

David J. Feifarek, M.S.

SENIOR SCIENTIST I

CONTACT INFORMATION

ToxStrategies LLC
31 College Place, Suite B118
Asheville, NC 28801
Phone (414) 285-4792
dfeifarek@toxstrategies.com

PROFESSIONAL PROFILE

David Feifarek is a toxicologist in ToxStrategies' Health Sciences Practice, specializing in consumer product safety, fragrances, endocrine disruption, and ecotoxicology. He has 9 years of professional experience in toxicology, ranging from federal government research to managing a team of toxicologists for a large corporation. He has performed and published the results of novel scientific investigations and developed quantitative risk assessments for a wide array of chemical domains and formulations. His skill set includes delivery of tailored safety assessments according to the requirements of diverse global authorities such as the US EPA, US FDA, EU Cosmetic Products Regulation, EU Biocidal Products Regulation, and more.

Mr. Feifarek has in-depth working experience in screening for endocrine-disrupting properties of chemicals in accordance with EU REACH and Biocidal Product Regulation (BPR), as well as use of novel approach methods and priority data sources to screen for endocrine activity and adversity. His work with US EPA contributed to the development and documentation of adverse outcome pathways (AOPs) for estrogen, androgen, and steroidogenesis disruption. He is an expert in endocrine disruption mechanisms that lead to reproductive dysfunction in fish and is practiced in histological preparation and analysis of reproductive and auxiliary tissues. He also has extensive experience implementing product safety requirements based on the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) and the EU Classification, Labelling, and Packaging (CLP) legislation, as well as hazard labeling regulations in North America, Europe, and the Asia-Pacific and Australia-New Zealand regions. Mr. Feifarek's work has been recognized by his employers on multiple occasions, including an award in 2021 for establishing his company as an industry leader in endocrine disruptor regulation and toxicology, and a 2020 award for developing novel methods for high-throughput prediction of endocrine-disrupting potential.

Mr. Feifarek regularly publishes in peer-reviewed scientific literature. He is a co-author of a 2017 article that examined the relevance of environmental chemical transformation and associated impacts on endocrine-disruption potential in fish; this article was recognized by the American Chemical Society as an Editor's Choice Article and was featured on the cover of *Environmental Science and Technology*. He is also a co-author on a 2021 article that was nominated as a Best Paper in *Environmental Toxicology and Chemistry*. He enjoys presenting new information at scientific meetings and collaborating with diverse stakeholders to address urgent and complex scientific challenges.

EDUCATION AND DEGREES EARNED

- 2015 MS in Cell and Molecular Biology, St. Cloud State University, St. Cloud, Minnesota
 2013 BS in Biomedical Science, St. Cloud State University, St. Cloud, Minnesota

PROFESSIONAL AFFILIATIONS

- 2015–Present Society of Environmental Toxicology and Chemistry (SETAC)
- Midwest Chapter President (2021), Vice President (2020), Board Member (20182019)
 - Endocrine Disruptor Testing and Risk Assessment Interest Group
 - Animal Alternatives in Environmental Science Interest Group
- 2021–Present Personal Care Products Council (PCPC)
- Cosmetic Ingredient Review Science and Support Committee
 - Safety and Regulatory Toxicology Committee
- 2023–Present Interstate Technical Regulatory Council (ITRC)
- Tire Anti-Degradants (6PPD) Subgroup
- 2019–2022 European Chemical Industry Council (CEFIC)
- Biocides for Europe Endocrine Disruptor Working Group
- 2018–2022 Health and Environmental Sciences Institute (HESI)
- Animal Alternatives Committee
- 2017–2022 International Fragrance Association (IFRA)
- Joint Advisory Group
- 2017–2022 Research Institute for Fragrance Materials (RIFM)
- Advisory Committee

AWARDS AND CERTIFICATIONS

- 2024 Interstate Technical Regulatory Council (ITRC) Industry Affiliate Co-Author: Effects Characterization and Toxicity Guidance for the Tire Anti-Degradant, 6PPD
- 2024 USEPA Science and Technological Achievement Award (STAA) Nominee: AOP linking aromatase inhibition to reproductive impairment
- 2022 Operational Excellence (OPEX) Employer Lean Champion Certification
- 2021 *Environmental Toxicology and Chemistry* Best Paper Nominee for Adverse outcome pathway network-based assessment of interactive effects of an androgen receptor agonist and an aromatase inhibitor on fish endocrine function

