

CURRICULUM VITAE
JAMES D. BOWEN

Associate Professor, Department of Civil and Environmental Engineering
University of North Carolina at Charlotte
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EDUCATION

Ph.D. Civil Engineering, Massachusetts Institute of Technology, 1990
M.S. Civil and Environmental Engineering, Vanderbilt University, 1983
B.A. Botany, Duke University, 1979

RESEARCH INTERESTS

Water Quality and Eutrophication Modeling
Wastewater Treatment Plant Modeling, Greenhouse Gas Emission Estimation
Tracer Methods to Measure the Mixing and Flushing of Surface Water Bodies
Environmental Fluid Dynamics
Predicting Harmful Algal Blooms

ACADEMIC EXPERIENCE

- 2003 -** Department of Civil and Environmental Engineering, University of North Carolina at Charlotte, Charlotte, North Carolina. Associate Professor. Teaching undergraduate courses in Introduction to Engineering, and Hydraulics and Hydrology, and graduate courses in Advanced Hydraulics, Water Quality Modeling, Environmental Physics and Transport, and Aquatic Chemistry.
- 1996 - 2003** Department of Engineering Technology (1996-2000), Department of Civil Engineering (2000-2003), University of North Carolina at Charlotte, Charlotte, North Carolina. Assistant Professor.
- 2000 – 2000** Nicholas School of the Environment, Duke University, Durham, North Carolina. Lecturer. Taught graduate level course in Aquatic Chemistry.
- 1994 - 1995** Department of Civil and Environmental Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts. Lecturer. Taught graduate level course in Aquatic Chemistry.
- 1992 - 1994** Center for Environmental Management, Tufts University, Medford, Massachusetts. Instructor. Taught summer session graduate level courses in Environmental Permitting and Environmental Modeling.

OTHER PROFESSIONAL EXPERIENCE

1990 - 1996 ENSR Consulting and Engineering, Acton, Massachusetts. Project Manager/Surface Water Quality Section Manager.

Served as technical director of the Massachusetts Water Resources Authority's Harbor and Outfall and Monitoring Program (a \$2.6 Million/year program that includes water column, benthic, and fish and shellfish monitoring). Designed and managed a comprehensive, multi-year water quality and biological monitoring program to assess environmental impacts associated with construction of Boston's Central Artery/Third Harbor Tunnel. Performed water quality monitoring and/or modeling studies of Saugus River, MA; Boston Harbor, MA; Rockland Harbor, ME; Providence Harbor, RI; Sampit River, SC; Cooper River, SC; Mayaguez Harbor, PR; San Juan Harbor, PR; San Francisco Harbor, CA; Hylebos Waterway, WA; and Silver Bay, AK. Formulated and directed the company's research and development activities in the areas of hydrodynamic and water quality modeling, and numerical optimization methods for groundwater remediation.

1984 - 1989 Department of Civil Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts. Research Assistant.

Studied the effect of physical processes (fluid mixing, particle sinking, swimming motions) on the ecology of marine phytoplankton and bacteria in the oligotrophic oceans. Developed the first simulation model of the association between phytoplankton and motile bacteria that realistically simulates the effects of turbulent shear on the concentration distributions surrounding the phytoplankton, and the relative motions of the phytoplankton and the bacteria. Supervisors: Dr. Sallie W. Chisholm, Dr. Keith D. Stolzenbach

1983 - 1984 Department of Civil and Environmental Engineering, Vanderbilt University, Nashville, Tennessee. Research Instructor.

Developed and implemented a dynamic wave flood routing model used to regulate releases from the 10 reservoirs in the 20,000 square mile Cumberland River basin. Developed a diffusive wave flood and concentration routing model for storm sewer networks.

PROFESSIONAL SOCIETIES

American Geophysical Union
American Society of Civil Engineers
Coastal and Estuarine Research Federation
American Society of Limnology and Oceanography
American Society for Engineering Education
Sigma Xi, Scientific Research Society
Tau Beta Pi, Engineering Honor Society
Chi Epsilon, Civil Engineering Honor Society

HONORS & DISTINCTIONS

UNC Charlotte, William States Lee College of Engineering Teaching Excellence Award, 2007, Undergraduate Education.
UNC Charlotte, William States Lee College of Engineering Teaching Excellence Award, 2004, Graduate Education.
National Science Foundation, New Century Scholar, 1998.
M.I.T. Hugh Hampton Young Fellowship, 1986-1989.
Tau Beta Pi Engineering Honor Society, 1983.
Vanderbilt Summer Research Fellowship, 1983.
Magna Cum Laude, Duke University, 1979.

