

**CHARLES L. DOW**

Stroud Water Research Center (SWRC)  
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**EXPERIENCE**Director of Information Services /Research Scientist

Stroud Water Research Center; July 2002 to present

Manage staff and resources related to Center-wide computing resources and data analysis\management. Conduct data analyses in cooperation with and provide GIS services for SWRC Scientists and outside colleagues/collaborators.

Project Coordinator/ Project Manager /Research Scientist

NY Watersheds Project - Stroud Water Research Center; May 2000 – Dec 2006

Coordinated/participated in field work, data analysis/management, report writing, and producing peer-reviewed publications for a multi-year, multi-discipline project focused on stream health and condition within New York City's drinking water-supply watersheds.

Research Scientist

The Pinelands Commission, New Lisbon, NJ; Sept 1996 - May 2000

Conducted environmental research, including field work, data analysis, results interpretation and presenting those analyses and results in reports and peer-review publications in support of the mission of the Pinelands Commission to protect and preserve the Pinelands National Preserve.

Graduate School: Research Assistant

Pennsylvania State University, University Park, PA  
June 1994 – Dec 1995; June 1996 - Aug 1996 (School of Forest Resources)  
Jan 1992 - May 1994 (U.S. EPA Long-Term Monitoring Project)  
Aug 1990 - Dec 1991 (Environmental Pollution Control Program)

Graduate School: Teaching Assistant

Pennsylvania State University, University Park, PA  
Jan 1996 to May 1996 (School of Forest Resources)

Laboratory Technician

E.I. Dupont de Nemours and Co., Agricultural Products Department,  
Stine-Haskell Research Center, Newark, DE; Oct 1988 – Aug 1990

**EDUCATION**

- Ph.D. Forest Resources, Pennsylvania State University - 1997  
Major: Forest Hydrology  
Minor: Statistics  
Dissertation: *Long-term trends in annual watershed evaporation and Bowen Ratio due to urbanization in the eastern United States.*
- M.S. Environmental Pollution Control, Pennsylvania State University - 1992  
Thesis: *Sulfur and nitrogen budgets on five forested Appalachian Plateau Basins.*
- B.S. Chemistry, DeSales University - 1988

**PUBLICATIONS**

- Ensign, S.H., D.B. Arscott, M. Daniels, **C. Dow**, J.K. Jackson, D. Oviedo-Vargas, and M. Peipoch. (2024). To achieve the Clean Water Act's goals, prioritize upstream ecology. *Water Resources IMPACT* 26(3): 19–21.
- Oviedo-Vargas, D., M. Peipoch, and **C. Dow**. (2022). Metabolism and soil water viscosity control diel patterns of nitrate and DOC in a low order temperate stream. *Journal of Geophysical Research: Biogeosciences* 127(5): e2021JG006640.
- Sweeney, B.W., A. Dunbar, **C.L. Dow**, and M.D. Daniels. (2019). Riparian and upland afforestation: improving success by excluding deer from small areas with low fencing. *Restoration Ecology* 27(6): 1220-1230.
- Bass, O., J. Bowers, P. Brown, **C. Dow**, et al. (2019). Return on environment: the economic value of protected open space in Chester County, Pennsylvania. Report to the Chester County Planning Commission, West Chester, Pennsylvania.
- Sweeney, B.W., and **C.L. Dow**. (2019). Riparian and upland afforestation: improving success by excluding deer from small areas with low fencing. *Natural Areas Journal* 39(1):90–107.
- Kan, J., S. Clingenpeel, **C.L. Dow**, T.R. McDermott, R.E. Macur, W.P. Inskeep, and K.H. Nealson. (2016). Geochemistry and mixing drive the spatial distribution of free-living Archaea and Bacteria in Yellowstone Lake. *Frontiers in Microbiology* 7(210):1-13.
- McAllister, S.M., J.M. Barnett, J.W. Heiss, A.J. Findlay, D.J. MacDonald, **C.L. Dow**, G.W. Luther III, H.A. Michael, and C.S.Chan. (2015). Dynamic hydrologic and biogeochemical processes drive microbially enhanced iron and sulfur cycling within the intertidal mixing zone of a beach aquifer. *Limnology and Oceanography* 60: 329-345.
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**Dow, C. L.** (2007). Assessing regional land-use/cover influences on New Jersey Pinelands streamflow through hydrograph analysis. *Hydrological Processes* 21: 185-197.

