Dr. Marlo K. Sellin Jeffries

Curriculum Vitae

Department of Biology
Texas Christian University
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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

2013-Present **Assistant Professor**, Texas Christian University, Department of Biology, Fort Worth, TX
2010-2013 **Postdoctoral Fellow**, Miami University, Department of Zoology, Oxford, OH
2007-2010 **Emley Fellow**, University of Nebraska Medical Center
2006/2008 **Instructor**, University of Nebraska at Omaha, Department of Biology
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**, University of Nebraska at Omaha, Department of Biology

TEACHING

Courses Taught

Assistant Professor, Texas Christian University, Department of Biology, Fall 2013 to present

- Biology 40403 (Fall semesters): Mammalian Physiology. An upper-level course on the function of the major mammalian organ systems.
- Biology 40473 (Spring semesters): Endocrinology. An upper-level, writing emphasis, lecture and laboratory course on chemical messengers of endocrine origin and the physiological processes under their control.
- Biology 40453 (Fall semesters, Odd years): Principles of Toxicology. An upper-level, discussion-based course on the fate, transport and biological effects of contaminants.
- Biology 10514 (Spring 2014 and 2015): Introductory Biology II. A freshman-level, team-taught introductory biology course on evolution and the diversity, morphology, anatomy and physiology of eukaryotes.

Student Research Supervision

Ph.D. Dissertations Directed

Leah Thornton, 2015 to present, Dissertation title to be determined. PhD student at University of North Texas, co-advised by Barney Venables

M.S. Theses Directed
Peter Bruns, 2015 to present, "Thinking outside the thyroid: Implications of adult and early life-stage thyroid disruption on reproduction"

Julie Krzykwa, 2015 to present, "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"

Service on TCU Graduate Theses Committees
Haley Hayes, 2016 to present, Thesis title TBD, Advisor: Michael Chumley

Andria Beal, 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: Matt Hale

Carolina Granthon, 2014 to 2015, "Avian malaria and body condition in four species of songbirds", Advisor: Dean Williams

Honors Theses Directed
Mallory Seemann, 2016 to Present, "Title TBD"

Bethany Pierce, 2016 to Present, "Title TBD"

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

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

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?"

Independent Research Projects Directed
Alexis Olivas, 2016 to Present, "Title TBD"

Haley Egan, 2015 to Present, "Sink or swim: Effects of thyroid hormones on the developing fathead minnow immune system."

Lydia Stephens, 2014 to Present, "Color as a confounder: The effects of background color on metamorphosis and stress responses in the common laboratory model, *Xenopus laevis*"

Dane Stephens, 2013 to 2015, "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"

Service on Honors Theses Committees
Adam Burgess, 2016-2017, "IL-1β as a predictor of life history strategy and impulsivity in humans" Advisor: Dr. Sarah Hill (Psychology)

Michael Chandra, 2016-2017, "Targeting the estrogen receptor in breast cancer cells with cytotoxic drugs" Advisor: Dr. Giri Akkaraju (Biology)

Sarah Price, 2016-2017, "Spectroscopic analysis of BODIPY dyes" Advisor: Dr. Sergei Dzyuba (Chemistry)

Eleanore Rominger, 2016-2017, "Characterization of LPS activated peritoneal B-1 cells" Advisor: Dr. Mike Chumley (Biology)

Sam Showalter, 2016-2017, "Examining sex bias in gene expression in the brain tissue of brook trout" Advisor: Dr. Matt Hale (Biology)

Julianna West, 2016-2017, "The effect of the stimulation and inhibition of the inflammatory response on the activation of NF-kB" Advisor: Dr. Giri Akkaraju (Biology)

Rachel Cartmell, 2015-2016, "Determination of the phenology of fall flowering plant species in the Fairview Prairie." Advisor: Dr. Glenn Kroh (Biology)

Candler Bortz, 2015-2016, "YwIE effect on oxidative stress response in *Bacillus anthracis*." Advisor: Dr. Shauna McGillivray (Biology)

Jessica Mussatto, 2013-2014, "Analysis of amyloid beta clearance in exercised mice following inflammation." Advisor: Dr. Michael Chumley (Biology)

Supervised Undergraduate Students (*co-author on presentation* or publication†*)
Texas Christian University (2013-Present, 20 to date*)*

Lauren Burgess	Thomas Boudreaux*	Haley Egan*	Hana Jaafari
Meriel LeSueur*†	Jacob Malmquist*	Alexis Medders*	Gunnar Nystrom*†
Alexis Olivas	Elise Path*†	Kate Phillips*	Bethany Pierce
Kyle Roush*	Asal Saeid	Mallory Seemann	Dane Stephens*†
Arantxa Soto	Lydia Stephens	Michael Vaughan	Alexandra Yost*†

RESEARCH AND CREATIVE ACTIVITY

Referred Publications *(24 published to date)*

** denotes undergraduate, † denotes graduate student*

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. Modeling the risk of PAH 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.