PROFESSIONAL ACTIVITIES

Member, Charlotte-Mecklenburg Stormwater Advisory Committee, 2013 – present.
Member, North Carolina Division of Water Resources, Nutrient Criteria Development Program, Science Advisory Committee, 2014 – present.
Proposal Review Panel Member, NSF EPSCoR (2015), NIH MIDAS - Models of Infectious Disease Agent Study Program (2008), NOAA Coastal Hypoxia Research Program (2005).
Manuscript Reviewer: Environmental Management (1999, 2001, 2008, 2009, 2013, 2014-present), Water Research (2004, 2008, 2012, 2014-present), ASCE Journal of Environmental Engineering (2006, 2007), Estuarine and Coastal Modeling Conference Proceedings (1997, 1999, 2001, 2003, 2005, 2007, 2009, 2011, 2013, 2016), Water Resources Research (2006), Water International (2003, Urban Ecosystems (1998), Lake and Reservoirs: Research and Management (1998, 2010, 2013, 2015), Journal of Urban Hydrology (1999), Marine Ecology Progress Series (1997, 2015), ASEE Conference Proceedings (2002, 2003, 2010), Water Science and Technology (2012, 2015)
Proposal Reviewer, National Science Foundation (2005, 2007, 2008), North Carolina Water Resources Research Institute (1998, 1999, 2000, 2001, 2003, 2005), New Hampshire Cooperative Institute for Coastal and Estuarine Environmental Technology (2001), Long Island Sound Study (2001), Oregon Sea Grant Program (1999), Georgia Sea Grant Program (1997), Massachusetts Sea Grant Program (1994).
Member, North Carolina Water Resources Research Institute Technical Committee, 1997-2001.

PROFESSIONAL CERTIFICATION

Engineer in Training, 1983

UNIVERSITY SERVICE

Chair, Civil and Environmental Engineering Department Chair Search Committee, 2013-2014.

College of Engineering Faculty Organization (CEFO) President-Elect and President, 2008-2010.

College of Engineering Faculty Organization (CEFO) Secretary, 2005 - 2007.

Chair, College Review Committee on Promotion and Tenure 2010-2011, 2012-2013.

Chair, College of Engineering Reassignment of Duties Committee, 2011-2013.

Chair, EPIC Faculty Search Committee, 2012-2013.

Member and Ecosystem Dynamics Thematic Leader, IDEAS Center, UNC Charlotte, 2012-present.

Member, Faculty Committee on General Education (FCGE), 2007 – 2009.

Member, University Centers and Institutes Committee, 2008 – 2011.

Member, Office of International Programs Faculty Advisory Committee, 2008 – present.

Member, Faculty Executive Committee, 2012-2015, alternate, 2008-2012.

Member, Faculty Information and Technology Services Advisory Committee (FITSAC), 2005-2007.

Member, University Faculty Advisory Library Committee (FALC), 1997-1998.

Member, College Review Committee on Promotion and Tenure 2004 – 2005.

Chair, Civil and Environmental Engineering (CEE) Department, Fundamentals of Engineering (FE) Success Committee, 2007 – present.

Chair, Department Academic Appeals Committee, 2011-2015.

Chair, Environmental Area Faculty Search Committee, Civil and Environmental Engineering Department, 2012-2013.

Chair, Department Graduate Curriculum Committee, 2008 – 2012.

Chair, Environmental Engineering Area Faculty Group, 2002-2007, 2009 – present.

Chair, Department Review Committee on Promotion and Tenure, 2006 – 2007, 2015-2016.

Member, Department Committee on a Sustainability Program in Research and Education, 2005 – 2007.

Member, Department Review Committee for Promotion and Tenure, 2005 – 2006, 2007 – 2008, 2009 – 2010, 2014-2015.

Member, Department Faculty Workload Committee, 2001 - 2015.

Member, Department Graduate Committee, 2002-2008, 2012 - 2015.

Member, Department Computing Committee, 2002-2005.

Member, Department Academic Appeals Committee, 2001- 2015.

Member, Task Force to Review Guidelines for Library Materials Expenditure, 1998-1999.

Member, Search Committee for the Duke Endowed Professorship, 1998-1999, and 1999-2000.

Member, Engineering Technology Department Promotion and Tenure Committee, 1996-1997.

Faculty Advisor, Chi Epsilon Civil Engineering Honor Society Student Chapter, 2009-present.

Faculty Advisor, UNC Charlotte Collegiate Cycling Club, 2012-2014.

Chair, Ad-Hoc College of Engineering Committee on Electronic Library Resources, 1996-1997.

Member, Civil Engineering Laboratory Equipment Committee, 1996-1997, 1998-1999.

Contestant, and Winner, Best Talent, Society of Women Engineers Mr. Engineer Contest, May 2009.

RESEARCH EXPERIENCE

Principal Investigator, “Comparing the Impact of Organic vs. Inorganic Nitrogen Loading to the Neuse Estuary with a Mechanistic Eutrophication Model,” NC Water Resources Research Institute and U.S. Geological Survey, March 1, 2016 – February 28, 2017, \$54,731.

Co-Principal Investigator (w/ Jim Oliver of the Biology Department), “Collaborative Research: Linkage of bacterial pathogens to human infectious disease in an estuary subjected to extreme climatic events,” National Science Foundation, September 1, 2008 – August 31, 2014, \$372,000 (CEE Dept. percentage approximately 50%).

Principal Investigator, “Training in Support of the Lower Cape Fear River Estuary Dissolved Oxygen Model,” NC Department of Environment and Natural Resources, March 1, 2008 – March 31, 2009, \$36,500.

Principal Investigator, “Collaborative Research: Impacts of Anthropogenic Change on the Ecology of Human Pathogens in a Eutrophying Estuary: Neuse River Estuary, NC,” National Science Foundation, October 1, 2003 – September 30, 2008, \$196,000.

