

**AREAS OF EXPERTISE**

Thirty-five years of experience in stormwater and water resources management. Experience in local government, non-profit, private, and academic sectors. Strong skills with stormwater policy, design, and program implementation. Exceptional communication skills and broad experience with outreach, training, classroom teaching, conference presentations, webcasts, and other forms of communication, ranging from keynote addresses to four-day workshops.

EXPERIENCE**PRINCIPAL, HIRSCHMAN WATER & ENVIRONMENT, LLC — 2005-PRESENT**

Manage consulting business focusing on implementation of green infrastructure projects and natural resources planning, including natural resources property evaluations, stormwater research, and stormwater design and maintenance.

Representative programs/projects include:

- *Chesapeake Bay Landscape Professional Certification* – Work with program staff to develop one and two day training events, including classroom and field sessions. Serve as the lead stormwater trainer for all training events. Develop and deliver materials tailored for landscape professionals within local government and the private sector. Facilitate hands-on learning exercises related to design and maintenance of stormwater BMPs.
- *Environmental Master Planning* – Serve as the environmental and natural resources consultant on master planning teams for sites at various scales. Conduct field assessments, natural resources inventories, and stormwater retrofit analyses. Develop concepts for natural resources stewardship in the context of large redevelopment and land management projects. Sites include university and public school campuses, affordable housing sites, and large recreation areas.
- *South River Science Team Coordinator* – Working with DuPont and the Virginia Department of Environmental Quality, coordinate activities of the Science Team to research and develop remediation solutions for Mercury contamination of the South River.
- *Green Infrastructure Practice Implementation* – Work in collaboration with other professionals, watershed organizations, and local governments to conceptualize, design, and construct a range of green infrastructure practices, including bioretention, permeable pavement, rainwater harvesting, and stormwater wetlands.
- *Stormwater Research* – Conduct research on the runoff reduction and pollutant removal capabilities of innovative stormwater practices. Author technical reports and present findings in webinars and seminars.

PROGRAM DIRECTOR, CENTER FOR WATERSHED PROTECTION, INC. — 2005-2015

Manage core program areas for the Center, including stormwater and watershed services and watershed training. Develop new projects, secure funding, arrange and manage project teams, conduct work, and provide quality control. Projects involve work for government agencies at local, state, and federal levels as well as watershed organizations. Represent the Center at meetings and conferences.

Representative programs/projects include:

- *State-Level Stormwater Management Program Development* – Worked with state agencies in Virginia, West Virginia, New York, Guam, and other jurisdictions to develop stormwater design and compliance methods for updated state-wide stormwater regulations and manuals. Co-authored design manuals and developed program tools, such as compliance spreadsheets, detailed stormwater BMP specifications, and extensive outreach and training of stakeholders, including engineers and landscape architects.



- *Managing Stormwater in Your Community* -- Worked with TetraTech and the Environmental Protection Agency to produce national guidance on the development and implementation of local stormwater programs. Work included development of a national guidance manual, stormwater model ordinance, webcasts, and training at national conferences and workshops.
- *Demonstration Stormwater Design Projects* – Designed numerous local stormwater demonstration projects in Virginia, Pennsylvania, Guam, and other localities. Projects included bioretention and rain gardens, regenerative stormwater conveyance, rainwater harvesting, and permeable pavement.
- *Chesapeake Bay Stormwater Training Partnership* – Worked with partner organizations to provide training across the Bay Region on stormwater design, retrofitting, maintenance, and program development. Target audiences include design professionals, local and state government staff, and stormwater advocates.
- *Center for Watershed Protection Webcast Series* – Initiated, coordinate, and serve as moderator for successful webcast series on various watershed and stormwater topics. Work involves generating webcast topics, coordinating with guest speakers, providing quality control on presentations, and moderating live, online two-hour webcasts that generate an international audience.
- *Controlling Land Based Sources of Pollution to Coral Reefs* – Conduct training and watershed planning for NOAA's Coral Reef Program. Work directly with territory agencies and stakeholders to increase program capacity, develop policies, conduct watershed planning, and develop new tools to control land based sources of pollution. To date, have worked in Guam, Commonwealth of the Northern Mariana Islands, Hawaii, and Puerto Rico.

