

Dr. Kirk R. Barrett, P. E., P. W. S.

Director, Passaic River Institute

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EXPERTISE AND INTERESTS

- Research, teaching and practice of environmental science and engineering
- Surface hydrology, hydraulics and water quality
- Ecological engineering and restoration, especially wetlands and rivers
- Urban stormwater and nonpoint source pollution control
- Environmental monitoring and modeling
- Research management and administration

EDUCATION

- PhD, Civil/Environmental Engineering, Northwestern University, Evanston, IL, 1996;
Dissertation: Two-dimensional modeling of flow and transport in treatment wetlands: Development and testing of a new method for wetland design and analysis
- MS, Computer Science, Kansas State University, Manhattan, KS, 1985
- BS, Chemical Engineering, Kansas State University, Manhattan, KS, 1982

PROFESSIONAL REGISTRATION/CERTIFICATION

- Professional Engineer, Wisconsin and Massachusetts
- Professional Wetland Scientist, Society of Wetland Scientists

CURRENT AND SELECTED PAST POSITIONS

Director, Passaic River Institute, Montclair State University, Montclair, NJ, 2004-present.

Concurrent Appointments:

- Chair, Interdisciplinary Committee, College of Science and Mathematics
- Adjunct Faculty, Department of Earth and Environmental Studies

Research Director, Meadowlands Environmental Research Institute, Rutgers University, Newark NJ, 1999 – 2004. Concurrent Appointments:

- Research Assistant Professor, Rutgers University, Newark.
- Associated Faculty, Department of Earth and Environmental Sciences, Rutgers University, Newark
- Adjunct Faculty, Graduate School, Rutgers University, Newark, NJ
- Member, Institute for Marine and Coastal Science, Rutgers University, New Brunswick, NJ

Water resources engineer, The Bioengineering Group, Inc., Salem, Mass., 1997-1999. Design, construction supervision, and monitoring of bioengineering treatments of streambanks, shorelines and wetlands, focusing on erosion control and water quality functions. Responsibilities include business development, proposal writing, project management, environmental permitting, cost estimating, and report writing.

Hydrologic and water quality research engineer, Wetland Research, Inc. and Hey and Associates, Inc., Chicago, 1988-1992. Designed, implemented and supervised collection of hydrologic, meteorological and water quality data, including managing the equipment and other staff at the Des Plaines River Wetlands Demonstration Project in northeastern Illinois. Managed, analyzed, reported and presented this research, including data distribution and coordination with a multi-disciplinary research team.

Wrote/coordinated grant proposals/reports. Water quality and hydrologic engineering for residential and commercial development projects. Developed computerized models to simulate runoff from watersheds and routing through detention basin. Calculated material fluxes in runoff from different land surfaces and trapping efficiencies of water quality control devices such as wetlands and detention basins.

TEACHING EXPERIENCE

- Lecturer, Institute for Environmental Studies, University of Wisconsin, Madison. 1993 to 1994. Taught a two course series in quantitative analysis and modeling environmental systems.
- Lecturer, University of Missouri at Kansas City and Brown-Mackie College. 1987 to 1988. Taught undergraduate courses in computer science
- Instructor and Graduate Teaching Assistant, Kansas State University, 1982 to 1985. Taught undergraduate and graduate courses in computer science (teaching evaluations furnished on request). Coordinated a set of concurrent courses involving over 250 students, 7 GTAs and 12 course sections.

REVIEWED JOURNAL AND SYMPOSIA PUBLICATIONS

- Galster, J., K. R. Barrett and E. Slaff. in preparation. Is flooding getting worse? Trends in flooding in New Jersey and their correlation with urbanization. To be submitted to the Journal of Water Resources Planning and Management.
- Barrett, K. R., S. Xeflide and J. Galster. in preparation. Trends in streams baseflow in New Jersey and their correlation with urbanization. To be submitted to the Journal of the American Water Resources Association.
- Barrett, K. R., and M. A. McBrien. 2007. [A Chemical and biotic assessment of a degraded brackish marsh in the Meadowlands of northeastern NJ](#). Environmental Monitoring and Assessment. v 124, pp 63-88.
- Barrett, K. R., W. Goldsmith and M. Silva. 2006. [Integrated Geotechnical and Bioengineering Treatments for Streambank Stabilization along a Landfill](#). Journal of Soil and Water Conservation. v 61, n 3 (May/June 2006) pp 144-152.
- Weis, P., Barrett, K. R., T. Proctor, and R. Bopp. 2005. [Studies of a contaminated brackish marsh in the Hackensack Meadowlands of northeastern New Jersey](#): An assessment of natural recovery. Marine Pollution Bulletin. v50, p 1405–1415.
- Artigas, F. J., K. R. Barrett, and R. Holowczak. 2001. Digital Meadowlands: A Web-Based Decision Support System for an Urban, Estuarine Watershed. Proceedings of the Integrated Decision-Making for Watershed Management Symposium: Processes and Tools. Virginia Tech Publishing. pp 1-8.
- Barrett, K. R. 1999. Ecological engineering in water resources: The benefits of collaborating with nature. Water International, Journal of the International Water Resources Association. v 24, p182-188.
- Barrett, K. R., R. Holowczak and F. J. Artigas. 1999. A database of environmental documents about an urban estuary, with a WWW-based, geographic interface. Proceedings, Symposium on Water Resources and the World Wide Web. American Water Resources Association. CD-ROM publication.
- Hey, D. L., K. R. Barrett and C. Biegan. 1994. The hydrology of four experimental constructed marshes. Ecological Engineering. v 3, pp 319-343.
- Hey, D. L., A. Kenimer and K. R. Barrett. 1994. Water quality improvement by four experimental wetlands. Ecological Engineering. v 3, pp 381-397.