Awards

Pending External Grant Proposals

National Science Foundation – Major Research Instrumentation (MRI) Program. 2017-2020. MRI: Acquisition of an Illumina MiSeq to Enhance Research and Student Training at Texas Christian University. $207,338. Matt Hale, Marlo Jeffries and Dean Williams.

Funded External Grant Proposals

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 travel to the workshop ($800) and next-generation sequencing costs ($1500). Marlo Jeffries and Matt Hale.

Funded Internal Grant Proposals

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.

Student Accomplishments

Funded Student Grant Proposals

Society of Environmental Toxicology and Chemistry Student Travel Grant. 2016. $576. Graduate student: Julie Krzykwa.

Society of Environmental Toxicology and Chemistry Student Travel Grant. 2016. $576. Graduate student: Peter Bruns.

Society of Environmental Toxicology and Chemistry Student Travel Grant. 2016. $576. Graduate student: Kyle Roush.

Society of Environmental Toxicology and Chemistry Student Travel Grant. 2016. $576. Undergraduate student: Gunnar Nystrom.

Society of Environmental Toxicology and Chemistry Student Travel Grant. 2016. $576. Undergraduate student: Elise Path.

JVR Honors College Board TCU Honors Scholar Award. 2016-2017. Thyroid hormone regulation of immune function. $1000. Undergraduate student: Meriel LeSueur.

JVR Honors College Board of Visitors Undergraduate Research/Creative Project Grant Program. 2016-2017. Thyroid hormone regulation of immune function. $1000. Undergraduate student: Meriel LeSueur.

Society of Environmental Toxicology and Chemistry Student Travel Grant. 2015. $560. Graduate student: Leah Thornton.

JVR Honors College Board of Visitors Undergraduate Research/Creative Project Grant Program. 2015-2016. Enhancing the fish embryo toxicity test: Growth, development abnormalities and gene expression as additional test endpoints. $1000. Undergraduate student: Kyle Roush

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.

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. Graduate student: Leah Thornton.

Funded TCU SERC Proposals

2016-2017 Academic Year

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

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

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

2015-2016 Academic Year

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. $535. Undergraduate student: Jacob Malmquist

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

Enhancing the fish embryo toxicity test: Growth, development abnormalities and gene expression as additional test endpoints. $1500. Undergraduate student: Kyle Roush.
Identifying sensitive indicators of thyroid disruption in fathead minnows after exposure to thyroxine and propylthiouracil. $1500. Undergraduate student: Elise Path.

2014-2015 Academic Year

Global amphibian declines: Are exposures to polybrominated diphenyl ethers a contributing factor?. $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. $1500. Undergraduate student: Dane Stephens.

Other Student Awards

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 Toxicology and Environmental 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 Toxicology and Environmental 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 Toxicology and Environmental Chemistry 7th World Congress/37th North America Annual 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 Kryzykwa, 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.

Best Undergraduate Poster in Biology for "The effects of fluoride on thyroid hormone signaling and metamorphosis in Xenopus laevis tadpoles" by Yost, A.**, A. Lisner**, K. Cox**, M. Jeffries, TCU Student Research Symposium, 2014.

Research Interests

- Elucidation of the effects of environmental stressors on endocrine, reproductive and immune function in aquatic organisms
- Identification of adverse outcome pathways linking molecular- and cellular-level alterations to adverse organismal- and population-level effects
- Development of alternative test strategies and additional endpoints for toxicity testing
- Evaluation of the occurrence and biological effects of emerging contaminants in aquatic environments

Presentations (*102 to date, only those since 2012 shown*)

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

Norberg-King TJ, Embry MR, Belanger SE, Braunbeck T, Butler JD, Dorn PB, Farr B, Guiney PD, Hughes S, **Jeffries M**, Journel R, Leonard M, McMaster M, Oris JT, Ryder K, Segner H, Senac T, Van der Kraak G, Wilson P, Whale G. Upcoming May 2017. The effluent toxicity assessment toolbox – international perspective on tools and concepts and opportunities for animal alternatives. To be presented at Society of Toxicology and Environmental Chemistry Europe 27th Annual Meeting, Brussels, Belgium.

