Mark E. Hahn

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EXPERIENCE

1992-	Senior Scientist (2005-present), Chair, Biology Department (2011-2016), Tenured Associate Scientist (2000-2005), Associate Scientist (1996-2000), Assistant Scientist (1992-1996), Department of Biology, Woods Hole Oceanographic Institution, Woods Hole, MA, U.S.A.
1987-1991	Postdoctoral Fellow/Postdoctoral Investigator, Department of Biology, Woods Hole Oceanographic Institution, Woods Hole, MA, U.S.A. Supervisor: John J. Stegeman

EDUCATION

1988	Ph.D., Toxicology. University of Rochester, School of Medicine and Dentistry, Rochester NY, U.S.A. Thesis title: Studies on the Role of the Ah Receptor in Hexachlorobenzene-Induced Porphyria. Advisor: Thomas A. Gasiewicz
1980	B.S., Biological Sciences. Harpur College, State University of New York, Binghamton, NY, U.S.A.

ACADEMIC AND PROFESSIONAL HONORS

2010	Arnold B. Arons award from WHOI for excellence in teaching, advising, and mentoring.
2006-2011	Walter A. and Hope Noyes Smith Senior Scientist Chair
2003-2005	J. Seward Johnson Chair and Education Coordinator, Biology Department, WHOI.
1991	New Investigator Award, Society of Environmental Toxicology and Chemistry (SETAC) / Air Force Office of Scientific Research (AFOSR)
1989-1991	Individual National Research Service Award (NRSA) in Environmental Toxicology from the National Institute of Environmental Health Sciences (NIEHS).
1988	Harold C. Hodge Award, Toxicology Training Program, University of Rochester
1987-1988	Surdna Foundation Postdoctoral Fellowship in Marine Biomedical Research
1987	First Place, Society of Toxicology Graduate Student Awards for Meritorious Research in Mechanisms of Toxicology
1981-1986	National Research Service Award in Environmental Toxicology from NIEHS
1979	Phi Beta Kappa

MEMBERSHIP IN PROFESSIONAL SOCIETIES

American Association for the Advancement of Science (AAAS), Society of Toxicology (SOT), Society of Environmental Toxicology and Chemistry (SETAC), American Society for Biochemistry and Molecular Biology (ASBMB), Society for Marine Mammalogy (SMM), The Oceanography Society, Developmental Neurotoxicology Society

RESEARCH INTERESTS

Comparative biochemistry and molecular mechanisms of chemical effects; receptor-mediated mechanisms of gene regulation and toxicity; mechanisms of adaptation and evolved resistance; aquatic animal models in toxicology; molecular evolution of transcription factors involved in environmental sensing; mechanisms of response to oxidative stress; biological effects of marine natural products; impacts of early life exposure; developmental neurotoxicity; toxicology of marine microplastics.

REFEREED PUBLICATIONS (~175 total)

(*undergraduate students, #graduate students, §postdoctoral researchers advised or co-advised)

Google Scholar:
https://scholar.google.com/citations?hl=en&user=L393gDQAAAAJ&view_op=list_works&sortby=pubdate

NCBI Bibliography:
https://www.ncbi.nlm.nih.gov/myncbi/mark.hahn.1/bibliography/public/

1986 **M.E. Hahn**, T.A. Gasiewicz, J.A. Goldstein, and P. Linko. Effect of hexachlorobenzene on the specific binding of 2,3,7,8-TCDD to the hepatic Ah receptor. *Chemosphere* **15**: 1691-1698.

1986 Goldstein, J. A., P. Linko, **M. E. Hahn**, T. A. Gasiewicz and H. N. Yeowell (1986). Structure-activity relationships of chlorinated benzenes as inducers of hepatic cytochrome P-450 isozymes in the rat. *IARC Sci Publ* 77: 519-526.

1988 **M.E. Hahn**, T.A. Gasiewicz, P. Linko, and J.A. Goldstein. The role of the *Ah* locus in hexachlorobenzene-induced porphyria: studies in congenic C57BL/6J mice. *Biochemical Journal* **254:** 245-254.

1989 **M.E. Hahn**, J.A. Goldstein, P. Linko, and T.A. Gasiewicz. Interaction of hexachlorobenzene with the receptor for 2,3,7,8-tetrachlorodibenzo-*p*-dioxin *in vitro* and *in vivo*. Evidence that hexachlorobenzene is a weak Ah receptor agonist. *Archives of Biochemistry and Biophysics* **270:** 344-355

1989 J.W. Gooch, A.A. Elskus, P.J. Kloepper-Sams, **M.E. Hahn**, and J.J. Stegeman. Effects of *ortho* and non-*ortho* substituted polychlorinated biphenyl congeners on the hepatic monooxygenase system in scup (*Stenotomus chrysops*). *Toxicology and Applied Pharmacology* **98:** 422-433

1989 **M.E. Hahn**, B.R. Woodin, and J.J. Stegeman. Induction of cytochrome P450E (P450IA1) by 2,3,7,8-tetrachlorodibenzofuran (2,3,7,8-TCDF) in the marine fish scup (*Stenotomus chrysops*). *Marine Environmental Research* **28:** 61-65

1991 **M.E. Hahn** and T.A. Gasiewicz. Determination of individual porphyrins in rodent urine using high-performance liquid chromatography following cleanup by anion exhange chromatography. *Journal of Chromatography* **563:** 363-368

1991 R.M. Smolowitz, **M.E. Hahn**, and J. J. Stegeman. Immunohistochemical localization of cytochrome P450IA1 induced by 3,3',4,4'-tetrachlorobiphenyl and by 2,3,7,8-tetrachlorodibenzofuran in liver and extrahepatic tissues of the teleost *Stenotomus chrysops* (scup). *Drug Metabolism and Disposition* **19:** 113-123

1991 J. J. Stegeman, R.M. Smolowitz, and **M.E. Hahn**. Immunohistochemical localization of environmentally induced cytochrome P450IA1 in multiple organs of the marine teleost *Stenotomus chrysops* (scup). *Toxicology and Applied Pharmacology* **110:** 486-504

1992 **M.E. Hahn** and J.J. Stegeman. Phylogenetic distribution of the Ah receptor in non-mammalian species: implications for dioxin toxicity and Ah receptor evolution. *Chemosphere* **25:** 931-937

1992 **M.E. Hahn**, A. Poland, E. Glover, and J.J. Stegeman. The Ah receptor in marine animals: Phylogenetic distribution and relationship to cytochrome P4501A inducibility. *Marine Environmental Research* **34:** 87-92

1993 **M.E. Hahn**, T.M. Lamb*, M.E. Schultz, R.M. Smolowitz, and J.J. Stegeman. Cytochrome P4501A induction and inhibition by 3,3',4,4'-tetrachlorobiphenyl in an Ah receptor-containing fish hepatoma cell line (PLHC-1). *Aquatic Toxicology* **26:** 185-208.