BOOK CHAPTERS AND CONFERENCE PROCEEDINGS PAPERS

- Bragin, A. B., J. Misuik, C. A. Woolcot, K. R. Barrett, R. Jusino-Atrensino. 2005. A Fishery Resource Inventory of the Lower Hackensack River within the Hackensack Meadowlands District: A Comparative Study, 2001-2003 vs. 1987-1988. New Jersey Meadowlands Commission. 200 pp.

- Barrett, K. R., K. Reinhart and W. Goldsmith. 2003. Soil Bioengineering Stabilization of an Eroding Streambank along a Sanitary Landfill, Mill Creek, Cincinnati, Ohio. Proceedings, World Water and Environmental Resources Congress 2003 and Related Symposia (P. Bizier and P. A. DeBarry, eds). Am. Soc. of Civil Engineers/Environmental and Water Resources Institute. CD-ROM publication.
- Barrett, K. R. 2000. Urban stormwater management and nonpoint source pollution control. Standard Handbook of Environmental Science, Health and Technology (J. Lehr, ed.) McGraw-Hill. pp 9.42-76.
- McBrien, M. A. and Barrett, K. R. 2000. Wetlands. Standard Handbook of Environmental Science, Health and Technology, J. Lehr, editor. McGraw-Hill. pp 19.20-19.47.
- Barrett, K. R. 1998. Two-Dimensional Flow and Transport Modeling for Hydraulic Design and Analysis of Treatment Wetlands. Water Resources Engineering 98: Proceedings of the 1998 International Water Resources Engineering Conference (S. Abt, et al, editors), American Society of Civil Engineers. pp 520-525.
- Barrett, K. R. and W. Goldsmith. 1998. Bioengineered wetlands and ponds in an existing stream channel for stormwater management and ecological enhancement. Engineering Approaches To Ecosystem Restoration: Proceedings of the 1998 Wetlands Engineering & River Restoration Conference (Donald F. Hayes, ed). ASCE. CD-ROM publication.
- Goldsmith, W., K. R. Barrett, M. Larson and W. Lattrell. 1998. Stabilization and restoration of an urban incised channel: Design, construction and monitoring. Engineering Approaches To Ecosystem Restoration: Proceedings of the 1998 Wetlands Engineering & River Restoration Conference (Donald F. Hayes, ed). ASCE. CD-ROM publication.

SELECTED ABSTRACTS AND PRESENTATIONS

- Invited seminar speaker at numerous universities including Princeton U., Columbia U., Drexel U., U Maryland-College Park, Rutgers University Cook College, Seton Hall U., New Jersey Inst. Tech.
- Barrett, Kirk R., J. Galster and Seth Kwaku Xeflide. 2009. Does urbanization really reduce stream baseflow? An empirical analysis in New Jersey. Annual conference of the New Jersey American Water Works Association.
- Barrett, K. R., J. Galster and E. Slaff. 2008. Is flooding getting worse in New Jersey? A empirical investigation of flood trends. Annual Conference of the New Jersey Floodplain Management Association.
- Galster, J; Feng, H. and Barrett, KR. 2008. Identifying the source of excess fine-grained sediments in New Jersey rivers using radionuclides. Annual Meeting, Geological Society of American Northeastern Section.
- Barrett, KR. 2008. Water quality in the Rahway River. State of the Rahway River Conference. Rahway River Association. Kenilworth, NJ.
- Barrett, Kirk R. and Seth Kwaku Xeflide. 2007. Trends in Stream Baseflow in NJ. Annual conference of the New Jersey American Water Works Association.
- Barrett, Kirk R., and M. A. McBrien. 2005. A Chemical and biotic assessment of a degraded brackish marsh in the Meadowlands of northeastern NJ. Abstracts, Annual Meeting of the Estuarine Research Federation, Norfolk, VA
- Liu, L. and Kirk Barrett. 2004. Effects of Seasonal and Harmonic Variations on Hydraulic Behavior in a Tidal Marsh. World Water and Environmental Resources Congress 2004, Salt Lake City, Utah. American Society of Civil Engineers/Environmental and Water Resources Institute.
- Konsevick, E., K. R. Barrett and C. C. Hobble. 2002. Effects of drought on water quality in the lower Hackensack River. Annual Conference of the American Water Resources Association. Philadelphia.
- Barrett, Kirk R., A. Mizra and R. Holowczak. 2002. An automated data validation and alert system for a continuous environmental monitoring system. National Water Quality Monitoring Conference. Madison, WI.

