

CURRICULUM VITAE

Andrew S. Kane, Ph.D.

Associate Professor

University of Florida
College of Public Health and Health Professions
Environmental Health Program

Director

UF Aquatic Pathobiology Laboratories
Emerging Pathogens Institute

EDUCATION

1981	B.S.	Cornell University
1985	M.S.	Ohio State University
1993	Ph.D.	University of Maryland

MAJOR INTERESTS: Environmental pathology, infectious disease and toxicology of aquatic organisms with emphasis on Chesapeake Bay fauna and captive fish species. Specific focus is placed on sublethal indices of disease, effects of contaminant and water quality stressors, and application of aquatic models for human health. Additional interests include dynamic outreach through traditional classes as well as the use of interactive, computer-based multimedia.

FACULTY POSITIONS

1986-1992	Research Associate Department of Pathology University of Maryland School of Medicine Baltimore, MD
1993-present	Assistant Professor (adjunct after 12/03) Department of Pathology University of Maryland School of Medicine Baltimore, MD
1993-1999	Envirovet Faculty: Program in Aquatic Animal Medicine and Environmental Toxicology College of Veterinary Medicine University of Illinois Urbana, IL

FACULTY POSITIONS, continued

1994-2008	Graduate Faculty Graduate School University of Maryland at Baltimore Baltimore, MD
1994-2008	Graduate Faculty Marine Estuarine Environmental Science Program University of Maryland System
1999-2008	Graduate Faculty System-wide Program in Toxicology University of Maryland System
2000-2008	Associate Research Scientist University of Maryland, College of Ag. & Natural Resources Department of Veterinary Medicine, College Park, MD
2000-2003	Assistant Professor University of Maryland School of Medicine Department of Medicine. Baltimore, MD
2000-2004	Assistant Professor, Adjunct University of Maryland School of Medicine Department of Epidemiology and Preventive Medicine. Baltimore, MD
2004-2008	Associate Professor, Adjunct University of Maryland School of Medicine Department of Epidemiology and Preventive Medicine. Baltimore, MD
2004-2008	Assistant Professor The Johns Hopkins University Department of Art as Applied to Medicine. Baltimore, MD
2007-present	Associate Professor University of Florida College of Health and Health Professions, Gainesville, FL
2007-present	Graduate Faculty Graduate School, University of Florida, Gainesville, FL

MAJOR ACADEMIC TASKS

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|--------------|---|
| 1986-1992 | Facility Research Coordinator
Aquatic Pathobiology Center
Department of Pathology
University of Maryland School of Medicine
Baltimore, MD |
| 1993-1998 | Associate Director
Aquatic Pathobiology Center
Department of Pathology
University of Maryland School of Medicine
Baltimore, MD |
| 1999-2007 | Director
Aquatic Pathobiology Center
Department of Veterinary Medicine,
University of Maryland, College Park MD;
Department of Epidemiology & Preventive Medicine
University of Maryland, Baltimore MD |
| 2008-present | Director
Aquatic Pathobiology Laboratories
Emerging Pathogens Institute
University of Florida
Gainesville, FL |

PROFESSIONAL MEMBERSHIPS

1980-present	American Fisheries Society (AFS)
1984-1990	AFS Fish Culture Section
1986-present	AFS Fish Health Section
1984-1993	American Institute of Fisheries Research Biologists
1991-present	Society of Environmental Toxicology and Chemistry
1998	International Association for Aquatic Animal Medicine
1999-present	American College of Toxicology

HONORS AND AWARDS

1980	Phi Sigma Omicron, Cornell University
1986	Skinner Memorial Award, American Institute of Fisheries Research Biologists
1992	Sigma Xi, Maryland Chapter
1993	Schwartz Academic Achievement Award, University of Maryland School of Medicine
1995	Faculty Development Award, University of Maryland System

EDITORIAL TASKS

1993-present	Reviewer, <i>Life Sciences</i>
1993-present	Reviewer, <i>Toxicologic Pathology</i>
1995-1996	Editorial Assistant, <i>Aquatic Toxicology</i> , G. Rand, editor (Taylor and Francis Publishing Co.)
1996-present	Reviewer, <i>Journal of Aquatic Animal Health</i>
1996-present	Book Review Editor, <i>Aquatic Toxicology</i> (International peer-reviewed journal; primary in field)
1999	Editor, Proceedings of the Third International Symposium on Aquatic Animal Health
2002-present	Reviewer, <i>Estuaries</i>
2002-present	Reviewer, <i>Environmental Research</i>

CONSULTANCIES

1981	Lund's Fishery, Cape May, NJ
1986-present	National Aquarium in Baltimore, Baltimore, MD
1990-present	House of Tropicals, Glen Burnie, MD
1993-1998	New England Aquarium, Boston, MA
1994-1998	Multimedia content consultant, Password, Inc., Baltimore, MD
1998-present	Florida Department of Environmental Protection, University of South Florida, St. Petersburg, FL
1998-2000	Pathology media consultant, Grasso & Associates, Baltimore, MD

CAMPUS ACTIVITIES

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|------------|---|
| 1993-2006 | Mentor, UMB Discovering Careers at UniversityCenter |
| 1993-2006 | Advisor, Independent electives for medical and graduate students |
| 1994-2007 | Reviewer, American Cancer Society Institutional Resource Grant (IRG) Review Committee, UMB |
| 1994 | Ad Hoc Reviewer, Special Research Initiative Support (SRIS) Study Section #5, Designated Research Initiative Committee, UMB |
| 1994 | Mentor, Shriver Center at UMBC |
| 1995-2000 | Mentor, SANDALS Program, in coordination with the College of Notre Dame of Maryland and the Baltimore City School System |
| 1996-2000 | Member and Reviewer, Animal Care and Use Committee, UMB |
| 1996-2000 | Interim Webmaster, Department of Pathology, UMB |
| 1996-2007 | Contributor, Graduate "Survival" Series, UMB Graduate School |
| 1999-2001 | Mentor, Howard Hughes Medical Institute Fellow |
| 2001, 2002 | Guest Teacher on 'Animals and the Environment,' Center for Young Children, University of Maryland College Park |
| 2002 | Mentor, Park School Senior Independent study |
| 2002 | Mentor, Morgan State University, NIH BRIDGES Program |
| 2007 | Member, Emerging Pathogens Institute Search Committee for Institute Business Manager, UF |
| 2008 | Member, Emerging Pathogens Institute Search Committee for Molecular Microbiologist, UF |
| 2008 | Member, Emerging Pathogens Institute Search Committee for Plant Pathologist, UF |
| 2008 | Member, College of Public Health and Health Professions Search Committee for Director of Environmental Health Program, UF |