- 2021 USEPA Science and Technological Achievement Award (STAA) Nominee: Significance of estrone as an estrogenic endocrine disruptor in aquatic environments
- 2021 Technical Award and Officer's Award — Employer recognition of contributions and accomplishments in endocrine disruption regulatory science
- 2019 Officer's Award — Employer recognition for technical process improvement
- 2017 American Chemical Society (ACS) Editor's Choice Article
- 2017 Environmental Science & Technology Cover Article
- 2016 St. Cloud State University Distinguished Thesis Award — awarded to the best thesis at the institution
- 2015 Midwest SETAC Best Student Platform — Honorable Mention
- 2014 George Friedrich Endowed Wildlife Protection Fund Scholarship
- 2014 SETAC Student Travel Scholarship
- 2013 St. Cloud State University Student Research Grant
- 2008 Ford Motor Company Family Scholarship

SELECTED PROFESSIONAL EXPERIENCE

Toxicology — Consumer Products

Managed a team conducting fit-for-purpose safety assessments and providing technical/regulatory advice regarding the human and ecological toxicology of personal-care products.

Performed global risk assessments for consumer and professional formulations and served as regulatory toxicology liaison for fragrance-related issues. Specialized in endocrine disruption toxicology and regulation.

Member of team developing business strategy regarding regulatory landscape preparedness and product claim substantiation.

Research

As a contractor to the USEPA Office of Research and Development, studied the development of quantitative toxicological risk assessment tools, including the use of adverse outcome pathways.

Conducted and published graduate research thesis work examining the effects of biotic and abiotic factors (nutrients, dissolved oxygen, salinity, temperature) that influence chemical toxicity in aquatic reproductive tests. Received the Distinguished Master's Thesis Award from St. Cloud State University to recognize the institution's best thesis of the year.

Conducted and published additional research related to pharmaceutical uptake and disposition.

PUBLISHED MANUSCRIPTS

Racz L, Gauthier A, Bare J, Heintz M, **Feifarek D**, Kennedy S, Panko J. 2024. Assessment of perfluorocarboxylic acids in fluorinated high-density polyethylene containers and estimation of potential non-cancer risks associated with anticipated use scenarios. *Regul Toxicol Pharmacol* 147:105560.

Maloney E, Villeneuve DL, Jensen KM, Blackwell BR, Kahl MD, Poole ST, Vitense K, **Feifarek DJ**, Patlewicz G, Tilton C, Dean K, Randolph EC, Cavallin JE, LaLone CA, Schaupp C, Ankley GT. 2023. Evaluation of complex mixture toxicity: An effects-driven analysis in the Milwaukee Estuary (WI, USA). *Environ Toxicol Chem* 42(6):1229–1256.

Villeneuve DL, Blackwell BR, Blanksma C, Cavallin JE, Cheng W, Conolly R, Conrow K, **Feifarek DJ**, Heinis L, Jensen KM, Kahl MD, Milsk RY, Poole ST, Randolph EC, Saari TW, Watanabe K, Ankley GT. 2022. Case study in 21st century ecotoxicology: Using *in vitro* aromatase inhibition data to predict reproductive outcomes in fish, *in vivo*. *Environ Toxicol Chem* 42(1):100–116.

Garcia-Reyero N, Arick M II, Woolard A, Wilbanks M, Mylroie J, Jensen KM, Kahl MD, **Feifarek DJ**, Poole ST, Randolph EC, Cavallin JE, Blackwell BR, Villeneuve DL, Ankley GT, Perkins E. 2022. Male fathead minnow transcriptomes and associated chemical analytes in the Milwaukee estuary system. *Scientific Data* SDATA-20-00107D.

Villeneuve DL, Blackwell BR, Cavallin JE, Cheng W, **Feifarek DJ**, Jensen KM, Kahl MD, Milsk RY, Poole ST, Randolph EC, Saari TW, Ankley GT. 2021. Case study in 21st Century ecotoxicology: Using *in vitro* aromatase inhibition data to predict short term *in vivo* responses in adult female fish. *Environ Toxicol Chem* 40:1155–1170.

