

Deena Wassenberg

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EDUCATION

Duke University, Nicholas School of the Environment and Earth Sciences, Durham, NC

Ph.D., Integrated Toxicology Program certificate, August 2004

Dissertation: Interactive effects of polycyclic aromatic hydrocarbon mixtures on enzyme activities and toxicity to early life stages of the fish, *Fundulus heteroclitus*.

Concentrations: Ecotoxicology, adaptation to pollution, biochemical toxicology, gene expression, enzyme activities, oxidative stress, aryl hydrocarbon receptor pathway.

University of Wisconsin-Madison, Madison, WI

Bachelor of Science, May 1995

Majors: Zoology and Biological Aspects of Conservation, certificate in Integrated Liberal Studies.

PROFESSIONAL APPOINTMENTS IN EDUCATION

2015-present Co-Director of Undergraduate Studies for Biology Major

2014-present Teaching Associate Professor, Department of Biology Teaching and Learning, University of Minnesota

2007-2014 Teaching Assistant Professor, Biology Program, College of Biological Sciences, University of Minnesota.

2005- 2007 Researcher, Department of Educational Psychology, University of Minnesota
Assisted in a project evaluating the impacts of the National Science Foundation's Robert Noyce Fellowship Program on science and math teacher recruitment and retention in high needs schools. Assisted in survey development, formation of a literature database and communication with investigators at participating institutions.

1995-1997 7th and 8th Grade Science Teacher, Wilson Middle School, Pasadena, California
Taught science, developed physical science, biology and health curricula, and initiated extracurricular athletic activities and enrichment field trips. 1995-1997.

COURSES TAUGHT AT THE UNIVERSITY OF MINNESOTA & CURRICULAR DEVELOPMENT

*Courses I developed

- Evolution and Biology of Sex: Biology 1003 (F'11-current)
- *Environmental Biology: Science and Solutions: Biology 1050 (now 1052; F'10-current)
- *Environmental Biology: Science and Solutions with lab: Biology 1055 (S14-current)
- Biology of the Galápagos (Study Abroad experience) Biology 4950 (Summer 2016)
- Biology Society and the Environment: Biol 1105 (Summer'10)
- Foundations of Biology I: Biology 2002 – Lecture (Sp'15)
- *Foundations of Biology: Biology 2002 – Laboratory (F'07, Sp'08)
- Foundations of Biology: Biology 2003 (F'08-current)
- *A Novel Environment: Biology 1905 (F'08, F'12)
- *Environmental Topics in Popular Literature: HSE2103H (F'09)
- The Nature of Life – freshmen orientation for incoming biology majors (Summer '08, '09, '11-'19)
- Special Topics in Biology for Austin Public School Teachers: Biology 5910 (Hormel institute-sponsored graduate program for Austin Public School Teachers – I was one of a team of instructors teaching this class (summer'08, summer'10)
- Member of the College of Biological Science's (CBS) Education Policy Committee and Co-director of Undergraduate Studies for the Biology Major since 2015. As a member of this committee and in the role of co-DUGS we have implemented changes to the CBS curriculum, including reevaluating the CBS major chemistry and physics requirements, the addition of a

Cellular and Organismal Physiology major and a Quantitative Biology minor, the oversight and approval of numerous new CBS courses, and changes to major and minor requirements for CBS majors.

SERVICE

Member of the University of Minnesota Senate Committee on Disability Issues. Fall 2019-present.

College of Biological Science Post-Doctoral Teaching Mentor 2018-2019

Internationalizing Teaching and Learning Mentor 2018-2019

Sustainability Studies Minor Advisory Committee Member 2017- present

CORE 2025 Program Curriculum Advisory Committee Member 2016

Mentor for the Active Learning Classroom Faculty Learning Community 2016

PULSE Meeting organizer. With colleagues, received a mini-grant to fund a faculty development workshop entitled "Spreading the Wealth of Vision and Change Principles and Methodology through a Faculty Development Program". This 2-day workshop consisted of faculty, graduate students, post doctoral researchers from the U of M and neighboring institutions (community colleges, private schools, University of Wisconsin-River Falls). Jan 2016.

Representative to the Partnership for Undergraduate Life Science Education (PULSE) meeting. 2015.

Member of the Council on Liberal Education. 2015-2019.

Member of the University of Minnesota Senate Committee on Equity Access and Diversity. Fall 2013-spring 2019. Co-chair of this committee 2014-15 AY. Committee Chair 2015-16 AY

President's Distinguished Faculty Mentor Program (PDFMP) 2014-2016.

