

Marlo K. Sellin Jeffries, Ph.D.

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ACADEMIC BACKGROUND

Education

- Ph.D. 2010 University of Nebraska Medical Center, Department of Environmental, Agricultural and Occupational Health (Environmental Toxicology)
- M.S. 2005 University of Nebraska at Omaha, Department of Biology (Biology)
- B.S. 2002 University of Nebraska at Omaha, Department of Biology (Major: Biology, Minors: Chemistry and Mathematics)

Appointments

- 2022-Present **Chair**, Department of Biology, Texas Christian University, Fort Worth, TX
- 2021-2022 **Associate Chair**, Department of Biology, Texas Christian University, Fort Worth, TX
- 2019-Present **Associate Professor**, Department of Biology Texas Christian University, Fort Worth, TX
- 2018-Present **Assistant Professor**, Department of Medical Education, Texas Christian University School of Medicine, Fort Worth, TX
- 2013-2019 **Assistant Professor**, Texas Christian University, Department of Biology, Fort Worth, TX
- 2010-2013 **Postdoctoral Fellow**, Department of Zoology, Miami University, Oxford, OH
- 2007-2010 **Emley Fellow**, University of Nebraska Medical Center
- 2006/2008 **Instructor**, Department of Biology, University of Nebraska at Omaha,
- 2006-2007 **Research Assistant**, University of Nebraska at Omaha
- 2004-2006 **United States Environmental Protection Agency GRO Fellow**, University of Nebraska at Omaha & Medical Center
- 2003-2004 **Teaching Assistant**, Department of Biology, University of Nebraska at Omaha

TEACHING

Courses Taught

- Assistant/Associate Professor**, Department of Biology, Texas Christian University, Fall 2013-Present
- Mammalian Physiology, Biology 40403/70950 (Fall semesters from 2014 to 2022; each semester from 2023 to present). An upper-level course on the function of the major mammalian organ systems.
 - Principles of Toxicology, Biology 40453/70950 (Spring 2014, Fall 2014, Fall 2015, Fall 2019, Fall 2021). An upper-level/graduate-level discussion course on the fate, transport and biological effects of environmentally-relevant contaminants. Carries a writing emphasis designation.
 - Vertebrate Endocrinology, Biology 40473/70950 (Fall 2013, Spring semesters from 2014 to 2019). An upper-level lecture and laboratory course on chemical messengers of endocrine origin and the physiological processes under their control. Carries a writing emphasis designation.
 - Scientific Presentation, Biology 60001 (Spring semester, 2022). A graduate-level course on the preparation and delivery of scientific presentations.
 - Biology Seminar, Biology 60910 (Spring 2022, Fall 2022, Fall 2023). A graduate-level course intended to introduce Biology graduate students to a wide range of research areas through presentations by guest speakers.

- Introduction to Scientific Research and Writing. Biology 60132 (Fall semesters from 2017 to 2019, Fall 2021). A graduate-level course on biological research and scientific writing. Co-taught with A. Hale (2017, 2018) and J. Horner (2019, 2021). *taught as Biology 60131 through Fall 2021.
- Gene Expression Analysis, Biology 70950 (Spring 2016, Spring 2020, Spring 2022). A graduate level course on the methods utilized to prepare samples for gene expression analysis and analyze associated data.
- Introductory Biology II, Biology 10514 (Spring 2014 and 2015). A freshman-level, introductory biology course on evolution and the diversity, morphology, anatomy and physiology of eukaryotes. Co-taught with J. Horner, M. Chumchal and M. Misamore.

Student Research Supervision

Ph.D. Dissertations Directed

Catherine Wise, 2023 to present, “Developmental and adult exposures to glucocorticoids: Assessment of behavioral impacts measured across multiple levels of biological organization.”

Dalton Allen, 2021 to present, “Marine effluent toxicity testing: Can tests with fish embryos or shrimp replace larval fish tests?”

Julie Krzykwa, 2017 to 2020, “Advancing animal alternatives in toxicity testing: The use of developmental abnormalities in fish embryos to predict chronic toxicity and adverse outcome”

Leah Thornton, 2015 to 2020, “The effects of early life stage thyroid disruption on immune system development, disease resistance, and immune responses”. PhD student at University of North Texas, co-advised by Barney Venables

MS Theses Directed

Katie Solomons, 2023 to present, “Effects directed analysis for prioritizing contaminants in urban and agricultural watersheds: A multipronged approach for the assessment of acute toxicity, endocrine disruption, and immunotoxicity”

Rashidat Jimoh, 2021-2023, “Identifying chemical hazards in aquatic systems: Validation of a small fish model to identify immunotoxic chemicals”

Dalton Allen, 2019 to 2021, “Metals in the Syr Darya and Shardara Reservoir, Kazakhstan: An environmental and human health risk assessment”

Austin Bryant, 2019 to 2021, “Developmental exposures to thyroid disrupting compounds: An investigation of short- and long-term behavioral impacts”

Lynsey Malin, 2019 to 2020, “Hormones and immunity: What is the role of estrogen in immune function?”

Abbey Johnson, 2017 to 2019, “A transcriptomic approach to understanding the basis of altered reproduction in fathead minnows following early life stage thyroid disruption.” Co-advised by M. Hale.

€Kyle Roush, 2016 to 2018, “Sexual maturity status as a confounding variable in fish-based screening assays for the detection of anti-estrogens and non-aromatizable androgens”

€ Recipient of the College of Science and Engineering SciCom Outstanding Thesis Award;
Nominee for the campus-wide TCU Outstanding Thesis Award

Peter Bruns, 2015 to 2017, “Thinking outside the thyroid: Implications of adult and early life-stage thyroid disruption on reproduction”

Julie Krzykwa, 2015 to 2017, "Can the fish embryo toxicity (FET) test go chronic? Investigation of sublethal endpoints as FET test endpoints"

Leah Thornton, 2013 to 2015, "Timing is everything: Exploring the differential effects of PBDE exposures in adult and early life stage fathead minnows"

Undergraduate Honors Theses Directed

Katie Solomons, 2022 to present, "A comparison of marine alternative toxicity testing methods for assessing phenanthrene toxicity"

Evan Burchfiel, 2021 to 2023, "Validation of a novel screening assay for the detection of estrogenic endocrine disruptors"

Maddie Wiencek, 2020 to 2022, "Identifying alternative marine toxicity testing methods: Can mysids and fish embryos replace larval fish?"

Michaela Kelly, 2020 to 2022, "Investigating alternative testing methods for the evaluation of acute nickel toxicity in *Cyprinodon variegatus*"

Kyle Horton, 2020 to 2022, "Advancing the fathead minnow as a model for immunotoxicity: Can *Aeromonas* species be used in pathogen challenges"

Kahler Doyle, 2020 to 2022, "Development of a new infection model for fathead minnows, an emerging immunotoxicity model organism"

Delaney Bredehoeft, 2019 to 2021, "Exploring the impacts of developmental thyroid disruption on transcriptional changes in the brain"

Haley Schluterman, 2019 to 2020, "Androgens and immunity: Does exposure to non-aromatizable androgens affect female immune function?"

Gabby Lamanteer, 2018 to 2020, "Comparison of methods for assessing swim performance in larval and juvenile fathead minnows"

Miranda Finch, 2017 to 2020, "The sexually dimorphic immune system: Identification of sex-specific differences in immune responses in the fathead minnow"

Hannah Nettelblad, 2018 to 2019, "Exploring the effects of early life stage nitrate exposure on sexual development and reproduction"

Caroline Wade, 2017 to 2019, "Exploring the endocrine activity of nitrate: Does exposure alter hormone levels and reproduction in adult fathead minnows?"

April Tran, 2017 to 2019, "Uncovering the effects of thyroid disruption on immune cell development and function"

Mallory Seemann, 2016 to 2018, "Exploring the mechanisms underlying the long-term reproductive effects of early life stage thyroid disruption"

€Meriel LeSueur, 2014 to 2017, "Another fish in the signaling sea: The effect of thyroid hormone on the immune function of adult fathead minnows"

€TCU College of Science & Engineering 2017 Honorable Mention for Best Honors Presentation

€Gunnar Nystrom, 2014 to 2017, "Cause for Concern: Chemical contamination in Kazakhstan's Syr Darya river and its impacts on fish reproductive health."