Ankley GT, Berninger JP, Blackwell BR, Cavallin JE, Collette TW, Ekman DR, Fay KA, **Feifarek DJ**, Jensen KM, Kahl MD, Mosley JD, Poole ST, Randolph EC, Rearick D, Schroeder AL, Swintek J, Villeneuve DL. 2021. Pathway-based approaches for assessing biological hazards of complex mixtures of contaminants: A case study in the Maumee River. *Environ Toxicol Chem* 40:1090–1122.

Zorn KM, Foil DH, Lane TR, Hillwalker WE, **Feifarek DJ**, Jones FA, Klaren WD, Brinkman AM, Ekins S. 2020. Comparing machine learning models for aromatase (P450 19A1). *Environ Sci Technol* 54:15546–15555.

Zorn KM, Foil DH, Lane TR, Hillwalker WE, **Feifarek DJ**, Jones FA, Klaren WD, Brinkman AM, Ekins S. 2020. Comparison of machine learning models for the androgen receptor. *Environ Sci Technol* 54:13690–13700.

Zorn KM, Foil DH, Lane TR, Russo DP, Hillwalker WE, **Feifarek DJ**, Klaren WD, Brinkman AM, Ekins S. 2020. Machine learning models for estrogen receptor bioactivity and endocrine disruption prediction. *Environ Sci Technol* 19:12202–12213.

Ankley GT, Blackwell BR, Cavallin JE, Doering JA, **Feifarek DJ**, Jensen KM, Kahl MD, LaLone CA, Poole ST, Randolph EC, Saari TW, Villeneuve DL. 2020. Adverse outcome pathway network-based assessment of the interactive effects of an androgen receptor agonist and an aromatase inhibitor on fish endocrine function. *Environ Toxicol Chem* 39:913–922.

Medlock Kakaley EK, Blackwell BR, Cardon MC, Conley JM, Evans N, **Feifarek DJ**, Furlong ET, Glassmeyer ST, Gray LE Jr, Hartiga PC, Kolpin DW, Mills MA, Rosenblum L, Villeneuve DL, Wilson VS. 2019. De facto water reuse: Bioassay suite approach delivers depth and breadth in endocrine active compound detection. *Sci Tot Environ* 699:134–297.

Doering JA, Villeneuve DL, Poole ST, Blackwell BR, Jensen KM, Kahl MD, Kittelson AR, **Feifarek DJ**, Tilton CB, LaLone CA, Ankley GT. 2019. Quantitative response-response relationships linking aromatase inhibition to decreased fecundity are conserved across three fishes with asynchronous oocyte development. *Environ Sci Technol* 53(17):10470–10478.

Ankley GT, **Feifarek DJ**, Blackwell BR, Cavallin JE, Jensen KM, Kahl MD, Poole ST, Randolph EC, Saari TW, Villeneuve DL. 2017. Re-evaluating the significance of estrone as an environmental estrogen. *Environ Sci Technol* 51(10):4705–4713 (ACS Editor's Choice Article; *ES&T* cover article).

Feifarek DJ, Shappell NW, Schoenfuss HL. 2017. Do environmental factors affect male fathead minnow (*Pimephales promelas*) response to estrone? Part 1. Dissolved oxygen and sodium chloride. *Sci Tot Environ* 610:1262–1270.

Shappell NW, **Feifarek DJ**, Rearick DC, Bartell SE, Schoenfuss HL. 2017. Do environmental factors affect male fathead minnow (*Pimephales promelas*) response to estrone? Part 2. Temperature and food availability. *Sci Tot Environ* 611:32–43.

Zhao JL, Furlong ET, Schoenfuss HL, Kolpin DW, Bird KL, **Feifarek DJ**, Schwab EA, Ying GG. 2017. Uptake and disposition of select pharmaceuticals by bluegill exposed at constant concentrations in a flow-through aquatic exposure system. *Environ Sci Technol* 51:4434–4444.