REGIONAL ACTIVITIES

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|--------------|---|
| 1993-2006 | Outreach Instructor, Maryland Science Week Program, Baltimore, MD |
| 1993-2006 | Community Liaison, University Center Outreach Program, UMB |
| 1995-2007 | Member, Aquatic Animal Health Committee, Maryland Department of Agriculture, Aquaculture Division |
| 1995 | Graduate Fellowship Peer Panel Reviewer. Life Sciences Study Section, U.S. Environmental Protection Agency, Washington, DC |
| 1997-2007 | Member, Technical Advisory Committee, Council on <i>Pfiesteria</i> , Fish Lesions and the Chesapeake Bay, Maryland Department of Natural Resources, Annapolis, MD |
| 1997-2007 | Member, Strategic Planning Group for Harmful Algal Blooms and Chesapeake Bay Health, State of Maryland |
| 2007-present | Member, Aquatic Animal Health Program, University of Florida |

NATIONAL AND INTERNATIONAL ACTIVITIES

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|--------------|--|
| 1999-2002 | Chair, Co-Organizer and Host, Third International Symposium on Aquatic Animal Health, August 30 th – September 3 rd , 1998, Renaissance Harborplace Hotel, Baltimore, MD |
| 1998 | Co-Organizer, East Coast Fish Health and Sampling Workshop, sponsored by MD Department of Natural Resources, Oxford, MD. |
| 1998 | Advisory Committee Member, Pollution Responses in Marine Organisms (PRIMO) meeting, April, 25-29, Williamsburg, VA |
| 1998 | Invited Contributor and Workshop Leader, Workshop to Standardize <i>Pfiesteria</i> Monitoring Protocols, 14-15 December, Silver Spring, MD |
| 1999-2002 | Advisor, Fourth International Symposium on Aquatic Animal Health, August 2002, New Orleans, LA |
| 2001 | Co-Instructor, Aquatic Toxicology Short Course. National University of Colombia, Bogota, Colombia. |
| 2001 | Invited speaker, 3 rd International Symposium on Aquaculture. National University of Colombia, Bogota, Colombia |
| 2001 | Program Co-Organizer, 22 nd Annual Meeting of the Society of Environmental Toxicology and Chemistry. |
| 2003-2006 | Advisor, Fifth International Symposium on Aquatic Animal Health, held in San Francisco, 2006. |
| 2007-present | Host and Co-Organizer, 6 th International Symposium on Aquatic Animal Health to be held in Tampa 2010. |

TEACHING ACTIVITIES

- 1979-1980 Lecturer, Biology (undergraduates), Department of Biological Sciences, Cornell University, Ithaca, NY.
- 1981 Teaching Assistant, Intertidal Marine Biology, Shoals Marine Laboratory, Appledore Island, MA
- 1984-1985 Assistant Scientist, Fisheries and Oceanography. Sea Education Association Woods Hole, MA.
- 1985 Coursemaster and Instructor, Aquaculture (graduate students) Ohio State University, Division of Fisheries and Wildlife Management, Columbus, OH.
- 1986-1988 Science Coordinator and Educator (secondary education students and undergraduates) Lady Maryland Foundation, Baltimore, MD.
- 1990-2000 Lecturer, Aquatic Parasitology (graduate students), University of Maryland System
- 1993-1996 Coursemaster and Host, Pathology Seminar Series (PATH 618), Department of Pathology, UMB, Baltimore, MD
- 1993-2000 Laboratory Instructor, Sophomore Pathology/Medical Curriculum (medical and graduate students), UMB, Baltimore, MD
- 1993-2000 Lecturer, Aquatic Pathobiology (graduate students) (PATH 606), UMB, Baltimore, MD
- 1993-2000 Instructor, Envirovet Program, University of Illinois.
- 1993-2000 Mentor, Governor's Commission for the Enhancement of Science Education, Baltimore, MD.
- 1994-2007 Co-coursemaster, Scientific Writing and Communication. Dept. of Art as Applied to Medicine, Johns Hopkins University.
- 1999-2001 Lecturer, Modern Microscopy and Imaging Techniques (PATH 712), UMB
- 2000-2007 Lecturer, Introduction to Diseases of Animals (ANSC 412), UMCP
- 2001-2003 Coursemaster, Scientific Communication (VM 8814), UMCP
- 2001-2007 Lecturer, Wildlife Diseases (ANSC 252), UMCP
- 2000-2007 Lecturer and Laboratory Instructor, Anatomy of Domestic Animals (ANSC 211), UMCP
- 2001-2007 Lecturer, Aquaculture Course (ANSC 489/688; MEES 698), UMCP

TEACHING ACTIVITIES, CONTINUED

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|-----------|--|
| 2002-2006 | Coursemaster, Applied Toxicology (NURS 735; TOXI 735),
UMB School of Nursing |
| 2003-2007 | Coursemaster, Scientific Communication Techniques
(MEES 602/608S) |
| 2008 | Lecturer, Fish Anatomy and Physiology. Aquatic Animal Clerkship
Program, College of Veterinary Medicine, UF |
| 2008 | Lecturer, Bacterial Diseases of fish. Aquatic Animal Clerkship
Program, College of Veterinary Medicine, UF |
| 2007-2008 | Coursemaster, Water Biology (PHC 6937; Section 4858)
College of Public Health and Health Professions, UF |

