

Krista McCoy, Ph.D.

Assistant Professor, Department of Biology
 Adjunct Professor, Department of Pharmacology and Toxicology
 East Carolina University
 Greenville, NC 27858-4353
mccoyk@ecu.edu, 252-737-2730

RESEARCH INTERESTS

My research aims to understand how environmental pollutants influence reproductive development, physiology and behavior and to devise ways to ameliorate negative effects.

EDUCATION

- | | | |
|------|-------|---|
| 2007 | Ph.D. | School of Natural Resources and Environment, University of Florida, FL. |
| 2000 | M.S. | Department of Biology, James Madison University, VA |
| 1996 | B.S. | Department of Biological Sciences, Old Dominion University, VA |

PUBLICATIONS

*indicates undergraduate coauthor, +indicates maiden name

- | | | |
|----------|---|---|
| 20) 2016 | McCoy, K.A., M.W. McCoy, K. Callis-Duehl, D. Levey. | What kind of person becomes a scientist? <i>Science Scope</i> . In press. |
| 19) 2016 | Amato C.M., and K.A. McCoy . | A validated protocol to quantify severity of male urogenital feminization using the MOUSE (Mouse objective urethral severity evaluation). Pediatric Research in press. |
| 18) 2016 | McCoy K.A. , Roark A.M., Boggs A.S., Bowden J.A. Cruze L, Edwards T.M., Hamlin H.J., Cantu T.M., McCoy J.A., McNabb N.A., Wenzel A.G., Williams C.E., Kohno S. | Integrative and comparative reproductive biology: from alligators to xenobiotics. General and Comparative Endocrinology Epub ahead of print |
| 17) 2015 | B. E. Blake and K. A. McCoy . | Hormonal Programing of Rat Social Play Behavior: Standardized Techniques Will Aid Synthesis and Translation to Human Health. Neuroscience and Biobehavioral Reviews 8;55:184-197 http://www.ncbi.nlm.nih.gov/pubmed/25964215 |
| 16) 2013 | S. Mohammadi, K. A. McCoy , D. A. Hutchinson, D. T. Gauthier, A. H. Savitzky. | 2013. Independently evolved toad-eating snakes exhibit sexually dimorphic enlargement of adrenal glands. Journal of Zoology . http://onlinelibrary.wiley.com/doi/10.1111/jzo.12038/abstract |
| 15) 2011 | L. B. Martin., A. L. Liebl, J. H. Trotter, C. L. Richards, K. A. McCoy , and M. W. McCoy. | Integrators: physiological determinants of individual phenotypic plasticity. Integrative and Comparative Biology 51(4): 514-527. |
| 14) 2011 | T. B. Hayes, ... K. A. McCoy , et al (authors in alphabetical order). | Demasculinization and feminization of male gonads by atrazine: consistent effects across vertebrate classes. Journal of Steroid Biochemistry and Molecular Biology 127(1-2):64-73. http://www.sciencedirect.com/science/article/pii/S0960076011000665 |