- Barrett, Kirk. R. 2002. Flow and Transport Modeling for Hydraulic Design and Analysis of Treatment Wetlands. Abstracts, Annual Conference of the Society of Wetlands Scientists. Lake Placid, NY.
- Barrett, Kirk. R. 2001. Using Technology to Teach Sustainability: Digital Meadowlands. Education for Sustainability. New Jersey Higher Education Partnership for Sustainability. Madison, New Jersey.
- Barrett, Kirk. R. 2001. An On-Line, Continuous Monitoring System of Hydrology and Water Quality of an Urban Estuarine System. EMAP Symposium 2001. Pensacola, Florida.
- Barrett, K. R. 2000. Adding value to continuous, WWW-based environmental monitoring data. Abstract, Proceedings, Annual Conference of the American Water Resources Association. Miami, FL.
- Barrett, K. R. 2000. Towards Sustainable Transportation On And To College Campuses. New Jersey Higher Education Partnership for Sustainability. The College of New Jersey, Ewing, NJ.
- Mitsch, W. J., R. H. Kadlec, D. L. Hey, K. R. Barrett and M. S. Fennessy. 1991. Chemical mass balances of constructed riverine wetlands: The role of hydrologic and seasonal conditions. Symposium on Biogeochemistry of Wetlands. Baton Rouge, LA.

PROFESSIONAL PROJECT REPORTS

- Sediment and nutrient loading to Speedwell Lake, Morristown, NJ. 2007. Submitted to the Whippany River Watershed Action Committee.
- Dry-weather pollution from storm drains into the Charles River, Milford, Massachusetts. The Bioengineering Group, Salem, MA. 1997. Collected dry-weather flow samples, which were analyzed for sewage indicators. Analyzed data, wrote report.
- Lake and watershed management plan for Lake Quannapowitt. Co-authored with the Friends of Lake Quannapowitt. 1996. It is a heavily used, urban, eutrophic, recreational lake in Massachusetts. Collected and compiled data from bird, fish and vegetation surveys and water quality monitoring. Worked with citizens' advocacy group to develop and report goals and actions to address eutrophication, nuisance wildlife and a myriad of human uses in and near the lake, 1997.
- Master plan for stormwater and wastewater management for Gaza City, Gaza. Metcalf and Eddy Inc. 1997. Technical writer, editor and reviewer, while stationed in Gaza for 2 months. Developed text, data tables and graphics and reviewed engineering calculations.

GRANTS AND CONTRACTS

Active

- Co-Investigator. Identifying the source of excess fine-grained sediments in New Jersey rivers using radionuclides. New Jersey Water Resources Research Institute. 2008-2009. \$30,000.
- Co-Principal Investigator. Passaic River Educational Environmental Monitoring Organization. 2007-2008. USEPA. \$39,888.
- Principal Investigator. Effects of Urbanization on Stream baseflow on Rural, Urbanizing Watershed: A historical empirical analysis. US Dept. of Agriculture. 2005-2008. \$47,000.
- Co- Principal Investigator. Invasive Plant Species in wetlands along the Passaic River. USEPA. 2006-2009. \$46,800
- Co- Principal Investigator. Summer Program in Environmental Science and Computer technology for 7th and 8th graders from Newark. Victoria Foundation, Landsberger Foundation, BMW America, Port Authority of NY/NJ. ~\$120,000. 2006-

Completed

- Principal Investigator. Phosphorus and Sediment Investigations of Speedwell Lake, Morris County, NJ. Whippany River Watershed Action Committee, through the NJ Dept. of Environmental Protection. 2006-2007. \$14,400.
- Principal Investigator. Trail maps and brochure for Essex County Reservations. Essex County Environmental Commission, through the NJ Dept. of Environmental Protection. 2006-2007. \$2,900.