Bruns P**, Thornton LM**, **Jeffries MK**. 2016. Thinking outside the thyroid: Implications of disruption of thyroid hormone signaling on reproduction. Society of Toxicology and Environmental Chemistry 7th World Congress/37th North America Annual Meeting, Orlando, FL.

Bruns P**, **Jeffries MK**. 2016. The effects of early-life stage thyroid disruption on morphology, thyroid signaling, and reproduction in fathead minnows (*Pimephales promelas*). Society of Toxicology and Environmental Chemistry 7th World Congress/37th North America Annual Meeting, Orlando, FL.

Path EM*, **Jeffries MK**. 2016. The developing fathead minnow as a screen for thyroid disrupting compounds: Identification of sensitive endpoints. Society of Toxicology and Environmental Chemistry 7th World Congress/37th North America Annual Meeting, Orlando, FL.

Roush KS*, Krzykwa J**, Stephens DA*, **Jeffries MK**. 2016. Balancing the effectiveness and practicality of alternative test endpoints for the fathead minnow fish embryo toxicity test. Society of Toxicology and Environmental Chemistry 7th World Congress/37th North America Annual Meeting, Orlando, FL.

Krzykwa J**, Roush KS**, Malmquist JA*, **Jeffries MK**. 2016. Making the fathead minnow fish embryo toxicity test feasible: Spawning strategies to optimize embryo production. Society of Toxicology and Environmental Chemistry 7th World Congress/37th North America Annual Meeting, Orlando, FL.

Krzykwa J**, **Jeffries MK**. 2016. Cardiovascular and neurodevelopmental metrics as sublethal endpoints for the fish embryo toxicity test. Society of Toxicology and Environmental Chemistry 7th World Congress/37th North America Annual Meeting, Orlando, FL.

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

Snow DD, Kolok AS, Bartelt-Hunt SL, Uralbekov B, Mamilov N, **Jeffries MK**. 2016. An ecotoxicological voyage into Central Asia. Society of Toxicology and Environmental Chemistry 7th World Congress/37th North America Annual Meeting, Orlando, FL.

Bartelt-Hunt SL, Snow DD, Uralbekov B, Kolok AS, **Jeffries MK**, Mamilov N, Hoehn E, Sallach JB. 2016. Documenting water quality in the Syr Darya River Basin – the utility of passive sampling. Society of Toxicology and Environmental Chemistry 7th World Congress/37th North America Annual Meeting, Orlando, FL.

Norberg-King TJ, Embry MR, Belanger SE, Braunbeck T, Butler JD, Dorn PB, Farr B, Guiney PD, Hughes S, **Jeffries M**, Journel R, Leonard M, McMaster M, Oris JT, Ryder K, Segner H, Senac T, Van der Kraak G, Wilson P, Whale G. 2016. An assessment of whole effluent toxicity for the future with emphasis on reduction of animal use: results of a global workshop. Society of Toxicology and Environmental Chemistry 7th World Congress/37th North America Annual Meeting, Orlando, FL.

Jeffries M, Roush KS*, Krzykwa JC**, Phillips KM*, Malmquist JA*. 2016. Toward the 3R's in fish toxicity testing: Development of a fathead minnow fish embryo toxicity. 67th American Association of Laboratory Animal Science National Meeting, Charlotte, NC.

Kryzykwa JC**, **Jeffries MK**. 2016. Development of cardiovascular and neurodevelopmental metrics as sublethal endpoints for the fish embryo toxicity test. Lone Star Chapter of the Society of Toxicology Meeting, Waco, TX.

Thornton LM**, Path EM*, Nystrom GS*, Venables BJ, **Jeffries MK**. 2016. Early life stage exposure to BDE-47 causes alterations in growth and decreased pathogen resistance in fathead minnows (*Pimephales promelas*). Lone Star Chapter of the Society of Toxicology Meeting, Waco, TX.

LeSueur, MC*, Thornton LM**, **Jeffries MK**. 2016. Exposures to the model thyroid inhibitor, propylthiouracil, alter immune function and impair pathogen resistance in a fish model. Lone Star Chapter of the Society of Toxicology Meeting, Waco, TX.