- 13) 2010 J. R. Rohr and **K. A. McCoy** Preserving environmental health and scientific credibility: A practical guide to conflicts of interest. **Conservation Letters** 3 (3): 143-150 on line <http://www3.interscience.wiley.com/cgi-bin/fulltext/123334620/PDFSTART>.
- 12) 2010 J. R. Rohr and **K. A. McCoy**. A Qualitative Meta-Analysis Reveals Consistent Effects of Atrazine on Freshwater Fish and Amphibians. **Environmental Health Perspectives** 118 (1): 20-32 on line <http://www.ehponline.org/docs/2009/0901164/abstract.html>.
- 11) 2009 **K. A. McCoy** and L. J. Guillette Jr. **Endocrine Disruptors** Chapter 9 in Volume 8 Amphibian Decline: Diseases, Parasites, Maladies, and Pollution. For the series **Amphibian Biology**. Editor Harold F. Heatwole.
- 10) *2008 **K. A. McCoy**, L. J. Bortnick*, C. M. Campbell*, H. J. Hamlin, L. J. Guillette Jr. and C. M. St. Mary. Agriculture alters gonadal form and function in *Bufo marinus*. **Environmental Health Perspectives** 116 (11): 1526-1532 on line <http://www.ehponline.org/members/2008/11536/11536.pdf>
- 9) *2008 **K.A. McCoy**, Kim Hoang*, L. J. Guillette Jr. and C. M. St. Mary. Renal abnormalities in *Bufo marinus* vary with human land-use. **Science of the Total Environment** 407 (2008): 348-357 on line <http://dx.doi.org/10.1016/j.scitotenv.2008.09.008>
- 8) *2007 **K. A. McCoy**, M. W. McCoy, A. M. Amick*, L. J. Guillette Jr. and C. M. St. Mary. Tradeoffs between somatic and gonadal investments during development in the African clawed frog (*Xenopus laevis*). **Journal of Experimental Zoology** 307(11): 637-646.
- 7) 2007 M. W. McCoy, **K. A. McCoy** and D. J. Levey. Teaching biodiversity to students in inner-city and under-resourced schools. **American Biology Teacher** 69(8): 473-781.
- 6) *2006 T. Edwards , **K. A. McCoy**, T. Barbeau, M. W. McCoy, J. M. Thro* and L. J. Guillette Jr. Environmental context determines nitrate toxicity in southern toad tadpoles (*Bufo terrestris*). **Aquatic Toxicology** 78: 50-58. (Duel first authors)
- 5) 2005 T. Knight, M. W. McCoy, J. Chase, **K. A. McCoy** and R. Holt. Trophic cascades across ecosystems. **Nature** 437: 880-883.
- 4) 2005 D. J. Levey, S. Brooks, **K. A. McCoy** and M. W. McCoy. Adding SPICE to Florida classrooms. **Science Scope** April.
- 3) 2003 **K. A. McCoy** and R. N. Harris. Detection of sub-lethal stress by developmental stability analysis in the salamander, *Ambystoma maculatum*: an experimental evaluation and implications for conservation. **Herpetologica** 59(1): 22-36.
- 2) 1998 ***K.A. Madaris**, R. Greenlee, D. Schwab and M. W. McCoy. Virginia's frog and toad monitoring protocol. **Virginia Department of Game and Inland Fisheries**. Richmond, Virginia.
- 1) 1998 ***K.A. Madaris**. Sounding out amphibian declines in Virginia. **Virginia Coastal News**. Summer/Fall.

GRANTS, FELLOWSHIPS, AND HONORS

- 2014 Outstanding Seminar Award from Virginia Commonwealth University
- 2014 East West Collaborative-*Pharmaceuticals and Personal Care Product Contaminants in the Pamlico-Tar River: Can we predict their impacts on development?*

- 2013 THCAS Summer Research Award-
- 2011 NIH Ruth L. Kirschstein National Research Service Awards (direct cost \$170,166)
- 2008 Smithsonian Tropical Research Institute Post-doctoral Fellow
- 2006 Journal of Experimental Biology, Research Grant (\$1140)
- 2006 University of Florida, Dept. Zoology, Reiwald Research Grant (\$300)
- 2005 University of Florida, SNRE Research Fellowship (\$3000)
- 2005 Society for Integrative and Comparative Biology (SICB), Grant In Aid of Research (\$1000)
- 2005 University of Florida, Dept. Zoology, Olowo Research Grant (\$300)
- 2004 University of Florida, Dept. Zoology, Graduate Student Teaching Award
- 2004 Sigma Xi, Grant In Aid of Research (\$200)
- 2003 NSF G-K12 Fellowship (~\$30,000)
- 2003 University of Florida, SNRE Travel Award (\$1500)
- 2003 University of Florida, SNRE Research Grant (\$700)
- 2003 University of Florida, IFAS Women's Club Fellowship (\$500)
- 2001 Jennings Scholarship Department of Wildlife Ecology and Conservation (\$1500)
- 2000 Society for the Study of Amphibians and Reptiles Travel Award (\$200)
- 2000 Society for Conservation Biology Travel Award (\$200)
- 1999 Sigma Xi, Grant In Aid of Research (\$1000)
- 1999 James Madison University Graduate Student Research Fellowship (\$2000)
- 1996 Award for Outstanding Excellence in the Department of Biology Honors Program at Old Dominion University