Faculty Guild Leader 2014. Guild leader for incoming first year students. Providing mentorship for first-year students.

Biology Teaching and Learning – Promotion Committee Work 2015 (chair), 2017, 2019.

Member of the Biology Program Curriculum Advisory Board. 2007-2014.

Reviewer for Aquatic Toxicology, American Biology Teacher, and Ecotoxicology

Elected to the University Faculty Senate Fall 2013-2016.

Member of the CBS Awards and Recognition Committee 2013-2015.

National Academies Northstar Institute for Undergraduate Education in Biology - Facilitator. July 2011. University of Minnesota

Participant in *Transforming Undergraduate Education in Biology: Mobilizing the Community for Change*. 2009. An invitation-only working conference organized by the Vision and Change Advisory Board and staff of the American Association for the Advancement of Science. July 2009.

Member of the Teaching Assistant Award Committee 2009-2018.

OUTREACH AND OTHER TEACHING/LEARNING RELATED ACTIVITIES

Selected Speaking engagements and presentations

Invited Speaker – Biology Colloquium: Serendipity, Science, and Students. November 2019

Invited Speaker – NE Wisconsin American Chemical Society. Lawrence University. *When Facts are not Enough: Understanding and Addressing Rejection of Science in the Classroom*. Oct. 2019.

Invited Speaker – IES Abroad Faculty Development Seminar. Galápagos, June 2019

Invited Speaker – Sneak Preview for CBS Students, July 2019

Poster presentations – *Promoting climate change literacy using an inquiry-based classroom activity & The effects of a writing assignment change on student perceptions and performance in an air pollution active learning laboratory activity*. SABER July 2018

Invited Speaker – Experience Minnesota Recruitment event for Multicultural Students. October 2017.

Invited Speaker – BioTIC V Workshop. Hamline University. Active learning strategies used at the University of Minnesota to high school science teachers from the Twin Cities Metro Area. March 2017.

Invited Speaker – Internationalizing Teaching and Learning. *Evaluating your Internationalizing Efforts*. January 2017.

Poster presentation – Internationalizing the Curriculum Campus Conference. *Strategies to improve the experience of international students (and everyone) in a large-enrollment course*. Sept. 2016.

Invited Speaker – Biology Colloquium: *Toxic sludge and teaching – my life to this point*: Fall 2015

Workshop facilitator with Sue Wick – Academy of Distinguished Teachers: *Higher not Harder: Formative and Summative Assessments at Higher Bloom's Cognitive Levels*. Spring 2015

Invited Speaker – Chippewa Valley Learning in Retirement: *Polar Bears and Power Plants: What is the Story on Global Climate Change?* October 2014.

Invited Speaker – Jewish Women Artists Group, Minneapolis, Minnesota, *Sex, Biology, Evolution and Gender*, July 2014.

National Association of Biology Teachers Annual Meeting: *When Facts Are Not Enough: Understanding and Addressing Students Who Do Not Accept Evolution and Climate Change*. November 2013.

Invited Speaker – Chippewa Valley Learning in Retirement: *The Evolution and Biology of Sex: Why does Sex Exist?* June 2013

National Association of Biology Teachers Annual Meeting: *Teaching Evolution and the Nature of Science Using the Primary Literature*, November 2012.

National Association of Biology Teachers Annual Meeting: *What Do College Students Know About Sex? Does It Matter?* November 2012.

Invited Speaker – Chippewa Valley Learning in Retirement: *Evolution Everyday – How the Theory and Fact of Evolution Influence Everyday Life*. June 2012

Invited Speaker – Biology Colloquium: *How toxic sludge broke the fish's heart: A tale of mystery, synergy and survival*. February 2012

Invited Speaker – Advanced Microscopy Camp. *Fluorescent imaging in Environmental Toxicology*. A University of Minnesota and Minnesota Public School STEM partnership for secondary science teachers. Summer 2009

Research Mentoring & Student Committee Work

Reed Grumann 2019, A New Crisis of Confidence: Studying Why College Students Doubt Scientifically Sound, Politically Controversial Issues. Received funding through the Undergraduate Research Opportunities Program (UROP).

Gabriel Franta 2014-2015, undergraduate honors project. A mixed-methods approach to exploring attitudes toward vaccination among college students. Received funding through the Undergraduate Research Opportunities Program (UROP). Poster selected for display in University Library system.