- Principal Investigator. Trail maps and brochure for South Mountain Reservation. South Mountain Conservancy. 2006-2007. \$3,325
- Co-Investigator. Meadowlands Environmental Research Institute. New Jersey Meadowlands Commission. 2001-2006. \$8 million.
- Co-Investigator. Ecological Risk Assessment of Contamination of Wetlands in the Hackensack Meadowlands District. USEPA. 2002-2003. \$97,000.
- Co-Investigator. Workshops on Advanced Technologies in Real-time Monitoring and Modeling of Drinking Water. USEPA. 2002. \$75,000.
- Co-Principal Investigator. Urban River Restoration: Confronting the Challenge of Multiple Objectives under Multiple Constraints. Rutgers U. Undergraduate Research Fellows Program. 2001. \$2000.
- Principal Investigator. Applicability of TABS-MD for modeling flow and transport in treatment wetlands. US Army Corps of Engineers Waterways Experiment Station. 1992. \$2500.

FELLOWSHIPS AND AWARDS

- Infrastructure Fellowship. US Department of Education, 1989, 1990.
- Walter P. Murphy Fellowship for Graduate Study in Environmental Engineering. Northwestern University, 1988.
- Named “Man of the Year” by the South Orange (NJ) Lions Club, 2003 for efforts to rehabilitate the Rahway River corridor
- 2006 Essex County Executive Volunteer Award, presented by Joseph N. DiVincezo, Jr., Essex County (NJ) Executive, April 19 2006

DISSERTATION/THESIS COMMITTEE MEMBERSHIPS

- Sarath Chandra Jagupilla, PhD, Dept. of Civil and Environmental Engineering, Stevens Institute, 2009
- Nasser Mansoor, PhD, Dept. of Earth and Environmental Science, Rutgers U-Newark, 2006
- Gina Mongiello, Masters, Student, Dept. of Earth and Environmental Studies, Montclair State U, 2008

PROFESSIONAL ACTIVITIES AND MEMBERSHIPS

Conferences Organized

- Chair, Third Passaic River Symposium. Montclair State University, Montclair, NJ. October, 2008.
- Co-Chair, Second Passaic River Symposium. Montclair State University. October, 2006.
- Chair, Mid-Atlantic Conference of the American Water Resources Association. “Stream Restoration and Protection in the Mid-Atlantic”. June 2006.
- Chair, Meadowlands Symposium. October, 2003. Sponsored by Meadowlands Environmental Research Institute, US Army Corps of Engineers, US Fish and Wildlife Service and Hudsonia, Ltd. 15 cosponsoring organizations. 50 oral and poster presentations. 215 attendees.
- Co-Chair, Annual Conference of the Society of Environmental Toxicology and Chemistry, Hudson-Delaware Chapter. 2002. Two day conference. Held over two days at the New Jersey Meadowlands Commission, Lyndhurst, New Jersey. Over 100 attendees.
- Chair, Annual Conference of the American Water Resources Association, New Jersey section. 2000. Over 120 attendees.
- Organizing Committee Member and Master of Ceremonies for Workshops of Advanced Technologies in Real-Time Monitoring and Modeling for Drinking Water Safety and Security, June 2002 and December 2002. Sponsored by Rutgers CIMIC and funded by USEPA.

Technical Reviewing

- Technical reviewer for the following journals: Water Resources Research; Ecological Engineering; Water Environment Research; Environmental Monitoring and Assessment; Environmental Engineering Science; Estuarine, Coastal and Shelf Science

- Proposal reviewer for USEPA Office of Research and Development Urban Watershed Management Branch; New Jersey Water Resources Research Institute

Memberships

- American Water Resources Association (member and former Chair of Wetlands Technical Committee)
- Environmental and Water Resources Institute (former control member, Wetlands Committee)
- Society of Wetland Scientists (former web master for Mid-Atlantic chapter; program committee member for 2002 annual conference)
- Water Environment Federation (Helped organize and presented at wetlands sessions at the annual meeting of the New England Water Environment Association. Organizing committee for a conference on constructing wetlands.)
- Member, American Association of Geographers, American Society for Ecological Engineering, American Geophysical Union, Coastal and Estuarine Research Federation, Association of Environmental Engineering and Science Professors, American Waterworks Association, New Jersey Association of Floodplain Managers

COMMUNITY SERVICE

- Vice Chair, Essex County (NJ) Environmental Commission
- Rahway River Coordinator for the Essex County Sierra Club
- Technical advisory committee on water resources, Highlands Council 2004-
- Technical advisory committee, Lower Passaic and Saddle River Alliance, 2004-
- Technical advisory committee, Morris County Water Balance Study, 2004-
- New Jersey Water Monitoring Coordinating Council, 2003-
- Member and former chair, Rahway River Greenway committee, South Orange, NJ 2003-