GRADUATE and UNDERGRADUATE MENTORING

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| 1993-1999 | M.S. Advisory Committee Member (UMB) for: Lance Yonkos (graduated 1999). |
| 1993-2007 | M.S. Advisor (UMB/UMCP) for: Jaime González (graduated 1997), Lance Yonkos (graduated 2003), Lisa Melewski (graduated 2001) Geoffrey Gipson (graduated 2003), Cindy Stine (graduated 2003), Carmel Smith (graduated 2007). |
| 1993-1998 | M.S. Mentor (Johns Hopkins University) for John Dorn (graduated 1997), William Scavone (graduated 1998). |
| 1993-2008 | Ph.D. Advisory Committee Member (UMB) for: Vallen Emory (graduated 1998), Tina Armstrong (graduated 1999), Suzanne Jacobson (graduated 1999), Jared Ackers (changed programs), Lance Yonkos (graduated 2005), Ron Miller (UMCP 2008). |
| 1993-2008 | Ph.D. Advisor (UMB/UMCP) for: Pedro Del Valle (graduated 1999), Roberta Garcia (graduated 2007), Jim Salierno (graduated 2005), Jaime Gonzalez, Prabhakar Reddy (graduated 2007), Sara Pollack (changed programs), Cindy Stine (graduated 2008). |
| 2000-2001 | Howard Hughes Medical Institute Undergraduate Fellow, Kristen Vance |
| 2002 | Park School Graduate Intern Program Mentor for Lea Schleimer |
| 2002-2003 | Morgan State University, NIH BRIDGES Program Mentor for Claude McKay and Terrance Perkins (undergraduates) |
| 2008 | Mentor, Special Graduate Research Project, Melissa McClain, UF |

GRANTS and CONTRACTS

- 1991-1992 Resource Facility Improvement Grant, NIH #1 G20 RR06059/01, Louis DeTolla, P.I., National Center for Research Resources, National Institutes of Health. \$298,166.
- 1993-1994 President's DRIF Award. Andrew S. Kane, P.I., University of Maryland School of Medicine. Development of Interactive Educational Software on Aquatic Pathobiology. \$13,000.
- 1993-1994 American Cancer Society Institutional Research Grant, #IRG-147L. Andrew S. Kane, P.I. University of Maryland School of Medicine. Development and Evaluation of In Vitro Procedures Using Fish to Assess Metabolic Capacity and Carcinogenicity of Benzo(a)pyrene. \$9,520.
- 1994-1995 Maryland Sea Grant, Program Development Award. Andrew S. Kane, P.I. Production and Mastering of a Computer-based Multimedia Program for Studying Fish Anatomy, Health and Necropsy. \$9,990.
- 1995 Special Research Initiative Support (SRIS). Andrew S. Kane, P.I. University of Maryland School of Medicine. Investigation in Phase I Biotransformation in Fish. \$10,500.
- 1995 Faculty Development Fund Award. University of Maryland System. Andrew S. Kane P.I. Discovery-based Computer Training Modules for the Classroom and Laboratory. \$2,372.
- 1995-2000 U.S. Army, Directorate for Health, Safety and the Environment. Martin Marietta subcontract. Andrew S. Kane, P.I. Fish Pathology Studies, Biomonitoring and Community Relations at Aberdeen Proving Ground, Maryland. \$74,218, \$58,569 and \$110,000 (competitive renewals).
- 1996-1998 Maryland Industrial Partnerships. Andrew S. Kane, P.I. Software Development of an HIV/AIDS Multimedia Outreach Program. \$109,875.

GRANTS and CONTRACTS, continued

- 1996-1999 National Institutes of Environmental Health Sciences (5-RO1-ES06217). Andrew S. Kane, P.I. Mechanisms Underlying Segment-specific Nephrotoxicity. \$293,341.
- 1997-2000 Northeast Regional Aquaculture Center (USDA subcontract). Andrew S. Kane, P.I. Expansion of the FishGuts Fish Anatomy, Health and Necropsy Software Training Program. \$71,491.
- 1997-2001 Maryland Sea Grant, Program Development Award (competitive renewal in 1999). Andrew S. Kane, P.I. Collaborative Fish Health/Pfiesteria Outreach for the Worldwide Web. \$18,800.
- 1997-1998 Competitive Grants Program, College of Agriculture and Natural Resources. Dennis Burton and Andrew S. Kane, Co-P.I.s Development of a Histological Atlas to Illustrate Normal Tissue Conditions of the Fathead Minnow. \$14,250.
- 1998-1999 Competitive Grants Program, College of Agriculture and Natural Resources. Dan Fisher and Andrew S. Kane, Co-P.I.s Examination of a Chronic Sediment Toxicity Problem in the Wye River Using Suborganismal, Organismal, Population and Community Indicators of Stress. \$40,000.
- 1998-1999 Maryland Department of Natural Resources. Andrew S. Kane, P.I. Support for the Third International Symposium on Aquatic Animal Health. \$5,000.
- 1998-1999 National Oceanographic and Atmospheric Administration/National Marine Fisheries Service. Andrew S. Kane, P.I. Support for the Third International Symposium on Aquatic Animal Health. \$5,000.
- 1998-1999 Northeastern Regional Aquaculture Center. Andrew S. Kane, P.I. Support for the Third International Symposium on Aquatic Animal Health. \$3,000.
- 1998-1999 US Geological Survey. Andrew S. Kane, P.I. Support for the Third International Symposium on Aquatic Animal Health. \$2,500.
- 1998-1999 US Environmental Protection Agency. Andrew S. Kane, P.I. Support for the Third International Symposium on Aquatic Animal Health. \$5,700.
- 1998-1999 US Department of Agriculture. Andrew S. Kane, P.I. Support for the Third International Symposium on Aquatic Animal Health. \$7,450.