Norberg-King TJ, Embry MR, Belanger SE, Braunbeck T, Butler JD, Dorn PB, Farr B, Guiney PD, Hughes S, **Jeffries M**, Journel R, Leonard M, McMaster M, Oris JT, Ryder K, Segner H, Senac T, Van der Kraak G, Wilson P, Whale G. 2016. Concepts, tools, and strategies for effluent testing: An international survey. Society of Environmental Toxicology and Chemistry Europe 2016 Conference, Nantes, France.

Yost A*, Thornton LM**, Venables BJ, **Jeffries MK**. 2016. Global amphibian declines: Are exposures to polybrominated diphenylethers a contributing factor? South Central Regional Chapter of the Society of Environmental Toxicology and Chemistry Meeting, Fort Worth, TX.

Phillips KM*, Boudreaux T*, **Jeffries MK**. 2016. Molecular biomarkers of growth inhibition in fathead minnows: Early life stage ontogenetic expression profiles. South Central Regional Chapter of the Society of Environmental Toxicology and Chemistry Meeting, Fort Worth, TX.

Bruns P**, **Jeffries MK**. 2016. Reproductive effects of early life stage chemically-induced hypothyroidism in the fathead minnow (*Pimephales promelas*). South Central Regional Chapter of the Society of Environmental Toxicology and Chemistry Meeting, Fort Worth, TX.

Malmquist J*, **Jeffries MK**. 2016. Effective spawning strategies for producing viable fathead minnow embryos for use in fish embryo toxicity tests. South Central Regional Chapter of the Society of Environmental Toxicology and Chemistry Meeting, Fort Worth, TX.

Medders A*, Hale MC, **Jeffries MK**. 2016. Male fathead minnow phenotypes: Implications for toxicity testing. South Central Regional Chapter of the Society of Environmental Toxicology and Chemistry Meeting, Fort Worth, TX.

Krzykwa JC**, **Jeffries MK**. 2016. Can the fish embryo toxicity test go chronic? Screening for sublethal endpoints to predict chronic toxicity in fathead minnow embryos. South Central Regional Chapter of the Society of Environmental Toxicology and Chemistry Meeting, Fort Worth, TX.

Thornton LM**, Path EM*, Nystrom GS*, Venables BJ, **Jeffries MK**. 2016. The long-term impacts of early life stage PBDE-47 exposure across multiple systems in the fathead minnow (*Pimephales promelas*). South Central Regional Chapter of the Society of Environmental Toxicology and Chemistry Meeting, Fort Worth, TX.

Path EM*, Egan H*, **Jeffries MK**. 2016. Identifying sensitive endpoints of thyroid hormone disruption in early life stage fathead minnows. South Central Regional Chapter of the Society of Environmental Toxicology and Chemistry Meeting, Fort Worth, TX.

Nystrom GS*, Snow DD, Uralbekov B, Kolok AS, Bartelt-Hunt SL, Mamylov N, **Jeffries MK**. 2016. Biological implications of chemical contamination in the Syr Darya watershed (Kazakhstan). South Central Regional Chapter of the Society of Environmental Toxicology and Chemistry Meeting, Fort Worth, TX.

Roush KS*, Krzykwa J**, Malmquist JA*, Stephens DA*, **Jeffries MK**. 2016. Enhancing the fish embryo toxicity test: Growth, developmental abnormalities and gene expression as additional test endpoints. South Central Regional Chapter of the Society of Environmental Toxicology and Chemistry Meeting, Fort Worth, TX.

Nystrom GS*, **Jeffries MK**, Bartelt-Hunt SL, Kolok AS, Uralbekov B, Mamylov N, Snow DD. 2016. An ecological collapse: biological effects of chemical contamination in Kazakhstan's Syr Darya watershed. Central Ecology and Evolution Conference, Norman, OK.

Medders AM*, Hale MC, **Jeffries MK**. 2016. Males masculinity and immunity: A test of the immunocompetence handicap hypothesis in fathead minnows. Central Ecology and Evolution Conference, Norman, OK.

†**Sellin Jeffries MK.** 2016. The FET for WET: Species comparisons, additional endpoints, and unforeseen obstacles. Health and Environmental Sciences International Workshop on Concepts, Tools, and Strategies for Effluent Testing, Paris, France.

Nystrom GS*, **Jeffries MK**, Bartelt-Hunt SL, Kolok AS, Uralbekov B, Mamylov N, Snow DD. 2016. Biomonitoring of the Syr Darya River (Kazakhstan): Chemical contamination and biological effects. Texas Chapter of the American Fisheries Society Meeting, Kerrville, TX.