€Recipient of the 2017 TCU Boller Award for Best Honors Presentation

Kyle Roush, 2014 to 2016, “Enhancing the fish embryo toxicity test: Growth, development abnormalities and gene expression as additional test endpoints”

Elise Path, 2014 to 2016, “Identifying sensitive indicators of thyroid disruption in fathead minnows after exposure to thyroxine and propylthiouracil”

Alexis Medders, 2014 to 2016, “Males, masculinity and immunity: A test of the immunocompetence handicap hypothesis in fathead minnows”

Kate Phillips, 2014 to 2016, “Identifying molecular biomarkers of growth inhibition in fathead minnows: Ontogenetic expression profiles and responses to common contaminants”

Jacob Malmquist, 2014 to 2016, “Effective spawning strategies for producing viable fathead minnow embryos for use in fish embryo toxicity tests.”

€Alexandra Yost, 2014-2015, “Global amphibian declines: Are exposures to polybrominated diphenyl ethers a contributing factor?”

€Finalist for the 2015 TCU Boller Award for Best Honors Presentation

Supervised Undergraduate Students (co-author on presentation* or publication[†])

Texas Christian University (2013-Present, 44 to date)

Zach Aldrete*	Becca Bradley	Delaney Bredehoeft	Thomas Boudreaux*
Lauren Burgess	Evan Burchfiel*	Rachael Carlson	Khoa Dao
Vuong Do*	Kahler Doyle*	Haley Egan*	Miranda Finch* [†]
Abby Hawkins*	Kyle Horton*	Hana Jaafari	Michaela Kelly*
Sarah King* [†]	Gabby Lamanteer* [†]	Meriel LeSueur* [†]	Lynsey Malin*
Jacob Malmquist* [†]	Alexis Medders*	Andrew Mielcuszny*	Hannah Nettelblad*
Gunnar Nystrom* [†]	Alexis Olivas* [†]	Elise Path* [†]	Kate Phillips*
Bethany Pierce*	Kyle Roush* [†]	Asal Saeid* [†]	Haley Schluterman*
Mallory Seemann*	Colton Slabe	Dane Stephens* [†]	Katie Solomons*
Arantxa Soto	Lydia Stephens*	April Tran*	Michael Vaughan
Caroline Wade*	Maddie Wiencek*	Catherine Wise*	Alexandra Yost* [†]

Service on Graduate Theses and Dissertation Committees

Ulysses Oles TCU MS student, 2023 to Present, Thesis Title TBD, Advisor: D. Williams

Elizabeth DiBona, Texas A&M – Corpus Christi PhD student, 2021 to Present, “Developmental immunotoxicology using marine medaka model”, Advisor: F. Seemann

Evan Barfuss, TCU MS student, 2020 to 2021, “Development of genetic markers to determine the origin of migratory rainbow trout, *Oncorhynchus mykiss*”, Advisor: M. Hale

Katie Clare, TCU MS student, 2020 to 2021, “Comparative genomics of rainbow trout (*Oncorhynchus mykiss*): Are genes associated with migration conserved among populations?”, Advisor: M. Hale

Ishor Thapa, TCU MS student, 2020 to 2021, “Identifying the role of BRCA1 in transcriptional regulation using *Caenorhabditis elegans*”, Advisor: M. Stewart

Haley Hayes, TCU MS student, 2016 to 2017, “An exploration of the neuroprotective and anti-inflammatory effects of rolipram in vitro and in an inflammation-induced Alzheimer’s disease model”, Advisor: M. Chumley

Andria Beal, TCU MS student, 2015 to 2016, "Using RNA-Seq to study the sex-role reversed gulf pipefish: Are patterns of sex-bias in gene expression different when we are dealing with Mr. Mom?", Advisor: M. Hale

Carolina Granthon, TCU MS student, 2014 to 2015, "Avian malaria and body condition in four species of songbirds", Advisor: D. Williams

Service on Undergraduate Honors Theses Committees

Morgan Bertrand	Adam Burgess	Candler Bortz	Rachel Cartmell
Michael Chandra	Khoa Dao	Phat Do	Jack Figg
Jeff Garvey	Brook Hardiman	Lynsey Malin	Claire Middleton
Jessica Mussatto	Nam Nguyen	Sarah Price	Eleanore Rominger
Sam Showalter	Hank Weresh	Julianna West	

Teaching-related Honors & Recognition

TCU Wassenich Award for Mentoring Nominee, 2018.

TCU Senior Class Legacy Honoree, 2017.

RESEARCH AND CREATIVE ACTIVITY

Refereed Publications (*40 published to date, 1 in review*) *undergraduate, ** graduate student

Allen DS**, Wiencek MM*, Kelly MM*, Solomons K*, **Sellin Jeffries MK**. *In review*. Exploring alternatives for marine toxicity testing: Initial evaluation of fish embryo and mysid tests. *Alternatives to Animal Experimentation*. Submitted in July 2023.

Allen DS**, Kolok AS, Snow DD, Staybaldiyev B, Uralbekov B, Nystrom GS*, Thornton Hampton LM**, Bartelt-Hunt S, **Sellin Jeffries MK**. 2023. Predicted aquatic and human health risks associated with the presence of metals in the Syr Darya and Shardara Reservoir, Kazakhstan. *Science of the Total Environment* 859: 159827.

Thapa I**, Vahrenkamp R**, Witus SR, Lightle C, Falkenberg O*, **Sellin Jeffries MK**, Klevit RE, Stewart MD. 2023. Conservation of transcriptional regulation by BRCA1 and BARD1 in *Caenorhabditis elegans*. *Nucleic Acids Research* 51:2108-2116.

Krzykwa JC**, Lamanteer GS*, **Sellin Jeffries MK**. 2021. A comparison of two methods for estimating critical swimming speed (U_{crit}) in larval fathead minnows: the laminar flow assay and the spinning task assay. *Journal of Experimental Biology* 224 (24):jeb242856.

Thornton Hampton LM**, Finch MG*, Martyniuk CJ, Venables BJ, **Sellin Jeffries MK**. 2021. Early life stage thyroid hormone disruption causes long-term impacts on immune cell function and transcriptional responses to pathogen in the fathead minnow (*Pimephales promelas*). *Scientific Reports* 11:14496.

Krzykwa JC**, King SM*, **Sellin Jeffries MK**. 2021. Investigating the predictive power of three potential sublethal endpoints for the fish embryo toxicity test: snout-vent length, eye size and pericardial edema. *Environmental Science and Technology* 55, 6907-6916.

Snow DD, Chakraborty P, Uralbekov B, Satybaldiev B, Sallach B, Thornton L**, **Jeffries M**, Kolok A, Bartelt-Hunt S. 2020. Legacy and current pesticide residues in Syr Darya, Kazakhstan: Contamination status, seasonal variation and preliminary ecological risk assessment. *Water Research* 184: 116141.

Thornton Hampton LM**, **Sellin Jeffries MK**, Venables BJ. 2020. A practical guide for assessing respiratory burst and phagocytic cell activity in the fathead minnow, an emerging model for immunotoxicity. *MethodsX* 7: 100992.

Krzykwa JC**, **Sellin Jeffries MK**. 2020. Comparison of behavioral assays for assessing toxicant-induced alterations in neurological function in larval fathead minnows. *Chemosphere* 257: 126825.

Krzykwa JC**, **Sellin Jeffries MK**. 2020. Development of a larval fathead minnow optomotor response assay for assessing visual function. *MethodsX* 7: 100971.

Thornton Hampton LM**, Martyniuk CJ, Venables BJ, **Sellin Jeffries MK**. 2020. Advancing the fathead minnow (*Pimephales promelas*) as a model for immunotoxicity testing: Characterization of the renal transcriptome following *Yersinia ruckeri* infection. *Fish and Shellfish Immunology* 103:472-480.

Roush KS**, **Sellin Jeffries MK**. 2019. Sexual maturity status as a confounding variable in fish-based screening assays for the detection of anti-estrogens and non-aromatizable androgens. *Environmental Toxicology and Chemistry* 38:603-615.

Krzykwa JC**, Saeid A*, **Sellin Jeffries MK**. 2019. Identifying sublethal endpoints for evaluating neurotoxic compounds utilizing the fish embryo toxicity test. *Ecotoxicology and Environmental Safety* 170:521-529.