1994 Stegeman, J.J. and **M.E. Hahn**. Biochemistry and molecular biology of monooxygenases: Current directions in forms, functions, and regulation of cytochrome P450 in aquatic species, in *Aquatic Toxicology: Molecular, Biochemical and Cellular Perspectives,* Malins, D.C. and Ostrander, G.K., Editors, CRC/Lewis, pp. 87-206

1994 **M.E. Hahn**, A. Poland, E. Glover, and J.J. Stegeman. Photoaffinity labeling of the Ah receptor: phylogenetic survey of diverse vertebrate and invertebrate species. *Archives of Biochemistry and Biophysics* **310:** 218-228

1994 R.D. White, **M.E. Hahn**, W.L. Lockhart, and J.J. Stegeman. Catalytic and immunochemical characterization of hepatic microsomal cytochromes P450 in beluga whales (*Delphinapterus leucas*). *Toxicology and Applied Pharmacology* **126:** 45-57

1994 P. Lindstrom-Seppa, P.J. Korytko*, **M.E. Hahn**, and J.J. Stegeman. Uptake of waterborne 3,3',4,4'-tetrachlorobiphenyl and organ and cell-specific induction of cytochrome P4501A in the fathead minnow *Pimephales promelas*. *Aquatic Toxicology* **28:** 147-167

1994 **M.E. Hahn** and J.J. Stegeman. Regulation of cytochrome P4501A1 in teleosts: Sustained induction of CYP1A1 mRNA, protein, and catalytic activity by 2,3,7,8-tetrachlorodibenzofuran in the marine fish *Stenotomus chrysops*. *Toxicology and Applied Pharmacology* **127:** 187-198

1995 J.J. Stegeman, **M.E. Hahn**, R. Weisbrod, B.R. Woodin, J.S. Joy, S. Najibi, and R.A. Cohen. Induction of cytochrome P4501A1 by Ah-receptor agonists in porcine aorta endothelial cells in culture, and CYP1A1 activity in intact cells. *Molecular Pharmacology* **47:** 296-306.

1995 **M.E. Hahn** and S.I. Karchner. Evolutionary conservation of the vertebrate Ah (dioxin) receptor: Amplification and sequencing of the PAS domain of a teleost Ah receptor cDNA. *Biochemical Journal* **310**: 383-387.

1995 N.W. Cornell, **M.E. Hahn**, and H.A. Martin. Characterization and use of isolated toadfish hepatocytes for studies of heme synthesis and utilization. *Biological Bulletin* **189:** 227-228.

1996 **M.E. Hahn**, B.L. Woodward, J.J. Stegeman, and S.W. Kennedy. Rapid assessment of induced cytochrome P4501A (CYP1A) protein and catalytic activity in fish hepatoma cells grown in multi-well plates: Response to TCDD, TCDF, and two planar PCBs. *Environmental Toxicology and Chemistry* **15:** 582-591.

1996 M. Celander, **M.E. Hahn**, and J.J. Stegeman. Cytochromes P450 (CYP) in the *Poeciliopsis lucida* hepatocellular carcinoma cell line (PLHC-1): Dose- and time-dependent glucocorticoid potentiation of CYP1A induction without induction of CYP3A. *Archives of Biochemistry and Biophysics* **329**: 113-122.

1996 **M.E. Hahn** and K. Chandran*. Uroporphyrin accumulation associated with cytochrome P4501A induction in fish hepatoma cells exposed to Ah receptor agonists, including 2,3,7,8-tetrachlorodibenzo-p-dioxin and planar chlorobiphenyls. *Archives of Biochemistry and Biophysics* **329**: 163-174.

1996 S.I. Karchner[§] and **M.E. Hahn**. A reverse transcription-polymerase chain reaction (RT-PCR) approach for cloning Ah receptors from diverse vertebrate species: partial sequence of an Ah receptor from the teleost *Fundulus heteroclitus*. *Marine Environmental Research* **42**: 13-17.

1996 S.W. Kennedy, A. Lorenzen, S.P. Jones, **M.E. Hahn**, and J.J. Stegeman. Cytochrome P4501A induction in avian hepatocyte cultures: a promising approach for predicting the sensitivity of avian species to toxic effects of halogenated aromatic hydrocarbons. *Toxicology and Applied Pharmacology* **141:** 214-230

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1997 M. Celander, J. Bremer, **M.E. Hahn**, and J.J. Stegeman. Glucocorticoid-xenobiotic interactions: Dexamethasone potentiation of cytochrome P4501A induction by b-naphthoflavone in a fish hepatoma cell line (PLHC-1). *Environmental Toxicology and Chemistry* **16(5):** 900-907.

1997 **M.E. Hahn**, S.I. Karchner, M.A. Shapiro*, and S.A. Perera*. Molecular evolution of two vertebrate aryl hydrocarbon (dioxin) receptors (AHR1 and AHR2) and the PAS family. *Proceedings of the National Academy of Sciences U.S.A.* **94:** 13743-13748

1998 **M.E. Hahn**, S.I. Karchner, M.A. Shapiro*, and S.A. Perera*. The aryl hydrocarbon receptor in early vertebrates. *Marine Environmental Research* **46:** 41-44.

1998 S.E. Huuskonen[#], K. Koponen, O. Ritola, **M. Hahn**, and P.E. Lindstrom-Seppa. Induction of CYP1A and porphyrin accumulation in fish hepatoma cells (PLHC-1) exposed to

sediment or water from a PCB-contaminated lake (Lake Kernaala, Finland). *Marine Environmental Research* **46:** 379-384.

1998 S.E. Huuskonen[#], **M.E. Hahn**, and P.E. Lindstrom-Seppa. A fish hepatoma cell line (PLHC-1) as a tool to study cytotoxicity and CYP1A induction properties of cellulose and wood chip extracts. *Chemosphere* **36:** 2921-2932.

1998 S.E. Huuskonen[#], T.E. Ristola, A. Tuvikene, **M.E. Hahn**, J.V.K. Kukkonen, and P.E. Lindstrom-Seppa. Comparison of two bioassays, a fish liver cell line (PLHC-1) and a midge (*Chironomus riparius*), in monitoring freshwater sediments. *Aquatic Toxicology* **44:** 47-67.

1998 H.T. Besselink, M.S. Denison, **M.E. Hahn**, S.I. Karchner, A.D. Vethaak, J.H. Koeman, and A. Brouwer. Low inducibility of CYP1A activity by polychlorinated biphenyls (PCBs) in flounder (*Platichthys flesus*): Characterization of the Ah receptor and the role of CYP1A inhibition. *Toxicological Sciences* **43**: 161-171.