INVITED ORAL PRESENTATIONS

- 2014 **K. A. McCoy.** Endocrine disrupting chemicals alter reproductive biology of diverse taxa. Department of Comparative Medicine East Carolina University.
- 2014 **K. A. McCoy.** Endocrine disrupting chemicals alter reproductive biology of diverse taxa. Coastal Resources Management East Carolina University
- 2014 **K. A. McCoy.** Endocrine disrupting chemicals alter reproductive biology of diverse taxa. James Madison University.
- 2013 **K. A. McCoy.** Endocrine disrupting chemicals alter reproductive morphology and behavior. Virginia Commonwealth University. Was awarded best seminar award for 2013.
- 2013 **K. A. McCoy.** Endocrine disrupting pesticides alter reproductive development, physiology, and behavior. East Carolina University, Department of Pharmacology and Toxicology.
- 2013 **K. A. McCoy.** Endocrine disrupting pesticides alter reproductive development, physiology, and behavior. Neonatal Intensive Care Unit's Seminar Series, Vidant Health and East Carolina University
- 2010 **K. A. McCoy.** Agriculture Alters Gonadal Form And Function In *Bufo marinus*. School of Natural Resources and Environment Seminar Series, Gainesville Florida.
- 2008 **K. A. McCoy (Co-organizer),** C. M. St. Mary and L. J. Guillette Jr. Agriculture alters gonadal form and function in *Bufo marinus*. **Symposium Title: Biodiversity and Agriculture** ASIH and SSAR, Montreal, Canada.

- 2008 **K. A. McCoy.** From head lamps to lab coats: Reproductive abnormalities in *Bufo marinus* are associated with agriculture. Virginia Commonwealth University Departmental Seminar in Biology, Richmond, Virginia.

ORAL PRESENTATIONS

*indicates undergraduate coauthor

- 2013 Zheng Z., Pasch B., Yang D*, **McCoy K.**, and Cohn M.J. Decoupling sexually dimorphic development of the mouse external genitalia and brain in a single individual. Southeast Regional Meeting of the Society for Developmental Biology, Nashville, Tennessee.
- 2007 **K. A. McCoy**, L. J. Guillette Jr. and C. M. St Mary. From chemical confusion to chemical castration: Endocrine disruption leads to a range of reproductive abnormalities in *Bufo marinus* living in agricultural areas of South Florida. Society for Integrative and Comparative Biology, Phoenix, Arizona.
- *2006 **K. A. McCoy**, M. W. McCoy, A. M. Amick*, L. J. Guillette Jr. and C. M. St Mary. Metamorphosis and reproductive growth and development. Associated Oral Session. Society for Integrative and Comparative Biology, Orlando, Florida.
- *2005 A. M. Amick* and **K. A. McCoy**. Do plastic gonads exist? Joint meeting of American Society of Ichthyologists and Herpetologists and Society for the Study of Amphibians and Reptiles, Tampa, Florida.
- 2005 **K. A. McCoy** and A. M. Amick*. Gonadal plasticity induced by food quantity. University of Florida Graduate Student Symposium, Gainesville, Florida.
- 2003 **K. A. McCoy**, T. Edwards and L. J. Guillette Jr. Effects of nitrate on the southern toad, *Bufo terrestris*. Joint meeting of American Society of Ichthyologists and Herpetologists and Society for the Study of Amphibians and Reptiles Manaus, Brazil.
- 2001 **K. A. McCoy** and R. N. Harris. Developmental stability analysis as a tool in wildlife conservation. Florida Chapter of the Wildlife Society, Gainesville, Florida.
- 2000 **K. A. McCoy** and R. N. Harris. Amphibian conservation and developmental stability analyses. All Florida Herpetology Conference, Gainesville, Florida.
- 2000 **K. A. McCoy** and R. N. Harris. Developmental stability analysis and sublethal stress in the spotted salamander *Ambystoma maculatum*. Society for Conservation Biology, Missoula, Montana.
- 2000 **McCoy, K.** and R. N. Harris. Efficacy of developmental stability analysis to detect sublethal stress in the spotted salamander *Ambystoma maculatum*. Society for the Study of Reptiles and Amphibians, LaPaz, Mexico.

