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ALLEN P. DAVIS
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Allen P. Davis has been working on water quality issues at the University of Maryland for 33 years. His research area is examining interactions and fates of inorganic pollutants in natural and engineered aquatic systems. For nearly three decades, he has been investigating sources and treatment of pollutants in urban stormwater runoff with a focus on bioretention and related passive, nature-based technologies.

EXPERIENCE:

Charles A. Irish, Sr. Chair of Civil Engg.	Department of Civil and Environmental Engineering, University of Maryland (August 2016 - Present).
Professor	Department of Civil and Environmental Engineering, University of Maryland (August 2000 - Present).
Affiliate Professor	Department of Plant Science and Landscape Architecture, University of Maryland (November 2018 - Present).
Director	Maryland Water Resources Research Center (August 2001 – June 2010).
Visiting Scientist	Animal and Natural Resources Institute, Agricultural Research Service, USDA, Beltsville, MD (August 2001 – Jan. 2002).
Assistant/Associate Professor	Department of Civil Engineering, University of Maryland (August 1989 – August 1994; August 1994 – August 2000).

EDUCATION:

Ph.D.	Department of Civil Engineering, University of Delaware. August 1989. Major: Environmental Engineering.
M.C.E.	Department of Civil Engineering, University of Delaware. August 1986. Major: Environmental Engineering.
B.S.	Magna Cum Laude, University of Delaware. June 1984. Major: Agricultural Engineering; Minor: Civil Engineering.

REGISTRATION & PROFESSIONAL AFFILIATIONS:

Professional Engineer, (Environmental Engineering), State of Maryland, No. 21143.
American Society of Civil Engineers, elected to Fellow grade, 2006
Diplomate, Water Resources Engineer (D.WRE) of the American Academy of Water Resources Engineers.
Environmental & Water Resources Institute, ASCE, elected to Fellow grade, 2015

AWARDS & HONORS:

2022 University of Maryland Distinguished Scholar-Teacher. "This award honors senior tenured members of the faculty who combine outstanding scholarly accomplishment with excellence in teaching and personify our image of the professoriate."

2010 A. James Clark School of Engineering Faculty Outstanding Research Award, recognizing exceptionally influential research accomplishments related to urban storm water quality, its management, and the concept of Low Impact Development.

SYNERGISTIC ACTIVITIES:

Editor, ASCE *Journal of Sustainable Water in the Built Environment*, 2014-present (Inaugural Editor).

Chair, National Academies of Science, Engineering, and Medicine study on *Improving the Next-Generation EPA Multi-Sector General Permit for Industrial Stormwater Discharges*, 2017-2019.

National Research Council Committee Member for Review of EPA's Economic Analysis of Final Water Quality Standards for Nutrients for Lakes and Flowing Waters in Florida, 2011-2012

Appointed by Governor of Maryland to the *BayStat Program Scientific Advisory Panel*. The Program evaluates the State's efforts to restore the Chesapeake and Coastal Bays, 2008-present.

Director, *Maryland Water Resources Research Center*, directs federal appropriation for individual research projects, educational programs, and outreach initiatives important to the State, 2001-10.

FUNDED RESEARCH:

Funded research from agencies including the National Science Foundation, U.S. EPA, Strategic Environmental Research and Development Program (SERDP), Cooperative Institute for Coastal and Estuarine Environmental Technologies (a NOAA-supported Center), U.S. Department of Agriculture, Transportation Research Board-NCHRP, Maryland Water Resources Research Center, Maryland DOT - State Highway Administration, Maryland Department of Natural Resources, Maryland Industrial Partnerships, other state DOTs, local governments and agencies, and local industries and firms.

BOOK

1. Davis, A.P., Hunt, W.F., and Traver, R.G. *Green Stormwater Infrastructure: Fundamentals and Design*, Wiley. ISBN 978-1-118-59019-5, 528 pages (2022).

