

Chloe Fender, Ph.D.

SCIENTIST III

CONTACT INFORMATION

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PROFESSIONAL PROFILE

Dr. Chloe Fender is an ecotoxicologist in ToxStrategies' Exposure Sciences practice who is passionate about supporting ecosystem and community health. She specializes in assessing emerging contaminants in aquatic systems and interpreting their impact on environmental health.

Dr. Fender's projects have involved developing and implementing mass spectrometry-based nontarget analysis and suspect screening to determine and prioritize emerging contaminants in surface water, including in irrigation canals and rivers. Dr. Fender has conducted nontarget mass spectrometry-based metabolomics for many studies, including on salmon tissues to elucidate the toxicity mechanisms of 6PPD-quinone, a toxic chemical byproduct formed from the 6PPD compound commonly added to tire rubber to prevent degradation. Proficient with *in vivo* and *in vitro* toxicological approaches, Dr. Fender has also conducted effects-directed analysis studies and performed acute toxicity experiments.

Dr. Fender's laboratory and sampling skills include field sampling and field operations management, stakeholder collaboration, SOP development, extraction techniques, liquid-chromatography, and mass spectrometry. She also has experience with data management, multivariate analysis, data visualization, R studio, and ArcGIS.

Before joining ToxStrategies, Dr. Fender served as a consultant to Salmon-Safe in Portland, OR. There she evaluated ecological risk assessments of pesticides to determine hazard based on persistence, mobility, and aquatic toxicity, and provided technical review of agricultural pesticides, with a focus on their impacts on salmonids, other aquatic life, and terrestrial insects. She also managed several projects at Oregon State University, including designing and conducting field studies and developing protocols and methods for water quality and ecotoxicity experiments using hydrological techniques, multivariate data analysis, and tissue dissection.

EDUCATION AND DEGREES EARNED

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| 2024 | Ph.D., Toxicology, Oregon State University, Corvallis, OR |
| 2022 | M.S., Toxicology, Oregon State University, Corvallis, OR |
| 2019 | B.S., Biology (<i>Summa cum Laude</i>), Westminster University, Salt Lake City, UT |

PROFESSIONAL ASSOCIATIONS

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| 2023-Present | Society of Toxicology |
| 2023-Present | Pacific Northwest Association of Toxicology (PANWAT) |
| 2021-Present | Metabolomics Association of North America |
| 2020-Present | Pacific Northwest Society of Environmental Toxicology and Chemistry (PNW-SETAC) |
| 2018–Present | Society of Environmental Toxicology and Chemistry (SETAC) |

HONORS/AWARDS

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| 2024 | PANWAT Dr. William Baird Travel Award |
| 2024 | Professional Development Award, Oregon State Graduate School |
| 2023 | First Place Poster Award, PANWAT Conference |
| 2023 | Best Communication Poster Award, Research Day Symposium |
| 2021-2023 | NIEHS T32 National Research Service Award (NRSA) Predoctoral Fellow |
| 2022-2023 | Oregon Lottery Scholarship Award |
| 2020 | Professional Development Award, Oregon State Graduate School |
| 2019 | Westminster Biology Department Student of the Year |
| 2019 | FRIENDS of Great Salt Lake Doyle Stephens grant recipient |
| 2019 | Gore Family Math and Science Undergraduate Research Award |
| 2018 | Great Salt Lake Institute Undergraduate Research Award |

CERTIFICATIONS

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| 2023 | CPR/AED/First Aid, American Red Cross Training Services |
| 2023 | American Canoe Association Swiftwater Rescue |
| 2022 | Motorboat Operator Training Course |

PROFESSIONAL SERVICE

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| 2024-Present | 2025 Planning Committee, North American Annual Conference, SETAC |
| 2023-Present | Board Vice President, Northwest Center for Alternative to Pesticides |

- 2021-Present Fundraising Committee Chair, Northwest Center for Alternative to Pesticides
- 2023-2024 President, Trainees in Environmental and Molecular Toxicology, Oregon State University
- 2022-2023 Pacific Northwest Student-at-Large Representative, SETAC

PEER-REVIEWED PUBLICATIONS

- Nguyen HVM, Cabello E, Dyer D, **Fender C**, Garcia-Jaramillo M, Hord NG, Austad S, Richardson A, Unnikrishnan A. 2025. Age, sex, and mitochondrial-haplotype influence gut microbiome composition and metabolites in a genetically diverse rat. *Aging* 17(2):524-549; doi: [10.18632/aging.206211](https://doi.org/10.18632/aging.206211). PMID: 40015964.
- Fender CL**, Good SP, Garcia-Jaramillo. 2024. An integrated approach to evaluating water contaminants and evaporation in agricultural water distribution systems. *Ecotoxicol Environ Safety* 287(15 Nov):117277; doi: [10.1016/j.ecoenv.2024.117277](https://doi.org/10.1016/j.ecoenv.2024.117277). PMID: 39515202.
- Mayer PM, Moran KD, Miller EL, Brander SM, Harper S, Garcia-Jaramillo M, Carrasco-Navarro KT, ...**Fender CL**. 2024. Where the rubber meets the road: Emerging environmental impacts of tire wear particles and their chemical cocktails. *Sci Total Environ* 927(June 1)171153; doi: [10.1016/j.scitotenv.2024.171153](https://doi.org/10.1016/j.scitotenv.2024.171153). PMID: 38460683.