Principal Investigator, “Dissolved Oxygen Modeling of the Cape Fear River Estuary, North Carolina,” NC Department of Environment and Natural Resources, May 1, 2005 – December 10, 2007, \$149,996.

Principal Investigator, “Comparative Analysis and SPARROW Watershed Modeling of Charlotte’s Stormwater Monitoring Network,” City of Charlotte Stormwater Services, May 1, 2005 – December 31, 2007, \$60,663.

Principal Investigator, “Development of a Surface Water Object-Oriented Modeling System (SWOOMS) for the Neuse River Estuary, North Carolina,” Environmental Protection Agency, October 1, 1999 - September 30, 2003, \$327,612.

Principal Investigator, “Further Development of the Neuse Estuary Eutrophication Model for Prediction of Water Quality Improvement,” NC Water Resources Research Institute, January 1, 1999 - December 31, 2000, \$99,003.

Principal Investigator, “Neuse River Water Quality Modeling,” NC Water Resources Research Institute, June 1, 1997 - December 31, 1998, \$76,404.

Co-Principal Investigator, "Application of Morphologic Characterization to Urban Watersheds for Developing Stream Restoration Techniques," City of Charlotte Stormwater Services, January 1, 1998 - August 31, 1999, \$67,636.

Principal Investigator, "Application of the Neuse Estuary Eutrophication Model to the Period Following Hurricane Floyd." North Carolina Department of Environment and Natural Resources. January 1 – June 30, 2001, \$21,175.

Principal Investigator, "Workshop on the Use of the Watershed Analysis Risk Management (WARMF) Model to Facilitate TMDL Analysis." Duke Energy Environmental Services, January 1, 2002 – July 31, 2002, \$18,500.

Principal Investigator, "Numerical Modeling of Dissolved Oxygen Dynamics in the Sampit River, SC," ENSR Corp., December 1, 1996 - May 31, 1997, \$11,079.

Principal Investigator, "A Dye Transport and Mixing Study of the Sampit River, SC," ENSR Corp., August 1, 1996 - October 31, 1996, \$10,508.

Principal Investigator, "Performance Analysis of Water Quality Monitoring Equipment." Duke Energy Environmental Services, October 1, 2001 – June 30, 2002, \$8,000.

Principal Investigator, "Consulting Services Associated with Prediction of Impacts to Freshwaters from Nutrient Loading." Charlotte-Mecklenburg Utilities, August 1, 2001 – May 31, 2002, \$5,000.

Principal Investigator, "Advanced Methods for Measuring Flushing from a Stormwater Detention Pond," UNC Charlotte Faculty Development Program, June 1, 1998 - May 30, 1999, \$5,000.

Principal Investigator, "Water Quality Sampling of the Sampit River, SC," ENSR Corp., August 1, 1996 - October 31, 1996, \$4,670.

Principal Investigator, "Development of a Three-Dimensional Finite-Element Water Quality Model." UNC Charlotte Faculty Development Program, July 1, 1997 - July 31, 1997, \$3,500.

REFEREED PUBLICATIONS

Kim, Dongwook, Bowen, James D., and Kinnear, David. 2015. Comprehensive numerical modeling of greenhouse gas emissions from water resource recovery facilities. *Water Environment Research*. 87(11), 1955-1969.

Kim, Dongwook, Bowen, James D., and Ozelkan, Ertunga C. 2015. Optimization of wastewater treatment plant operation for greenhouse gas mitigation. *Journal of Environmental Management*, Vol. 163, 1 Nov 2015, 39-48.

- Bowen, J. D., Perry, D. N., and Bell, C. D. 2014. Hydrologic and Water Quality Model Development Using Simulink: Proceedings of the 13th International Conference, published as a special issue of the Journal of Marine Science and Engineering.
- Froelich, Brett, James Bowen, Raul Gonzalez, and Rachel Noble. 2013. Mechanistic and Statistical Models of Total *Vibrio* Abundance in the Neuse River Estuary, *Water Research*, Vol. 47(15), pp. 5783-5793.
- Bowen, J. D. and N. Rajbhandari. 2012. Estimating Dissolved Oxygen Depletion from Anthropogenic and Riverine Loading Using a Three-Dimensional Water Quality Model, In: Estuarine and Coastal Modeling: Proceedings of the 12th International Conference, pp. 274-294. Spaulding, Malcolm L., (ed.), American Society of Civil Engineers, New York, NY. doi: <http://dx.doi.org/10.1061/9780784412411.00017>
- Daouda Mama, Véronique Deluchat, James Bowen, Waris Chouti, Benjamin Yao, Baba Gnon, Michel Baudu. 2011. Caractérisation d'un système lagunaire en zone tropicale: Cas du lac nokoué (Bénin). *European Journal of Scientific Research*. Vol. 56(4): 516-528.
- Daouda Mama, Martin Aina, Christophe Kaki, Lyde Tometin, Waris Chouti, Odilon Changotade, Véronique Deluchat, James Bowen, and Michel Baudu. 2011. Characterization and phosphorus fractionation of the surface sediment of Nokoué Lake (Benin). *Journal of Applied Biosciences*, Vol. 45, pp. 3032-3044.
- Daouda Mama, Martin Aina, Abdoukarim Alassane, Ousamane Toure Boukari, Waris Chouti, Veronique Deluchat, James Bowen, Abel Afouda et Michel Baudu. 2011. Caractérisation physico-chimique et évaluation du risque d'eutrophisation du lac Nokoué (Bénin). *Int. J. Biol. Chem. Sci.* 5(5): 2076-2093, October 2011. DOI: 10.4314/ijbcs.v5i5.29
- James D. Bowen; Peter Thomas Tkacik; Kimberly Warren. 2011. Combining hands-on design, engineering analysis, and computer programming in a freshman Civil and Environmental Engineering course. ASEE Annual Conference and Exposition, Conference Proceedings.
- Negusse, S. M. and J. D. Bowen. 2010. Application of Three-Dimensional Hydrodynamic and Water Quality Models to Study Water Hyacinth Infestation in Lake Nokoué, Benin, In: Estuarine and Coastal Modeling: Proceedings of the 11th International Conference, Spaulding, Malcolm L., (ed.), American Society of Civil Engineers, New York, NY.
- Bowen, James, D. 2010. Efforts to Better Understand the Relationship Between Civil Engineering Student Preparation and Success on the Fundamentals of Engineering Exam. Proceedings of the 2010 American Society for Engineering Education Annual Conference & Exposition, Louisville, KY.