GRANTS and CONTRACTS, continued

- 1998-1999 US Environmental Protection Agency. Andrew S. Kane, P.I. Effects of Nutrient Enrichment on Opportunistic Pathogens. \$84,674.
- 1998-2003 National Institutes of Environmental Health Sciences. Andrew S. Kane, Co-P.I. Core Facility for Toxic Dinoflagellate Culture. \$866,763.
- 1999-2000 US Army Center for Environmental Health. Andrew S. Kane, P.I. Phase I behavioral monitoring of harmful algal blooms and other water quality perturbations. \$12,500
- 2000-2001 U.S Army Center for Environmental Health. Andrew S. Kane, P.I. Phase II (renewal) behavioral monitoring of harmful algal blooms and other water quality perturbations. \$168,000
- 2000-2003 US Environmental Protection Agency/ECOHAB. Andrew S. Kane, P.I. Behavioral toxicology and pathology of early exposure to toxic *Pfiesteria*-like organisms. \$413,889.
- 2001-2002 Joint Institute for Food Safety and Food Nutrition (JIFSAN). Andrew S. Kane, P.I. Pilot study to investigate kinetic profiles and residues of drugs used in finfish aquaculture. \$8,000
- 2001-2002 Maryland Agriculture Experiment Station (MAES). Kinetic biotransformation profiles of antimicrobials used in aquaculture: Pilot study support. \$12,000.
- 2001-2003 U.S. Environmental Protection Agency. Andrew S. Kane, P.I. Development of a descriptive field guide to fish lesions. \$30,000.
- 2001-2003 Maryland Agriculture Experiment Station (MAES). Andrew S. Kane, P.I. FishGuts 2.0 Bacteriology Section: A new multimedia tool for Maryland Aquaculture. \$40,000.
- 2002-2004 Maryland Agriculture Experiment Station (MAES). Andrew S. Kane, P.I. Mycobacteriosis in Chesapeake Bay Striped Bass. \$40,000.
- 2002-2003 Maryland Sea Grant. Arthur Popper, P.I.; Andrew S. Kane, Co-P.I., Pilot Study to Investigate Biological Effects of Acoustical Stress in Fish. \$8,000.
- 2002-2005 Joint Institute for Food Safety and Food Nutrition (JIFSAN). Andrew S. Kane, P.I. Facilitating Needed Drug Approvals for Aquaculture: In Vitro Metabolic Profiles to Characterize and Predict Drug Residues in Finfish. \$132,000

GRANTS and CONTRACTS, continued

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| 2003-2007 | National Oceanographic and Atmospheric Administration (NOAA). Andrew S. Kane, PI. Striped Bass Stock Health Assessment: Mycobacteriosis Prevalence and Distribution. \$465,168. |
| 2004-2007 | Centers for Disease Control and Prevention (CDC). Andrew S. Kane, PI. Pocomoke Fish Health and Regional Outreach Program. \$511,230 |
| 2007-2010 | US Environmental Protection Agency. Dan Fisher, PI; Andrew S. Kane, Co-PI. Transport, fate and ecological effects of steroids in poultry litter. \$699,736. |
| 2008-2011 | National Science Foundation. David Barber, PI; Andrew S. Kane, Co-PI. Fate and toxicity of metallic nanoparticles in aquatic organisms. \$299,122. |

INNOVATIONS

- 1987 Flow-through dosing system to expose small aquatic organisms to changing pH, salinity and temperature (UMAB School of Medicine). Kane et al., *Water Research* 22(10):231-237.
- 1980 Benthic venturi sampler (Cornell Biological Field Station).
- 2002 Video-based behavioral toxicology system for tracking fish movement in response to environmental stressors.

PUBLICATIONS - Refereed Journal articles

- Kane, A.S.**, T.M. Stockdale and D.L. Johnson. 1985. 3-Trifluoromethyl-4-nitrophenol (TFM) control of tadpoles in culture facilities. *Progressive Fish-Culturist*. 47(4):231-237.
- Kane, A.S.**, R.O. Bennett and E.B. May. 1988. A flow-through dosing system to expose small aquatic organisms to varying pH, salinity and temperature. *Water Research*. 22(10):1339-1344.
- Kane, A.S.**, R.O. Bennett and E.B. May. 1988. Effect of changing pH and salinity on Chesapeake Bay striped bass larvae. In: *Understanding the Estuary, Advances in Chesapeake Bay Research*, Chesapeake Research Consortium, Baltimore, MD. March 29-31. CRC Publication No. 129. United States Environmental Protection Agency CBP/TRS 24/88.
- Kane, A.S.** and D.L. Johnson. 1989. Use of 3-trifluoromethyl-4-nitrophenol (TFM) to selectively control frog larvae in fish production ponds. *Progressive Fish-Culturist*. 51:207-213.
- Kane, A.S.**, R.O. Bennett and E.B. May. 1990. Effect of hardness and salinity on striped bass larval survival. *North American Journal of Fisheries Management* 10(1):67-71.
- Kane, A.S.**, R. Reimschuessel and M.M. Lipsky. 1992. Impact of tadpoles on warmwater fish pond production. *Fisheries*. 17(2):36-39.
- Kane, A.S.**, W.W. Day, R. Reimschuessel and M.M. Lipsky. 1993. TFM (3-trifluoromethyl-4-nitrophenol) toxicity and hepatic microsomal UDP-glucuronyltransferase activity in adult and larval bullfrogs. *Aquatic Toxicology*. 27:51-60.
- Reimschuessel, R., **A.S. Kane**, A.G. Muhvich and M.M. Lipsky. 1993. Recovery of histological lesions in the gills of brown bullheads exposed to copper. *Marine Environmental Research*. 35:198-199.
- Kane, A.S.**, M.W. Kahng, R. Reimschuessel and M.M. Lipsky. 1994. Comparative kinetics of TFM (3-trifluoromethyl-4-nitrophenol)-UDP-glucuronyltransferase in several species of fish. *Transactions of the American Fisheries Society*. 123:217-222.