Reba Juetten, 2013-2014, undergraduate honors project. An inquiry-based hydroponics laboratory activity for non-biology majors. Received funding through the Undergraduate Research Opportunities Program. Poster recognized for excellence at the University of Minnesota Sustainability Symposium.

Jeremy Kudrna, 2012-2014, undergraduate directed study. Relationship between students' "Need for cognition" and acceptance of anthropogenic climate change and evolution. Received funding through the Undergraduate Research Opportunities Program (UROP).

Swati Bhakta, 2012, undergrad. directed study. Exam-design effects on students with exam anxiety.

Cathy Hoffmann, 2012, master's student directed study. Gender differences response to active learning strategies. Thesis committee Master's of Biological Sciences 2013.

Marcus Gabrawy, 2013, Thesis committee Master's of Biological Sciences

Elle Bergstrom, 2011, undergraduate directed study. Adaptive strategies of bamboo to altitude.

Clara Shaw, 2009, undergraduate summer research, Effects of earthworms on microbial diversity
CBS Sciences Undergraduate Honors Thesis Committee Member for 28 students 2012-present

Other activities related to teaching and learning

Completed the Internationalizing Teaching and Learning Cohort Program. 2014-2015
Participant in *Diversity in the Curriculum: Transforming Your Syllabus* workshop. April 2013.
Participant: Early Career Teaching Program. 2010-May 2011. Center for Teaching and Learning
National Academies Education Fellow in the Life Sciences. 2007-2008

PEER REVIEWED PUBLICATIONS, BOOK CHAPTERS & BOOK

Wassenberg, D, Walker, JD, Binkowski, K, Peterson, E (manuscript in preparation). No damage done: the impact of on-line computer exams on student performance, exam anxiety and perceptions.

Salehi, S, Cotner, S, Azarin, S, Carlson, E, Challou, D, Driessen, M, Ferry, VE, Goldberg, EE, Harcombe, W, Jensen, S, McGaugh, S, **Wassenberg, D**, Wynveen, A, *Yonas, A, Ballen, CJ (2019) Gender performance gaps across different assessment methods and the underlying mechanisms. *Frontiers in Education* 4 : 107.

Ballen, CJ, Aguillon, SM, Awwad, A, Bjune, AE, Challou, D, Drake, AG, Driessen, M, Ellozy, E, Ferry, VE, Goldberg, EE, Harcombe, W, Jensen, S, Jørgensen, C, *Koth, Z, McGaugh, S, Mitry, C, Mosher, B, Mostafa, Petipas, RH, Soneral, PAG, Watters, **Wassenberg, D**, Weiss, SL, Yonas, A, Zamudio, KR, Cotner, S (2019). Smaller classes promote equitable student participation in STEM. *Bioscience*. 69(8) 669-680.

Online textbook. Cotner and **Wassenberg**, *The Evolution and Biology of Sex*. Available through the University of Minnesota Affordable Content Partnership. <https://open.lib.umn.edu/evolutionbiology/>

Ballen, CJ, Aguillon, SM, Brunelli, R, Drake, AG, **Wassenberg, D**, Weiss, SL, Zamudio, KR, and Cotner, S. (2018). Do small classes in higher education reduce performance gaps in STEM? *Bioscience* 68(8):593-600.

Walker, JD, **Wassenberg, D**, *Franta, G, Cotner, S. (2017) What Determines Student Acceptance of Politically Controversial Scientific Topics? *Journal of College Science Teaching* 47(2):45-56.

Williams, M and **Wassenberg, D** (2017). Promoting climate change literacy for non-majors: Implementation of an atmospheric carbon dioxide modeling activity as an inquiry-based classroom activity. *Course Source* (peer reviewed, online resource <https://doi.org/10.24918/cs.2017.12>)

Williams, M, *Barry, K, and **Wassenberg, D** (2015). Air Quality Data Mining: Mining the US EPA AirData website for student-led evaluation of air quality issues. *Course Source* (peer reviewed, online resource <https://doi.org/10.24918/cs.2015.17>)

*Kudrna, J, Shore, M and **Wassenberg, D** (2015). The Role of Need for Cognition (NFC) in Introductory Biology Students' Acceptance of Anthropogenic Climate Change (ACC) and Evolution. *The American Biology Teacher* 77(4): 250-257.