PRESENTATIONS

[*Presenter]

Bare J, Kennedy SB, **Feifarek D**, Panko J. Quality and reliability evaluation of 6PPD-quinone surface water occurrence data and considerations for use in risk assessment. Abstract 4.22.P-Mo-119, Society of Environmental Toxicology and Chemistry, 45th Annual Meeting, Fort Worth, TX, October 2024.

Feifarek D, Kennedy S, Panko J. Mechanistic evaluation of 6PPD-quinone toxicity in fish. Abstract 4.22.B.T-03, Society of Environmental Toxicology and Chemistry, 45th Annual Meeting, Fort Worth, TX, October 2024.

Lea IA, **Feifarek D**, Mihalchik A, Heintz M, Haws L, Nyambego H, Goyak K, Borghoff SJ. Evaluation of the endocrine disrupting potential of di-isodecyl phthalate. Abstract 3930, Society of Toxicology Annual Meeting, Salt Lake City, UT, March 2024.

Borghoff SJ, **Feifarek D**, Mihalchik A, Heintz M, Haws L, Nyambego H, Goyak K, Lea IA. Evaluation of the endocrine disrupting potential of di-isodecyl phthalate. Abstract 3931, Society of Toxicology Annual Meeting, Salt Lake City, UT, March 2024.

LaPlaca SB, **Feifarek D**, Panko JM. Differential acute sensitivity to 6PPD-quinone among aquatic species and regional applicability. Poster presented at Society of Environmental Toxicology and Chemistry (SETAC), Louisville, KY, November 2023.

Lea IA, Heintz MM, **Feifarek D**, Haws LC, Borghoff SJ. Weight-of-evidence evaluation of endocrine activity for di-isodecyl phthalate (DIDP) and di-isononyl phthalate (DINP). Poster presented at Society of Toxicology Annual Meeting, Nashville, TN, March 2023.

Maloney E*, Ankley GT, Blackwell BR, Cavallin JE, **Feifarek DJ**, Kahl MD, et al. Evaluation of complex mixture toxicity: An effects-driven analysis in the Milwaukee Estuary area of concern (Milwaukee, WI). SETAC North America 42nd Annual Meeting, virtual, 2021.

Urbino F*, Zorn K, Foil DH, Lane TR, Hillwalker WE, **Feifarek DJ**, et al. Evaluating multiple machine learning models for endocrine disruption predictions. SETAC North America 42nd Annual Meeting, virtual, 2021.

Zorn K*, Foil DH, Lane TR, Hillwalker WE, **Feifarek DJ**, Jones FA, et al. Machine learning model comparisons for endocrine disruption prediction. 19th International Workshop on (Quantitative) Structure-Activity Relationships in Environmental and Health Sciences, virtual, 2021.

Zorn K*, Foil DH, Lane TR, Hillwalker WE, **Feifarek DJ**, Jones FA, et al. Applying multiple machine learning methods to predict endocrine disruption. SETAC North America 41st Annual Meeting (SETAC SciCon2), virtual, 2020.

Maloney E*, Ankley GT, Blackwell BR, Cavallin JE, **Feifarek DJ**, Kahl MD, et al. Effects-based monitoring under the Great Lakes Restoration Initiative: Evaluation of spatial and temporal patterns in the Milwaukee Estuary. SETAC North America 41st Annual Meeting (SETAC SciCon2), virtual, 2020.

Feifarek DJ*. Multi-sector toxicology: Perspectives from academia, government and industry. University of Wisconsin Madison, Department of Civil and Environmental Engineering Seminar Series, 2019.

Feifarek DJ*, Staveley JP, McArdle ME, Freeman E, Hillwalker WE. Bioactivity models as tools for predicting endocrine-mediated adversity — Regulatory significance. Society of Environmental Toxicology and Chemistry North America Annual Meeting, Toronto, ON, 2019.

Doering JA*, Ankley GT, Blackwell BR, Cavallin JE, Cole A, Dean K, Fay KA, **Feifarek DJ**, et al. Species extrapolation of a quantitative AOP describing inhibition of aromatase in fishes: The importance of reproductive traits. Society of Environmental Toxicology and Chemistry North America Annual Meeting, Toronto, ON, 2019.

Zorn K*, Russo DP, Clark AM, Hillwalker WE, **Feifarek DJ**, Jones FA, et al. Predicting endocrine disruption with estrogen receptor machine learning models. Society of Environmental Toxicology and Chemistry North America Annual Meeting, Toronto, ON, 2019.