1998 **M.E. Hahn**. Mechanisms of innate and acquired resistance to dioxin-like compounds. *Reviews in Toxicology. Series B - Environmental Toxicology* **2**: 395-443.

1998 **M.E. Hahn**, B.R. Woodin, J.J. Stegeman, and D.E. Tillitt. Aryl hydrocarbon receptor function in early vertebrates: Inducibility of cytochrome P4501A in agnathan and elasmobranch fish. *Comparative Biochemistry and Physiology* **120C(1):** 67-75

1998 **M.E. Hahn.** The Aryl Hydrocarbon Receptor: A Comparative Perspective. *Comparative Biochemistry and Physiology.* **121C**(3):23-53.

1998 N.M. Fragoso, J.L. Parrott, **M.E. Hahn**, and P.V. Hodson. Chronic retene exposure causes sustained induction of CYP1A activity and protein in rainbow trout (*Oncorhynchus mykiss*). *Environmental Toxicology and Chemistry* **17(11):** 2347-2354.

1999 W.H. Powell[§], S.I. Karchner, R. Bright*, and **M.E. Hahn**. Functional diversity of vertebrate ARNT proteins: Identification of ARNT2 as the predominant form of ARNT in the marine teleost, *Fundulus heteroclitus*. *Archives of Biochemistry and Biophysics* **361:** 156-163.

1999 C.C. Abnet, R.L. Tanguay, **M.E. Hahn**, W. Heideman, and R.E. Peterson. Two forms of aryl hydrocarbon receptor type 2 in rainbow trout (*Oncorhynchus mykiss*): Evidence for differential expression and enhancer specificity. *Journal of Biological Chemistry* **274**: 15159-15166.

1999 K.K. Mann, R.A. Matulka, **M.E. Hahn**, A.F. Trombino, B.P. Lawrence, N.I. Kerkvliet, and D.H. Sherr. The Role of polycyclic aromatic hydrocarbon metabolism in dimethylbenzanthracene-induced Pre-B Cell Apoptosis. *Toxicology and Applied Pharmacology* , **161:** 10-22.

1999 S.I. Karchner, W.H. Powell[§], and **M.E. Hahn**. Structural and Functional Characterization of Two Highly Divergent Aryl Hydrocarbon Receptors in the teleost *Fundulus heteroclitus*. Evidence for a novel class of ligand-binding bHLH-PAS factors. *Journal of Biological Chemistry* **274:** 33814-33824.

2000 S.E. Huuskonen[#], A. Trapido, and **M.E. Hahn**. CYP1A induction and porphyrin accumulation in PLHC-1 fish cells exposed to sediment and oil shale extracts. *Archives of Environmental Contamination and Toxicology*, **38:** 59-69.

2000 E.V. Hestermann[#], J.J. Stegeman, and **M.E. Hahn**. Serum alters the uptake and relative potencies of halogenated aromatic hydrocarbons in a cell culture bioassay. *Toxicological Sciences* **53:** 316-325.

2000 R.D. White, D. Shea, J.J. Schlezinger, **M.E. Hahn**, and J.J. Stegeman. In vitro metabolism of polychlorinated biphenyl congeners by beluga whale (Delphinapterus leucas) and pilot whale (Globicephala melas) and relationship to cytochrome P450 expression. *Comparative Biochemistry and Physiology* 126: 267-284

2000 S.A. Quadri, A.N. Qadri, **M.E. Hahn,** K.K. Mann, and D.H. Sherr. The Bioflavonoid Galangin Blocks Aryl Hydrocarbon Receptor (AhR) Activation and Polycyclic Aromatic Hydrocarbon-induced Pre-B cell Apoptosis. *Molecular Pharmacology* 58: 515-525

2000 W.H. Powell[§], R. Bright*, S.M. Bello[#], and **M.E. Hahn**. Developmental and Tissue-specific Expression of AHR1, AHR2, and ARNT2 in Dioxin-sensitive and -resistant Populations of the Marine Fish, *Fundulus heteroclitus*. *Toxicological Sciences* **57:** 229-239.

2000 S.I. Karchner, S.W. Kennedy, S. Trudeau, and **M.E. Hahn**. Towards a Molecular Understanding of Species Differences in Dioxin Sensitivity: Initial Characterization of Ah Receptor cDNAs in Birds and an Amphibian. *Marine Environmental Research* **50:** 51-56

2000 W.H. Powell[§] and **M.E. Hahn**. The evolution of aryl hydrocarbon signaling proteins: Diversity of ARNT isoforms among fish species. *Marine Environmental Research* **50:** 39-44

2000 E.V. Hestermann[#], J.J. Stegeman, and **M.E. Hahn**. Relative contributions of affinity and intrinsic efficacy to aryl hydrocarbon receptor ligand potency. *Toxicology and Applied Pharmacology* **168**: 160-172.

2000 M. Betka, A. Welenc, D.G. Franks, **M.E. Hahn**, and G.V. Callard. Characterization of Two Aryl hydrocarbon Receptor (AhR) mRNA Forms in *Squalus acanthias* and stage-specific expression during spermatogenesis. *Bulletin of the Mt. Desert Island Biological Laboratory* **39:** 110-112.

2000 **M.E. Hahn** and J.J. Stegeman (2000) Molecular Biology and Biotechnology in Marine Toxicology, in *Opportunities for Environmental Applications of Marine Biotechnology. (Proceedings of the Workshop on Opportunities for Advancement of Environmental Applications of Marine Biotechnology. October 5-6, 1999, Washington, DC),* Board on Biology, Ocean Studies Board, National Research Council. National Academy Press: p. 112-125.

2001 B.H. Toomey, S. Bello[#], **M.E. Hahn**, S. Cantrell, P. Wright, D. Tillitt, and R.T. DiGiulio. TCDD induces apoptotic cell death and cytochrome P4501A expression in developing *Fundulus heteroclitus* embryos. *Aquatic Toxicology* **53:** 127-138.

2001 S.M. Bello[#], D.G. Franks, J.J. Stegeman, and **M.E. Hahn**. Acquired Resistance to Aryl Hydrocarbon Receptor Agonists in a Population of *Fundulus heteroclitus* from a Marine Superfund site: In Vivo and In Vitro Studies on the Induction of Xenobiotic Metabolizing Enzymes. *Toxicological Sciences* **60:** 77-91.

2001 R.B. Butler, M.L. Kelley, W.H. Powell[§], **M.E. Hahn**, and R.J. Van Beneden. An Aryl Hydrocarbon Receptor Homologue from the Soft-Shell Clam, *Mya arenaria:* Evidence that invertebrate AHR homologues lack TCDD and BNF binding. *Gene* **278:** 223-234.

2001 B.A. Jensen[#] and **M.E. Hahn**. cDNA cloning and characterization of a high affinity aryl hydrocarbon receptor in a cetacean, the beluga, *Delphinapterus leucas*. *Toxicological Sciences* **64:** 41-56.