Brooker, R, Matthes, D, Wright, R, **Wassenberg, D**, Wick, S, and Couch, B. (2013) SCALE-UP in a Large Introductory Biology Course. In, *Connected Science: Strategies for Integrative Learning in College*, T. Ferrett, J. Stewart and W. Schlegel, eds. Indiana University Press (part of the *Scholarship of Teaching and Learning* series).

Alexeyenko A, **Wassenberg DM**, Lobenhofer, EK, Yen J, Sonnhammer ELL, Linney E, Meyer JN. (2010). Dynamic zebrafish interactome reveals transcriptional mechanisms of dioxin toxicity. *PLoS One* 5(5) e10465.

Billiard SM, Meyer JN, **Wassenberg DM**, Hodson, PV, Di Giulio, RT (2008). Non-additive effects of PAHs on early vertebrate development: mechanisms and implications for risk assessment. *Toxicological Sciences* 105(1):5-23.

Billiard S, Timme-Laragy AR, **Wassenberg DM**, Cockman C, Di Giulio RT. (2006). The role of the aryl hydrocarbon receptor pathway in mediating synergistic developmental toxicity of polycyclic aromatic hydrocarbons to zebrafish. *Toxicological Sciences* 92(2):526-536.

Arzuaga X, **Wassenberg D**, Di Giulio R, Elskus A (2006). The chlorinated AHR ligand 3,3',4,4',5-pentachlorobiphenyl (PCB126) promotes reactive oxygen species (ROS) production during embryonic development in the killifish (*Fundulus heteroclitus*). *Aquatic Toxicology* 76(1):13-23.

Wassenberg, DM, *Nerlinger, AL, Battle, L.P and Di Giulio, RT (2005). Effects of the PAH-heterocycles, carbazole and dibenzothiophene, on *in vivo* and *in vitro* CYP1A activity and PAH-derived embryotoxicity. *Environmental Toxicology and Chemistry* 24(10), 2526-2532.

Nacci, D, Coiro, L, **Wassenberg, DM** and Di Giulio, RT (2005). A non-destructive technique to measure cytochrome P4501A enzyme activity in living embryos of the estuarine fish *Fundulus heteroclitus*. *Techniques in Aquatic Toxicology - Volume 2* (G. Ostrander, Ed.) CRC, Boca Raton, FL, USA, 209-225.

Wassenberg, DM and Di Giulio, RT (2004) Synergistic embryotoxicity of polycyclic aromatic hydrocarbon aryl hydrocarbon receptor agonists with cytochrome P4501A inhibitors *in Fundulus heteroclitus*. *Environmental Health Perspectives* 112(17), 1658-1664.

Wassenberg, DM and Di Giulio, RT (2004). Teratogenesis in *Fundulus heteroclitus* embryos exposed to a creosote-contaminated sediment extract and CYP1A inhibitors. *Marine Environmental Research* 58, 163-168.

Meyer, JN, **Wassenberg, DM**, Karchner, SI, Hahn, ME and Di Giulio, RT (2003). Expression and inducibility of aryl hydrocarbon receptor (AHR) pathway genes in populations of killifish (*Fundulus heteroclitus*) that differ in PAH-exposure history. *Environmental Toxicology and Chemistry* 22, 2337-2343.

Wassenberg, DM, Swails, EE* and Di Giulio, RT (2002). Effects of single and combined exposures to benzo(a)pyrene and 3,3',4,4',5-pentachlorobiphenyl on EROD activity and development in *Fundulus heteroclitus*. *Marine Environmental Research* 54, 279-283.

Willett, KL, **Wassenberg, DM**, Lienesch, L, Reichert, W and Di Giulio, RT (2001). In vivo and in vitro inhibition of CYP1A-dependent activity in *Fundulus heteroclitus* by the polynuclear aromatic hydrocarbon fluoranthene. *Toxicology and Applied Pharmacology* 177, 264-271.

* Denotes undergraduate researchers

AWARDS AND HONORS

Golden Pipette Award – Funniest Professor (lower division) Spring 2019

Golden Pipette Award – Most Engaging Professor Spring 2018

College of Biological Sciences: Stanley Dagley-Samuel Kirkwood Undergraduate Education Spring 2017

Golden Pipette Award Runner Up – CBS Superfan Spring 2016

Golden Pipette Award – Most Engaging Professor Spring 2015

Golden Pipette Award – Most Personable Professor Spring 2014

National Academies Education Fellow in the Life Sciences. 2007-2008