PENDING AND SUBMITTED PUBLICATIONS

- Bright P, Garcia-Jaramillo M, Jackson ME, Schindler J, Williams A, **Fender CL**. Combining analytical and computational approaches to detect and prioritize unregulated organic contaminants in drinking water. To be submitted to *Environ Sci Technol*, October 2025.
- Fender CL**, Jackson ME, Harper S, Garcia-Jaramillo. Leveraging multi-omics analyses to explore the toxicity of 6PPD-q in three salmonids species. To be submitted to *J Haz Materials*, August 2025.
- Phillips A, Tataru C, Martin A, Livni M, Zhivaya E, Dietzler G, Dunlap K, ...**Fender CL**, et al. Medium-chain fatty acid reduced in children with autism spectrum disorder rescues behavioral phenotypes in mouse model. Submitted to *Nature*, March 2025.
- Fender CL**, Williamson M, Brown K, Schindler J, Jackson M, Morshead M, Truong L, Cohen C, et al. Addressing community concerns about unregulated organic contaminants in surface water: Integrating suspect and nontargeted chemical analyses with Zebrafish toxicity testing and computational hazard comparisons. Submitted to *Water Research*, June 2024.
- Van Herwerden D, Kant E, Jackson M, **Fender CL**, Garcia-Jaramillo M, O'Brien J, Thomas K, Samanipour S. 2024. Modular open-access and open-source Julia language toolbox for processing of HRMS data: jHRMSToolbox. *ChemRxiv*; doi: [10.26434/chemrxiv-2024-b713v](https://doi.org/10.26434/chemrxiv-2024-b713v). Under revision in *Environ Sci Technol*.

REPORTS AND BOOK CHAPTERS

- Forsyth L, Pitts H, Whidden I, Porta L, Lawson L, Heinitz R, **Fender CL**, et al. 2023. [Youth Vision for the Columbia River Report: Report on the Youth Call for Action in the Basin](#). North American Youth Parliament for Water.
- Kimberly DA, **Fender CL**. 2020. Amphibians and reptiles of Antelope Island, Great Salt Lake, Utah. In: Baxter BK and Butler JK (eds), *Great Salt Lake Biology: A Terminal Lake in a Time of Change*. Springer Nature Switzerland AG, ISBN: [978-3-030-40352-2](https://doi.org/10.1007/978-3-030-40352-2), pp. 345-367.

PRESENTATIONS AND ABSTRACTS

Bare J, **Fender CL**, Torres C, Panko J. Assessing environmental monitoring data quality and reliability in TSCA risk evaluations using 4-tert-octylphenol as a case study. Abstract 7.05.P-Mo-116, Society of Environmental Toxicology and Chemistry (SETAC) North America 46th Annual Meeting, Portland, OR, November 2025.

Fender CL, Garcia-Jaramillo M, Jackson ME, Truong L, Tanguay RL, Schindler J, Lee K, Bright PW. Start to finish: Discovery, quantification and toxicity assessment of emerging contaminants in tap drinking water using mixed and new approach methods. Abstract 4.16.T-02, SETAC North America 46th Annual Meeting, Portland, OR, November 2025.

Fender CL, Morshead ML, Truong L, Cohen C, Feldman L, Rothman D, Tanguay RL, Garcia-Jaramillo M. Science communication and community partnership in suspect and nontarget environmental monitoring study. Abstract 4.16.P-Mo-043, SETAC North America 46th Annual Meeting, Portland, OR, November 2025.

Heintz MM, Kennedy SB, Brown L, **Fender CL**, Hecker M, Hughes SA, Naile J, DeLeo P. Toxicogenomics in ecological risk assessment: Current landscape, research gaps and recommendations to increase confidence across sectors. Abstract 1.02.T-01, SETAC North America 46th Annual Meeting, Portland, OR, November 2025.

Jackson ME, **Fender CL**, Harper SL, Garcia-Jaramillo M. Leveraging multi-omics analyses to explore the toxicity of urban road runoff contaminants in salmonid species. Abstract 4.12.B.T-04, SETAC North America 46th Annual Meeting, Portland, OR, November 2025.

Fender CL, Jackson M, Harper S, Jaramillo-Garcia M. Exploring the effects of toxic road runoff contaminants on juvenile salmonids with LC-MS/MS based metabolomics. Platform presentation at Society of Toxicology 63rd Annual Meeting, Salt Lake City, UT, March 2024.