WATER RESOURCES SPECIALIST, BIOHABITATS OF VIRGINIA — 2004-2005

Provided consulting services on innovative water management for sites and master plans, including water resources plans and ordinances, groundwater assessments, low-impact development design, identification of environmentally-sensitive areas, stormwater solutions, and watershed planning. Conducted staff development, training, and education programs for municipal water resources staff, environmental organizations, and the general public.

WATER RESOURCES INSTRUCTOR, UNIVERSITY OF VIRGINIA SCHOOL OF ARCHITECTURE — 2004-2005

Prepared and taught graduate level courses on water resources protection in site planning. Courses included lectures and field work.

WATER RESOURCES MANAGER, ALBEMARLE COUNTY, VIRGINIA — 1993-2004

Responsible for all facets of water resources program, including drinking water reservoir source water programs, stream protection, stormwater management, groundwater, comprehensive planning, policy coordination, and grants/budget management. Spearheaded development of water protection program; authored ordinance and design manual for implementation of drinking water reservoir protection program, streamside buffers, best management practices, and groundwater assessments. Coordinated stream assessment, stormwater master planning, and NPDES Phase II projects. Supervised water resources staff, and represented program at conferences and workshops.

ASSOCIATE ANALYSIS, WASTE POLICY INSTITUTE — 1992-1993

Worked for research and policy institute assessing innovative groundwater and soil remediation technologies for application to Department of Energy waste sites. Researched and authored procedure for peer review evaluation of research and development activities concerning waste site clean-up.

ENVIRONMENTAL POLICY INSTRUCTOR, VIRGINIA TECH DEPARTMENT OF URBAN AFFAIRS & PLANNING — 1992

Designed and taught undergraduate environmental policy course covering broad range of environmental policy issues, including energy, climate, water, waste, and biodiversity.

RESEARCH ASSOCIATE, VIRGINIA TECH DEPARTMENT OF URBAN AFFAIRS & PLANNING — 1990-1992

Designed and implemented demonstration projects in five Virginia communities, including water supply planning, river corridor management, groundwater protection, citizen participation, and application of GIS technology. Authored several technical publications on various water resources topics

CO-DIRECTOR, SERVICE TRAINING FOR ENVIRONMENTAL PROGRESS, VANDERBILT UNIVERSITY — 1986-1987

Responsible for day-to-day operation of university-affiliated non-profit environmental agency. Delivered technical assistance to community groups on wide range of water quality, waste management, and regulatory and policy issues. Worked directly with community liaisons to develop summer projects for undergraduate and graduate interns. Supervised interns and provided quality control on final projects and reports. Secured program funding from foundations and funding agencies.

CO-DIRECTOR, STREAMWALK PROJECT, NORTH CAROLINA PUBLIC INTEREST RESEARCH GROUP — 1984-1985

Conducted research, outreach, and training to support biological and chemical stream monitoring in North Carolina. Coordinated laboratory testing between citizen monitors and university laboratories. Co-authored state-wide guide on water quality issues and monitoring in North Carolina.

EDUCATION

Master of Urban & Regional Planning, Virginia Tech, 1991

BA, Biology, Duke University, 1983

CONFERENCE PAPERS/WORKSHOPS/PRESENTATIONS (SELECTED)

“Stormwater BMPs: A Tale of Shaggy & Baldy,” Central Virginia Nursery and Landscape Association, 2018.

“Stormwater Landscapes: Using Natural Plant Communities for Design,” day-long workshop with Center for Urban Habitats, sponsored by Virginia Department of Game & Inland Fisheries, 2018.

“Ten Years Later: Updating the Runoff Reduction Method,” International LID Conference, American Society of Civil Engineers, 2018.

“RiverWise Schools: Binford Middle School,” Environment Virginia, 2018.

“Runoff Reduction Design Principles & Practices,” part of a day-long pre-conference workshop on Innovations in Stormwater Management, Environment Virginia 2017.