Mihaich E, Schoenfuss HL, Scown T, Embry M, **Feifarek DJ**. Challenges and strategies for linking adverse effects to endocrine modes of action (session). Society of Environmental Toxicology and Chemistry North America Annual Meeting, Toronto, ON, 2019.

Doering JA*, Ankley GT, Blackwell BR, Cavallin JE, Dean K, Fay KA, **Feifarek DJ**, et al. Cross-species applicability of a quantitative AOP describing inhibition of aromatase activity leading to reproductive dysfunction in fathead minnow. Society of Environmental Toxicology and Chemistry North America Annual Meeting, Sacramento, CA, 2018.

Fay KA*, Doering JA, Swintek J, Kono T, **Feifarek DJ**, Poole ST, et al. Addressing species diversity in biotransformation: Variability in expressed transcripts of hepatic biotransformation enzymes among fishes. Society of Environmental Toxicology and Chemistry North America Annual Meeting, Sacramento, CA, 2018.

Feifarek DJ*, Hillwalker WE, Pastirik AK, Mason PJ. A chemical prioritization approach based on EU guidance for the identification of endocrine disruptors. Society of Environmental Toxicology and Chemistry North America Annual Meeting, Sacramento, CA, 2018.

Padilla L*, Hillwalker WE, **Feifarek DJ**, Winchell MF, Castro-Tanzi S. Evaluating consumer behaviors to support refinement of pesticide use assumptions in EPA's Outdoor Residential Screening Model. Society of Environmental Toxicology and Chemistry North America Annual Meeting, Sacramento, CA, 2018.

Pastirik AK*, Hillwalker WE, Mason PJ, **Feifarek DJ**. Defining substances of concern for environmental risk assessment based on European guidance. Society of Environmental Toxicology and Chemistry North America Annual Meeting, Sacramento, CA, 2018.

Feifarek DJ*, Hillwalker WE, Mason P. Adverse outcome pathways: A global regulatory perspective. Society of Environmental Toxicology and Chemistry Midwest Chapter Meeting, Loyola University, Lake Shore Campus, Chicago, IL, 2018.

Blackwell BR*, Ankley GT, Cavallin JE, Fay KA, **Feifarek DJ**, Jensen KM, et al. USEPA bioeffects monitoring under the Great Lakes Restoration Initiative: Overview of efforts to assess the biological impacts of CECs. Society of Environmental Toxicology and Chemistry North America Annual Meeting, Minneapolis, MN, 2017.

Doering JA*, Ankley GT, Blackwell BR, Cavallin JE, Fay KA, **Feifarek DJ**, et al. Differences in sensitivity to aromatase inhibition among fish species. Society of Environmental Toxicology and Chemistry North America Annual Meeting, Minneapolis, MN, 2017.

Fay KA*, LaLone CA, **Feifarek DJ**, Doering JA, Cavallin JE, Villeneuve DL, Ankley GT. Addressing species diversity in biotransformation: Variability in expressed transcripts of Phase I and II hepatic enzymes among fishes. Society of Environmental Toxicology and Chemistry North America Annual Meeting, Minneapolis, MN, 2017.

Jensen KM*, Ankley GT, Blackwell BR, Cavallin JE, Cheng W, Conolly R, **Feifarek DJ**, et al. The use of adverse outcome pathway-based toxicity predictions — A case study evaluating the effects of imazalil on fathead minnow reproduction. Society of Environmental Toxicology and Chemistry North America Annual Meeting, Minneapolis, MN, 2017.

Villeneuve DL*, Blackwell BR, Cavallin JE, Cheng W, **Feifarek DJ**, Jensen KM, et al. Developing confidence in adverse outcome pathway-based toxicity predictions: Effects of the fungicide imazalil on fathead minnow reproduction. Society of Environmental Toxicology and Chemistry Europe Annual Meeting, Brussels, Belgium, 2017.

Feifarek DJ*, Randolph EC, Milsk RY, Cavallin JE, Poole ST, Saari TW, et al. Reevaluating the significance of estrone as an environmental estrogen. Society of Environmental Toxicology and Chemistry Midwest Chapter Meeting, University of St. Thomas, Minneapolis, MN, 2017.