Arcsott, D. B., **C. L. Dow**, and B. W. Sweeney. (2006). Landscape template of New York City's drinking-water-supply watersheds. *J. of the North American Benthological Society* 25: 867-886.

**Dow, C. L.**, D. B. Arcsott, and J. D. Newbold. (2006). Relating major ions and nutrients to watershed conditions across a mixed-use, water-supply watershed. *J. of the North American Benthological Society* 25: 887-911.

Kaplan, L. A., J. D. Newbold, D. J. Van Horn, **C. L. Dow**, A. K. Aufdenkampe, and J. K. Jackson. (2006). Organic matter transport in New York City drinking-water-supply watersheds. *J. of the North American Benthological Society* 25: 912-927.

Aufdenkampe, A. K., D. B. Arcsott, **C. L. Dow**, and L. J. Standley. (2006). Molecular tracers of soot and sewage contamination in streams supplying New York City drinking water. *J. of the North American Benthological Society* 25: 928-953.

Kratzer, E. B., J. K. Jackson, D. B. Arcsott, A. K. Aufdenkampe, **C. L. Dow**, L. A. Kaplan, J. D. Newbold, and B. W. Sweeney. (2006). Macroinvertebrate distribution in relation to land use and water chemistry in New York City drinking-water-supply watersheds. *J. of the North American Benthological Society* 25: 954-976.

Newbold, J. D., T. L. Bott, L. A. Kaplan, **C. L. Dow**, L. A. Martin, D. J. Van Horn, and A. A. de Long. (2006). Uptake of nutrients and organic C in streams in New York City drinking-water-supply watersheds. *J. of the North American Benthological Society* 25: 998-1017.

Bott, T. L., D. S. Montgomery, J. D. Newbold, D. B. Arcsott, **C. L. Dow**, A. K. Aufdenkampe, J. K. Jackson, and L. A. Kaplan. (2006). Ecosystem metabolism in streams of the Catskill Mountains (Delaware and Hudson River watersheds) and Lower Hudson Valley. *J. of the North American Benthological Society* 25: 1018-1044.

Bott, T. L., D. S. Montgomery, D. B. Arcsott, and **C. L. Dow**. (2006). Primary productivity in receiving reservoirs: links to influent streams. *J. of the North American Benthological Society* 25: 1045-1061.

Sweeney, B. W., D. B. Arcsott, **C. L. Dow**, J. G. Blaine, A. K. Aufdenkampe, T. L. Bott, J. K. Jackson, L. A. Kaplan, and J. D. Newbold. (2006). Enhanced source-water monitoring for New York City: summary and perspective. *J. of the North American Benthological Society* 25: 1062-1067.

Zampella, R.A., **C.L. Dow**, and J.B. Bunnell. (2001). Using reference sites and simple linear regression to estimate long-term water levels in Coastal Plain streams. *J. of the American Water Resources Association*. 37(5): 1189-1201.

**Dow, C.L.** and D.R. DeWalle (2000). Trends in evaporation and Bowen Ratio on urbanizing watersheds in eastern United States. *Water Resources Research*. 36(7): 1835-1843.

**Dow, C.L.** and R.A. Zampella (2000). Specific conductance and pH as watershed disturbance indicators in streams of the New Jersey Pinelands, U.S.A. *Environmental Management*. 26(4): 437-445.

**Dow, C.L.** (1999). Detecting baseflow trends in Coastal Plain streams. *J. of the American Water Resources Association*. 35(2): 349-362.

**Dow, C.L.** and D.R. DeWalle (1997). Sulfur and nitrogen budgets for five forested Appalachian Plateau Basins. *Hydrological Processes*. 11: 801-816.

**Dow, C.L.**, D.R. DeWalle, J.A. Lynch, and W.E. Sharpe (1994). Blizzard's effects on Appalachian stream chemistry assessed. *EOS* 75(34): 389.

