**Robert W. Flick, Research Biologist, in EPA's National Exposure Research Laboratory**

Exposure Methods and Measurements Division
Mailing Address

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**Area of Expertise:** I have been involved in searching for molecular markers of exposure using a variety of techniques. I am interested in the interplay among organisms, chemical stressors, and the nonchemical physical environment. Because the natural environment is complex, I am interested in how markers of exposure are modulated by environmental factors; that is, how the expression of markers changes in the presence of environmental variability. I am also interested in how non-chemical stressors interact with chemical stressors, as nonchemical stressors pose a widespread threat to aquatic environments. My recent research has involved factors affecting the expression of vitellogenin in fathead minnows upon exposure to estrogenic compounds.

**Select Publications:**

Armstrong B, Lazorchak J, Jensen K, Haring H, Smith M, Flick R, Biales A. (2016). Reproductive effects in fathead minnows (*Pimphales promelas*) following a 21 d exposure to 17 α-ethinylestradiol. Chemosphere 144:366-373.

Reddy T, Flick R, Lazorchak J, Smith M, Wiechman B, Lattier D. (2015). Experimental paradigm for in-laboratory proxy aquatic studies under conditions of static non-flow-through chemical exposures. Environmental Toxicology and Chemistry 34:2796-2802.

Flick R, Bencic D, See M, Biales A. (2014). Sensitivity of the vitellogenin assay to diagnose exposure of fathead minnows to 17 α-ethynylestradiol. Aquatic Toxicology 152:353-360.

Kostich M, Flick R, Martinson J. (2013). Comparing predicted estrogen concentrations with measurements in US waters. Environmental Pollution 178:271-277.

Biales A, Kostich M, Burgess R, Ho K, Bencic D, Flick R, Reiss M. (2013). Linkage of genomic biomarkers to whole organism end points in a toxicity identification evaluation (TIE). Environmental Science & Technology 47:1306-1312.

Wang R.-L, Bencic D, Biales A, Flick R, Lazorchak J, Villeneuve D, Ankley G. (2012). Discovery and validation of gene classifiers for endocrine-disrupting chemicals in zebrafish (*Danio rerio*). BMC Genomics 13:358.

View more research publications by Robert Flick.

**Education:**

- M.A. in Zoology, 1992, Southern Illinois University
- B.A. in Biology, 1987, Ball State University

**Professional Experience:**

- Research Biologist, USEPA, ORD/NERL, 2001 to Present
- Adjunct Instructor, Cincinnati State Community College, 1997 to 2002
- Research Assistant, Cincinnati Children's Medical Hospital, Department of Developmental Biology, 1997 to 2001
- Research Assistant, University of Cincinnati, Department of Cell Biology, 1995 to 1997

Honors and Awards:

- Honor Award - Exceptional/Outstanding ORD Technical Assistance to the Regions or Program Offices, 2007
- STAA Award - Development of a Unique, Cost-Effective, and Highly Sensitive Molecular Technique for Detecting EDCs in Various Tissues at Low Concentrations, Honorable Mention, 2008