Chesapeake Bay Landscape Professional Stormwater Sessions, lead presenter and facilitator for classroom and field sessions on stormwater BMPs (over a dozen sessions), 2016-2017.

“Introduction to Green Infrastructure” (webinar) and “Operation and Maintenance of Green Infrastructure Practices” (in-person session), Lake Champlain Basin Program, 2017.

“The Potential to Enhance Pollutant Removal in Bioretention and Sand Filters,” Webcast for Chesapeake Stormwater Network, 2016

“Alternative Strategies to Deliver Urban BMPs” and “Stormwater BMP Design Innovations,” Chesapeake Bay Partners’ Retreat, session moderator and presenter, 2016.

Illicit Discharge Detection & Elimination (IDDE) Workshops, Co-presenter at four day-long workshops around Virginia to build local capacity for IDDE programs, 2016.

Georgia Stormwater Inspector Training, day-long workshop, University of Georgia and Georgia Environmental Protection Division, 2016.

“Innovative Stormwater Solutions” (Keynote), APWA Fall Conference & Stormwater Expo, Salt Lake City, UT, 2015.

“Improving and Protection Regional Water Quality: Best Practices for Riverfront Communities Training Series” (day-long workshop), Jordon River Commission, Salt Lake City, UT, 2014.

“Why IDDE is important and how it can help managers in meeting the Bay TMDL,” APWA, Mid-Atlantic Chapter, Lynchburg, VA, 2015.

“Virginia DEQ Inspector Certification Training Refresher Course,” various field and classroom one-day training sessions, Blacksburg, Charlottesville, Virginia Beach, Gainesville, Richmond, 2015.

“Illicit Discharges and Water Quality in the Shenandoah Valley,” Environment Virginia, Lexington, VA, 2015.

“Pacific Island Watershed Institute II,” workshop, National Oceanographic and Atmospheric Administration Coral Reef Program, CNMI Bureau of Environmental & Coastal Quality, Horsley Witten Group, Inc., Center for Watershed Protection, Inc., Saipan, CNMI, 2015.

“Raising the Bar: Green Stormwater Infrastructure Planning & Design” (2-day workshop), Vermont Department of Environmental Conservation, Burlington, VT, 2014.

“Making Connections: Practices, People, Policies” (Keynote), Iowa Water Conference, Iowa State University, Ames, IA, 2014.

“Western North Carolina Stormwater Summit” (two-day workshop), Land of Sky Regional Council, Asheville, NC, 2014.

“Virginia is for BMP Lovers,” Virginia Water Environment Association, Roanoke, VA, 2013.

“A New Generation of Stormwater Manuals – Mainstreaming LID,” 2013 International Low-Impact Development Symposium, Saint Paul, Minnesota.

“Six Blind Men and the Pollutant Trading Program,” 2013 International Low-Impact Development Symposium, Saint Paul, Minnesota.

“On-Site Reuse of Greywater & Stormwater,” National Academy of Sciences, Washington D.C., 2013.

“Bioretention,” Stormwater Management: Challenges & Opportunities, Cabell Brand Center, Roanoke, VA, 2013.

“Guam Erosion and Sediment Control Training for Contractors, Designers, and Site Inspectors” (three-day workshop and certification), Guam Coastal Management Program, Guam EPA, NOAA, Horsley Witten Group, Center for Watershed Protection, 2012.

“Pacific Island Watershed Institute,” workshop, 2011, National Oceanographic and Atmospheric Administration Coral Reef Program, Horsley Witten Group, Inc., Center for Watershed Protection, Inc., Oahu, HI.

“Emerging Regulatory Programs & The Next Generation of Stormwater Practices,” workshop, with Doug Beisch, 2011, Half-Moon Seminars, Roanoke, VA.

“2010 Ohio Stormwater Conference, Keynote Address,” Ohio Stormwater Association, Sandusky, OH.

“Clinch-Powell Clean Rivers Initiative Symposium, Keynote Address,” The Nature Conservancy, Abingdon, VA, 2010.

“Adapting Stormwater BMPs to Tropical Watersheds & Coral Reef Protection,” with Kelly Collins, StormCon, 2010, Forester Communications, San Antonio, TX.