- Duclaud, B. R. and J. D. Bowen. 2008. Using Turbulence Model Results to Quantify Oxygen Reaeration in an Estuary Dissolved Oxygen Model. in: *Estuarine and Coastal Modeling: Proceedings of the 10th International Conference*, Spaulding, Malcolm L., (ed.), American Society of Civil Engineers, New York, NY.
- Bowen, J. D., 2004. Motivating Civil Engineering Students to Learn Computer Programming With a Structural Design Project. *Proceedings of the 2004 American Society for Engineering Education Annual Conference & Exposition*, Salt Lake City, UT.
- Bowen, J. D., 2003. Using a Hands-On, Project-Based Approach to Introduce Civil Engineering to Freshmen. *Proceedings of the 2003 American Society for Engineering Education Annual Conference & Exposition*, Nashville, TN.
- Bowen, J. D., and Price, C. E. 2003. An Automated Grading System for Teaching MATLAB to Freshman Engineers. *Proceedings of the 2003 American Society for Engineering Education Annual Conference & Exposition*, Nashville, TN.
- Bowen, J. D., and J. W. Hieronymus. 2003. A CE-QUAL-W2 Model of Neuse Estuary for Total Maximum Daily Load Development. *ASCE Journal of Water Resources Planning and Management*. Vol. 129, No. 4, p. 283-294.
- Stow, C. A., C. Roessler, M. E. Borsuk, J. D. Bowen, and K. H. Reckhow. 2003. Comparison of Estuarine Water Quality Models for Total Maximum Daily Load Development in Neuse River Estuary. *ASCE Journal of Water Resources Planning and Management*. Vol. 129, No. 4, p. 307-314.
- Bowen, James D., and Hieronymus, Jeffrey W. 2002. Model Predicted Water Quality Response to Reductions in Inorganic and Organic Nitrogen Loading. In *Estuarine and Coastal Modeling: Proceedings of the 7th International Conference*, Spaulding, Malcolm L., (ed.), pp. 244-265. American Society of Civil Engineers, New York, NY.
- Bowen, James D. 2000. Calibration Performance of a Two-Dimensional, Laterally-Averaged Eutrophication Model of a Partially Mixed Estuary. In *Estuarine and Coastal Modeling: Proceedings of the 6th International Conference*, Spaulding, Malcolm L., and Butler, H. Lee (ed.), pp. 1244-1258. American Society of Civil Engineers, New York, NY.
- Bowen, J.D. 1997. Evaluating the Uncertainty in Water Quality Predictions - A Case Study. In *Estuarine and Coastal Modeling: Proceedings of the 5th International Conference*, Spaulding, M.L, and Blumberg, A.F. (eds.), pp. 252-266. American Society of Civil Engineers, New York, NY.
- Hickey, K., Gerath, M., Gong, G., and Bowen, J. D. 1997. Design of Field Program and Use of Field Measurements to Calibrate a Hydrodynamic and Water Quality Model of an Estuarine River System. In *Estuarine and Coastal Modeling: Proceedings of the 5th International Conference*, Spaulding, M.L, and Blumberg, A.F. (eds.), pp. 252-266. American Society of Civil Engineers, New York, NY.

- Gong, G. G., and Bowen, J. D. 1996. The Role of Circulation Pattern on the Simulation of Constituent Transport in San Juan Bay, Puerto Rico. In *Estuarine and Coastal Modeling: Proceedings of the 4th International Conference*, Spaulding, M.L, and R.T. Cheng (eds.), pp. 518-529. American Society of Civil Engineers, New York, NY.
- Bowen, J. D., Stolzenbach, K. D., and Chisholm, S. W. 1993. Simulating Bacterial Clustering Around Phytoplankton in a Turbulent Ocean. *Limnology and Oceanography*. Vol. 38, No. 1, p. 36 - 51.
- Bowen, J. D., and Stolzenbach, K. D. 1992. The Concentration Distribution Near a Continuous Point Source in Steady Homogeneous Shear. *Journal of Fluid Mechanics*. Vol. 95, p. 95 - 110.
- Bowen, J. D., Koussis, A. D., and Zimmer, D.T. 1989. Storm Drain Design: Diffusive Flood Routing for PCs. *Journal of Hydraulic Engineering*. Vol. 115, No. 8, p. 1135 - 1150.
- Armbrust, E.V., Bowen, J. D., Olson, R. J., and Chisholm, S. W. 1989. Effect of Light on the Cell Cycle of a Marine Synechococcus Strain. *Applied and Environmental Microbiology*, Vol. 55, No. 2, p. 425 - 432.