Roush KS*, Krzykwa J**, Malmquist JA*, Stephens DA*, **Jeffries MK**. 2016. Enhancing the fish embryo toxicity test: Growth, developmental abnormalities and gene expression as additional endpoints. Texas Chapter of the American Fisheries Society Meeting, Kerrville, TX.

Sellin Jeffries MK, Yost AY*, Thornton LM**, Venables BJ. 2015. Brominated flame retardants: Evidence for altered thyroid signaling and neurological development in *Xenopus laevis* tadpoles. Society of Toxicology and Environmental Chemistry North America 36th Annual Meeting, Salt Lake City, UT.

Sellin Jeffries MK, Roush KS*, Stephens DA*. 2015. Additional endpoints for the fathead minnow FET test: Evaluation of growth, developmental and gene expression metrics. Society of Toxicology and Environmental Chemistry North America 36th Annual Meeting, Salt Lake City, UT.

Thornton LM**, Path EM*, Nystrom GS*, Venables BJ, **Sellin Jeffries MK**. 2015. Comparing the effects of PBDEs on reproductive and thyroid function in adult and early life stage fathead minnows. Society of Toxicology and Environmental Chemistry North America 36th Annual Meeting, Salt Lake City, UT.

Thornton LM**, Path EM*, Nystrom GS*, Venables BJ, **Sellin Jeffries MK**. 2015. The organizational effects of PBDE-47 exposure on reproductive function in early life stage fathead minnows. Society of Toxicology and Environmental Chemistry North America 36th Annual Meeting, Salt Lake City, UT.

Jeffries MK. 2015. Ecological risk assessment: A framework for assessing pesticide occurrence and ecological effects in the Syr Darya River basin. Workshop on Catalyzing New International Collaborations in Kazakhstan: Pesticide Occurrence and Ecological Effects in the Syr Darya River Basin. Almaty, Kazakhstan.

Thornton LM**, Yost AT*, LeSueur MC*, Stephens DA*, **Jeffries MK**. 2015. Development of the fathead minnow as a model organism for immunotoxicity: Characterization of basic immune function parameters. 18th International Symposium on Pollutant Responses in Marine Organisms, Trondheim, Norway.

Jeffries MK, Yost AY*, Thornton LM**, Venables BJ. 2015. Exposures to PBDE-47 alter development and thyroid-related gene expression in two model organisms, *Pimephales promelas* and *Xenopus laevis*. 18th International Symposium on Pollutant Responses in Marine Organisms, Trondheim, Norway.

Thornton LM**, Path EM,* Nystrom GS,* Venables BJ, **Jeffries MK**. 2015. Timing is everything: Exploring the differential effects of PBDE exposure in adult and early life stage fathead minnows. 18th International Symposium on Pollutant Responses in Marine Organisms, Trondheim, Norway.

Sellin Jeffries MK, Stultz AE, Smith AW, Stephens DA*, Roush KS*, Rawlings JM, Belanger SE, Oris JT. 2015. The fish embryo toxicity test as an alternative to the larval growth and survival test: Test sensitivity and alternative endpoints in zebrafish and fathead minnows. Society of Environmental Toxicology and Chemistry Europe 2015 Conference, Barcelona, Spain.

Yost AT*, Thornton LM**, Path EM*, Venables BJ, **Jeffries MK**. 2015. The effects of a ubiquitous aquatic contaminant, PBDE-47, on growth and thyroid function in fish and amphibians. Texas Chapter of the American Fisheries Society Annual Meeting, Tyler, TX.

Thornton LM**, LeSueur MC*, **Jeffries MK**. 2015. Basic aspects of immunity in two teleost model organisms, the fathead minnow and the sheepshead minnow. Texas Chapter of the American Fisheries Society Annual Meeting, Tyler, TX.

Stephens DA*, Roush KS*, Oris JT, **Jeffries MK**. 2015. The fathead minnow fish embryo test: An alternative method for evaluating whole effluent toxicity and surface water quality. Texas Chapter of the American Fisheries Society Annual Meeting, Tyler, TX.

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

†**Sellin Jeffries MK**, Claytor C, Stubblefield W, Pearson W, Oris JT. 2014. The development and application of a quantitative model to estimate the risk of PAH phototoxicity in Pacific Herring (*Clupea pallasi*) following the Exxon Valdez oil spill. Society of Environmental Toxicology and Chemistry Asia/Pacific 2014 Conference, Adelaide, Australia.