PUBLICATIONS, continued

- Muhvich, A.G., R.T. Jones, **A.S. Kane**, R.S. Anderson and R. Reimschuessel. 1995. Effects of chronic copper exposure on macrophage chemiluminescent response and gill histology in goldfish (*Carassius auratus* L.). *Fish and Shellfish Immunology* 5:251-264.
- Råbergh, C.M., **A.S. Kane**, R. Reimschuessel and M.M. Lipsky. 1995. Viability and induction of tyrosine aminotransferase in rainbow trout hepatocytes cultured on laminin and polylysine in a serum-free medium. *Methods in Cell Science* 17:207-215.
- Kane, A.S.**, J.E. Whaley, J. Paul and R. Reimschuessel. 1977. Angler Outreach for Fish Pathology Studies at a U.S. Army Superfund Site. *Proceedings of the International Association for Aquatic Animal Medicine* 28:95-103.
- Kane, A.S.** 1995. Multimedia as a training tool for fish anatomy and necropsy. *Lab Animal*. 47:48-50.
- Kane, A.S.** 1995. Multimedia update: Advances in computer-based applications relevant to fish and fish health. *Annual Review of Fish Disease*. 5:79-84.
- Kane, A.S.**, J.F. González and R. Reimschuessel. 1996. Fish and amphibian models used in toxicology. *Lab Animal*. 25(6):33-38.
- DeTolla, L.J., S. Srinivas, B.R. Whitaker, C. Andrews, B. Hecker, **A.S. Kane**, and R. Reimschuessel, 1996. Guidelines for the Care and Use of Fish in Research. *Inst. Laboratory Animal Resources*. 37: 159-173.
- Kane, A.S.**, S. Thohan and M. Weiner. 1998. Tissue Slice Technology for Assessing Alterations in Fish Hepatic Phase I and Phase II XME Activity. *Marine Environmental Research*. 46:61-65.
- Kane, A.S.**, D. Oldach and R. Reimschuessel. 1998. Fish Lesions in Chesapeake Bay: *Pfiesteria*-like Dinoflagellates and Other Etiologies. *Maryland Medical Journal*, 47(3):106-112.
- Marselas, G.A., M. K. Stoskopf, M. J. Brown, **A. Kane** and R. Reimschuessel. 1998. Abdominal Ascites in Electric Eels (*Electrophorus electricus*) Associated with Hepatic Hemochromatosis and Elevated Water pH. *J. Zoo and Wildlife Medicine*. 29(4):413-418.
- Trifillis, A.L., Del Valle, M. Lipsky, X. Cui, C. Ruegg and **A.S. Kane**. 1998. Cultured rabbit renal proximal straight tubular cells are more susceptible to mercuric chloride than convoluted tubular cells. *Renal Toxicology*. 11(2):133-138.
- Jiang, Q., L. DeTolla, N. Van Rooijen, I.S. Singh, B. Fitzgerald, M.M. Lipsky, **A.S. Kane**, A.S. Cross and J.D. Hasday. 1998. Febrile-range temperature modifies early systemic tumor necrosis factor alpha expression in mice challenged with bacterial endotoxin. *Infection and Immunity*. 67(4):1539-1546.

PUBLICATIONS, continued

- Kane, A.S.**, Thohan, S. and M. Weiner M. 1998. Tissue slice technology for assessing alterations in fish hepatic phase I and phase II XME activity. *Marine Environmental Research* 46(1-5):61-63.
- Jacobson, S.V., M. Trucksis, **A.S. Kane** and R. Reimschuessel. 1999. Superoxide production in *Mycobacterium*-stimulated goldfish (*Crassius auratus*) phagocytes following copper exposure. *J. Vet. Res.* 60(6): 669-675.
- Talaat, A.M., Trucksis, M., **A.S. Kane** and R. Reimschuessel. 1999. Pathogenicity of *Mycobacterium fortuitum* and *mycobacterium smegmatis* to Goldfish (*Crassius auratus*) model. *Veterinary Microbiology* 66:151-164.
- McDowell, A.G., **A.S. Kane**, and R. Reimschuessel. 1999. Chronic renal damage in largemouth bass, *Micropterus salmoides*, due to a monogenetic trematode infection. Pages 25-27 in 1999 Proceedings of the International Association of Aquatic Animal Medicine, Boston, MA.
- Yonkos, L.T. and **A.S. Kane**. 1999. Development of a digital atlas of fathead minnow histology. *Lab Animal*. 28(2):39-42.
- Kane, A.S.**, A. Baya, R. Reimschuessel, K.M. St. Pe, C.A. Poukish and C.P. Driscoll. 1999. Field sampling and necropsy examination of fish. *Virginia Journal of Science* 50(4):345-364.
- Yonkos, L.T., Fisher, D.J., Reimschuessel, R., and **Kane, A.S.** 2000. Atlas of Fathead Minnow Normal Histology. An online publication of the University of Maryland Aquatic Pathobiology Center (<http://aquaticpath.umd.edu/fhm>).
- Yonkos, L.T., D.J. Fisher, D.A. Wright and **A.S. Kane**. 2000. Pathology in fathead minnows (*Pimephales promelas*) exposed to chlorine dioxide and chlorite. *Marine Environmental Research* 50:267-271.
- González, J., P.Del Valle, S. Thohan and **A.S. Kane**. 2000. Effects of waterborne nitrite on phase I-II biotransformation in channel catfish. *Marine Environmental Research* 50:29-32.
- Kane, A.S.**, M.J. Dykstra, E.J. Noga, R. Reimschuessel, A. Baya, C. Driscoll and H.W. Paerl and J. Landsberg. 2000. Etiologies, observations and reporting of estuarine finfish lesions. *Marine Environmental Research* 50:473-477.
- Dykstra, M.J. and **A.S. Kane**. 2000. *Pfiesteria piscicida* and ulcerative mycosis of Atlantic menhaden; current status of understanding. *Journal of Aquatic Animal Health* 12:18-25.
- Salice C.J., Rokous J.S., **Kane A.S.**, Reimschuessel R. 2001. New nephron development in goldfish (*Carassius auratus*) kidneys following repeated gentamicin nephrotoxicosis. *Comparative Medicine* 52:56-59, 2001

