoc fellowship host

PUBLICATIONS IN PEER-REVIEWED SCIENTIFIC JOURNALS

Why temporal variations in pollutant concentrations matter for stormwater managers. D.M. Reinholdt Jensen, D.M., **Mutzner, L.**, Yuansong, W., Steen Mikkelsen, P., Vezzaro, L (2023). Accepted in Journal of Environmental Management.

Furrer, V., **Mutzner, L.**, Ort, C., Singer, H. (2023). Micropollutant concentration fluctuations in combined sewer overflows require short sampling intervals. Water Research X, 100202.
<https://doi.org/10.1016/j.wroa.2023.100202>

Mutzner, L., Zhang, K., Luthy, R. G., Arp, H. P. H., & Spahr, S. (2023). Urban stormwater capture for water supply: look out for persistent, mobile and toxic substances. Environmental Science: Water Research and Technology, 12. <https://doi.org/10.1039/D3EW00160A>

Mutzner, L., Furrer, V., Castebrunet, H., Dittmer, U., Fuchs, S., Gernjak, W., Gromaire, M.C., Matzinger, A., Steen Mikkelsen, P., Selbig, W.R., Vezzaro, L. (2022) A decade of monitoring micropollutants in urban wet-weather flows: What did we learn? Water Research, 223, 118968.
<https://doi.org/10.1016/j.watres.2022.118968>.

Mutzner, L., Bohren, C., Mangold, S., Dicht, S., Ort, C. (2020): Spatial differences of micropollutants in sewer overflows: A multi-catchment analysis using passive samplers. Environmental Science and Technology, 54, 11. <https://doi.org/10.1021/acs.est.9b05148>

Zhang, Y., **Mutzner, L.**, Ort, C., Kaegi, R. and Gottschalk, F. (2019): Modelling engineered nanomaterials in wet weather discharges. NanoImpact, 16.
<https://doi.org/10.1016/j.impact.2019.100188>

Mutzner, L., Mangold, S., Maurer, M., Scheidegger, A., Singer, H., Vermeirssen, E., Ort, C. (2019): Passive samplers to quantify micropollutants in sewer overflows: accumulation behaviour and field validation for short pollution events. Water Research 160, 350-360.
<https://doi.org/10.1016/j.watres.2019.04.012>

Mutzner, L., Vermeirssen E., Ort, C. (2018): Passive samplers in sewers and rivers with highly fluctuating micropollutant concentrations – better than we thought. Journal of Hazardous Materials, 261. <https://doi.org/10.1016/j.jhazmat.2018.07.040>

Eggimann, S., **Mutzner, L.***, Wani, O., Schneider, M.Y., Spuhler, D., Moy de Vitry, M., Beutler, P., Maurer, M. (2017): The Potential of Knowing More: A Review of Data-Driven Urban Water Management. Environmental Science and Technology 51 (5), 2538–2553.
<https://doi.org/10.1021/acs.est.6b04267> *Equal contributions by all Co-Authors

Mutzner, L., Staufer, P. and Ort, C. (2016): Model-based screening for critical wet-weather discharges related to micropollutants from urban areas. Water Research 104, 547-557.
<https://doi.org/10.1016/j.watres.2016.08.003>

PEER-REVIEWED CONFERENCE PROCEEDINGS

Poggioli, M., Cavadina, G. B., **Mutzner, L.**, Estimating micropollutant impacts in changing urban systems. Novatech, Lyon, France, 2023.

L. Vezzano, L., Schweiger, L., **Mutzner, L.** A chemical fate model for screening impacts from wet-weather discharges on Danish streams. Novatech, Lyon, France, 2023.

Mutzner, L., Vezzano, L. How a Data-Driven Stochastic Model Helps to Predict Micropollutant Discharges to Surface Waters. SETAC Europe 33rd Annual Meeting, Dublin, Ireland, 2023.

Mutzner L., Jensen D.M.R., Vezzano L. Stochastic modelling of trace contaminants in wet-weather discharges. 12th Urban Drainage Modeling Conference, California, January, 2022.

Vezzano, L., Scarpellini, C., **Mutzner, L.** The power of Open Data – Using free data for a preliminary screening of impact from urban wet-weather discharges on Danish streams. 12th Urban Drainage Modeling Conference, California, January, 2022.

Mutzner L., Furrer V., Castebrunet H., Gernjak W., Gromaire MC, Andreas Matzinger A., Steen Mikkelsen P., Selbig W.R., Vezzano L. A data-driven analysis of trace contaminants in wet-weather discharges. 15th International Conference on Urban Drainage, Melbourne, October, 2021 (digital conference).

Mutzner, L., Steen Mikkelsen, P., Vezzano, L. Monitoring micropollutants in wet-weather discharges – what can we learn from the past? Nord IWA, Digital conference in 28 September – 1 October 2021.