Norberg-King TJ, Embry MR, Belanger SE, Braunbeck T, Butler JD, Dorn PB, Farr B, Guiney PD, Hughes SA, **Jeffries M**, Journal R, Léonard M, McMaster M, Oris JT, Ryder K, Segner H, Senac T, Van Der Kraak G, Whale G, Wilson P. 2018. An international perspective on the tools and concepts for effluent toxicity assessments in the context of animal alternatives. *Environmental Toxicology and Chemistry* 37:2745-2757.

Krzykwa JC**, Olivas A*, **Sellin Jeffries MK**. 2018. Development of cardiovascular and neurodevelopmental metrics as sublethal endpoints for the fish embryo toxicity test. *Environmental Toxicology and Chemistry* 37:2530-2541.

Thornton LM**, Path EM*, Nystrom GS*, Venables BJ, **Sellin Jeffries MK**. 2018. Embryo-larval BDE-47 exposure causes decreased pathogen resistance in adult male fathead minnows (*Pimephales promelas*). *Fish and Shellfish Immunology* 80:80-87.

Roush KS**, Krzykwa JC**, Malmquist JA*, Stephens DA*, **Sellin Jeffries MK**. 2018. Enhancing the fathead minnow fish embryo toxicity test: Optimizing embryo production and assessing the utility of additional test endpoints. *Ecotoxicology and Environmental Safety* 153:45-53.

Thornton LM**, LeSueur MC*, Yost AT*, Stephens DA*, Oris JT, **Sellin Jeffries MK**. 2017. Characterization of basic immune function parameters in the fathead minnow (*Pimephales promelas*), a common model in environmental toxicity testing. *Fish and Shellfish Immunology* 61:163-172.

Fiester S, Arivett B, Schmidt R, Beckett A, Ticak T, Carrier M, Ohneck E, Metz, M, **Sellin Jeffries MK**, Actis L. 2016. Iron-regulated phospholipase C activity contributes to the cytolytic activity and virulence of *Acinetobacter baumannii*. *PLOS ONE* 11(11): e0167068.

Yost AY*, Thornton LM**, Venables BJ, **Sellin Jeffries MK**. 2016. Dietary exposure to polybrominated diphenyl ether 47 (BDE-47) inhibits development and alters thyroid hormone-related gene expression in the brain of *Xenopus laevis* tadpoles. *Environmental Toxicology and Pharmacology* 48:237-244.

Thornton LM**, Path EM*, Nystrom GS*, Venables BJ, **Sellin Jeffries MK**. 2016. Early life stage exposure to BDE-47 causes adverse effects on reproductive success and sexual differentiation in fathead minnows (*Pimephales promelas*). *Environmental Science and Technology* 50:7834-7841.

Thornton LM**, Path EM*, Venables BJ, **Sellin Jeffries MK**. 2016. The endocrine effects of dietary BDE-47 exposure, measured across multiple levels of biological organization, in breeding fathead minnows. *Environmental Toxicology and Chemistry* 35:2048-2057.

€**Sellin Jeffries MK**, Stultz AE, Smith AW, Stephens DA*, Rawling JM, Belanger SE, Oris JT. 2015. The fish embryo toxicity test as a replacement for the larval growth and survival test: A comparison of test sensitivity and identification of alternative endpoints in zebrafish and fathead minnows. *Environmental Toxicology and Chemistry* 34:1369-1381.

€Nominated for *Environmental Toxicology and Chemistry* Best Paper of 2015 (Baird, D. 2016, ET&C Best Paper of 2015. *Environ Toxicol Chem*, 35: 1605–1606)

Sellin Jeffries MK, Kiss AJ, Smith AW, Oris JT. 2014. A comparison of commercially-available automated and manual extraction kits for the isolation of total RNA from small tissue samples. *BMC Biotechnology* 14:94.

Sellin Jeffries MK, Stultz AE, Smith AW, Rawling JM, Belanger SE, Oris JT. 2014. Alternative methods for toxicity assessments in fish: Comparison of the fish embryo toxicity and the larval growth and survival tests in zebrafish and fathead minnows. *Environmental Toxicology and Chemistry* 33:2584-2594.

Kolok AS, **Sellin Jeffries MK**, Knight L, Snow DD, Bartelt-Hunt, SL. 2014. The hourglass: A conceptual framework for the transport of biologically active compounds from agricultural landscapes. *Journal of the American Water Resources Association* 50:266-274.

Sellin Jeffries MK, Claytor C, Stubblefield W, Pearson WH, Oris JT. 2013. Quantitative risk model for polycyclic aromatic hydrocarbon photo-induced toxicity in Pacific herring following the *Exxon Valdez* oil spill. *Environmental Science and Technology* 47:5450-5458.

Sellin Jeffries MK, Mehinto AC, Carter BJ, Denslow ND, Kolok AS. 2012. Taking microarrays to the field: Differential hepatic gene expression of caged fathead minnows from Nebraska watersheds. *Environmental Science and Technology* 46:1877-1885.

Sellin Jeffries MK, Abbott KI*, Cowman T, Kolok AS. 2011. Occurrence and endocrine effects of agrichemicals in a small Nebraska watershed. *Environmental Toxicology and Chemistry* 30:2253-2260.

Sellin Jeffries MK, Conoan N*, Cox M, Sangster J, Balsiger HA*, Bridges AA*, Cowman T, Knight LA*, Bartelt-Hunt SL, Kolok AS. 2011. The anti-estrogenic activity of sediments from agriculturally-intense watersheds: Assessment using *in vivo* and *in vitro* assays. *Aquatic Toxicology* 105:189-198.

Sellin MK, Snow DD, Schwarz M, Kolok AS. 2010. Reductions in hepatic vitellogenin and estrogen receptor alpha expression by sediments from an agriculturally impacted waterway. *Aquatic Toxicology* 96:103-108.

Sellin MK, Snow DD, Schwarz M, Carter BJ, Kolok AS. 2009. Agrichemicals in Nebraska, USA, watersheds: Occurrence and endocrine-disrupting effects. *Environmental Toxicology and Chemistry* 28:2443-2448.

Sellin MK, Snow DD, Gustafson ST*, Erickson GE, Kolok AS. 2009. The endocrine-activity of beef cattle wastes: Do growth-promoting implants make a difference? *Aquatic Toxicology* 92:221-227.

Sellin MK, Snow DD, Akerly DL*, Kolok AS. 2009. Estrogenic compounds downstream of three small cities in eastern Nebraska: Occurrence and biological effect. *Journal of the American Water Resources Association* 45:1-8.

Kolok AS, **Sellin MK**. 2008. The environmental impact of growth-promoting compounds employed by the beef cattle industry: history, current knowledge and future directions. *Reviews in Environmental Contamination and Toxicology* 195:1-30.

Kolok AS, Snow DD, Kohno S, **Sellin MK**, Guillette Jr. LJ. 2007. Occurrence and biological effect of exogenous steroids in the Elkhorn River, Nebraska. *Science of the Total Environment* 388:104-115.

Sellin MK, Eidem TM*, Kolok AS. 2007. Cd exposures in fathead minnows: are there sex-specific differences in mortality, reproductive success and Cd accumulation? *Archives of Environmental Contamination and Toxicology* 52:535-540.

Sellin MK, Kolok AS. 2006. Maternally-derived Cu tolerance in larval fathead minnows: how long does it persist? *Journal of Fish Biology* 69:1570-1574.

Sellin MK, Kolok AS. 2006. Cd exposures during early development: do they lead to reproductive impairment in fathead minnows? *Environmental Toxicology and Chemistry* 25:2957-2963.

Sellin MK, Kolok AS. 2006. Cd exposures in fathead minnows: effects on adult spawning success and reproductive physiology. *Archives of Environmental Contamination and Toxicology* 51: 594-599.

Sellin MK, Tate-Boldt EK, Kolok AS. 2005. Acclimation to Cu in fathead minnows: does age influence the response? *Aquatic Toxicology* 74:97-109.

Non-refereed Publications

Corrales J, **Jeffries MK**. 2022. SETAC's Newest Interest Group: Immunotoxicology. *Society of Environmental Toxicology and Chemistry Globe* 23:9.