"The Runoff Reduction Method as a Regulatory Compliance Tool," StormCon, 2010, Forester Communications, San Antonio, TX.

"The Art and Science of Stormwater Retrofitting," pre-conference workshop, Center for Watershed Protection, Inc. and Biohabitats, Inc., StormCon, 2009, Forester Communications, Anaheim, CA.

"The Extreme BMP Makeover: A Performance Survey of 200 Stormwater BMPs," with Laurel Woodworth, StormCon, 2009, Forester Communications, Anaheim, CA.

"Post-Construction, Smart Growth and Low Impact Development," pre-conference workshop, U.S. Environmental Protection Agency, Center for Watershed Protection, Inc., TetraTech, Inc., StormCon, 2009, Forester Communications, Anaheim, CA.

"Designing Better Development to Protect Water Quality on Guam," workshop, 2009, Guam Coastal Management Program, Guam Environmental Protection Agency, National Oceanographic and Atmospheric Administration Coral Reef Program, Horsley Witten Group, Inc., Center for Watershed Protection, Inc.

"Municipal Stormwater Management Workshop for CNMI," workshop, 2009, CNMI Department of Environmental Quality, National Oceanographic and Atmospheric Administration Coral Reef Program, Horsley Witten Group, Inc., Center for Watershed Protection, Inc.

"Tools for Effective Post-Construction Program Management," StormCon, 2008, Forester Communications, Orlando, FL.

"Stormwater Management: What's The Big Deal?" keynote address, Berks County Conservation District Stormwater Workshop, 2008, Berks County, PA.

"Case Study & Panel Discussion: Using LID in a Residential Subdivision," Clarity Workshop, 2006, Homebuilders Association of Virginia, Virginia Department of Conservation & Recreation, Richmond, VA.

"The Low-Down on Low-Impact Development," with Joe Battiata, Virginia Engineers Conference, 2005, Williamsburg, VA.

"Stafford County Bioretention Inspection Training," 2005, Stafford County, VA.

"Trends and Cutting Edge Technologies in Green Building," Why Green Buildings Matter, 2004, Charlottesville Waldorf Foundation, Charlottesville, VA.

"Municipal Stormwater Demonstration Sites Help Spread the Word," Stormwater: Emerging Issue for Local Communities, 2004, N.C. State University, Water Resources Research Institute, Asheville, NC.

"Mainstreaming Biofiltration as a Stormwater Practice," Putting the LID on Stormwater Management! 2004, U.S. Environmental Protection Agency and Prince Georges County, MD, College Park, MD.

"Water: Local Activities in Water Supply Planning," Environment Virginia, 2004, Virginia Military Institute, Lexington, VA.

"Stormwater Technologies and Techniques," with Joe Battiata, After the Storm, 2004, Rivanna Regional Stormwater Education Partnership, Charlottesville, VA.

"Development and Water Resources Issues," Virginia Rural Planning Caucus Conference, 2003, Mountain Lake, VA.

“Local Buffer Management – Waterway Buffer Zones in Albemarle County,” with Stephen Bowler, Virginia Watershed Management Conference, 2002, Virginia Department of Conservation & Recreation, Fredericksburg, VA.

“Water Issues for Rural Areas,” Virginia Rural Planning Caucus Conference, 2001, Mountain Lake, VA.

“Groundwater Issues Confronting Local Water Resource Planners and Managers, Ground-Water Availability & Vulnerability in the Piedmont and Blue Ridge, 2001, U.S. Geological Survey, Richmond, VA.

“Comprehensive Stormwater Management and Land Development,” Environment Virginia, 2001, Virginia Military Institute, Lexington, VA.

“A Planner’s Guide to Stormwater Management,” Annual Virginia Planning Conference, 1999, Virginia Chapter of the American Planning Association and the Virginia Citizens Planning Association, Charlottesville, VA.

“In Suspect Watershed Terrain,” 10th Virginia Water Conference, 1997, Virginia Lakes & Watershed Association, Fredericksburg, VA.