2001 **M.E. Hahn**. Dioxin Toxicology and the Aryl Hydrocarbon Receptor: Insights from fish and other non-traditional models. *Marine Biotechnology* **3(Suppl.1):** S224-S238.

2002 S.M. Bard, S.M. Bello[#], **M.E. Hahn**, and J.J. Stegeman. Expression of P-glycoprotein in killifish (*Fundulus heteroclitus*) exposed to environmental xenobiotics. *Aquatic Toxicology* **59:** 237-251

2002 E.V. Hestermann[#], J.J. Stegeman, and **M.E. Hahn**. Relationships Among the Cell Cycle, Cell Proliferation, and Aryl Hydrocarbon Receptor Expression in PLHC-1 Cells. *Aquatic Toxicology* **58:** 201-213.

2002 E.V. Hestermann[#], J.J. Stegeman, and **M.E. Hahn**. Serum Withdrawal Leads to Reduced Aryl Hydrocarbon Receptor Expression and Loss of Cytochrome P4501A Inducibility in PLHC-1 Cells. *Biochemical Pharmacology* **63:** 1405-1414.

2002 E.-Y. Kim[§] and **M.E. Hahn**. cDNA cloning and characterization of an aryl hydrocarbon receptor from the harbor seal (*Phoca vitulina*): A biomarker of dioxin susceptibility? *Aquatic Toxicology* **58:** 57-73

2002 W.H. Powell[§] and **M.E. Hahn**. Identification and Functional Characterization of Hypoxia-inducible factor 2a from the marine teleost, *Fundulus heteroclitus*: Interaction of HIF-2a with two ARNT2 splice variants. *Journal of Experimental Zoology - Molecular and Developmental Evolution* **294:** 17-29.

2002 **M.E. Hahn**. Biomarkers and Bioassays for Detecting Dioxin-like Compounds in the Marine Environment. *Science of the Total Environment* **289:** 49-69.

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2002 S.M. Billiard, **M.E. Hahn**, D.G. Franks, R.E. Peterson, N.C. Bols, and P.V. Hodson. Binding of polycyclic aromatic hydrocarbons (PAHs) to teleost aryl hydrocarbon receptors (AHRs). *Comparative Biochemistry and Physiology B* **133:** 55-68.

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2003 **M.E. Hahn**. Chapter 14. Evolutionary and Physiological Perspectives on Ah Receptor Function and Dioxin Toxicity, in *Dioxins and Health (second edition),* Schecter, A. and Gasiewicz, T.A., Editors. John Wiley & Sons. pp. 559-602.

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2004 **M.E. Hahn**, S.I. Karchner, D.G. Franks, and R.R. Merson. Aryl hydrocarbon receptor polymorphisms and dioxin resistance in Atlantic killifish (*Fundulus heteroclitus*). *Pharmacogenetics* **14:** 131-143.

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2019 **Hahn, M. E.** (2019). Evolutionary concepts can benefit both fundamental research and applied research in toxicology (A comment on Brady et al. 2017). *Evolutionary Applications* **12:** 350–352. https://doi.org/10.1111/eva.12695. PMCID: PMC6346646

2019 Ulin, A., Henderson, J., Pham, M.-T., Meyo, J., Chen, Y., Karchner, S. I., Goldstone, J. V., **Hahn, M. E.** and Williams, L. M. (2019). Developmental Regulation of Nuclear Factor Erythroid-2 Related Factors (nrfs) by AHR1b in zebrafish (*Danio rerio*). *Toxicol Sci*, **167:** 536–545. (https://doi.org/10.1093/toxsci/kfy257) PMCID: PMC6358246

2019 McDonough CA, Franks DG, **Hahn ME**, Lohmann R (2019) Aryl Hydrocarbon Receptor-Mediated Activity of Gas-Phase Ambient Air Derived from Passive Sampling and an In Vitro Bioassay. *Environmental Toxicology and Chemistry* **38:** 748–759. PMCID: PMC6467651.

2019 Crawford KA, Clark BW, Heiger-Bernays WJ, Karchner SI, Henn BGC, Griffith KN, Howes BL, Schlezinger DR, **Hahn ME**, Nacci DE, Schlezinger JJ (2019) Altered lipid homeostasis in a PCB-resistant Atlantic killifish (*Fundulus heteroclitus*) population from New Bedford Harbor, MA, U.S.A. *Aquatic Toxicology* **210:** 30-43. PMCID: PMC6544361

2019 Zhang W, Xie HQ, Li Y, Jin T, Li J, Xu L, Zhou Z, Zhang S, Ma D, **Hahn ME**, Zhao B (2019) Transcriptomic analysis of *Anabas testudineus* and its defensive mechanisms in response to persistent organic pollutants exposure. *Science of the Total Environment***: 669:** 621–630 (https://doi.org/10.1016/j.scitotenv.2019.1002.1440). PMCID: PMC6581032

2019 Zhang W, Xie H, Li Y, Zou X, Xu L, Ma D, Li J, Ma Y, Jin T, **Hahn ME**, Zhao B (2019) Characterization of the aryl hydrocarbon receptor (AhR) pathway in *Anabas testudineus* and mechanistic exploration of the reduced sensitivity of AhR2a. *Environmental Science and Technology* **53:** 12803-12811. PMCID: PMC6832778

2020 Crawford KA, Clark BW, Heiger-Bernays WJ, Karchner SI, **Hahn ME**, Nacci DE, Schlezinger JJ (2020) Tributyltin disrupts fin development in *Fundulus heteroclitus* from both PCB-sensitive and resistant populations: Investigations of potential interactions between AhR and PPARγ. *Aquatic Toxicology* **218:** 105334. PMCID: PMC6935467

2020 Aranguren-Abadia L, Lille-Langoy R, Madsen AK, Karchner SI, Franks DG, Yadetie F, **Hahn ME**, Goksoyr A, Karlsen OA (2020) Molecular and Functional Properties of the Atlantic Cod (Gadus morhua) Aryl Hydrocarbon Receptors Ahr1a and Ahr2a. *Environ Sci*

Technol **54:** 1033-1044. PMCID: PMC7003535

2020 **Hahn ME,** Sadler KC (2020) Casting a wide net: use of diverse model organisms to advance toxicology. *Dis Model Mech*. **13:** dmm043844. PMCID: PMC7132827

2020 Avilla MN, Malecki KMC, **Hahn ME**, Wilson RH, Bradfield CA (2020) The Ah Receptor: Adaptive Metabolism, Ligand Diversity, and the Xenokine Model. *Chem Res Toxicol* **33:** 860−879. (https://doi.org/10.1021/acs.chemrestox.9b00476) (PMCID: PMC7175458)