PUBLICATIONS, continued

- Thohan, S., Zurich, ML-C., Chung, H., Weiner, M., **Kane, A.S.** and Rosen, GM. 2001. Tissue Slices Revisited: Evaluation and Development of a Short-Term Incubation for Integrated Drug Metabolism. *Drug Metabolism and Disposition*, 29:1337-1342.
- van der Schalie, W.H., Shedd, T., Widder, M., **Kane, A.S.**, Silbergeld, E., Reimschuessel, R., Poli, M., Sarabun, C., Burkholder, J., Glasgow, H.. 2001. *Real-time monitoring for toxicity caused by harmful algal blooms and other water quality perturbations*. US Environmental Protection Agency EPA/600/R-01/103, November 2001.
- Del Valle, P.L., Trifillis, A., Ruegg, C.E. and **Kane, A.S.** 2002. Characterization of glucose transport by cultured rabbit kidney proximal convoluted and proximal straight tubule cells. *In Vitro: Cellular and Developmental Biology-Animal* 38(4):218-227.
- Reimschuessel R., C.M. Giesecker, C. Driscoll, A. Baya, **A.S. Kane**, V. S. Blazer, J.J. Evans, M. L. Kent, J.D.W. Moran, and S.L. Poynton. 2003. Myxosporean plasmodial infection, associated with ulcerative lesions in young-of-the-year Atlantic menhaden *Brevoortia tyrannus* (Latrobe) (Clupeidae) in a tributary of the Chesapeake Bay, and possible links to *Kudoa clupeidae*. *Diseases of Aquatic Organisms*, 53:143-166.
- Brown, SB, Evans, R.E., Vandenbyllardt, L., Finnson, K.W., Palace, V.P., **Kane, A.S.** Yarechewski, A.Y. and Muir, D.C.G. 2003. Altered thyroid status in lake trout (*Salvelinus namaycush*) exposed to co-planar 3,3',4,4',5-pentachlorobiphenyl. *Aquatic Toxicology* 67:75-85.
- Choich, J., Salierno, JD., Silbergeld, E.K., and **Kane, A.S.** 2004. Altered brain activity in brevetoxin-exposed bluegill, *Lepomis macrochirus*, visualized using *in vivo* ¹⁴C 2-deoxyglucose labeling. *Environmental Research*, 94:192-197.
- Stine, C.B., Smith, D.L., Vogelbein, W.K., Harshbarger, J.C., Gudla, P.R., Lipsky, M.L., and **Kane, A.S.** 2004. Morphometry of hepatic neoplasms and altered foci in killifish, *Fundulus heteroclitus*. *Toxicologic Pathology* 32:4 375-383.
- Smith, M.E., **Kane, A.S.** and Popper, A.N. 2004. Acoustical stress and hearing sensitivity in fishes: Does the linear threshold shift hypothesis hold water? *Journal of Experimental Biology*, *Journal of Experimental Biology* 207(20):3591-3602.
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Outreach Developer and Content Specialist. Centers for Disease Control and Prevention project, University of Maryland Department of Epidemiology and Preventive Medicine; project-specific site focusing on fish health, mycobacteriosis and the Pocomoke River (<http://mybay.umd.edu/kane.html>)

Interim Webmaster. University of Maryland Department of Pathology (<http://medschool.umaryland.edu/pathology>).

Educational Outreach Developer. University of Maryland System: Fish Health in Chesapeake Bay.

Outreach Developer. University of Maryland Aquatic Pathobiology Center website (<http://aquaticpath.umd.edu>).

Outreach Developer. International Symposium on Aquatic Animal Health. (<http://aquaticpath.umd.edu/isaahweb>).

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- Stine CB, AM Baya, M Matsche, C Driscoll, L Pieper, K Rosemary, JM Jacobs, L Hungerford and **AS Kane**. 2006. Mycobacteria prevalence, microbiology and parasitology of striped bass and gametes from the Chesapeake Bay, USA. Fifth International Symposium on Aquatic Animal Health, San Francisco, CA, September 2-6.
- Stine CB, AM Baya, JD Salierno and **AS Kane**. Mycobacterial infection in laboratory-maintained Atlantic menhaden. 2006. Fifth International Symposium on Aquatic Animal Health, San Francisco, CA, September 2-6.
- Kane AS**, L Hungerford, CB Stine, M Matsche, C Driscoll, L Pieper, K Rosemary, J Jacobs and AM Baya. 2006. Mycobacteriosis in Chesapeake Bay fishes. Fifth International Symposium on Aquatic Animal Health, San Francisco CA, September 2-6.

- Kane AS**, JD Salierno, CB Stine, M Sigrist, J Yen and AM Baya. 2006. Effects of hypoxia on mycobacterial disease progression in hybrid striped bass. Fifth International Symposium on Aquatic Animal Health, San Francisco CA, September 2-6.
- Stine CB, **AS Kane**, M Matsche, L Pieper, K Rosemary, J Jacobs, J Abel, C Driscoll and AM Baya. 2006. Microbiology of gametes and age 0-3 striped bass (*Morone saxatilis*). USGS/NOAA Mycobacteriosis in Striped Bass Workshop, Annapolis, MD, May 9-11.
- Matsche MA, L Pieper, CB Stine, **AS Kane**, AM Baya, K Rosemary, C Driscoll and JM Jacobs. 2006. Survey of gametes and juvenile striped bass (*Morone saxatilis*) for Mycobacteriosis from the Chesapeake Bay: sampling methods, external lesions and histopathology. USGS/NOAA Mycobacteriosis in Striped Bass Workshop, Annapolis, MD, May 9-11.
- Kane AS**, CB Stine, L Hungerford, M Matsche, C Driscoll, L Pieper, K Rosemary, J Jacobs and AM Baya. 2006. Mycobacteriosis in juvenile Atlantic menhaden. USGS/NOAA Mycobacteriosis in Striped Bass Workshop, Annapolis, MD, May 9-11.
- Kane AS**, L Hungerford, CB Stine, M Matsche, C Driscoll and AM Baya. 2006. Mycobacteriosis in Chesapeake Bay fishes: perspectives and questions. USGS/NOAA Mycobacteriosis in Striped Bass Workshop, Annapolis, MD, May 9-11.
- Salierno, JD and **AS Kane**. 2007. Reproductive behaviors link biochemical and morphological changes in fathead minnows exposed to 17 α -ethinylestradiol. Presented at Society of Environmental Toxicology and Chemistry (SETAC), Milwaukee, WI.
- Kane AS**, CB Stine, M Matsche, L Hungerford, Kotetishvili, M and AM Baya. 2008. Mycobacteria in Chesapeake Bay Fishes: Prevalence, Risk Factors and Clinical Observations. International Association of Aquatic Animal Medicine. Pomezia, Italy.