Corrales J, **Jeffries MK**, Hansen JD, Hogan N. 2020. Addressing existing challenges in immunoeco(toxico)logy: From tool development to risk assessment. *Society of Environmental Toxicology and Chemistry Globe* 21:2.

Corrales J, **Jeffries MK**, Thornton LM. 2019. Immunotoxicology: Identifying Adverse Effects, Developing New Approaches and Confronting Existing Challenges. *Society of Environmental Toxicology and Chemistry Globe* 19:4.

Corrales J, **Jeffries MK**, Thornton LM. 2018. Immunotoxicology: Impacts of contaminants on immune function and susceptibility to disease. *Society of Environmental Toxicology and Chemistry Globe* 19:2.

Ali JM, **Jeffries MK**, Kolok AS. 2017. Uncharted Waters: Field Ecotoxicology in Remote Locations on Limited Resources. *Society of Environmental Toxicology and Chemistry Globe* 18:1.

Awards

Funded External Grant Proposals and Contracts

Graduate Women in Science National Fellowship Program. 2022-2023. Identifying chemical hazards in aquatic systems: Validation of a small fish model to identify immunotoxic chemicals. \$10,000. Awarded to MS student, Rashidat Jimoh.

Watchfrog SA. Equipment Use Agreement. 2022. \$26,500. Contract to Marlo Jeffries.

American Association of Laboratory Animal Sciences – Grants for Laboratory Animal Science (GLAS) program. 2021-2022. Moving Marine Fish Toxicity Tests Towards the 3Rs. \$10,164. Marlo Jeffries (PI) and Dalton Allen (PhD student co-PI).

Society of Environmental Toxicology and Chemistry/ Procter & Gamble Fellowship for Research in Environmental Science. 2018-2019. Advancing animal alternatives in toxicity testing: The use of

developmental abnormalities in fish embryos to predict chronic toxicity and adverse outcomes. \$15,000. Awarded to PhD Student, Julie Krzykwa.

American Association of Laboratory Animal Sciences – Grants for Laboratory Animal Science (GLAS) program. 2015-2016. Towards the 3R's in fish toxicity testing. \$27,192. Marlo Jeffries.

Subcontract through Al-Farabi National Kazakh University. 2015-2016. Emerging Contaminants and Environmental Security in the Syr Darya River Basin. \$7,150. Subcontract to Marlo Jeffries.

National Science Foundation – Catalyzing New International Collaborations (CNIC) Program. 2014-2015. Catalyzing New International Collaborations: US-Kazakhstan workshop and pilot study- Pesticide occurrence and ecological effects in the Syr Darya River Basin. \$49,751. Dan Snow, Alan Kolok, Shannon Bartelt-Hunt and Marlo Jeffries.

The Genome Consortium for Active Teaching – NextGen Sequencing in Undergraduate Education Workshop. 2015. Masculinity and immunity: Using global gene expression data to uncover the relationship between sexual ornamentation and pathogen resistance in male fathead minnows. Funds awarded to cover workshop travel (\$800) and NGS costs (\$1500). Marlo Jeffries and Matt Hale.

Sigma Xi Grants-in-Aid of Research Program. 2014-2015. Illuminating the influences of sex-steroid hormones on immune function in the sheepshead minnow. \$825. Awarded to MS student, Leah Thornton.

Funded Internal Grant Proposals

TCU Dean's Opportunity Fund. 2022-2023. Replacement of a multi-function plate reader. \$48,012.25. Marlo Jeffries.

TCU Research and Creative Activities Fund. 2020-2021. Alternatives in marine effluent toxicity testing: Can fish embryos or invertebrates replace larval fish? \$6000. Marlo Jeffries.

TCU Research and Creative Activities Fund. 2017-2018. Utilizing next-generation sequencing to unravel the mechanisms underlying altered reproductive development and function following exposures to thyroid disrupting chemical contaminants. \$4480. Marlo Jeffries.

TCU Research and Creative Activities Fund. 2016-2017. Where's the beef? Identification of watershed characteristics that minimize the environmental impacts of hormonally-active compounds associated with cattle feedlot effluent. \$3996. Marlo Jeffries.

TCU Junior Faculty Summer Research Program. 2016. Where's the beef? Identification of watershed characteristics that minimize the environmental impacts of hormonally-active compounds associated with cattle feedlot effluent. \$6000. Marlo Jeffries.

TCU Research and Creative Activities Fund. 2015-2016. Enhancement of the fathead minnow fish embryo toxicity test: Seeking sublethal endpoints as sensitive indicators of chemically-induced adverse effects. \$3930. Marlo Jeffries.

TCU Junior Faculty Summer Research Program. 2015. Enhancement of the fathead minnow fish embryo toxicity test: Seeking sublethal endpoints as sensitive indicators of chemically-induced adverse effects. \$6000. Marlo Jeffries.

TCU Research and Creative Activities Fund. 2014-2015. Development and validation of a small fish model for assessing the effects of emerging contaminants on immune function. \$3988. Marlo Jeffries.

TCU Junior Faculty Summer Research Program. 2014. Development and validation of a small fish model for assessing the effects of emerging contaminants on immune function. \$6000. Marlo Jeffries.

Presentations (167 since 2003; 2019-Present shown)

**undergraduate, **graduate student, †invited*

†**Jeffries MK**. *Upcoming – November 2023*. From student to professional: What you can do today to land a job tomorrow. Student noontime seminar at the Society of Environmental Toxicology and Chemistry 44th North America Annual Meeting, Louisville, KY.

Jimoh R**, Wise C**, **Jeffries MK**. *Upcoming – November 2023*. Identifying chemical hazards in aquatic systems: Validation of a small fish model to screen for immunotoxic chemicals. Society of Environmental Toxicology and Chemistry 44th North America Annual Meeting, Louisville, KY.

Solomons K*, Allen D**, **Jeffries MK**. *Upcoming – November 2023*. Advancing alternatives in marine toxicity testing: Can fish embryo or mysids be used as replacements for fish larvae? Society of Environmental Toxicology and Chemistry 44th North America Annual Meeting, Louisville, KY.

Allen D**, Solomons K*, Wiencek M*, Kelly M*, **Jeffries MK**. *Upcoming – November 2023*. Evaluation of potential alternatives in marine toxicity testing: Comparing the sensitivity and feasibility of three alternatives. Society of Environmental Toxicology and Chemistry 44th North America Annual Meeting, Louisville, KY.

Allen D**, Kolok AS, Snow DD, Satybaldiyev B, Uralbekov B, Nystrom GS*, Thornton Hampton LM**, Bartelt-Hunt SL, **Jeffries MK**. *Upcoming – November 2023*. Assessment of Aquatic and Human Health Risks Associated with Presence of Metals in the Syr Darya and Shardara Reservoir, Kazakhstan. Society of Environmental Toxicology and Chemistry 44th North America Annual Meeting, Louisville, KY.

Burchfiel E*, Allen D**, Wise C*, Aldrete Z*, Solomons K*, **Jeffries MK**. 2023. Fluorescing fish: Using transgenic medaka to screen for environmental estrogens. South Central Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, Denton, TX.

Solomons K*, Allen D**, **Jeffries MK**. 2023. Innovations in marine toxicity testing: Fish embryo and mysid tests as replacements for larval tests. South Central Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, Denton, TX.

Allen D**, Wiencek M*, Kelly M*, **Jeffries MK**. 2023. Marine effluent toxicity testing: An initial comparison of alternative methods. South Central Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, Denton, TX.

Jeffries MK, Doyle K*, Horton K*. 2022. Development of a new infection model for fathead minnows, an emerging immunotoxicity model organism. Society of Environmental Toxicology and Chemistry 43rd North America Annual Meeting, Pittsburgh, PA.

Allen DS**, Wiencek M*, Kelly M*, **Jeffries MK**. 2022. Can tests with fish embryos or shrimp replace larval fish tests? – An initial evaluation of marine alternatives. Society of Environmental Toxicology and Chemistry 43rd North America Annual Meeting, Pittsburgh, PA.

Allen DS**, Wiencek M*, Kelly M*, **Jeffries MK**. 2022. Marine effluent toxicity testing: Evaluation of alternative testing methods for assessing metal toxicity. Society of Environmental Toxicology and Chemistry 43rd North America Annual Meeting, Pittsburgh, PA.