POSTER PRESENTATIONS

*indicates undergraduate coauthor

- 2015 C. M. Amato, J. Yang, and **K. A. McCoy**. Beyond Binary: Standardizing Hypospadias Severity in the Mouse. Society for Integrative and Comparative Biology
- 2015 B. E. Blake, and **K. A. McCoy**. Organization of Social Behavior by Prenatal Hormones. Society for Integrative and Comparative Biology

- 2015 M. L. Boyd, C. M. Amato, J. Yang, and **K. A. McCoy**. Morphology of the Developing Testes Affected by Endocrine Disrupting Chemicals. Society for Integrative and Comparative Biology
- 2015 M. K. Edwards, M. W. McCoy, and **K. A. McCoy**. Developmental Carry-Over Effects from Early Exposure of an Amphibian to Endosulfan. Society for Integrative and Comparative Biology
- 2015 J. Yang, C. M. Amato, M. L. Boyd, and **K. A. McCoy**. Variation in Hypospadias Severity Across Dose and Time. Society for Integrative and Comparative Biology
- 2013 Z. Zheng, B. Pasch, D*. Yang, **K. A. McCoy**, and Cohn M.J. Decoupling sexually dimorphic development of the mouse external genitalia and brain in a single individual. 7th annual meeting of the organization for the study of sex differences
- *2011 Z. Zheng, B. Pasch, **K. A. McCoy**, D*. Yang, and Cohn M.J. Prenatal inactivation of androgen receptor activity feminizes external genitalia but masculinizes brain development. Florida Genetics Institute
- *2010 **K. A. McCoy**, T. Gellis*, and J. Rohr. Agricultural land-use is associated with altered gonadal function in the giant toad, *Bufo marinus*, Ecological Society of America
- *2010 T. Gellis*, **K. A. McCoy**, and J. Rohr. Current-use pesticides and correlates of reproductive success in the grey tree frog *Hyla versicolor*, Ecological Society of America
- *2009 L. K. Hoang*, **K. A. McCoy**, and C. M. St. Mary. Renal Pathologies in Giant Toads (*Bufo marinus*) Vary Across Land-use Practices. Society for Integrative and Comparative Biology.
- *2008 **K. A. McCoy**, L. J. Bortnick*, C. M. Campbell*, H. J. Hamlin, C. M. St. Mary, and L. J. Guillette Jr. Reproductive abnormalities in the giant toad *Bufo marinus* are associated with agriculture. e. Hormone.
- 2004 **K. A. McCoy**, M. W. McCoy and D. Levey. An inquiry-based educational outreach program about ecosystem health. Ecological Society of America.
- 2002 **K. A. McCoy** et al. Atrazine exposure and the occurrence of reproductive abnormalities in *Bufo marinus*. Society of Environmental Toxicology and Chemistry.

RESEARCH EXPERIENCE

- 2014-pres Adjunct Professor of Department of Pharmacology and Toxicology, Brody School of Medicine, East Carolina University
- 2012-pres Assistant Professor of Biology, East Carolina University
- 2010-2013 Postdoctoral Research Scholar, National Research Service Awardee, University of Florida
- 2009-2010 Postdoctoral Associate, University of South Florida
- 2009 Postdoctoral Associate, Old Dominion University
- 2008 Visiting Scholar, Boston University
- 2008 Smithsonian Tropical Research Institute Post-doctoral Fellow,
- 2003-2008 PhD Dissertation Research, University of Florida

2001-2002	Research Assistant (University of Florida)
2000-2001	Research Assistant (University of Florida)
1998-2000	Graduate Assistant (James Madison University)
1998-2000	Anuran Call Monitoring Survey Coordinator (Va. Department of Game and Inland Fisheries)
1996-1998	Volunteer Natural Area Biologist (Va. Department of Game and Inland Fisheries)
1996	Volunteer Research Assistant Canebrake Rattlesnake Project (Old Dominion University)
1996	Volunteer Natural Area Biologist (Va. Dept of Conservation and Recreation)
1995-1996	Honors Research: Nutritional Ecology of Caribbean Spiny Lobster (Old Dominion University)