2020 Kazzaz SA*, Tagliabue SG, Franks DG, Denison MS, **Hahn ME**, Bonati L, Powell WH (2020) An Aryl Hydrocarbon Receptor from the Caecilian Amphibian *Gymnopis multiplicata* Suggests Low Dioxin Affinity in the Ancestor of All Three Amphibian Orders. *General and Comparative Endocrinology***:** 299:113592. (https://doi.org/10.1016/j.ygcen.2020.113592). NIHMSID:NIHMS1624444

2020 Panlilio JM[#], Aluru N, **Hahn ME** (2020) Developmental neurotoxicity of the harmful algal bloom toxin domoic acid: Cellular and molecular mechanisms underlying altered behavior in the zebrafish model. *Environmental Health Perspectives* **128**: 117002. (https://doi.org/10.1289/ehp6652) (PMCID: PMC7641300)

2020 Shankar, P., Dasgupta, S., **Hahn, M. E.** and Tanguay, R. L. (2020). A Review of the Functional Roles of the Zebrafish Aryl Hydrocarbon Receptors. *Toxicol Sci*, 178(2): 215-238. (https://doi.org/10.1093/toxsci/kfaa143) (PMCID: PMC7706399)

2020 Landrigan PJ, Stegeman JJ, Fleming LE, Allemand D, Anderson DM, Backer LC, Brucker-Davis F, Chevalier N, Corra L, Czerucka D, Bottein M-YD, Demeneix B, Depledge M, Deheyn DD, Dorman CJ, Fénichel PP, Fisher S, Gaill F, Galgani F, Gaze WH, Giuliano L, Grandjean P, **Hahn ME**, Hamdoun A, Hess P, Judson B, Laborde A, McGlade J, Mu J, Mustapha A, Neira M, Noble RT, Pedrotti ML, Reddy C, Rocklöv J, Scharler UM, Shanmugam H, Taghian G, Water JAJMvd, Vezzulli L, Weihe P, Zeka A, Raps H, Rampal P (2020) Human Health and Ocean Pollution. *Annals of Global Health* 86(1): 1–64. (https://annalsofglobalhealth.org/article/10.5334/aogh.2831/)

2021 Avilla, M.N., Bradfield, C.A., Glover, E., **Hahn, M.E.**, Malecki, K.M.C., Stern, P.H. and Wilson, R.H. (2021) Alan Poland, MS, MD: 1940-2020. Poisons as Probes of Biological Function. *Chemical Research in Toxicology* (https://doi.org/10.1021/acs.chemrestox.0c00159).

PREPRINTS and PAPERS SUBMITTED

2019 Panlilio JM, Aluru N, **Hahn ME** (2019) Domoic acid disruption of neurodevelopment and behavior involves altered myelination in the spinal cord. *bioRxiv* 842294; doi: https://doi.org/10.1101/842294

2021 Panlilio, J. M., Jones, I. T., Salanga, M. C., Aluru, N. M. and **Hahn, ME** (2021). Developmental exposure to domoic acid disrupts startle response behavior and circuitry. *bioRxiv*, https://www.biorxiv.org/content/10.1101/2021.01.08.425996v2.

PUBLISHED DATA

Reitzel AM, Karchner SI, Franks DG, Evans BR, Nacci D, Champlin D, Vieira VM, Hahn ME (2014) Data from: Genetic variation at aryl hydrocarbon receptor (AHR) loci in populations of Atlantic killifish (*Fundulus heteroclitus*) inhabiting polluted and reference habitats. Dryad Digital Repository. doi:10.5061/dryad.t2888

Reid NM, Proestou DA, Clark BW, Warren WC, Colbourne JK, Shaw JR, Karchner SI, Hahn ME, Nacci D, Oleksiak MF, Crawford DL, Whitehead A (2016) Data from: The genomic landscape of rapid repeated evolutionary adaptation to toxic pollution in wild fish. *Dryad Digital Repository***.** https://doi.org/10.5061/dryad.5068n5087

BOOKS, PROCEEDINGS, REPORTS, POPULAR ARTICLES

1986 J.A. Goldstein, P. Linko, **M.E. Hahn**, T.A. Gasiewicz, and H.N. Yeowell. Structure-activity relationships of chlorinated benzenes as inducers of hepatic cytochrome P-450 isozymes in the rat. In: *Hexachlorobenzene: Proceedings of an International Symposium*. (Morris, C.R. and Cabral, J.R.P., eds.) IARC Scientific Publications No. 77, pp. 519-526. IARC, Lyon.

1987 **M.E. Hahn**, T.A. Gasiewicz, P. Linko, and J.A. Goldstein. Studies on the role of the Ah receptor in hexachlorobenzene-induced porphyria. *Annals of the New York Academy of Sciences* **514**: 333-334.

1990 **M.E. Hahn** and J.J. Stegeman. The role of biotransformation in the toxicity of marine pollutants. In: *Pour L'Avenir du Beluga* (For the Future of the Beluga, Proceedings of the International Forum for the Future of the Beluga, Tadoussac, Quebec, Canada, 29 September - 1 October, 1988) (J. Prescott & M. Gauquelin, Eds.) pp. 185-198; Presses de l'Universite du Quebec, Sillery, Quebec.

1992 J.J. Stegeman, M.N. Moore, and **M.E. Hahn** (Eds.) Responses of Marine Organisms to Pollutants (Proceedings of the Sixth International Symposium on Responses of Marine Organisms to Pollutants) *Marine Environmental Research* **34:** 1-354 and *Marine Environmental Research* **35:** 1-231.

1994 **M.E. Hahn.** Using Biomarkers to Detect Contamination of the Marine Environment. *Nor'easter* (Magazine of the Northeast Sea Grant Programs) **6:** 8-11

1996 **M.E. Hahn**. Overestimation of toxic equivalency factors (TEFs) resulting from inhibition of EROD activity by cytochrome P450 1A inducers in cultured cells. In: Haya, K. and A.J. Niimi, (Eds.) *Proceedings of the 22nd Annual Aquatic Toxicicity Workshop: Oct. 2-4, 1995, St. Andrews, New Brunswick.* Canadian Technical Report of Fisheries and Aquatic Sciences No. 2093, pp. 132-135.

1997 **M.E. Hahn**. The aryl hydrocarbon (Ah) receptor: Biomarker of dioxin susceptibility? in *Proceedings of the Third Finnish Conference of Environmental Sciences, May 9-10, 1997.* pp.36-39

2000 **M.E. Hahn** and J.J. Stegeman. Molecular Biology and Biotechnology in Marine Toxicology, in *Proceedings of the Workshop on Opportunities for Advancement of Environmental Applications of Marine Biotechnology. October 5-6, 1999, Washington, DC,* National Academy Press:pp.112-125.