†**Jeffries MKS**. 2022. Investigating the predictive power of three potential sublethal endpoints for the fish embryo toxicity test: snout-vent length, eye size and pericardial edema. Health and Environmental Sciences Institute Webinar Series, virtual.

†**Jeffries MKS**. 2022. Developmental thyroid disruption and long-term impacts on reproduction. University of Ottawa + Carleton University Chemical and Environmental Toxicology Program Seminar Series, virtual.

†**Jeffries MKS**. 2021. Animal Alternatives in Environmental Risk Assessment. The Health and Environmental Sciences and University of Ottawa and Carleton University Joint Chemical Environmental Toxicology Program Workshop on Translating Science into Real-World Applications via Cross-sector Collaboration, virtual.

†**Jeffries MKS**. 2021. Developmental thyroid disruption and long-term reproductive impacts. University of Texas – Arlington Department of Earth & Environmental Sciences Seminar Series, virtual.

Allen DS**, **Jeffries MK**. 2021. Human health risks associated with the consumption of fish from a freshwater resource feeding the Aral Sea. Texas Chapter of the American Fisheries Society Meeting, virtual.

Schluterman H*, Mielcuszny A*, Malin L**, **Jeffries MKS**. 2020. An analysis of the effects of the cattle growth-promoting androgen, trenbolone, on the immune function of female fish. Society of Environmental Toxicology and Chemistry SciCon2 (virtual meeting).

Bryant A**, **Jeffries MKS**. 2020. The Effects of Early Life Stage Thyroid Disruption on Reproductive Behaviors in Fathead Minnows (*Pimephales promelas*). Society of Environmental Toxicology and Chemistry SciCon2 (virtual meeting).

Krzykwa J**, King S*, Hawkins A*, **Jeffries MKS**. 2020. The inclusion of pericardial edema and growth as indicators of mortality improves fish embryo toxicity test performance. Society of Environmental Toxicology and Chemistry SciCon2 (virtual meeting).

Malin L**, Do V*, **Jeffries MKS**. 2020. Reproductive endocrine disruption and immunity: Does exposure to an anti-estrogen modulate immune function in female fathead minnows? Society of Environmental Toxicology and Chemistry SciCon2 (virtual meeting).

Krzykwa J**, Lamanteer G*, **Jeffries MKS**. 2020. A comparison of two methods for estimating critical swimming speed (U_{CRIT}) in larval fathead minnows: the laminar flow assay and the spinning task assay. Society of Environmental Toxicology and Chemistry Europe 30th Annual meeting. Virtual meeting (due to COVID-19 pandemic).

Krzykwa J**, King S*, Hawkins A*, **Jeffries MKS**. 2020. Investigating the predictive power of pericardial edema in fish embryos. Society of Environmental Toxicology and Chemistry Europe 30th Annual meeting. Virtual meeting (due to COVID-19 pandemic).

Norberg-King T, Embry M, Belanger S, **Jeffries M**, Connors, K, Brill J, Schirmer K, Lampi M, Hughes S, Kristofco L. 2020. Whole effluent toxicity testing: Are there alternative approaches? Society of Environmental Toxicology and Chemistry Europe 30th Annual meeting. Virtual meeting (due to COVID-19 pandemic).

Johnson A**, Bruns P**, Hale MC, **Jeffries MK**. 2019. Developmental thyroid disruption impairs reproduction: Uncovering mechanisms using a transcriptomic approach. Society of Environmental Toxicology and Chemistry 40th North America Annual Meeting, Toronto, CA.

Krzykwa J**, Lamanteer G*, **Jeffries MK**. 2019. Identifying methods for the assessment of toxicant-induced alterations in neurological function in larval fathead minnows. Society of Environmental Toxicology and Chemistry 40th North America Annual Meeting, Toronto, CA.

Thornton Hampton L**, Finch MG*, Venables BJ, **Jeffries MK**. 2019. The impacts of developmental thyroid disruption on immune function and the immune response in the fathead minnow. Society of Environmental Toxicology and Chemistry 40th North America Annual Meeting, Toronto, CA.

Thornton Hampton L**, Venables BJ, **Jeffries MK**. 2019. Optimization and validation of respiratory burst and phagocytic cell activity assays in the fathead minnow, an emerging immunotoxicity model. Society of Environmental Toxicology and Chemistry 40th North America Annual Meeting, Toronto, CA.

Thornton Hampton L**, Finch MG*, Venables BJ, **Jeffries MK**. 2019. The impacts of developmental thyroid disruption on immune function and the immune response in the fathead minnow. Southern California Chapter of the Society of Environmental Toxicology and Chemistry Meeting, La Jolla, CA.

Thornton Hampton L**, Venables BJ, **Jeffries MK**. 2019. Optimization and validation of respiratory burst and phagocytic cell activity assays in the fathead minnow, an emerging immunotoxicity model. Southern California Chapter of the Society of Environmental Toxicology and Chemistry Meeting, La Jolla, CA.

Johnson A**, Bruns P**, Hale MC, **Jeffries MK**. 2019. Connecting developmental thyroid disruption to impaired reproductive success in fathead minnows. South Central Chapter of the Society of Environmental Toxicology and Chemistry Meeting, Waco, TX.

Finch M*, Thornton Hampton L**, Malin L**, **Jeffries MK**. 2019. Investigating sex-based differences in the pathogen resistance and immune responses in the fathead minnow, an immunotoxicity model. South Central Chapter of the Society of Environmental Toxicology and Chemistry Meeting, Waco, TX.

Krzykwa J**, Lamanteer G*, **Jeffries MK**. 2019. Validating methods for the assessment of neurological function in larval fathead minnows. South Central Chapter of the Society of Environmental Toxicology and Chemistry Meeting, Waco, TX.

Nettelblad H*, Wade C*, **Jeffries MK**. 2019. Exploring the effects of early life stage nitrate exposure on sexual development and adult reproduction. South Central Chapter of the Society of Environmental Toxicology and Chemistry Meeting, Waco, TX.

Wade C*, Nettelblad H*, **Jeffries MK**. 2019. Exploring the endocrine activity of nitrate: Does exposure alter hormone levels and reproduction in adult fathead minnows? South Central Chapter of the Society of Environmental Toxicology and Chemistry Meeting, Waco, TX.

Tran A*, **Jeffries MK**. 2019. Uncovering the effects of thyroid disruption on immune function and development in larval fathead minnows. South Central Chapter of the Society of Environmental Toxicology and Chemistry Meeting, Waco, TX.

Thornton Hampton L**, Finch MG*, Venables BJ, **Jeffries MK**. 2019. The impacts of developmental thyroid disruption on immune function and the immune response in the fathead minnow. South Central Chapter of the Society of Environmental Toxicology and Chemistry Meeting, Waco, TX.

Thornton Hampton L**, Venables BJ, **Jeffries MK**. 2019. Optimization and validation of respiratory burst and phagocytic cell activity assays in the fathead minnow, an emerging immunotoxicity model. South Central Chapter of the Society of Environmental Toxicology and Chemistry Meeting, Waco, TX.

Research-related Student Accomplishments

Student Presentation Awards

1st Place Best Platform Presentation for “Fluorescing Fish: Using Transgenic Medaka to Screen for Environmental Estrogens” by Burchfiel E*, Allen D**, Wise C*, Aldrete Z*, Solomons K*, Jeffries MK. South Central Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, 2023.

1st Place Best Poster Presentation for “Innovations in marine toxicity testing: Fish embryo and mysid tests as replacements for larval tests” by Solomons K*, Allen D**, Jeffries MK. South Central Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, 2023.

3rd Place Best Student Talk for “Can tests with fish embryos or shrimp replace larval fish tests? – An initial evaluation of marine alternatives” by Allen DS**, Wienczek M*, Kelly M*, Jeffries MK. Society of Environmental Toxicology and Chemistry 43rd North America Annual Meeting, 2022.

2nd Place Best Poster Presentation for “Investigating sex-based differences in the pathogen resistance and immune responses in the fathead minnow, an immunotoxicity model” by Finch M*, Thornton Hampton L**, Malin L*, Jeffries MK. South Central Chapter of the Society of Environmental Toxicology and Chemistry Meeting, 2019.