OTHER SYMPOSIA AND WORKSHOPS

- 1989 Workshop Organizer and Co-Leader, "Aquatic Animal Models: Current Research and Husbandry Issues." AALAS Baltimore, MD, April 1989
- 1994 Workshop Co-Leader; half-day symposium on "Aquatic Microscopic Anatomy and Pathology." Annual meeting of the Society of Environmental Toxicology and Chemistry, Washington, D.C., November 1996.
- 1995 Workshop Co-Chair and Seminar Leader; "The Wet, The Wild and The Captive: Laboratory Fish Medicine." 46th Annual meeting of The American Association for Laboratory Animal Science, Baltimore, MD, October 1995.
- 1995 Workshop Leader; Clinical Laboratory in Aquatic Animal Medicine. 46th Annual meeting of The American Association for Laboratory Animal Science, Baltimore, MD, October 1995.
- 1996 Workshop Leader; half-day symposium on "The Art of Science Outreach; Perspectives on Platform, Poster and Written Presentations, and Application of Computer-based Multimedia." Annual meeting of the Society of Environmental Toxicology and Chemistry, Washington, D.C., November 1996.
- 1998 Workshop Facilitator; two day meeting on fish, water and plankton sampling for *Pfiesteria* activity sponsored by NOAA, Silver Spring, MD, December 1998.
- 2001 Co-organizer, lecturer and wet lab instructor: "National Capital Area Branch of the American Association of Laboratory Animal Science Aquatics Workshop. Laurel, MD. February 28, 2001
- 2002 Workshop organizer and leader; "Pond-side fish health and diagnostics." Presented as part of the University of Maryland Systemwide aquaculture outreach group for Maryland Aquafarmers. UMCP, August 2002.
- 2008 Invited Panelist; Emerging Contaminants in the Aquatic Environment. Water Institute Symposium, University of Florida, Gainesville, FL

MEDIA AND OTHER OUTREACH

- 2001 New Center Studies Aquatic Organisms at Avrum Gudelsky Veterinary Center. Outlook Campus Newspaper, UMCP
- 2001 Tuberculosis in Chesapeake Bay Striped Bass. Nightline, Maryland Public Television.
- 2002 Turtles, Tortoises or Terrapins? Ask Annie Show, NBC Syndicated broadcast.
- 2002 The Successful Home Aquarium. Maryland Ag Day, UMCP.
- 2003 Infectious diseases in The Chesapeake Bay. University of Maryland Television (with cable-syndicated broadcasts). Interview can be viewed online:
http://128.8.55.13:8080/rangen/researchingmaryland/rmd03/rmd_aquaticpathobiologylab_040303.rm
- 2003 Good Fish, Bad Fish: Fish disease issues, regional aquaculture projects, and tasty new recipes. Maryland Ag Day, UMCP

INVITED PRESENTATIONS

- 1989 "Use of Cell and Explant Culture Techniques in Aquatic Toxicology," Maryland Department of The Environment, Toxic Operations Center, Baltimore, MD.
- 1993 "Role of Phase II enzymes in selective toxicity of phenols in aquatic organisms," U.S. Environmental Protection Agency, Duluth, MN.
- 1993 "Conjugation of phenolic substrates in fish and aquatic amphibians," Comparative Medicine Seminar, Johns Hopkins University. Baltimore, MD.
- 1994 "Selective toxicity and conjugation of organic xenobiotics in aquatic organisms." U.S. Fish and Wildlife Service, Patuxant Wildlife Research Center, Laurel, MD.
- 1994 "Computer-enhanced photomicroscopy techniques." University of Maryland School of Medicine, Department of Pathology, Baltimore, MD.
- 1994 "In vitro assessment of species-specific metabolic capacity in fish using liver tissue slices and microsomes." Society of Environmental Toxicology and Chemistry, 15th annual meeting, Denver, CO.
- 1994 "Fish as laboratory animals: general anatomy and physiology." American Association for Laboratory Animal Science, 45th annual meeting, Pittsburgh, PA.
- 1994 "Water quality and husbandry requirements for fish in the laboratory." American Association for Laboratory Animal Science, 45th annual meeting, Pittsburgh, PA.
- 1994 "Application of computer-based multimedia for effective communication and scientific outreach." Armed Forces Institute of Pathology, Bethesda, MD.
- 1995 "Effectiveness of computer software for training students in fish anatomy and necropsy." 51st Annual Northeast Fish and Wildlife Conference, Ocean City, MD.
- 1995 "Applications in computer-based education: Advances in educational software." American Animal Hospital Association, Denver, CO.
- 1995 "Methods to biologically monitor health and effects of environmental contamination in aquatic organisms." Symposium on Applied Research and Education Addressing Urban Environmental Justice Issues Applicable to Baltimore, Maryland. Baltimore, MD
- 1995 Aquatic facility design: Housing and husbandry considerations for aquatic animals. Presented at the American Association for Laboratory Animal Science, Baltimore, MD.
- 1996 "Tissue slice technology for assessing alterations in fish hepatic phase I and phase II XME activity." Fourth International Symposium on Alternatives in the Assessment of Toxicity. Edgewood Research, Development and Engineering Center, Department of the Army, Edgewood, MD.
- 1996 "Innovative Technologies in Aquatic Pathobiology." Invited speaker for Capitol Chapter Branch meeting of the American Association for Laboratory Animal Science, Baltimore, MD.
- 1997 "Fish Lesions in Chesapeake Bay." Maryland Sea Grant Extension Program, Wye Education Center, Queenstown, MD.
- 1998 "Chesapeake Bay Fish Health: Current Issues and Where We Are Going." 1998 Aquaculture Exposition, Ocean City, MD