“Albemarle County Ordinances and River Overlays,” On the Riverfront: Rural to Urban Strategies for Riverfront Development and Management, Virginia Chapter of the American Society of Landscape Architects, 1996, Richmond, VA.

“Reflections on the June ’95 Flood: The Ecology and Politics of Emergency Restoration,” 9th Annual Virginia Water Conference ’96, Virginia Lakes & Watershed Association, Staunton, VA.

ARTICLES/BOOK CHAPTERS

Hirschman, D. and Battiata, J., *Urban Stormwater Management: Evolution of Process and Technology*, chapter in Sustainable Water Management in Urban Environments, Ed. Dr. Tamim Younos and Dr. Tammy Pareze (in publication, Springer International Publishing).

Hirschman, D. Caraco, D., and Drescher, S., Linking Stormwater and Climate Change: Retooling for Adaptation, Watershed Science Bulletin, Association of Watershed & Stormwater Professionals, Spring, pp. 11-18, 2011.

Hirschman, D. and Collins, K., Adapting Stormwater BMPs for Tropical Watersheds and Coral Reef Protection, Water Resources Impact, American Water Resources Association, Volume 12, No. 4, pp. 11 – 14, July 2010.

Foraste, A. and Hirschman, D., A Methodology for using Rainwater Harvesting as a Stormwater Management BMP, proceedings, 2010 Low-Impact Development Conference, American Society of Civil Engineers, San Francisco, CA.

GUIDANCE MANUALS, PAPERS & REPORTS

Hirschman, D., Hoffmann, G., Hathaway, J., Lindow, K., Aguilar, M., Schueler, T., Wood, D., *Runoff Reduction Revisited*, for Government of the District of Columbia, Department of Energy & Environment, 2018.

Hirschman, D., Hathaway, J., Lindow, K., Aguilar, M., Schueler, T., *Updating the Runoff Reduction Method*, for Metro Government of Nashville & Davidson County, Tennessee, Metro Water Services, 2018.

Hirschman Water & Environment, LLC, *Performance Enhancing Devices for Stormwater BMPs: Fact Sheet for Internal Water Storage, Water Treatment Residuals, Biochar, and Vegetation*, for Center for Watershed Protection, 2018.

Watershed Consulting Associates, LLC and Hirschman Water & Environment, LLC, *Green Infrastructure for Stormwater Management: Guidance for Municipal Officials in New York's Lake Champlain Basin*, Lake Champlain Basin Program, 2017.

Hirschman, D., Seipp, B., and Schueler, T., *Performance Enhancing Devices for Stormwater Best Management Practices*, Chesapeake Stormwater Network, 2017.

Horsley Witten Group, Inc. and Hirschman Water & Environment, LLC, *Coral Watershed Assessment Tool: Decision Support for Prioritizing Threats and Restoration Actions*, National Fish & Wildlife Foundation, 2017.

Center for Watershed Protection, Inc., *Illicit Discharge Detection and Elimination Field Guide: How to Identify and Quickly Report Pollution Problems*, Central Shenandoah Planning District Commission, 2014 (contributing author).

Center for Watershed Protection, Inc., *West Virginia Stormwater Guidance Manual*, West Virginia Department of Environmental Protection, 2012.

Horsley Witten Group, Inc. and Center for Watershed Protection, *Stormwater Management in Pacific and Caribbean Islands: A Practitioner's Guide to Implementing LID*, Prepared for: NOAA Coral Reef Conservation Program, 2013.

Center for Watershed Protection, Inc. and Downstream Strategies, *West Virginia Mitigation & Payment In Lieu Guidance*, West Virginia Department of Environmental Protection, 2013.

Cappiella, K., Hirschman, D., Stack, B., and Drescher, S., *Using Nutrient Credits and Offsets to Achieve Stormwater Compliance with the Chesapeake Bay TMDL: A Discussion Paper*, Center for Watershed Protection, 2013.

Center for Watershed Protection, Inc. and Williamsburg Environmental Group, Inc., *Nutrient Trading and Offsite Compliance in the State of Virginia and the Bay Watershed*, 2010.