TEACHING EXPERIENCE

Instructor

2013-pres	Physiology
2006	Evolution, Behavior, and Ecology for Non-Science Majors (spring and fall)

Teaching Assistant

2007	Anatomy Laboratory (summer and fall)
2007	Genetics (spring)
2005	Integrative Principles of Biology I Lecture (fall)
2005	Animal Behavior Laboratory (spring)
2004	Integrative Principles of Biology Laboratory II (fall)
2003	Integrative Principles of Biology Laboratory II (spring and summer)

Non-traditional Teaching

2003-2004	NSF GK-12 Fellow Science Partners In Inquiry-Based Collaborative Education
2000 & 2001	Instructor Smithsonian National Museum of Natural History (Summer Course)
1996-1998	Naturalist Instructor Three Lakes Nature Center and Aquarium, Henrico, Virginia.

MENTORING

Current Undergraduates

- 2 helping to determine effects of endosulfan exposure on growth and development of frogs
- 2 helping to determine effects of prenatal exposure to sex hormones on social behavior
- 1 conducting independent project to asses effect of prenatal exposure to sex hormones on maternal care
- 3 investigating the effects of anti-androgenic chemicals on genitalia development
- 1 conducting independent project determining effects of anti-androgenic chemicals on testis morphology

Post Baccalaureate

- 1 conducting independent project to characterize the variation in severity of penis abnormalities associated with exposure to anti-androgenic pollutants during different developmental windows.

Graduate Students

- 1 Master's student investigating the effects of ecologically relevant levels of endosulfan on growth and development of two frog species.
- 1 Master's student investigating the consequences of neonatal exposure to estrogens and androgens on social behavior, memory, and learning.
- 1 PhD student characterizing the severity of anti-androgenic pollutant induced penis abnormalities and therapy development

2003-2013

Undergraduates (of approximately 30 students)

- 5 students - Are co-authors on published manuscripts
- 4 students - Have completed honors theses with me and 3 graduated with highest honors
- 2 students - Received an University Scholars Program Research Fellowship
- 1 student - Received a Howard Hughes Research Fellowship
- 2 students - Presented our work at an international meetings (ASIH and SICB)
- 2 students - Presented in the University of Florida Zoology department's undergraduate research symposium and at the undergraduate research symposium

High School Students

- 1 student - Completed science fair project with me -won 1st in district, 2nd in state, and honorable mention in the international competition.
- 2 students - UF's Student Science Training Program (SSTP). Conducted tadpole husbandry, dissections, and data collection, and presented independent projects at the SSTP symposium.
- 3 students - Assisted in my dissertation research by collecting and processing animals in the field.

Middle School Students

- 2 students- conducted tadpole husbandry, dissections, and data collection for one summer.
- 4 students- were tutored in reading, math, and science.

OUTREACH

- 2002-2009 Conservation Committee American Society of Ichthyologists and Herpetologists
- 2004-2006 Coordinator of the Zoology Departments Undergraduate Research Assistant Program
- 2004 University of Florida's Student Scientists Training Program
- 2004 Ecological Society of America's strategies for ecological education development and sustainability program (SEEDS)

JOURNAL REVIEWED FOR

Animal Behavior
 Aquatic Toxicology
 Chemosphere
 Conservation Biology
 Endocrine Disruptors
 Environmental Pollution
 Environmental Toxicology and Chemistry
 Journal of Hazardous Chemicals
 Journal of Toxicology and Environmental Health
 Oecologia
 Zoological Science

SELECTED MEDIA COVERAGE

On “A Qualitative Meta-Analysis Reveals Consistent Effects of Atrazine on Freshwater Fish and Amphibians.”

December 14, 2009 Environmental Health News

On “Reproductive abnormalities in the giant toad *Bufo marinus* are associated with agriculture.”

July 14, 2008 The Environment Report

July 6, 2008 Transsexual Symposium Inc. (TS-SI)

July 5, 2008 Science Daily

July 4, 2008 Environmental Health News

July 4, 2008 University of Florida News

July 3, 2008 Science News

On “Trophic cascades across ecosystems.”

October 5, 2005 University of Florida News