3rd Place Best Platform Presentation for “Uncovering the effects of thyroid disruption on immune function and development in larval fathead minnows” by Tran A*, Jeffries MK. South Central Chapter of the Society of Environmental Toxicology and Chemistry Meeting, 2019.

1st Place Best Platform Presentation for “Screening for reproductive endocrine disrupting compounds: Does phenotype influence test outcome?” by Roush KS**, Jeffries MK. South Central Chapter of the Society of Environmental Toxicology and Chemistry Meeting, 2018.

1st Place Best Poster Presentation for “Adaptation of methods for the immunofluorescent visualization of thyroxine (T4) in larval fathead minnows (*Pimephales promelas*)” by Thornton LM**, Venables BJ, Jeffries MK. South Central Chapter of the Society of Environmental Toxicology and Chemistry Meeting, 2018.

3rd Place Best Poster Presentation for “Exposure to the model goitrogen, propylthiouracil (PTU), alters the immune response and pathogen resistance in male fathead minnows (*Pimephales promelas*)” by LeSueur MC*, Thornton LM**, Jeffries MK. South Central Society of Environmental Toxicology and Chemistry Meeting, 2017.

3rd Place Best Platform Presentation for “Reproductive effects of early-life stage thyroid disruption in the fathead minnow” by Bruns P**, Pierce BL*, Seemann MM*, Jeffries MK. South Central Society of Environmental Toxicology and Chemistry Meeting, 2017.

2nd Place Best Undergraduate Platform Presentation for “Balancing the effectiveness and practicality of alternative test endpoints for the fathead minnow fish embryo toxicity test” by Roush KS*, Krzykwa J**, Stephens DA*, Jeffries MK. Society of Environmental Toxicology and Chemistry 7th World Congress/37th North America Annual Meeting, 2016.

3rd Place Best Undergraduate Platform Presentation for “An ecotoxicological reconnaissance in Central Asia: Assessment of biomarker responses in wild-caught roach (*Rutilus rutilus*).” by Nystrom GS*, Snow DD, Kolok AS, Bartelt-Hunt SL, Uralbekov B, Mamilov N, Jeffries MK. 2016. Society of Environmental Toxicology and Chemistry 7th World Congress/37th North America Annual Meeting, 2016.

3rd Place Best Masters Platform Presentation for “Cardiovascular and neurodevelopmental metrics as sublethal endpoints for the fish embryo toxicity test” by Krzykwa J**, Jeffries MK. Society of Environmental Toxicology and Chemistry 7th World Congress/37th North America Meeting, 2016.

2nd Place Best Student Platform Presentation for “Development of cardiovascular and neurodevelopmental metrics as sublethal endpoints for the fish embryo toxicity test” by Krzykwa, JC**, Jeffries, MK. 2016, Lone Star Chapter of the Society of Toxicology Meeting, 2016.

3rd Place Best Student Platform Presentation for “Identifying sensitive endpoints of thyroid hormone disruption in early life stage fathead minnows.” by Path EM*, Egan H*, Jeffries MK; South Central Regional Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, 2016.

2nd Place Best Student Poster Presentation for “Can the fish embryo toxicity test go chronic? Screening for sublethal endpoints to predict chronic toxicity in fathead minnow embryos.” By Krzykwa JC**, Jeffries MK. South Central Regional Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, 2016

Best Student Poster Presentation for “Development of the fathead minnow as a model organism for the study of immune function: characterization of molecular responses to pathogen infection” by Thornton LM**, LeSueur MC*, Yost AT*, Stephens DA*, Oris JT, Jeffries MK; Texas Chapter of the American Fisheries Society Annual Meeting, 2015.

1st Place for “Timing is everything: Are the effects of PBDE-47 different in adult and early life stage organisms?” by Thornton, L.; TCU Three Minute Thesis (3MT®) Competition, 2015.

People’s choice award for “Timing is everything: Are the effects of PBDE-47 different in adult and early life stage organisms?” by Thornton, L., TCU Three Minute Thesis (3MT®) Competition; 2015.

Best Graduate Student Platform Presentation for “Development of the fathead minnow as a model organism for immunotoxicity: Characterization of basic immune function parameters.” by Thornton, L.**, A. Yost*, M. LeSueur*, D. Stephens*, M. Jeffries; South Central Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, 2014.

Funded TCU CSE Graduate Student SERC Proposals

Development of a new infection model for fathead minnows, an emerging immunotoxicity model organism. 2023. \$1996. Graduate student: Kahler Doyle

Investigating the connections between early-life-stage thyroid disruption and long-term behavioral effects. 2020. \$1006. Graduate student: Austin Bryant

Towards the 3Rs in marine effluent toxicity testing: Can tests with fish embryos or invertebrates replace larval fish tests? 2019. \$2000. Graduate student: Dalton Allen.

Sex Steroid Hormones and Immunity: What is the Role of Estrogen in Immune Function? 2019. \$2000. Graduate student: Lynsey Malin

Improving the fish embryo toxicity test: Connecting easily observable developmental changes to alterations in long-term fitness. 2018. \$2000. Graduate student: Julie Krzykwa

Screening for reproductive endocrine disrupting compounds: Does phenotype influence test outcome? 2018. \$1999. Graduate student: Kyle Roush

A transcriptomics approach to identify the mechanisms underlying reproductive impairments among fathead minnows exposed to thyroid disruptors during early development. 2017. \$3000. Graduate student: Peter Bruns

Funded TCU Undergraduate SERC Proposals

Development of a neutrophil migration assay for immunotoxicity screening. 2023. \$1500.
Undergraduate student: Zach Aldrete

Validation of the REACTIV assay for the detection of estrogenic chemicals? 2022. \$1156.
Undergraduate student: Evan Burchfiel

Advancing the fathead minnow as a model for immunotoxicity: Can *Aeromonas* species be used in pathogen challenges? 2021. \$1216. Undergraduate student: Kyle Horton

Development of a new infection model for fathead minnows, an emerging immunotoxicity model organism. 2021. \$987. Undergraduate student: Kahler Doyle

Development of new approaches for marine toxicity testing. \$1071. 2021. Undergraduate student: Michaela Kelly

Sex-specific differences in immunity: an investigation of cellular immune function in male and female fathead minnows. 2020. \$943. Undergraduate student: Andrew Mielcuszny

Comparison of swim performance assays for evaluating the cardiovascular fitness of larval fathead minnows. 2019. \$1426. Undergraduate student: Gabby Lamanteer.

Investigating sex-based differences in pathogen resistance and immune responses in the fathead minnow (*Pimephales promelas*). 2019. \$1500. Undergraduate student: Miranda Finch

Exploring the effects of early life stage nitrate exposure on sexual development and reproduction. 2018. \$1500. Undergraduate student: Hannah Nettelblad

The conversion of UV-exposed triclosan to dioxin-like compounds: NMR analysis of triclosan and its photodegradation by-products in water. 2018. \$1047. Undergraduate student: Asal Saeid

Assessing the impacts of early life stage thyroid disruption on immune cell development and function. 2018. \$1500. Undergraduate student: April Tran

Uncovering the basis of sex-specific differences in immune function: the role of estrogens. 2017. \$1500. Undergraduate student: Ari Soto

The effects of thyroid disrupting compounds on bone development in fathead minnows. 2017. \$1500. Undergraduate student: Mallory Seemann

Analyzing the effects of thyroid disrupting compounds on eye development in *Pimephales promelas*. 2017. \$1500. Undergraduate student: Bethany Pierce

Sink or swim: Effects of thyroid hormones on the developing fathead minnow immune system. 2016. \$1326. Undergraduate student: Haley Egan

Another fish in the signaling sea: The effect of thyroid hormone on the immune function of adult fathead minnows. 2016. \$1500. Undergraduate student: Meriel LeSueur

Cause for Concern: Chemical contamination in Kazakhstan's Syr Darya river and its impacts on fish reproductive health. 2016. \$1207. Undergraduate student: Gunnar Nystrom

Identifying molecular biomarkers of growth inhibition in fathead minnows: Ontogenetic expression profiles and responses to common contaminants. \$1328. Undergraduate student: Kate Phillips.