Fender CL, Morshead M, Cohen C, Truong L, Rohlman D, Tanguay R, Jaramillo-Garcia M. Using suspect and nontarget LC-HRMS and high throughput toxicity assays to identify and prioritize surface water contaminants. Poster presentation at PNW SETAC Annual Conference, Troutdale, OR, 2024.

Jackson ME, **Fender CL**, Harper SL. Leveraging multi-omics analyses to explore the toxicity of urban road runoff contaminants in juvenile salmonid species. Abstract 2.10.P-We-084, SETAC North America 45th Annual Meeting, Ft. Worth, TX, October 2024.

Fender CL, Morshead M, Cohen C, Truong L, Rohlman D, Tanguay R, Jaramillo-Garcia M. Suspects and nontarget chemical analyses to address community concerns related to chemicals and toxicity in the Portland harbor. Poster presentation at SRP Annual Conference, Albuquerque, NM, 2023.

Fender CL, Morshead M, Cohen C, Truong L, Rohlman D, Tanguay R, Jaramillo-Garcia M. Using suspect and nontarget LC-HRMS and high throughput toxicity assays to identify and prioritize surface water contaminants. Poster presentation at PANWAT Annual Conference, Portland, OR, 2023.

Fender CL, Morshead M, Cohen C, Truong L, Rohlman D, Tanguay R, Jaramillo-Garcia M. Using suspect and nontarget LC-HRMS and high throughput toxicity assays to identify and prioritize surface water contaminants. Oral presentation at Pacific Northwest (PNW) SETAC Annual Conference, Troutdale, OR, 2023.

Fender CL, Morshead M, Cohen C, Truong L, Rohlman D, Tanguay R, Jaramillo-Garcia M. Water contaminants in the Portland Harbor: Addressing community concerns related to chemicals and toxicity. Seminar presentation at Environmental and Molecular Toxicology Seminar Series, Corvallis, OR, 2023.

Fender CL, Morshead M, Cohen C, Truong L, Rohlman D, Tanguay R, Jaramillo-Garcia M. Identification and evaluation of contaminant mixtures in surface water using EDA coupled to LC-HRMS. Poster presentation at Environmental and Molecular Toxicology Research Day, Corvallis, OR, 2022.

Fender CL, Honneffer J, Morshead M, Bionaz M, Ates S, Duringer J, Garcia-Jaramillo M. Targeted and non-targeted high-resolution LCMS lipidomics analysis of adipose tissue from lambs fed with spent hemp biomass. Poster presentation at Metabolomics Association of North America, Edmonton, Alberta, Canada, 2022.

Fender CL, Good S, Jaramillo-Garcia M. Using nontarget LCMS and in silico toxicological approaches for the detection and prioritization of contaminant mixtures in a regional irrigation canal. Poster presentation at SETAC Nontarget Special Topics Session, Durham, NC, 2022.

Fender CL, Good S, Jaramillo-Garcia M. Assessing surface water chemical trends in natural and human-made systems and potential toxic effects of prioritized contaminants. Seminar presentation at Environmental and Molecular Toxicology Series, Corvallis, OR, 2022.

Fender CL, Good S, Jaramillo-Garcia M. Exploring the impacts of evaporation on chemical trends in a regional river and irrigation canal, using nontarget LCMS approaches. Poster presentation at Pacific Northwest Water Symposium, Corvallis, OR, 2022.

Fender CL, Kimberly D. Contaminant pulses associated with snowmelt in Northern Utah, USA. Poster presentation at Salt Lake County Water Symposium, Salt Lake City, UT, 2019.

Fender CL, Kimberly D. Contaminant pulses associated with snowmelt in Northern Utah, USA. Poster presentation at SETAC North America Conference, Toronto, Ontario, Canada, 2019.

Fender CL, Kimberly D. Contaminant pulses associated with snowmelt in Northern Utah, USA. Oral presentation at Westminster Summer Undergraduate Research Fair, Salt Lake City, UT, 2019.

Fender CL, Kimberly D. Effects of urbanization on water quality and instream biota in Utah, USA. Poster presentation at Westminster Undergraduate Research Fair, Salt Lake City, UT, 2019.

Fender CL, Kimberly D. Effects of urbanization on water quality and instream biota in Utah, USA. Oral presentation at Utah Conference of Undergraduate Research, Cedar City, UT, 2018.

Fender CL, Kimberly D. Effects of urbanization on water quality and instream biota in Utah, USA. Poster presentation at Salt Lake County Water Symposium, Salt Lake City, UT, 2018.

Fender CL, Kimberly D. Effects of urbanization on water quality and instream biota in Utah, USA. Oral presentation at Westminster Summer Undergraduate Research Fair, Salt Lake City, UT, 2018.

Fender CL, Calhoun E, Baxter B. Rates of inclusion of female researchers at Great Salt Lake. Poster presentation at Great Salt Lakes Issues Forum, Salt Lake City, UT, 2018.