OTHER PUBLICATIONS

- Bowen, J.D., S. Negusse, J.M. Goodman, B. Ducland, M. Robin, and J. Williams, 2009. Development and Use of a Three-Dimensional Water Quality Model to Predict Dissolved Oxygen Concentrations in the Lower Cape Fear River Estuary, North Carolina. Technical report submitted to the Division of Water Quality, NC Department of Environment and Natural Resources, October 2009. Department of Civil and Environmental Engineering, William States Lee College of Engineering, University of North Carolina at Charlotte. Charlotte, NC.
- Hieronimus, J., and J. D. Bowen. 2004. Calibration and Verification of a Two-Dimensional, Laterally Averaged Mechanistic Model of the Neuse River Estuary, Report No. 343-C, UNC Water Resources Research Institute, N. C. State Univ., Raleigh, NC.
- Bowen, James D., and Hieronimus, Jeffrey W. 2000. Neuse River Estuary Modeling And Monitoring Project Stage 1: Predictions and Uncertainty Analysis of Response to Nutrient Loading Using a Mechanistic Eutrophication Model. Report 325-D, Water Resources Research Institute of the University of North Carolina, Raleigh, NC.
- Bowen, J. D. 1998. Using Eutrophication Modeling to Predict the Effectiveness of River Restoration Efforts. *Proceedings of ASCE's Wetlands Engineering and River Restoration Conference*, Denver, CO.
- Bowen, J. D., Zavistoski, R. A., Cibik, S. J, Loder, T. C., Howes, B. L. III, and Taylor, C. D. 1997. Combined Work/Quality Assurance Plan for Baseline Water Quality Monitoring:

- 1995-1997. Boston: Massachusetts Water Resources Authority. Report ENQUAD ms-45. 93 p.
- Bowen, J. D. 1997. Update on Neuse River Water Quality Modeling and Monitoring. *Proceedings of the NC AWWA/WEA Conference*, Winston-Salem, NC.
- Bowen, J. D. 1997. Using a Mechanistic Eutrophication Model for Water Quality Management of the Neuse River," presented at the 2nd Water Resources Research Institute Workshop on Long-term Modeling of the Neuse River, Raleigh, NC, Nov. 1997.
- Cibik, S. J, Howes, B. L., Taylor, C. D., Anderson, D. M., Davis, C. S. Loder, T. C. III, Boudrow, R.D., and Bowen, J. D. 1996. 1995 Annual Water Column Monitoring Report. Boston: Massachusetts Water Resources Authority. Report ENQUAD 96-07. 254 p.
- Bowen, J. D. 1996. Interannual Variability of Seasonal Dissolved Oxygen Dynamics in Massachusetts Bay. *Proceedings of the 1996 AGU Fall Conference*, San Francisco, CA.
- Bowen, James D., and Stolzenbach, Keith D. 1996. Clusters of bacteria around phytoplankton are sheltered from fluid motions. *Proceedings of the 1996 AGU/ASLO Ocean Sciences Meeting*, San Diego, CA, February 1996.
- Mickelson, Mike, and Bowen, Jim. 1996. Annual Patterns in Massachusetts Bay. *Proceedings of the Tenth Massachusetts Marine Environment Symposium*, Boston MA, April 1996. Marine Studies Consortium, Boston, MA.
- Bowen, J. D. 1995. Predicting Water Quality and Biological Impacts Associated with Mechanical Dredging of Contaminated Sediments. In *Toxic Substances in Water Environments: Assessment and Control, Proceedings of the Specialty Conference*, p. 6-41 - 6-52. Water Environment Federation, Alexandria, Virginia.
- Bowen, J. D. 1995. Designing Diffusers for the Discharge of Toxic Metals into Estuarine Rivers. In *Toxic Substances in Water Environments: Assessment and Control, Proceedings of the Specialty Conference*, p. 1-25 - 1-36. Water Environment Federation, Alexandria, Virginia.
- Bowen, J. D. 1995. Changing Currents, Densities Complicate Discharge Dilution. *Water Environment & Technology*. Vol. 7, No. 7, p. 18.
- Dyer, G.D., and Bowen J. D. 1994. Water Quality Monitoring Associated with the Central Artery/Tunnel Project. *Proceedings of the 1994 New England Water Environmental Association Conference*, Boston, MA.
- Bowen, J. D., Galya, D. P., and Villars, M. T. 1993. Modeling the Impacts of Plankton Entrainment in a Tropical Bay. In *Hydraulic Engineering '93, Proceedings of the 1993 Conference*, Hsieh Wen Shen, S.T. Shu, and Fen Wen, eds., p. 1167 - 1171. American Society of Civil Engineers, New York, NY.