Feifarek DJ*, Randolph EC, Milsk RY, Cavallin JE, Poole ST, Saari TW, et al. Conversion of estrone to estradiol in male fathead minnows: Implications for assessing risk. Society of Environmental Toxicology and Chemistry North America Annual Meeting, Rosen Shingle Creek, Orlando, FL, 2016.

Poole ST*, Ankley GT, Blackwell BR, Cavallin JE, Cheng W, **Feifarek DJ**, et al. Quantitative AOP-based predictions for two aromatase inhibitors evaluating the influence of bioaccumulation on prediction accuracy. Society of Environmental Toxicology and Chemistry North America Annual Meeting, Rosen Shingle Creek, Orlando, FL, 2016.

Randolph EC*, Ankley GT, Blackwell BR, Cavallin JE, Cheng W, **Feifarek DJ**, et al. Effects of the fungicide imazalil on the fathead minnow (*Pimephales promelas*) reproductive axis: A case study in 21st Century toxicity testing. Society of Environmental Toxicology and Chemistry North America Annual Meeting, Rosen Shingle Creek, Orlando, FL, 2016.

Feifarek DJ*, Milsk RY, Jensen KM, Blackwell BR, Randolph EC, Cavallin JE, et al. The fungicide imazalil disrupts steroid biosynthesis in fathead minnows (*Pimephales promelas*). Society of Environmental Toxicology and Chemistry Midwest Chapter Meeting, Madison Concourse, Madison, WI, 2016.

Randolph EC*, Ankley GT, Blackwell BR, Cavallin JE, Cheng W, **Feifarek DJ**, et al. Effects of the fungicide imazalil on the fathead minnow (*Pimephales promelas*) reproductive axis: A case study in 21st Century toxicity testing. Society of Environmental Toxicology and Chemistry Midwest Chapter Meeting, Madison Concourse, Madison, WI, 2016.

Feifarek DJ*, Schroeder AL, Blackwell BR, Houck KA, Ankley GT, LaLone CA, Villeneuve DL. Environmental surveillance and monitoring — The next frontier for pathway-based high throughput toxicology. Lake Superior National Estuarine Research Reserve St. Louis River Summit, University of Wisconsin, Superior, 2016.

Feifarek DJ*, Rearick DC, Shappell NW, Schoenfuss HL. Modulation of estrogenic exposure effects via alterations in salinity and dissolved oxygen in male fathead minnows, *Pimephales promelas*. Society of Environmental Toxicology and Chemistry North America Annual Meeting, Salt Palace Convention Center, Salt Lake City, UT, 2015.

Feifarek DJ*. Toxicology in a changing climate: Modulation of estrogenic effects via environmental factors. Master's Thesis, St. Cloud State University, St. Cloud, MN, 2015.

Feifarek DJ*, Shappell NW, Schoenfuss HL. Vitellogenin, a biomarker of estrogenic exposure in fish, is modulated by changing environmental conditions. Society of Environmental Toxicology and Chemistry Midwest Chapter Meeting, USEPA Mid-Continent Ecology Division, Duluth, MN, 2015.

Feifarek DJ*, Shappell NW, Schoenfuss HL. Modulation of estrogenic effects via environmental factors. Fourth International Conference on Occurrence, Fate, Effects, & Analysis of Emerging Contaminants in the Environment (EmCon), University of Iowa, Iowa City, 2014.

Feifarek DJ*, Shappell NW, Schoenfuss HL. Modulation of estrogenic effects via environmental temperature and food availability. Minnesota Pollution Control Agency 77th Annual Wastewater Operations Conference, Brooklyn Park, MN, 2014.

Feifarek DJ*, Shappell NW, Schoenfuss HL. Modulation of estrogenic effects via environmental temperature and food availability. Society of Environmental Toxicology and Chemistry Midwest Chapter Meeting, Loyola University, Chicago, IL, 2014.

Feifarek DJ*, Shappell NW, Schoenfuss HL. Modulation of estrogenic effects via environmental temperature and food availability. St. Cloud State University Student Research Colloquium, St. Cloud, MN, 2014.