Mark E. Hahn

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EXPERIENCE

1992-	Biology Department Chair (2011-present), Senior Scientist (2005-present), 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 the WHOI/MIT Joint Graduate Program in Oceanography and Oceanographic Engineering, for excellence in teaching, advising, and mentoring.
2006-2010	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, Society of Toxicology, Society of Environmental Toxicology and Chemistry, American Society for Biochemistry and Molecular Biology, Society for Marine Mammalogy

RESEARCH INTERESTS

Comparative biochemistry and molecular mechanisms of chemical-biological interactions in aquatic animals; receptor-mediated mechanisms of gene regulation and toxicity; mechanisms of adaptation and acquired 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; comparative genomics; role of microRNAs in developmental toxicity.

REFEREED PUBLICATIONS (~120 total)

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.

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

1996 **M.E. Hahn**. Ah receptors and the mechanism of dioxin toxicity: Insights from homology and phylogeny, in *Interconnections Between Human and Ecosystem Health,* DiGiulio, R.D. and Monosson, E., (Eds.), Chapman and Hall Publishers, pp. 9-26.

1997 A. Lorenzen, S.W. Kennedy, L.J. Bastien, and **M.E. Hahn.** Halogenated aromatic hydrocarbon-mediated porphyrin accumulation and induction of P4501A in chicken embryo hepatocytes. *Biochemical Pharmacology* **53:** 373-384.

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. Tuvikene, M. 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

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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 E.-Y. Kim, **M.E. Hahn**, H. Iwata, S. Tanabe, and N. Miyazaki. cDNA cloning of an aryl hydrocarbon receptor from Baikal Seals (*Phoca sibirica*). *Marine Environmental Research* **54:** 285-289.

2002 E.A. Andreasen, **M.E. Hahn**, W. Heideman, R.E. Peterson, and R.L. Tanguay. The zebrafish (*Danio rerio*) aryl hydrocarbon receptor type 1 (zfAHR1) is a novel vertebrate receptor. *Molecular Pharmacology* **62:** 234-249.

2002 **M.E. Hahn**. Aryl hydrocarbon receptors: Diversity and Evolution. *Chemico-Biological Interactions* **141:** 131-160

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2002 J. Song, M. Clagett-Dame, R.E. Peterson, **M.E. Hahn**, W.M. Westler, R.R. Sicinski, and H.F. DeLuca. A Novel Ligand for the Aryl Hydrocarbon Receptor Isolated from Lung. *Proceedings of the National Academy of Sciences U.S.A.* **99:** 14694-14699.

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Cytochrome P4501A and Porphyrin Accumulation in Chicken Embryo Hepatocytes. *Environmental Toxicology and Chemistry* **22:** 1497-1506.

2003 J.N. Meyer, D.M. Wassenberg, S.I. Karchner, **M.E. Hahn**, and R.T. DiGiulio. Expression and inducibility of aryl hydrocarbon receptor (AHR) pathway genes in wild-caught killifish (*Fundulus heteroclitus*) from a creosote-contaminated site. *Environmental Toxicology and Chemistry* **22(10):** 2337-2343.

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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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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).

EDITORIAL BOARDS

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

Environmental Toxicology and Chemistry (1996 - 1998)

Chemical-Biological Interactions (1998 - present)

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

REVIEWER FOR:

African J Aquat Sci
***Aquatic Toxicology* (Associate Editor, 2001-2005; Editorial Board 2001-present)**
Archives of Biochemistry and Biophysics
Archives of Environmental Contamination and Toxicology
Asian Journal of Andrology
Biochemistry (ACS)

Biochemical Journal
Biochimica Biophysica Acta
Biological Bulletin
Biomarkers
Biochemical Pharmacology
Biotechniques
BMC Evolutionary Biology
BMC Genomics
BMC Molecular Biology
Bulletin of Environmental Contamination and Toxicology
Carcinogenesis
Chemical-Biological Interactions **(Editorial Board)**
Chemical Research in Toxicology
Comparative Biochemistry and Physiology
Deep Sea Research I
Developmental Dynamics
DNA and Cell Biology
Endocrinology
Environmental Health Perspectives
Environmental Science and Technology
Environmental Toxicology and Chemistry **(Editorial Board 1996 - 1998)**
Estuaries
Gene
General and Comparative Endocrinology
Gene Regulation and Systems Biology
Hypertension
Journal of Biochemical and Molecular Toxicology
Journal of Cetacean Research and Management
Journal of Comparative Physiology
Journal of Experimental Marine Biology and Ecology
Life Sciences
Marine Environmental Research
Marine Pollution Bulletin
Molecular Biology of the Cell
Molecular Biology and Evolution
Molecular and Cellular Biology
Molecular Marine Biology and Biotechnology
Molecular Pharmacology
Pesticide Biochemistry and Physiology
Proceedings of the National Academy of Sciences U.S.A.
Science
Toxicology and Applied Pharmacology
Toxicological Sciences **(Editorial Board; Associate Editor)**
Trends in Pharmacological Sciences (TIPS)
Zebrafish

PROPOSAL REVIEWS (selected)

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 panels

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, February 2010.

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)

Several State Sea Grant programs

WHOI COMMITTEES AND ACTIVITIES (other than Education)

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

WHOI Isotope Users Committee (now Radiation Safety Committee), 1997-2012

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

EDUCATION ACTIVITIES (selected)

COMMITTEES AND OTHER SERVICE:

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

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

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)

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 2007-2012)
Dr. Kristen Whalen (2008)
Dr. Neel Aluru (WHOI Postdoctoral Scholar 2008-2012)
Dr. Larissa Williams (Postdoctoral Investigator, 2010-2012)

COURSES TAUGHT:

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

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

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

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

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, (WHOI/MIT Joint Program) Fall 2008 (with Mark Kurz)