- Bowen, J. D., and Johnson, K.D. 1993. Pumping or Slurry Walls - Which Works Best for Groundwater Containment? In *Engineering Hydrology, Proceedings of the Symposium*, Chin Y. Kuo, ed., p. 808-813. American Society of Civil Engineers, New York, NY.
- Johnson, K. D., and Bowen, J. D. 1993. Trade-Offs Between Pumping and Slurry Walls Under Changing Hydraulic Parameters. *Proceedings of the 1993 Ground Water Modeling Conference*, Golden, CO.
- Wolf, L. J., Bowen, J. D., and Hickey, K.A. 1993. Comparison of Dune Profiles Before and After Storm Events in Coastal Massachusetts. In *Hydraulic Engineering '93, Proceedings of the 1993 Conference*, Hsieh Wen Shen, S.T. Shu, and Fen Wen, eds., p. 269 - 274. American Society of Civil Engineers, New York, NY.
- Bowen, J. D., S. H. Wolf, and C. A. Meininger. 1992. Dredging Contaminated Sediments: A Monitoring Plan for Boston Harbor. In *Ports '92, Proceedings of the Conference*, David Torseth, ed., p. 443 - 455. American Society of Civil Engineers, New York, NY.
- Wolf, S. H., Bowen, J. D., Galya, D. P., and Smith, F. S. 1992. Assessment of Impacts Associated with Alternate Cooling System Designs for an Electric Power Station. In *Environmental Engineering, Proceedings of the 1992 National Conference*, p. 226 - 231. American Society of Civil Engineers, New York, NY.
- Bowen, J. D., and Wolf, S. H. 1991. Temperature Rise, Bank Erosion, and Jet Velocity Effects of Submerged Multiport Diffusers in an Estuary. In *Hydraulic Engineering, Proceedings of the 1991 National Conference*, Richard M. Shane, ed., p. 504 - 509. American Society of Civil Engineers, New York, NY
- Bowen, J. D., and Hartman, G. L. 1991. Boston Harbor/Third Harbor Tunnel, Mechanical Dredge Sediment Resuspension Analysis. *Proceedings of 24th Annual Texas A&M Dredging Seminar*, Las Vegas, NV, also published in *Terra et Aqua, Journal of the International Association of Dredging Companies*, Jan. 1992.
- Bowen, J. D., Stolzenbach, K. D., and Chisholm, S. W. 1990. The Effect of Turbulent Shear on Bacterial Clustering Around Phytoplankton. *EOS, Transactions of the American Geophysical Union*. Vol. 71, No. 2, p. 123.
- Bowen, J. D., Stolzenbach, K. D., and Chisholm, S. W. 1985. Diffusion Limitation of Phosphorus Uptake by Phytoplankton. *EOS, Transactions of the American Geophysical Union*, Vol. 63, p. 54.
- Koussis, A. D., Bowen, J. D., and Zimmer D. T. 1984. Demos: A Diffusive Model Simulator. *Proceedings of the Third Conference on Urban Storm Drainage*, Goteberg, Sweden.
- Thackston, E. L., Parker, F. L., Minor, M. S., Bowen, J. D. and Goodwin, W. S. 1983. Water

Policy in Tennessee: Issues and Alternatives. Technical Report No. 41, Environmental and Water Resources Engineering, Vanderbilt University.

INVITED LECTURES AND PRESENTATIONS

“The Impact of Organic vs. Inorganic Nitrogen Loading to a Eutrophic Eastern US Estuary,” presented at the 14th International Conference on Estuarine and Coastal Modeling, Kingston, RI, June 15, 2016.

“Hydrologic and Water Quality Model Development Using Simulink,” presented at the 13th International Conference on Estuarine and Coastal Modeling, San Diego, CA, November 2013.

Eutrophication Research in North Carolina, USA, presented at the CYAME Research Meeting, Limoges, June 14, 2013.

“Eutrophication Model, Theoretical Development,” presented at the CYAME Research Meeting, Limoges, June 14, 2013.

“Estimating Dissolved Oxygen Depletion from Anthropogenic and Riverine Loading Using a Three-Dimensional Water Quality Model.” Presented at 12th International Conference on Estuarine and Coastal Modeling, Saint Augustine, FL, November 2011.

“Mechanistic models of Vibrio fate and transport in the Neuse River Estuary, North Carolina. “NSF Ecology and Evolution of Infectious Disease,” presented at NSF Ecology and Evolution of Infectious Disease Meeting, Madison WI, March 2011.

“Mechanistic models of Vibrio fate and transport in the Neuse River Estuary, North Carolina. “NSF Ecology and Evolution of Infectious Disease,” presented at American Society of Limnology and Oceanography and American Geophysical Union Joint Meeting, San Juan, PR, February 2011.

J. D. Bowen. 2010. Application of Three-Dimensional Hydrodynamic and Water Quality Models to Study Water Hyacinth Infestation in Lake Nokoue, Benin, ,” Presented at the 11th International Conference on Estuarine and Coastal Modeling, Seattle, WA, November 2009. (also chaired a session on water quality modeling applications)

“Multiple Use Monitoring from a Water Quality Modeling Perspective,” presented at the North Carolina Forum for Water Quality Monitoring, Charlotte, NC, May 2008.