Mutzner, L., Mangold, S., Maurer, M., Scheidegger, A., Singer, H., Vermeirssen, E. and Ort, C. Passive sampling: An efficient way to monitor micropollutants in sewer overflows? 14th International Conference on Urban Drainage (ICUD), Prague, Czech Republic, 2017.

Eggimann, S., **Mutzner, L.**, Wani, O., Schneider, M.Y., Spuhler, D., Moy de Vitry, M., Beutler, P., Maurer, M. Data-driven urban water management: panacea or hollow promise? 14th International Conference on Urban Drainage (ICUD), Prague, Czech Republic, 2017.

Mutzner, L., Stauffer, P. and Ort, C. Screening for critical wet-weather discharges of micropollutants. 22nd European Junior Scientist Workshop (EJSW), Chichillianne, France, 2015.

Stauffer, P., **Mutzner, L.** and Ort, C. Dynamic Substance Flow Analysis of rainfall-mobilized Micropollutants. 9th International Conference on Urban Drainage Modelling (UDM). Belgrade, Serbia, 2012.

ORAL CONTRIBUTIONS TO CONFERENCES

*presenting author

Poggioli, M., Cavadina, G. B., **Mutzner, L.***, H Estimating micropollutant impacts in changing urban systems. Novatech, Lyon, France, 2023.

Mutzner, L.*, Vezzano, L. How a Data-Driven Stochastic Model Helps to Predict Micropollutant Discharges to Surface Waters. SETAC Europe 33rd Annual Meeting, Dublin, Ireland, 2023.

Mutzner L.*, Jensen D.M.R., Vezzano L. Stochastic modelling of trace contaminants in wet-weather discharges. 12th Urban Drainage Modeling Conference, California, January 2022.

Mutzner L.*, Furrer V., Castebrunet H., Gernjak W., Gromaire MC, Andreas Matzinger A., Steen Mikkelsen P., Selbig W.R., Vezzano L. A data-driven analysis of trace contaminants in wet-weather discharges. 15th International Conference on Urban Drainage, Melbourne, October, 2021 (oral presentation at digital conference).

Mutzner, L.*, Steen Mikkelsen, P., Vezzano, L. Monitoring micropollutants in wet-weather discharges – what can we learn from the past? Nord IWA, Digital conference in 28 September – 1 October, 2021.

Mutzner, L. and Ort, C*. Micropollutants in combined sewer overflows, VSA Kanalisationsforum, Rapperswil, Switzerland, May 15, 2019 (*German, presentation*)

Schneider, M. Y.*, **Mutzner, L.***, Moy de Vitry, M.*, Beutler, M.*, Duque Villarreal, N.* and Maurer, M*. Young researcher's dream of revolutionizing urban water management with novel data, VSA Fortbildungskurs, Emmetten, Switzerland, October 23-25, 2018 (*German, presentation*)

Mutzner, L.* Workshop on Passive Sampling: Sampling in short duration, highly-dynamic untreated sewer overflows with SDB. Lausanne, Switzerland, March 14-16, 2018 (*poster*)

Mutzner, L.* The Advanced Water Management (AWMC) Seminar: Sewer overflows? Passive Sampling? Me? Micropollutants? Brisbane, Australia, December 14, 2018. (*invited presentation*)

Mutzner, L.*, Mangold, S., Maurer, M., Scheidegger, A., Singer, H., Vermeirssen, E. and Ort, C. 14th IWA/IAHR International Conference on Urban Drainage (ICUD): Passive sampling: An efficient way to monitor micropollutants in sewer overflows? Prague, Czech Republic, September 11, 2017 (*presentation*)

Mutzner, L.*, Longree P., Maurer, M., Scheidegger, A., Singer, H., Vermeirssen, E. and Ort C. Aqua Urbanica: Passive sampling for micropollutants in stormwater. Rigi-Kaltbad, Switzerland, September 26, 2016. (*German, presentation*)

Mutzner, L.* and Ort. C., 22nd European Junior Scientist Workshop (EJSW). Assessment of micropollutants in wet-weather discharges. Chichillianne, France, May 21, 2015 (*presentation*)

Mutzner, L.* and Ort. C., Kleines Institutstreffen: Are all CSO the same? Stuttgart, Germany, February 2, 2015. (*German, presentation*)

OUTREACH ACTIVITIES

SNF Horizonte Reportage, Wo die Abwasser erzählen (2024).

Mutzner, L., Mangold, S., Dicht, S., Bohren, C., Vermeirssen, E. L. M., Scheidegger, A., Ort, C. (2019). Mikroverunreinigungen aus Siedlungen. Messungen in 20 Mischabwasserentlastungen mit Passivsammler. *Aqua & Gas*, 99 (10), 28-35.

Swiss Association of Wastewater and Water Protection Professionals: How can we identify critical discharges? Berne, Switzerland, April 24, 2018 (*German, presentation*)

Video and talk in Eawag News: Urban water management 4.0 on World Water Day, March 22, 2017