Effective spawning strategies for producing viable fathead minnow embryos for use in fish embryo toxicity tests. 2015. \$535. Undergraduate student: Jacob Malmquist

Males, masculinity and immunity: A test of the immunocompetence handicap hypothesis in fathead minnows. 2015. \$1500. Undergraduate student: Alexis Medders.

Enhancing the fish embryo toxicity test: Growth, development abnormalities and gene expression as additional test endpoints. 2015. \$1500. Undergraduate student: Kyle Roush.

Identifying sensitive indicators of thyroid disruption in fathead minnows after exposure to thyroxine and propylthiouracil. 2015. \$1500. Undergraduate student: Elise Path.

Global amphibian declines: Are exposures to polybrominated diphenyl ethers a contributing factor? 2014. \$1500. Undergraduate student: Alexandra Yost.

Seeking animal alternatives in toxicity testing: Validation and enhancement of the fathead minnow fish embryo toxicity test as an alternative to larval fish toxicity tests. 2014. \$1500. Undergraduate student: Dane Stephens.

Funded TCU Honors College Proposals

Development of new approaches for marine toxicity testing. 2021. \$2575. Undergraduate student: Michaela Kelly

Development of a new infection model for fathead minnows, an emerging immunotoxicity model organism. 2021. \$1071. Undergraduate student: Kahler Doyle

Analyzing the Effects of Androgens on the Female Fish Immune System. 2020. \$1572. Undergraduate student: Haley Schluterman

Exploring the effects of early life stage nitrate exposure on sexual development and reproduction. 2019. \$740. Undergraduate student: Hannah Nettelblad

Exploring the endocrine disrupting potential of nitrates: Do adult exposures lead to alterations in androgen signaling and reproductive success in fathead minnows? 2019. \$2000. Undergraduate student: Caroline Wade

The effects of thyroid disrupting compounds on bone development in fathead minnows. 2017. \$1500. Undergraduate student: Mallory Seemann

Analyzing the effects of thyroid disrupting compounds on eye development in *Pimephales promelas*. 2017. \$1500. Undergraduate student: Bethany Pierce

Thyroid hormone regulation of immune function. 2016. \$2000. Undergraduate student: Meriel LeSueur.

Enhancing the fish embryo toxicity test: Growth, development abnormalities and gene expression as additional test endpoints. 2015. \$1000. Undergraduate student: Kyle Roush

Funded TCU Pre-Health Professional Institute Research Fellowship Proposals

Validation of a novel screening assay for the detection of estrogenic endocrine disruptors. 2022. \$1890. Undergraduate student: Evan Burchfiel.

Society of Environmental Toxicology and Chemistry Travel Awards

Dalton Allen, 2022, \$598

Leah Thornton, 2019, \$598

Julie Krzykwa, 2019, \$598

Kyle Roush, 2018, \$580

Abbey Johnson, 2018, \$580

Julie Krzykwa, 2016, \$576 Peter

Bruns, 2016, \$576

Kyle Roush, 2016, \$576

Gunnar Nystrom, 2016, \$576

Elise Path, 2016, \$576

Leah Thornton, 2015, \$560

Other Student Travel Awards

TCU Graduate Student Travel Grant. 2019. \$400. Graduate student: Julie Krzykwa

TCU Graduate Student Travel Grant. 2015. \$800. Graduate student: Leah Thornton

Pollutant Responses in Marine Organisms Student Travel Grant. 2015. \$402. Graduate Student: Leah Thornton

SERVICE

Departmental Service

Chair, Biology Department, 2022-Present

Biology co-coordinator and representative, CSE Student Research Interest Fair, 2022

Co-chair, *Ad-hoc* Biology Green Honors Chair Planning Committee, 2022-2023

Associate Chair, Biology Department, 2020-2022

Member, *Ad-hoc* Exploratory Committee for the Hiring of a New Instructor, 2021

Member, Biology Department *Ad-hoc* Handbook Committee, 2019-2022

Chair, Biology Department Advancement Committee, 2019-2022

Member, Biology Department Advisory Committee, 2019-2022

Member, Biology Department Undergraduate Research Committee, 2017-2018

Member, Biology Department Committee on Graduate Studies, 2014-2022

Coordinator, Mondays at TCU, 2014-2019

Member, Committee on Student Research Symposium Poster Judging, 2017-2018

Member, *Ad-hoc* Committee on the Future of the Pre-Health Program, 2017

Member, Biology Department Search Committee for Tenure-track Biochemist, 2016

Member, Biology Department Search Committee for Biochemistry Instructor, 2015

College of Science and Engineering (CSE) Service

Coordinator, New Faculty Mentoring Program, 2023-Present

Member, *Ad-hoc* Vivaria Committee, 2021-Present

Member, Health Professions Advising Committee, 2014-Present

Presenter, CSE External Advisory Board Meeting, 2023

Moderator, CSE Honors Research Symposium, 2023

Member, *Ad-hoc* CSE Faculty Workload Equity Model Review Committee, 2022-2023

Presenter, CSE Experience TCU Events for Prospective Students, 2020, 2023

Chair, CSE Honors Research Symposium Committee, 2016-2019

Coordinator, National Center for Genome Analysis and Support R Workshop for Biologist and the Biologically-minded at TCU, 2018

University Service

Member, TCU Core Assessment Committee, 2023-Present

Member, TCU Chairs Council, 2022-Present

Speaker and Exhibitor, Celebration of Philanthropy, 2022

Panelist, Office of Graduate Studies CV/Getting a Job in Academia Panel Discussion, 2022

CSE Representative, Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) Quality Enhancement Plan Leadership Team, 2021-2023

CSE Representative, Graduate Council, 2020-2023

Alternate Member, TCU Institutional Animal Care and Use Committee, 2018-Present

CSE Representative, National First-generation College Student Day Celebration Event, 2021

Member, J.V. Roach Honors College Curriculum Committee, 2021-2022

Ad hoc Reviewer, Research and Creative Activities Committee, TCU Office of Research, 2021

Lead Interviewer, Chancellor's Scholar Program, 2021
Honors Admission Reader, J.V. Roach Honors College, 2020/2021 and 2021/2022
Chair, Academic Excellence Committee, 2021-2022
Member, Academic Excellence Committee, 2019-2021
CSE Representative, Faculty Senate, 2019-2022
Member, TCU Allies Program, 2015-Present
Reviewer, J.V. Roach Honors College Honors Undergraduate Research Grants, 2019-2020
Member, TCU Office of Research Compliance Advisory Committee, 2017-2019
College of Science and Engineering Honors Week Liaison, 2015-2019
Member, Honors College Undergraduate Research Grant Committee, 2016-2017
Member, *Ad-hoc* Committee for Controlled Substance Policy and Procedure Revision, 2018
Member, *Ad-hoc* Institutional Animal Care and Use Committee for Policy Revision, 2016-2017
Lecturer, Experience TCU (Chancellor's Scholars weekend), 2015

Community Service and Outreach

Founder, Fort Worth Science Café, 2020-Present
Mentor, STEM Summer Camp for Girls Inc. of Tarrant County, 2019

Professional Review and Editorial Service

Editorial Positions.

Review Editor, *Frontiers in Immunology* (Comparative Immunology Section), 2022-Present
Editor, *Environmental Toxicology and Chemistry*, 2022-Present
Associate Editor, *Archives of Environmental Contamination and Toxicology*, 2021-Present
Editorial Board Member, *Environmental Toxicology and Chemistry*, 2017-2022

Manuscript Referee. (~135 reviews from 2013 to June 2022)

Archives of Environmental Contamination and Toxicology, *Aquatic Toxicology*, *Biological Bulletin*, *BMC Genomics*, *Chemosphere*, *Comparative Biochemistry and Physiology*, *Ecotoxicology*, *Ecotoxicology and Environmental Safety*, *Environmental Monitoring and Assessment*, *Environmental Pollution*, *Environmental Science and Pollution Research*, *Environmental Science and Technology*, *Environmental Science: Processes and Impacts*, *Environmental Toxicology and Chemistry*, *Environmental Toxicology and Pharmacology*, *Fish Physiology and Biochemistry*, *Food and Chemical Toxicology*, *Frontiers in Immunology*, *Histology and Histopathology*, *Journal of Environmental Quality*, *Journal of Fish Biology*, *Journal of Great Lakes Research*, *International Journal of Environmental Research and Public Health*, *Journal of Hazardous Materials*, *Journal of the American Water Resources Association*, *Microarrays*, *PLOS ONE*, *Royal Society Open Science*, *Science of the Total Environment*, *Springer Plus*, *Toxicological Sciences*, *Toxicology and Industrial Health*

Grant Proposal Reviewer.