## CLIENT REPORTS

Contributor to the White Clay Creek State of the Watershed Report 2024. Data analysis/presentation & author for the section titled "Category 3: Water Quality". <https://whiteclay.org/state-of-the-watershed>

Jackson, J.K., **C.L. Dow**, M.J. Kurz, S.A. Kroll, D.H. Keller, and T.J. Maguire. 2022. Measuring the Impact of Protecting Forest on Water Quality and Stream Health: An Analysis of New and Historical Data from the Delaware River Watershed Initiative. Submitted to Open Space Institute, New York, NY.

Expert Report and Witness: Physical, Chemical, & Biological Connections between Ephemeral streams and downstream waters in West Virginia. Contract: U.S. Department of Justice Justice in the matter of Ron Foster et al. v. EPA et al., No. 2: 14-cv-16744 (S.D.W.V.). 2015-2017. Principal Investigators: D.B. Arscott, **C.L. Dow**

Sweeney, B.W., D.B. Arscott, **C.L. Dow**, A.K. Aufdenkampe, T.L. Bott, J.K. Jackson, L.A. Kaplan, J.D. Newbold. 2008. Water quality monitoring in the source areas for New York City: An integrative watershed approach. A final report on monitoring activities 2000-2005. Report – SWRC Contribution No. 2008006.

Sweeney, B.W., D.B. Arscott, **C.L. Dow**, A.K. Aufdenkampe, T.L. Bott, J.K. Jackson, L.A. Kaplan, J.D. Newbold. 2005. Water quality monitoring in the source areas for New York City: An integrative watershed approach. A report on year 5 monitoring activities (2004). Prepared by the Stroud Water Research Center for New York Department of Environmental Conservation. 27 October 2005. Report – SWRC Contribution No. 2005007.

Sweeney, B.W., D.B. Arscott, **C.L. Dow**, A.K. Aufdenkampe, T.L. Bott, J.K. Jackson, L.A. Kaplan, J.D. Newbold. 2004. Water quality monitoring in the source areas for New York City: An integrative watershed approach. A report on year 4 monitoring activities (2003). Prepared by the Stroud Water Research Center for New York Department of Environmental Conservation. 31 August 2004. Report – SWRC Contribution No. 2004009.

Sweeney, B.W., D.B. Arscott, **C.L. Dow**, A.K. Aufdenkampe, T.L. Bott, J.K. Jackson, L.A. Kaplan, J.D. Newbold. 2004. Water quality monitoring in the source areas for New York City: An integrative watershed approach. A report on Phase I of Monitoring (2000-2002). Prepared by the Stroud Water Research Center for New York Department of Environmental Conservation. 30 July 2004. Report – SWRC Contribution No. 2004008.

### **AWARDS; GRANTS & CONTRACTS**

Aquatic Informatics Ripple Effect Program awardee. Water data management software and professional services – complimentary access for non-profit and related organizations. <https://aquaticinformatics.com/about-aquatic-informatics/ripple-effect-donation-program/>. 2022.

Land Protection Impact Assessment in support of Delaware River Watershed Initiative. Funded by: Open Space Institute. Principal Investigators: J.K. Jackson and **C.L. Dow**. Collaborators: S.A. Kroll, M.J. Kurz, D. Keller, and L. Perez (Academy of Natural Sciences of Drexel University). 2020.

Quantifying and support Best Management Practice (BMP) installation and restoration at schools to contribute directly to Bay restoration goals. Funded by: Chesapeake Bay Trust. Agreement # CB96341401. \$69,900. Principal Investigator: S. Kerlin. Collaborators: D. Kline, **C.L. Dow**, T.K. Muenz, S. Ensign, and M.J. Ehrhart. 2019-2020.

Improving Infrastructure for Data Access, Storage and Recovery, and Network Communication at Stroud Water Research Center. Funded by: National Science Foundation. Grant # 1522479. \$54,745. Principal Investigators: D.B. Arscott, **C.L. Dow**. 2015-2016.

Long-Term Research in Environmental Biology (LTREB): Trajectory for the Recovery of Stream Ecosystem Structure and Function During Reforestation. Funded by: National Science Foundation DEB 1052716. Principal Investigators: B.W. Sweeney, A.K. Aufdenkampe, J.K. Jackson, J. Kan, and M. Daniels. Collaborators: J.D. Newbold, D.B. Arscott, **C.L. Dow**, S.E. Gill, L.A. Kaplan, and W.H. Eldridge. \$900,000. 2010-2020.