2001 **M.E. Hahn.** Selection of TEF values for use in a TEQ-based ecological risk assessment, in *Workshop Report on the Application of 2,3,7,8-TCDD Toxicity Equivalence Factors to Fish and Wildlife (EPA/630/R-01/002),* U.S. Environmental Protection Agency, Office of Research and Development: Washington, DC. pp. C-E-21 - C-E-27.

2002 N.M. Fragoso, P.V. Hodson, J.L. Parrott, **M.E. Hahn**, I.S. Kozin, and R.S. Brown. Chronic retene exposure sustains MFO induction in rainbow trout. *Proceedings, 3rd International conference on Environmental Fate and Effects of Pulp and Paper Mill Effluents, Rotorua, New Zealand, Nov. 9-13, 1997*.

2005 **M.E. Hahn**. Down to the Sea on (Gene) Chips. *Oceanus* **43(2):** 72-74

2007 C. Reddy and **M. Hahn**. *Risks versus benefits of eating salmon*, Commentary, Providence Journal, August 12, 2007, p.D6.

2008 Kim, E.-Y., Iwata, H., Yasui, T., Inoue, N., Lee, J.-S., Franks, D. G., Karchner, S. I., **Hahn, M. E**., and Tanabe, S. (2008). Molecular Basis for Differential Dioxin Sensitivity in Birds: Characterization of Avian AHR Isoforms. In *Interdisciplinary Studies on Environmental Chemistry—Biological Responses to Chemical Pollutants* (Y. Murakami, K. Nakayama, S.-I. Kitamura, H. Iwata, and S. Tanabe, Eds.), pp. 81–86. TERRAPUB.

2009 **Hahn, M. E.** (2009). Vignette 6.1 Cytochrome P450 Monooxygenases and Their Regulation. In *Fundamentals of Ecotoxicology, 3rd Ed.* (M. C. Newman).

2014 **Hahn, M. E.** (2014). Vignette 6.1 Cytochrome P450 Monooxygenases and Their Regulation. In *Fundamentals of Ecotoxicology. The Science of Pollution. 4rd Ed.* (M. C. Newman, Ed.). Taylor & Francis.

EDITORIAL BOARDS

PeerJ (Academic Editor, 2017- present)

Aquatic Toxicology (Associate Editor, 2001- 2005; Editorial Board, 2001-2020)

Environmental Toxicology and Chemistry (1996 - 1998)

Chemical-Biological Interactions (1998 - 2013)

Toxicological Sciences (1998 – 2011; Associate Editor, 2007 - 2011)

REVIEWER FOR

African J Aquat Sci
Aquatic Toxicology (Associate Editor, 2001-2005; Editorial Board 2001-2020)
Archives of Biochemistry and Biophysics
Archives of Environmental Contamination and Toxicology
Archives of Toxicology
Asian Journal of Andrology
Biochemistry (ACS)
Biochemical Journal
Biochimica Biophysica Acta
Biological Bulletin
Biomarkers
Biochemical Pharmacology
Biotechniques
BMC Biochemistry

BMC Evolutionary Biology
BMC Genomics
BMC Molecular Biology
Bulletin of Environmental Contamination and Toxicology
Carcinogenesis
Chemical-Biological Interactions (Editorial Board until 2011)
Chemical Research in Toxicology
Comparative Biochemistry and Physiology
Deep Sea Research I
Developmental Dynamics
DNA and Cell Biology
Ecological Applications
Ecotoxicology
eLIFE
Endocrinology
Environment International
Environmental Health Perspectives
Environmental Pollution
Environmental Science and Pollution Research
Environmental Science and Technology
Environmental Toxicology and Chemistry (Editorial Board 1996 - 1998)
Environmental Toxicology and Pharmacology
Estuaries
Expert Opinion on Therapeutic Targets
Free Radical Biology and Medicine
F1000
Gene
General and Comparative Endocrinology
Gene Regulation and Systems Biology
Genome Biology and Evolution
Hypertension
Journal of Biochemical and Molecular Toxicology
Journal of Cetacean Research and Management
Journal of Comparative Physiology
Journal of Experimental Marine Biology and Ecology
Journal of Fish Biology
Journal of Hazardous Materials
Life Sciences
Marine Environmental Research
Marine Pollution Bulletin
Molecular Biology of the Cell
Molecular Biology and Evolution
Molecular and Cellular Biology
Molecular Cellular Endocrinology
Molecular Marine Biology and Biotechnology
Molecular Pharmacology
NeuroToxicology
Nuclear Receptor Research

Pesticide Biochemistry and Physiology
Pharmacogenetics and Genomics
PLoS One
Proceedings of the National Academy of Sciences U.S.A.
Redox Biology
Science
Scientific Reports
Toxicology and Applied Pharmacology
Toxicology In vitro
Toxicology Letters
Toxicological Sciences (Editorial Board; Associate Editor until 2011)
Toxicon
Trends in Pharmacological Sciences (TIPS)
Xenobiotica
Zebrafish
American Chemical Society Book Series
Maryland Department of Natural Resources, Technical Report Series

PROPOSAL REVIEWS

National Institutes of Health (NIH), ALTX1 study section (Review Panel for Alcohol and Toxicology Proposals), (1999)
NIH site review team, P30 application for Environmental Health Sciences Center
National Institutes of Health *ad hoc* reviewer
National Institutes of Health, Developmental Pharmacology panel
National Institute of Environmental Health Sciences, Review Consultant for Superfund Basic Research Program (2005)
NIH Special Emphasis Panel to review applications on "Tools for Zebrafish Research" (2006)
National Institutes of Health (NIH), study section (proposal review panel) on “SBIRs (small business innovation research) and Exploratory/Development Applications”, July 2006
National Institutes of Health (NIH), XNDA (Xenobiotic and nutrient disposition and action) study section, October 2006.
NIH study section (proposal review panel) on “SBIRs (small business innovation research) and Exploratory/Development Applications”, July 2007
NIH Developmental Pharmacology panel, April, August, December, 2009
National Institutes of Health (Challenge Grants (ARRA) 2009)
NIH panel to review R13 conference/scientific meeting applications
NIH Xenobiotic and Nutrient Disposition and Action (XNDA) panel, June 2010
NIH Digestive, Kidney and Urological Systems (DKUS) Integrated Review Group, March and June, 2011
Other NIH panels (2012-2017)
NIH panel *Systemic Injury from Environmental Exposures* (SIEE; standing member, 2018-2022).
CICEET (NOAA/UNH) Review Panel
NOAA Ocean Exploration Program
NOAA Coastal Ocean Program
EPA Environmental Indicators in the Estuarine Research Environment Research Program
National Science Foundation (NSF)
Hudson River Foundation (Ad hoc reviewer and review panel participant)

U.S. Dept. of Commerce (Small Business Innovation Research Program)
U.S. Dept. of Energy (Small Business Innovation Research Program)
Maine Sea Grant review panel 2001
New Hampshire Sea Grant
South Carolina Sea Grant
New Jersey Sea Grant
New York Sea Grant
North Carolina Sea Grant
Minnesota Sea Grant
Rhode Island Sea Grant
California Sea Grant
Wisconsin Sea Grant
MMS-UC Coastal Marine Institute
South Carolina EPSCoR Grants
Hong Kong Research Grants Council
Canada Natural Science Environment Research Council (NSERC)
U.K. Natural Environment Research Council (NERC)
ECOHAB
Science Foundation of Ireland
Water Resources Research Institute of The University of North Carolina
University of Washington NIEHS Center for Exposures, Diseases, Genomics and Environment.