INVITED PRESENTATIONS, continued

- 1998 “Fish Lesions Observed from the Chicamacomico River, Maryland.” Special Session on Toxic Dinoflagellates; Annual Meeting of the Tidewater Chapter of the American Fisheries Society, Solomons, MD
- 1998 “The Story Starts in the Water: *Pfiesteria* and Fish Lesions in the Chesapeake Bay.” University of Maryland Colloquium on Science for Office of Student Research, Baltimore, MD
- 1998 “Scientific Research: What, Why and How.” McNair Post-Baccalaureate Achievement Program, Coppin State College, Baltimore, MD
- 1998 “The Science Behind Good Fish Health in Aquaculture.” Presentation Leader for “Aquaculture in Action” workshop sponsored by National Sea Grant, Maryland Sea Grant and the Chesapeake Bay Trust. Carroll Co., MD
- 1998 “Fish Lesion Sampling and Identification: A Strategy for the US Eastern Seaboard.” Presented at the East Coast Fish Health and Sampling Workshop, sponsored by Maryland Department of Natural Resources, Oxford, MD. and the National Oceanographic and Atmospheric Administration.
- 1998 Interstate sampling strategies for sampling Chesapeake Bay finfish: A hands-on workshop and laboratory session presented for the Delaware Division of Environmental Water Quality.
- 1999 “Scientific Presentation: Professional Outreach Methodology and Form.” Workshop presented for graduate students and international attendees of the 10th Conference of PRIMO (Pollution Responses in Marine Organisms), College of William and Mary, Gloucester, VA
- 2000 “Fish Pathology and Angler Outreach Studies in the Chesapeake Bay.” Tri-Service Ecological Risk Assessment Work Group, Aberdeen Proving Ground, Edgewood Area, Aberdeen Proving Ground, MD
- 2001 “Differential Causes of Fish Events: Fish Kills, Ulcers and Abnormal Behavior.” National Conference on *Pfiesteria*: From Biology to Public Health, sponsored by Centers for Disease Control and Prevention. Atlanta, GA.
- 2002 “Fish Health Evaluation,” part of “Pond-side fish health and diagnostics.” Presented as part of the University of Maryland Systemwide aquaculture outreach group for Maryland Aquafarmers. UMCP, College Park, MD.
- 2002 “Digital Presentation Skills.” Summer Fellowship Program, VA-MD Regional College of Veterinary Medicine, College Park Campus, College Park, MD.
- 2002 “Biotransformation kinetics predicts fish responses to drugs.” Center for Veterinary Medicine, US Food and Drug Administration, Laurel, MD
- 2003 “Fish Health and Disease.” Presented as part of the University of Maryland System-wide aquaculture outreach group, in collaboration with Maryland Sea Grant, for Maryland Aquafarmers and Water Gardeners. UMCP, College Park, MD.

INVITED PRESENTATIONS, continued

- 2004 “Striped Bass Stock Health Assessment: Mycobacteriosis Prevalence and Distribution.” 2004 Chesapeake Bay Fisheries Research Program. Sponsored by NOAA at the Patuxent Wildlife Refuge Visitor’s Center, Laurel, MD.
- 2004 “Motivational Strategies to Activate Career Opportunities in Science.” College Park Scholars-Life Sciences Program, UMCP, College Park, MD
- 2004 “Mycobacteriosis and Other Infectious Diseases in Chesapeake Bay Fish.” College Park Scholars-Life Sciences Program, UMCP, College Park, MD
- 2005 “An update on striped bass health in the Chesapeake Bay” 2005 Chesapeake Bay Fisheries Research Program. Sponsored by NOAA, Patuxent Wildlife Refuge Visitor’s Center, Laurel, MD.
- 2005 “A video-based movement analysis system to quantify behavioral stress responses of individual and groups of fish.” Measuring Behavior 2005: 5th International Conference in Methods and Techniques in Behavioral Research. Wageningen, The Netherlands.
- 2005 “Alterations in schooling, shoaling, and startle response behaviors in mummichog, *Fundulus heteroclitus*, resulting from exposures to the harmful algal bloom neurotoxins, brevetoxin and saxitoxin.” Measuring Behavior 2005: 5th International Conference in Methods and Techniques in Behavioral Research. Wageningen, The Netherlands.
- 2005 “Behavioral responses of individual and groups of killifish, *Fundulus heteroclitus*, exposed to a visual predation threat.” Measuring Behavior 2005: 5th International Conference in Methods and Techniques in Behavioral Research. Wageningen, The Netherlands.
- 2006 “Fish health issues in the Chesapeake Bay: An integrated vantage point.” Center for Urban Environmental Research and Education, University of Maryland Baltimore County, Catonsville, MD.
- 2006 “Mycobacteriosis and other diseases in Chesapeake Bay fishes.” Chesapeake Biological Laboratory, Solomons, MD.
- 2006 “Health and diagnostics of captive fish species in research.” AALAS, National Capital Area Branch annual meeting, September 13, 2006 Turf Valley Conference Center, Ellicott City, MD.
- 2007 “Ulcerative mycosis of Chesapeake Bay Atlantic Menhaden.” Regional Workshop on Fish Health in the Chesapeake Bay, sponsored by the Chesapeake Bay Foundation. National Conservation Training Center, Shepherdstown, WV.
- 2008 “17 α -Ethinylestradiol Alters Reproductive Behavior and Physiology in Fathead Minnows.” Seminar Series in Toxicology, University of Florida, Gainesville, FL
- 2008 “Emerging Contaminants in the Aquatic Environment: Thoughts and Perspectives.” Water Institute Symposium, University of Florida, Gainesville, FL

The Aquatic Pathobiology Program: Physical plant and animal facilities.

The new Aquatic Pathobiology Laboratories are currently under construction on the site of UF's Center for Environmental and Human Toxicology, and will contain over 3,000 square feet of specialized animal facility, wet- and dry laboratory space, and office, computer and library space. Designed by Dr. Kane, the Program will have a dedicated central water filtration and distribution system, 1,800-gallon saltwater carboy system, computer-controlled behavioral toxicology exposure system, isolated acclimation and exposure rooms, a necropsy room, computer-controlled dusk/dawn lighting system, and over 3,000 gallons of flow-through, static, and static-renewal exposure and maintenance aquaria. The facility is supported through the UF Emerging Pathogens Institute, the Institute of Food and Agricultural Sciences, the College of Veterinary Medicine, and the College of Public Health and Health Professions.