“Presentation of Results of the Lower Cape Fear River Estuary Dissolved Oxygen Model, Raleigh NC, October 30, 2008, June 2, 2008, April 11, 2008, Wilmington NC, November 27, 2007, Charlotte, NC, October 11, 2007, Raleigh NC, August 15, 2007, Raleigh NC, May 24, 2007, Raleigh NC, January 26, 2007, Raleigh NC, October 12, 2006, Raleigh

NC, July 27, 2006, Raleigh NC, February 9, 2006, Raleigh NC, July 19, 2005.

“Using Turbulence Model Results to Quantify Oxygen Reaeration in an Estuary Dissolved Oxygen Model,” presented at the NC State Department of Civil, Construction and Environmental Engineering Seminar Series, Raleigh, NC, October 2008.

“Sharing Geographical Based Model Inputs and Results Using Google Earth,” Presented at the 10th International Conference on Estuarine and Coastal Modeling, Newport, RI, November 2007.

“Using Turbulence Model Results to Quantify Oxygen Reaeration in an Estuary Dissolved Oxygen Model,” Presented at the 10th International Conference on Estuarine and Coastal Modeling, Newport, RI, November 2007.

“Comparison of Two and Three-Dimensional Approaches to Modeling the Rebound of Phytoplankton Population Densities Following an Estuarine Flushing Event,” Presented at the 9th International Conference on Estuarine and Coastal Modeling, Charleston SC, November 2005.

“Motivating Civil Engineering Students to Learn Computer Programming With a Structural Design Project” Presented at the 2004 American Society for Engineering Education Annual Conference & Exposition, Salt Lake City, UT, June 2004.

“Using a Hands-On, Project-Based Approach to Introduce Civil Engineering to Freshmen,” Presented at the 2003 American Society for Engineering Education Annual Conference & Exposition, Nashville, TN, June 2003.

“An Automated Grading System for Teaching MATLAB to Freshman Engineers,” Presented at the 2003 American Society for Engineering Education Annual Conference & Exposition, Nashville, TN, June 2003.

“Comparison of Procedure-Based and Object-Oriented Approaches to Water Flow and Water Quality Modeling,” Presented at the 8th International Conference on Estuarine and Coastal Modeling, Monterey CA, November 2003.

“Description of Academic and Research Programs in Civil and Environmental Engineering at UNC Charlotte,” Presented to 1st year students at Water and Environment Department, ENSIL, University of Limoges, Limoges, France, June 27, 2002.

“Using WARMF (Watershed Analysis Risk Management Framework) for TMDL’s - A Workshop” Workshop for Catawba River Watershed Stakeholders, Charlotte, NC, May 30 and 31, 2002.

Rick Luetlich, Hans Paerl, Jim Bowen, and Chris Roessler “Identification and Management of Anthropogenically Driven Eutrophication in the Neuse River Estuary, NC.” Environmental Protection Agency’s Science to Achieve Results (STAR) Program Research Conference, Washington, D.C., May 2, 2002.

“Model Predicted Water Quality Response to Reductions in Inorganic and Organic Nitrogen Loading.” 7th International Estuarine and Coastal Modeling Conference, St. Petersburg, Florida, November 5, 2001.

“Estuarine Hydrodynamic and Water Quality Modeling Research.” Albemarle-Pamlico Monitoring, Processes, and Modeling Coordination Workshop, Research Triangle Park, NC, September 26, 2001.

“Predictions of Response to Nutrient Loading Reduction Using an Application of CE-QUAL-W2.” Army Corps of Engineers’ and Portland State University’s CE-QUAL-W2 Workshop, Portland, Oregon, September 14, 2001.

Jim Bowen and Jeff Hieronymus. “Neuse Estuary Eutrophication Model: 1998-2000 Simulations and Scenario Testing.” Neuse Modelers Workgroup Meeting, Raleigh, North Carolina, May 30, 2001.

“Predictions of Water Quality Improvement in the Neuse River Estuary Using a Mechanistic Eutrophication Model,” US EPA, Multimedia Integrated Modeling System (MIMS) Peer Review Meeting. April 4, 2001. Research Triangle Park, NC

“Predictions of Water Quality Improvement in the Neuse River Estuary Using a Mechanistic Eutrophication Model,” NC Water Resources Research Conference. March 29, 2001. Raleigh, NC.

“Formulation and Predictions of a Coupled Hydrodynamic, Water Quality, and Sediment Quality Model of the Neuse River Estuary,” US EPA, MIMS Model Experts Meeting. January 31, 2001. Raleigh, NC.

“NEEM – A 2-d, Laterally Averaged Eutrophication Model,” Presented at the Neuse River Watershed Stakeholders Meeting. October 27, 2000. Raleigh, NC.

“Surface Water Quality Model Development. US EPA, MIMS Cross-Discipline Ecosystem Modeling and Analysis Workshop. August 15, 2000. Research Triangle Park, NC.

“Progress Update on the Neuse Estuary Eutrophication Model (NEEM),” Modeling Workshop for Neuse River Watershed Stakeholders, March 2000, Raleigh, NC.