WHOI COMMITTEES AND ACTIVITIES (other than Education)

WHOI Institutional Animal Care and Use Committee (IACUC), 1995-present (Chairman, 2009-2011)

Institutional Strategic Planning Committee (Research), 1996-97

WHOI Isotope Users Committee (now Radiation Safety Committee), 1997-2011

WHOI Institutional Biosafety Committee (IBC), 1997-2011 (Chairman, 1997-2008)

Institutional Safety Committee, 2003-2008

Biology Department Safety Committee, 2003-2008

Institute Advisory Committee, Ocean Life Institute, 2001-2003

Science address, spring 2001 meeting of the WHOI Trustees and Corporation members ("Toxic Chemicals and Marine Life: Understanding Mechanisms")

Presentations to Congressmen and Congressional Staffers (1999, 2001, 2002)

Cecil and Ida Green Technology Awards Panel; 1995, 2000

Morse-Porteous Award Selection Committee, 1994

Molecular Biology Planning Committee, 1994

Biology Department Seminars (1992, 1993, 1998, 2003)

Summer Student Fellow seminars (many)

Member of several Ad Hoc Promotion committees (Chair of two)

Biology Department Fish Biologist Search Committee

Biology Department Chair Search Committee (1996, 2001)

Biology Department Ad hoc Staffing Committee (2002-2003)

Search Committee for VP for Finance and Administration (2012)

Search Committee for VP for Academic Programs and Dean (2005, 2017)

Search committee for Deputy Director and Vice President for Research (DDVPR) (2019)

Chaired the ad hoc search committee for the next Biology Department Chair (July-Aug 2019)

EDUCATION ACTIVITIES

COMMITTEES AND OTHER SERVICE:

Joint Committee on Biological Oceanography (JCBO),
WHOI/MIT Joint Graduate Program, 1996-2005; Chairman, 1997-2002

WHOI/MIT Joint Program Admissions Advisory Committee, 1993, 1994, 2003, 2004

Biological Oceanography Comprehensive Exam Committee (2002 [Chair]; 2003, 2004, 2006 [Chair])

J. Seward Johnson Chair and Education Coordinator in the Biology Department (2003-2005)

Participant in ethics workshops for students

Co-organized mentoring/advising workshops for Biology Department faculty

Organized teaching workshop for Biology Department faculty

Search Committee for new Vice President for Academic Programs and Dean (2005, 2017)

Joint Program Strategic Planning Committee (2010-2011)

Co-organized three workshops on Responsible Conduct of Research (2011)

WHOI Education Council (2019-)

Opening presentation at the *Ethics in Publishing* workshop organized by Academic Programs Office, August 21, 2019. I covered authorship, preprints, peer review, and data sharing.

Panelist at *Everyday Ethics* workshop organized by JP student and postdoc, Aug. 3, 2020.

STUDENT ADVISING AND MENTORING:

PH.D. STUDENTS ADVISED OR CO-ADVISED (Enrolled in WHOI/MIT Joint Program in Oceanography unless otherwise indicated)

Connie Hart (Ph.D. 1998)
Sirpa Huuskonen (Department of Physiology, University of Kuopio, Finland) (co-supervisor), (Ph.D., 1999)
Sue Bello (Ph.D., 1999)

Eli Hestermann (co-advisor; Ph.D. 2000)
Brenda Jensen (Ph.D. 2000)
Brad Evans (Boston University) (Ph.D. 2005)
Eric Montie (Ph.D. 2006)
Joy Lapseritis (Ph.D. 2007)
Kristen Whalen (Ph.D. 2008)
Thomas Abbott (withdrew, 6/05)
Kevin Richberg (transferred 12/06)
Maja Edenius (co-advisor; Ph.D. 2018)
Jennifer Panlilio (Ph.D. 2019)
Jordan Avery Pitt (co-advisor, 2018-)

STUDENT THESIS COMMITTEES (Other than as advisor; WHOI/MIT Joint Program in Oceanography unless otherwise indicated)

Renee White (Ph.D. 1995)
Maureen Clayton (Ph.D. 1996)
Gaspar Taroncher (Ph.D. 1997)
Marjorie Oleksiak (Ph.D. 1998)
Jennifer Joy Schlezinger (Ph.D. 1998)
Shannon Bard (Ph.D. 2000)
Koren Mann (Boston University School of Public Health) (Ph.D. 2000)
Sirpa Huuskonen (University of Kuopio, Finland) (Ph.D. 1999)
John Zielinski (SUNY Stony Brook) (M.S. 2001)
Yale Passamanek (Ph.D. 2003)
Emily Lilly (Ph.D. 2003)
Heather Handley (Ph.D. 2003)
Joanna Wilson (Ph.D. 2003)
Katie Rose Boissonneault (Ph.D. 2004)
Xabier Arzuaga (University of Kentucky) (Ph.D. 2004)
Kristin Gribble (Ph.D. 2005)
Tin Klanjscek (Ph.D. 2005)
Sarah Rothberg Greytak (Boston University) (Ph.D. 2005)
Claudia Martins (MIT/WHOI Joint Program) (Ph.D. 2006)
Kelley Bonner Engel (Boston University) (Ph.D. 2007)
Nick Anastas (UMass Boston) (Ph.D. 2008)
Greg Howard (Boston University) (Ph.D. 2008)
Kate Buckman (MIT/WHOI Joint Program) (Ph.D. 2009)
Lucinda Griffin Burnam (Boston University) (Ph.D. 2013)
Kathryn Crawford (Boston University) (Ph.D. 2018)
Alia Hidayat (MIT/WHOI Joint Program)
Lei Ma (MIT/WHOI Joint Program)

STUDENT ACADEMIC ADVISORY COMMITTEES

Zhanpeng Yuan (New York University Medical Center)
Anna Fortunato Rhodes
Andrew Tolonen
Regina Campbell-Malone
Stacy DeRuiter
Anne Thompson
Sarah Pacocha

Kelly Rakow
Stacy DeRuiter
Kelly Rakow
Christine Mingione
Kelton McMahon
Maja Edenius
Alia Hidayat