Hirschman, D. Woodworth, L., and Drescher, S., *Stormwater BMPs in Virginia's James River Basin: An Assessment of Field Conditions and Programs*, Center for Watershed Protection, 2009.

Hirschman, D. and Kosco, J., *Managing Stormwater in Your Community: A Guide for Building An Effective Post-Construction Program*, EPA Publication No. 833-R-08-001, 2008.

Hirschman, D., Collins, K., and Schueler, T., *Technical Memorandum: The Runoff Reduction Method*, Center for Watershed Protection and Chesapeake Stormwater Network, 2008.

Schueler, T., Hirschman, D., Novotny, M., and Zielinski, J., *Urban Stormwater Retrofit Practices*, Version 1.0, Center for Watershed Protection, 2007.

Biohabitats, Inc., *Bioretention Guidance Manual*, Lake County, OH, 2005

Biohabitats of Virginia, Inc., *Stormwater Guidance Manual for the Water Protection Ordinance*, City of Charlottesville, VA, 2005

Hirschman Water & Environment, *Stream Buffer Mitigation Manual for the Water Protection Ordinance*, City of Charlottesville, VA, 2004

Hirschman, D., *Technology Choices for Water & Wastewater: Albemarle County's Rural Areas*, 2003

Ross, B.B., Goodman, C.W., Hirschman, D.J., Parrott, K.R., and McCaskill, C.D., *Evaluation of Household Water Quality in Albemarle County, Virginia*, Virginia Tech Department of Biological Systems Engineering, 1996.

Hirschman, D., *Pilot Groundwater Study for the North Fork/South Fork Hardware Watershed*, Albemarle County, VA and Virginia Department of Conservation & Recreation, 1994.

Hirschman, D., Randolph, J., and Flynn, J., *The Can-Do Book of Local Water Resources Management*, College of Architecture and Urban Studies, Virginia Tech, 1991.

Hirschman, D., and Roth, R., *Case Studies of Local Water Resources Management in Virginia*, College of Architecture and Urban Studies, Virginia Tech, 1991.

Owens, W., and Hirschman, D., *Managing Water Resources at the Local Level: Regulatory and Non-Regulatory Programs*, College of Architecture and Urban Studies, Virginia Tech, 1991.

Hirschman, D. and Conn, D., *Recycling of Municipal Solid Waste: A Guidebook for Virginia Localities*, Virginia Tech, College of Architecture and Urban Studies, 1989

Hirschman, D. and Crate, S., *Citizens' Guide to Water Quality in North Carolina*, North Carolina Public Interest Research Group, 1985.

PANELS, BOARDS, AND ADVISORY GROUPS

Chesapeake Bay Stakeholder Advisory Group, 2014-present

City of Charlottesville, Water Resources Advisory Committee, Former Chair, 2013 -- Present.

City of Charlottesville, Parks & Recreation Advisory Board, Former Chair, 2011 – 2018.

City of Charlottesville Stormwater Utility Credit Committee, 2013.

State Stormwater Performance Standards, Expert Panel, Chesapeake Stormwater Network and Chesapeake Bay Program, 2012.

Regulatory Advisory Panel, Virginia Stormwater Regulations, Virginia Department of Conservation and Recreation, 2010 – 2011.

Urban BMP Chesapeake Bay TMDL Advisory Group, Virginia Department of Conservation and Recreation, 2010.

Stormwater Offset Workgroup, Virginia Department of Conservation and Recreation, 2008.

Rivanna River Basin Commission, Technical Advisory Group, 2007 – present.

Green Infrastructure Center, Board of Directors, 2010 – present.

Certified Municipal Separate Storm Sewer System Specialist Council, Enviro-Cert International, 2010 – present.

South River Science Team, Expert Panel, Virginia Department of Environmental Quality, DuPont, Inc., 2010 – present.

COMMUNITY ACTIVITIES

Vinegar Hill Toastmasters, club officer & member since 2005, including President

Charlottesville Track Club, Volunteer Coach for 10-miler Training Program

Brian's Hawaiians, band member

Live Arts Community Theatre, volunteer set builder

P'nai Yisrael Chavurah, volunteer service leader and musician