Christina River Basin Critical Zone Observatory (CRB-CZO): Quantifying Carbon Sequestration Resulting From Human-Induced Erosion. Funded by: National Science Foundation EAR 0724971 and 1331856. Principal Investigators: A.K. Aufdenkampe and L.A. Kaplan; J. Pizzuto and H. Michael (University of Delaware); K. Yoo (University of Minnesota). Collaborators: J. Kan, M.D. Daniels, D.B. Arscott, **C.L. Dow**, and S.E. Gill (Stroud Water Research Center); R. Aalto (University of Exeter, United Kingdom); L. Slater (Rutgers University); R. Vargas, C. Chan and D.L. Sparks (University of Delaware). 2010-2015.

### **PRESENTATIONS (post 2000, as presenter)**

Dow, C. 2019. Avoided Stormwater and Pollutant Runoff Resulting from Protected Open Space in Brandywine Creek. 2019 Stormwater Management Symposium, October 15, Villanova University, Villanova, PA.

Dow, C. 2019. Analysis of Avoided Stormwater Impacts and Costs from Open Space Protection in the Brandywine Creek Watershed – Return on Environment. 2019 Chester County Municipal Stormwater Summit, September 20, Coatesville, PA.

Dow, C.L., A.K. Aufdenkampe, L.G. Carter, D.B. Arscott. 2007. Molecular tracers (fecal steroids) signatures of end-member sources of potential contamination to NY streams. NYC Watershed Science and Technical Conference, September 10-11, West Point NY.

Dow, C.L., A.K. Aufdenkampe. 2006. Using SAS to improve the quantification of environmental chemistry samples. Talk at the North East SAS User's Group (NESUG) Annual Meeting, September 17-20, Philadelphia, PA.

Dow, C.L., A.K. Aufdenkampe, T.L. Bott, J.K. Jackson, L.A. Kaplan, J.D. Newbold, B.W. Sweeney. 2003. Enhanced monitoring in source watersheds for NYC drinking water: Relating stream/reservoir health and function to watershed conditions. NYC Watershed Science and Technical Conference, September 11-12, Kingston NY.

Dow, C.L., D.B. Arscott, A. K. Aufdenkampe, T.L. Bott, L.G. Carter, J.K. Jackson, L.A. Kaplan, J.D. Newbold, and B.W. Sweeney. 2006. Enhanced monitoring effort in New York City's drinking-water-supply watershed. Annual Conference of the North American Benthological Society. Anchorage, AK, USA.

Dow, C.L., T.L. Bott, J.J. Jackson, L.A. Kaplan, J.D. Newbold, B.W. Sweeney, and T.T. Truong. 2003. Assessing stream ecosystem health and functioning through a multi-parameter monitoring approach. AWRA 2003 International Congress on Watershed Management for Water Supply Systems. June 29-July 2, New York City, NY

Dow, C.L. 2003. Watershed Controls on Stream Ecosystem Conditions. Penn State School of Forest Resources, Issues Conference. March 25-26, Pennsylvania State University, University Park, PA, USA.

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Dow, C.L., J.K. Jackson, L.A. Kaplan, J.D. Newbold, L.J. Standley, and B. W. Sweeney. 2002. Importance of both redundancy and specificity in water-quality monitoring projects: Initial results from baseflow monitoring in watersheds that supply New York City with drinking water. Annual Conference of the North American Benthological Society. Pittsburgh, PA, USA.

### **PRIMARY SOFTWARE USED**

SAS (including Base, STAT, Graph)  
ArcGIS Pro (as of 2024; have been using ESRI GIS software since mid 1990s)  
ArcGIS Online; ArcGIS Survey123  
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### **PROFESSIONAL AFFILIATIONS**

American Water Resources Association

### **REVIEWER**

Journal of the American Water Resources Association  
Environmental Monitoring and Assessment  
Journal of Environmental Management  
Freshwater Science (formerly Journal of the North American Benthological Society)  
Journal of Coastal Research