SUMMER FELLOWS

Alka Patel (1992)
Kartik Chandran (1994)
Kate McEowen (1994 - High School Teacher Fellowship Program)
Samanthi Perera (1995)
Miriam Shapiro (1996)
Fabiola Rivas (1997)
Darren Greninger (1998)
Jill Sakai (1999)
Kristen Whalen (2001)
Rebecca Rogers (2003)
Danielle Gilbert (2004)
Katie Barott (2005)
Annie Brock (2006)
Leo Laub (2008)
Rachel Harbeitner (2010)
Carey Pelc (2010)
Kristina Deak (2011)
Leah Middleton (2015)
Cynthia Becker (2016)

GUEST STUDENTS

Harry Besselink (Wageningen Agricultural University, The Netherlands) (1994)
Sirpa Huuskonen (University of Kuopio, Finland) (1995, 1996)
Nuno Fragoso (Queens University, Canada) (1996)
Rachel Bright (Haverford College) (1998, 1999)
Lutz Wiesner (Ernst-Moritz-Arndt-University Greifswald, Germany) (2000)
Sonya Billiard (Queens University) (2000)
David J. Ramsey (University of Illinois) (2000)
Danielle Gilbert (MIT; UROP student; January 2002)
Xabier Arzuaga (University of Kentucky) (2002)
Deena M. Wassenberg (Nicholas School of the Environment, Integrated Toxicology Program, Duke University) (2002)
Joel N. Meyer (Nicholas School of the Environment, Integrated Toxicology Program, Duke University) (2002)
Tomoko Yasui, Ehime University, Nagayama, Japan (2004)
Cristina Panti, Department of Evolutionary Biology, University of Siena, Italy (2008)
Kathryn Crawford, Boston University School of Public Health (2013)
Jennette Shoots, Kenyon College (2014)
Carrie McDonnough, University of Rhode Island (2016)
Libe Aranguren, University of Bergen (2017-2018)

Sarah Kazzaz, Kenyon College (2017)
Ellysia Overton, Haverford College (2018)

GUEST INVESTIGATORS

Dr. Ian Nisbet, ICT Nisbet and Co., Inc.
Dr. Sean Kennedy, Environment Canada
Dr. Bernard Rees, University of New Orleans
Dr. Wade Powell, Kenyon College
Dr. Phyllis Strauss, Northeastern University
Dr. Elwood Linney, Duke University
Dr. Andrew McArthur, consultant
Dr. Roxanna Smolowitz, Roger Williams University
Dr. Joy Lapseritis, Naval Undersea Warfare Center Division Newport
Dr. Liz Alter, York College / CUNY
Dr. Emma Wincent, Karolinska Institute, Institute of Environmental Medicine
Dr. Thiago Parente, Universidade Federal do Rio de Janeiro, Brazil.
Dr. Alicia Timme-Laragy, UMASS Amherst
Dr. Bryan Clark, U.S.E.P.A.
Dr. Diane Nacci, U.S.E.P.A.
Dr. Richard Hill, Michigan State University
Dr. Rebeka Merson, Rhode Island College
Dr. Shawn McCafferty, Wheaton College

POSTDOCTORAL FELLOWS and INVESTIGATORS

Dr. Sibel Karchner (NIH Postdoctoral Fellow, 1994-1996)
Dr. Wade Powell (NIH Postdoctoral Fellow, 1997-2000)
Dr. Connie Hart (Postdoctoral Investigator, 1998-1999)
Dr. Eun-Young Kim (Postdoctoral Guest Investigator, 1999)
Dr. Rebeka Merson (NIH and Donaldson Charitable Trust Postdoctoral Fellow, 2000-2004)
Dr. Ann Tarrant (WHOI Postdoctoral Scholar, 2002-)
Dr. Maria Hansson (WHOI Postdoctoral Scholar, 2004-2007)
Dr. Matthew Jenny (Postdoctoral Investigator, 2005-)
Dr. Eric Montie (2006-2007)
Dr. Adam Reitzel (WHOI Postdoctoral Scholar 2007-)
(co-advised with Ann Tarrant)
Dr. Alicia Timme-Laragy (WHOI Postdoctoral Scholar/Fellow 2007-2012)
Dr. Kristen Whalen (2008)
Dr. Neel Aluru (WHOI Postdoctoral Scholar 2008-2012)
Dr. Larissa Williams (Postdoctoral Investigator/Fellow, 2010-2012)
Dr. Lilah Glazer (WHOI Postdoctoral Scholar 2013-2015)

COURSES AND COURSE LECTURES:

MIT 7.432 Topics in Physiology and Biochemistry: Fundamentals of Aquatic Toxicology (with J. Stegeman and J. McDowell) (WHOI/MIT Joint Graduate Program in Oceanography), Fall 1992, 1994

Two invited lectures on dioxin toxicology in graduate toxicology course at University of Rhode Island, November 1994

MIT 7.432 Topics in Physiology and Biochemistry: Resistance Mechanisms in Aquatic Organisms (with J. McDowell) (WHOI/MIT Joint Program), Fall 1996

Invited lecturer on "*The aryl hydrocarbon receptor in aquatic animals*", in postgraduate course "Molecular and Cellular Toxicology of Aquatic Organisms", University of Bergen, Norway, April 1997.

Keynote lecturer (4 talks on various topics) at "Biochemistry and Molecular Biology in Ecotoxicology" (Finnish National Graduate School course on 'Integrated Aquatic Hazard Assessment'), Kuopio, Finland, May 5-6, 1997.

Co-organizer of Advanced Aquatic Toxicology Course given over 3 days prior to the 10th International Symposium on Responses of Marine Organisms to Pollutants, Williamsburg, VA, April 1999. Organized Module 1: "Signal Transduction: response pathways, gene regulation, and determinants of species susceptibility." Presented one of the seven lectures in this module: "*Aryl hydrocarbon signaling in aquatic species: Comparative aspects of the Ah receptor and the bHLH-PAS family*"

MIT 7.432 Topics in Physiology and Biochemistry: Hormonally Active Agents in the Marine Environment, (WHOI/MIT Joint Program) Spring 2000

Organizer and instructor for short course entitled "Receptors and Signal Transduction in Environmental Toxicology", presented at the 2000 meeting of the Society of Environmental Toxicology and Chemistry, and again at the 2001 meeting of the Society of Toxicology.

MIT 7.437 Topics in Molecular Biological Oceanography: Genomic Approaches in Marine Science (course director, taught with 7 others) (WHOI/MIT Joint Program) (Spring 2003).

MIT 7.432 Topics in Physiology and Biochemistry: Marine Mammal Toxicology, (WHOI/MIT Joint Program) Spring 2004 (with Michael Moore)

MIT 12.757 Science and Society (with Mark Kurz) Fall 2008

MIT 7.432 Topics in Marine Physiology and Biochemistry: Current Issues in Aquatic Toxicology. co-taught with Neel Aluru; Spring 2020