Sellin Jeffries MK, Stultz AE, Smith AW, Stephens D, Rawlings J, Belanger S, Oris JT. 2014. Animal alternatives in whole effluent toxicity testing: Evaluation of the fathead minnow embryo test as a replacement for the larval growth and survival test. South Central Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, San Marcos, TX.

Yost A*, Lisner A*, Cox K*, **Jeffries M**. 2014. The effects of fluoride on thyroid hormone signaling and metamorphosis in *Xenopus laevis*. South Central Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, San Marcos, TX.

Thornton L**, Yost A*, LeSueur M*, Stephens D*, **Jeffries M**. 2014. Development of the fathead minnow as a model organism for immunotoxicity: Characterization of basic immune function parameters. South Central Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, San Marcos, TX.

†**Sellin Jeffries MK,** Stultz AE, Rawlings J, Belanger S, Oris JT**.** 2013. Webinar: Update on the development of alternative testing strategies and endpoints for determining whole effluent toxicity in fishes. Health and Environmental Science Institute Technical Committee Effluent Project Webinar.

Sellin Jeffries MK, Stultz AE, Rawlings J, Belanger S, Oris JT. 2013. The development of alternative strategies and additional endpoints for whole effluent toxicity testing in fishes. Society of Toxicology and Environmental Chemistry North America 34rd Annual Meeting, Nashville, TN.

Oris JT, **Sellin Jeffries MK**, Stultz AE, Zhang J, Bailer AJ. 2013. A Path Toward Effluent Toxicity Test Alternatives With Fish. Society of Toxicology and Environmental Chemistry North America 34rd Annual Meeting, Nashville, TN.

Thornton LM**, Oris JT, **Sellin Jeffries MK**. 2013. Development of the sheepshead minnow, *Cyprinodon variegatus,* as a model organism for immunotoxicity. Society of Toxicology and Environmental Chemistry North America 34rd Annual Meeting, Nashville, TN.

SERVICE

Departmental Service

Coordinator, Mondays at TCU, 2014-present
Member, Biology Department Committee on Graduate Studies, 2014-present
Member, Biology Department Search Committee for Biochemistry Instructor, 2015-present

College Service

College of Science and Engineering Honors Week Liaison, 2015-present
Member, Health Professions Advising Committee, 2014-present

University Service

Member, Honors College Undergraduate Research Grant Committee, 2016-present
Member, Institutional Animal Care and Use Subcommittee for Policy Revision, 2016-present
Lecturer, Experience TCU (Chancellor's Scholars weekend), 2015
Member, TCU Ally Program, 2015 - present

Professional Affiliations and Service

American Association for the Laboratory Animal Science, Silver Member, 2014-present
American Fisheries Society
- North America Member, 2005
- Nebraska Chapter Member, 2005-2009

Council on Undergraduate Research, Member, 2016-present
Health and Environmental Sciences Institute Animal Alternatives Committee
- Advisory Committee Member, 2014-present
- Invited Workshop Speaker, 2016
- Breakout Session Moderator, 2016

Society of Environmental Toxicology and Chemistry, 2004 – present
- South Central Vice President, 2016-present
- South Central Annual Meeting Co-chair (with Matt Chumchal and Ray Drenner), 2016
- North America Annual Meeting Session Chair (Uncharted Waters: Field Ecotoxicology in Remote Locations on Limited Resources), 2016
- North America Annual Meeting Session Chair (Aquatic Toxicology and Ecology – General), 2015
- South Central Webmaster, 2015-present
- South Central Nominating Committee Member, 2015-present
- South Central Chapter Member, 2014-present
- Animal Advisory Committee Member, 2013-present
- Ohio Valley Member, 2012-2013
- North America Annual Meeting Volunteer Judge, 2010-2012
- Ozark-Prairie Chapter Member, 2003-2010

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

Other Professional Service Activities

Manuscript Referee. Aquatic Toxicology; Chemosphere; Ecotoxicology; Ecotoxicology and Environmental Safety; Environmental Pollution; Environmental Science and Pollution Research; Environmental Science and Technology; Environmental Toxicology and Chemistry; Histology

and Histopathology; International Journal of Environmental Research and Public Health; Journal of Hazardous Materials; Journal of the American Water Resources Association; Microarrays; PLOS ONE; Springer Plus

Textbook Reviewer. Human Physiology: Mechanisms and Logic (publisher: Jones and Bartlett Learning), 2016.

Proposal Reviewer. National Science Foundation - International Research Fellowship Program, 2012.