“Predictions of Water Quality Improvement in the Neuse River Estuary Using a Mechanistic Eutrophication Model,” NC Water Resources Research Conference, March 2000, Raleigh, NC.

“Progress Update on the Neuse Estuary Eutrophication Model (NEEM),” NC DWQ/US EPA Total Maximum Daily Load (TMDL) Analysis Workshop, February 2000, Durham, NC.

- “Using a Mass-Balance Based Water Quality Model to Predict Algal Abundance in the Neuse River Estuary,” Duke University School of the Environment, Graduate-level Water Quality Modeling Class, December 1999, Durham, NC.
- “Calibration Performance of a Two-Dimensional, Laterally-Averaged Eutrophication Model of a Partially Mixed Estuary,” 6th International Estuarine and Coastal Modeling Conference, November 1999, New Orleans, LA.
- “Incorporation of Multiple Algal Groups and Sediment Denitrification Into the Neuse Estuary Eutrophication Model (NEEM),” Neuse River Modeling and Monitoring (MODMON) Project Workshop, November 1999, Raleigh, NC.
- “Progress Update on the Neuse Estuary Eutrophication Model (NEEM),” NC DWQ/US EPA Total Maximum Daily Load (TMDL) Analysis Workshop, July 1999, Charlotte, NC.
- “Estuary Eutrophication Models: Essential Components and Material Exchanges.” Presented at EPA’s Multi-Media Modeling Workshop, March 23, 1999, Raleigh, NC.
- “Computer Simulations of Water Quality in the Neuse River,” UNC Charlotte, Spotlight on Research Seminar, January 21, 1999, Charlotte, NC.
- Bob Christian and Jim Bowen, “Two Approaches to Modeling the Neuse River Estuary: Mechanistic and Network Analysis Models,” Presented at the NC Water Resources Research Institute Seminar Series, January 18, 1999, Raleigh, NC.
- “Application of the Neuse Estuary Eutrophication Model: Will Reduced Nutrient Loading Result in Reduced Algal Abundance?” Duke University School of the Environment, Graduate-level Water Quality Modeling Class, December 3, 1998, Durham, NC.
- “Eutrophication Modeling of the Neuse River Estuary: Estimates of Water Quality Improvement and Prediction Uncertainty,” University of North Carolina Water Resources and Environmental Engineering Teleconference, November 1998, Charlotte, NC.
- “Using Eutrophication Modeling to Predict the Effectiveness of River Restoration Efforts,” Presented at the Hydrodynamic and Water Quality Modeling with CE-Qual-W2 Workshop, September 1998, Portland, OR.
- “Neuse River Estuary Eutrophication Modeling Update,” Presented at the Neuse River Modeling and Monitoring Workshop, Chapel Hill, NC, April 1998.
- “Using a Mechanistic Eutrophication Model for Water Quality Management of the Neuse River,” presented at the Neuse River Estuary Model Development Stakeholder’s Technical Workshop, Raleigh, NC, April 1998.
- “CE-QUAL-W2 Model Application to the Neuse River Estuary.” Presented at the Neuse River Estuary Model Development Stakeholder’s Technical Workshop, Raleigh, NC, April 1998.

“Using Eutrophication Modeling to Predict the Effectiveness of River Restoration Efforts,” presented at the ASCE Conference on Wetlands Engineering and River Restoration, Denver, CO, March 1998.

“Update on Neuse River Water Quality Modeling and Monitoring,” presented at the North Carolina American Water Works/Water Environment Association Annual Meeting, Winston-Salem, NC, November 1997.

“Using a Mechanistic Eutrophication Model for Water Quality Management of the Neuse River,” presented at the 2nd Water Resources Research Institute Workshop on Long-term Modeling of the Neuse River, Raleigh, NC, Nov. 1997.

“Evaluating the Uncertainty in Water Quality Predictions - A Case Study,” presented at the 5th International Conference on Estuarine and Coastal Modeling, Alexandria, VA, October 1997.

“Interannual Variability of Seasonal Dissolved Oxygen Dynamics in Massachusetts Bay,” American Geophysical Union Fall Meeting, San Francisco, CA, December 1996.

PUBLIC SERVICE ACTIVITIES

Team Leader, 24 Hours of Booty Charity Bike Ride, July 2007, 2010, 2011, 2012, 2013, Team Member, July 2004-2006, 2008-2009.

Member, Charlotte-Mecklenburg Post-Construction Ordinance Stakeholder Group, April 2004 – September 2005, August 2007 – October 2007.

Ruling Elder, Avondale Presbyterian Church, 2013-2016.

Co-Leader of Avondale Presbyterian Church, Mission to Milot, Haiti ministry, 2013-present

Site Coordinator, Room in the Inn at Avondale Presbyterian Church, 2011- 2014.

Teacher, Senior High Sunday School, Avondale Presbyterian Church, 2007 – 2011.

Coach, Middle School and High School Boys Basketball, Metrolina Ministries Youth Basketball League 2005 – 2010.

Member, Worship and Sanctuary Choirs, Avondale Presbyterian Church, 2003 – present.

Soccer and Baseball Coach, Harris YMCA Children’s Program, 2001- 2007.