National Science Foundation Review Panel – Graduate Research Fellowship Program, 2022.
Alternative Research and Development Foundation Grant Program, 2020.
Environment and Natural Resources Trust Fund Grant Program, 2020.
Alternative Research and Development Foundation Grant Program, 2019.
National Oceanic and Atmospheric Administration RESTORE Science Program, 2019.
United States Geological Survey 104b State Grant Program (Idaho), 2018.
Graduate Women in Science – Fellowship Program, 2018.
National Science Foundation - International Research Fellowship Program, 2012.

Textbook Reviewer.

Schreiber's *Integrative Endocrinology* (publisher: Oxford University Press), 2020.
Human Physiology: Mechanisms and Logic (publisher: Jones and Bartlett Learning), 2016.

Professional Affiliations and Service

Society of Environmental Toxicology and Chemistry (SETAC)

SETAC Leadership

Co-chair, Global SETAC Immunotoxicity Interest Group, 2022- present*

*Developed from an informal Immunotoxicity Working Group prior to adoption as an official SETAC Interest Group

Secretary, South Central Chapter, 2019-2022

Webmaster, South Central Chapter 2015-2022

2020 North America Meeting Co-chair, 2018-2020

Immediate Past President, South Central Chapter, 2018-2019

President, South Central Chapter, 2017-2018

Vice President, South Central Chapter, 2016-2017

SETAC Service

Student Presentation Judge, North America Annual Meeting, 2020

Student Presentation Judge, Europe Annual Meeting, 2020

Member, North America Meeting Social Subcommittee, 2019-2020

Member, North America Meeting Abstract Review Committee, 2019-2020

Mentor, Exploring Career Choices Event, 2018-2019

Co-host, South Central Chapter Annual Meeting Co-host with M. Chumchal and R. Drenner, 2016

North America Annual Meeting Session Co-chair for:

- Advancements in Aquatic and Wildlife Immunotoxicology: Innovative Approaches to Identifying Adverse Outcomes, 2022.
- Alternative Animal Ecotoxicity Testing: New and Novel Approaches for Predicting Environmental Hazards and Risk Assessment, 2018.
- Immunotoxicology: Identifying Adverse Effects, Developing New Approaches and Confronting Existing Challenges, 2018.
- Alternative Approaches to Animal Testing for Ecotoxicity Assessments, 2017.
- Immunotoxicity – Impacts of Contaminants on Immune Function and Susceptibility to Disease, 2017.
- Uncharted Waters: Field Ecotoxicology in Remote Locations on Limited Resources, 2016.
- Aquatic Toxicology and Ecology – General, 2015.

SETAC Membership

Member, North America Geographic Unit Member, 2004-present

South Central Regional Chapter Member, 2014-present

Member, Ohio Valley Regional Chapter, 2012-2013

Member, Ozark-Prairie Regional Chapter, 2003-2010

Health and Environmental Sciences Institute

Next Generation Ecological Risk Assessment Committee Member, 2022 to present

Animal Alternatives Steering Committee Member, 2019-2022

Animal Alternatives Committee Advisory Committee Member, 2014-2022

American Association for Laboratory Animal Science, Silver Member, 2014-2017, 2020-present

Council on Undergraduate Research, Member, 2016-2018

Sigma Xi Scientific Research Society, Full Member, 2006-2008, 2013-2014, 2016-2019

Professional Development Activities

Leadership and Management workshops, seminars, and training (those required of all TCU employees are excluded)

- Chairs Case Studies, 2022. Half-day case study-based training session hosted by TCU HR and TCU Chairs Council.
- New Chair Training, 2022. Multi-session training series hosted by the TCU College of Science and Engineering.
- Virtual Seminar for Department Chairs/Heads, 2022. Multi-day workshop hosted by the Council of Colleges of Arts & Sciences.
- TCU Chairs Academy, 2022. Multi-day workshop hosted by TCU Academic Affairs and TCU Chairs Council.
- Manager Foundation Boot Camp (for Departmental Chairs), 2021. Multi-week training hosted by TCU Human Resources
- Getting to Yes: Negotiating Agreements without Giving In, 2021. Hosted by TCU and UNTHSC School of Medicine.
- Intentional Dialogue Training--Level 1, 2021. Hosted by TCU Human Resources.
- Hiring and Selection Committee Training, 2020. Hosted by TCU Human Resources.
- Make Difficult Conversations Easy(er), 2020. Hosted by TCU Human Resources.
- Key communication strategies for navigating challenging workplace relationships, 2017. Hosted by the Society of Environmental Toxicology and Chemistry.

DEI-related workshops, seminars, and training (those required of all TCU employees are excluded)

- Exploring Difference in the Biology Classroom: Engaging with Genetic Disability and Difference, 2023. Hosted by Personal Genetics Education Project.
- Pronoun Fluency Training, 2021. Hosted by TCU Human Resources.
- Interrupting Microaggressions, 2020. Hosted by TCU Human Resources.
- Racial Equity in Higher Ed: Teaching with Racial Equity, 2020. Hosted by TCU.
- Experiences of Black STEM in the Ivory: A Call to Disruptive Action, 2020. Virtual event hosted by the University of Washington.
- Culturally based trauma-informed response training, 2020. Hosted by TCU Student Affairs.
- Inclusive Communication, 2019. Hosted by the TCU College of Science & Engineering.

Research-related workshops, seminars and training (those required of all TCU employees are excluded)

- Eco-Risk Webinar on “Leveraging machine learning to predict species sensitivity as a function of underlying physiology”, 2023. Hosted by the Health and Environmental Sciences Institute.
- White Paper Workshop, 2023. Hosted by TCU College of Science and Engineering.
- Field Immunotoxicology: Experimental design and analysis considerations in wild-caught fish studies, 2023. Hosted by the Society of Toxicology and Chemistry Immunotoxicology Interest Group.
- EnviroTox Database and Tools Webinar, 2022. Hosted by the Health and Environmental Sciences Institute.
- Conflict of interest, 2018. CITI training module.
- Essentials for IACUC Members, 2018. CITI training module.
- Working with Fish in Research Settings, 2018. CITI training module.
- Working with the IACUC, 2018. CITI training module.

Teaching and mentoring workshops, seminars and training

- Mentoring the Next Generation of Scientists: A Lunch & Learn with Dr. Tyrone Hayes, 2023. Hosted by the TCU Department of Biology.
- The Neuroscience of Coaching, 2020. Hosted by the TCU and UNTHSC School of Medicine.
- Colloquium on Mental Health and the Classroom, 2020. Hosted by the TCU Academic Excellence Committee and Faculty Senate.

Other Professional Service Activities

Legislative Testimony.

California Assembly Bill No. 2474: Hazardous waste: identification: testing. Testimony in support of a bill authorizing the Department of Toxic Substances Control to evaluate whether the fish embryo toxicity test can be utilized as an alternative to existing toxicity testing strategies. 2018.

Service-related Honors & Recognition

Exceptional reviewer (top 15 of over 600 reviewers) for *Environmental Toxicology and Chemistry* in 2021; recognition appears in *Environmental Toxicology and Chemistry*, 2022, 41:5-6.

Exceptional reviewer (top 15 of over 600 reviewers) for *Environmental Toxicology and Chemistry* in 2020; recognition appears in *Environmental Toxicology and Chemistry*, 2021, 40:5-6.

High-ranking (top 5%) reviewer for *Environmental Toxicology and Chemistry* in 2019; recognition appears in *Environmental Toxicology and Chemistry*, 2020, 39:5-6.

Exceptional reviewer (top 15 of nearly 850 reviewers) for *Environmental Toxicology and Chemistry* in 2018; recognition appears in *Environmental Toxicology and Chemistry*, 38:5-6.

High-ranking (top 5%) reviewer for *Environmental Toxicology and Chemistry* in 2017; recognition appears in *Environmental Toxicology and Chemistry*, 2018, 37:5-6.