RECENT PUBLICATIONS (of 144 Refereed Publications)

Total Google Scholar Citations = 15,300, h-index = 58

1. Igielski, S., Kjellerup, B.V. and Davis, A.P. "Understanding Urban Stormwater Denitrification in Bioretention Internal Water Storage Zones." *Water Environment Research,* **91,** 32-44 (2019).
2. Ostrom, T, Aydilek, A., and Davis, A.P. "High-Flow Structural Media for Removing Stormwater Dissolved Phosphorus in Permeable Paving," *J. Sustainable Water Built Environ.,* **5**(2), 04019001 (2019). DOI 10.1061/JSWBAY.0000877.
3. Li, L., Yang, J., Davis, A.P., and Liu, Y. "Dissolved Inorganic Nitrogen Behavior and Fate in Bioretention Systems: The Role of Vegetation and Saturated Zones," *J. Environ. Engg.,* **145**(11), 04019074 (2019). DOI 10.1061/(ASCE)EE.1943-7870.0001587
4. Cao, S., Capozzi, S.L., Kjellerup, B.V. and Davis, A.P. "Polychlorinated Biphenyls in Stormwater Sediments: Relationships with Land Use and Particle Characteristics." *Water Research,* **163** 114865 (2019). DOI 10.1016/j.watres.2019.114865
5. Ostrom, T, and Davis, A.P. "Evaluation of an Enhanced Treatment Media and Permeable Pavement Base to Remove Stormwater Nitrogen, Phosphorus, and Metals under Simulated Rainfall Events," *Water Research,* **166** 115071 (2019). DOI 10.1016/j.watres.2019.115071
6. Muerdter, C. Smith, D., and Davis, A.P. "Impact of Vegetation Selection on Nitrogen and Phosphorus Processing in Bioretention Containers." *Water Environment Research,* **92** 236-244 (2020). DOI: 10.1002/wer.1195

7. Mangum, K.R., Yan, Q., Ostrom, T.K., and Davis, A.P. "Nutrient Leaching from Green Waste Compost Addition to Stormwater Submerged Gravel Wetland Mesocosms," *J. Environ. Engg.,* **146**(3), 04019128 (2020). DOI: 10.1061/(ASCE)EE.1943-7870.0001652
8. McManus, M. and Davis, A.P. "Impact of Periodic High Concentrations of Salt on Bioretention Water Quality Performance," *J. Sustainable Water Built Environ.,* **6**(4), 04020014 (2020). DOI: 10.1061/JSWBAY.0000922.
9. Owen, D.C., Bensi, M.T., Davis, A.P., and Aydilek, A.H. "Measuring Soil Coverage using Image Feature Descriptors and the Decision Tree Learning Algorithm," *Biosystems Engg.,* **196**, 112-126 (2020). DOI: 10.1016/j.biosystemseng.2020.06.002
10. Mohtadi, M., James, B.R., and Davis, A.P. "Activated Carbon Column Adsorption of Compounds that Mimic Urban Stormwater Dissolved Organic Nitrogen." *Water Environment Research,* **93**, 241-253 (2021) DOI: 10.1002/wer.1396
11. Huffert, M., Davis, A.P., and Aydilek, A.H. "Soluble Salts Reduction and Metals Behavior of Dredged Sediment for Reuse in Highway Slope Applications," *J. Geotech, and Geoenvironmental Engg.,* **147,** 04021014 (2021). DOI: 10.1061/(ASCE)GT.1943-5606.0002493
12. Owen, D.C., Davis, A.P., and Aydilek, A.H. "Compost for Permanent Vegetation Establishment and Erosion Control along Highway Embankments," *J. Irrigation and Drainage Engg.,* **147,** 04021031 (2021). DOI: 10.1061/(ASCE)IR.1943-4774.0001587
13. Vijayaraghavan, K., Biswal, B.K., Adam, M.G., Soh, S.H., Tsen-Tieng, D.L., Davis, A.P., Hoe, C.S., Yok, T.P., Babovic, V., and Balasubramanian, R. "Bioretention Systems for Stormwater Management: Recent Advances and Future Prospects," *J. Environ. Management.,* **292,** 112766 (2021). DOI: 10.1080/07388551.2021.1969888
14. Khorsha, G., Kjellerup, B.V. and Davis, A.P. "Characterizing Laboratory-Scale Clinoptilolite bio-columns for Removal and Nitrification of Ammoniacal Nitrogen in Simulated Stormwater," *Water Environment Research,* ***93,*** 2169–2184 (2021). DOI: 10.1002/wer.1589
15. Biswal, B.K., Vijayaraghavan, K., Adam, M.G., Tsen-Tieng, D.L., Davis, A.P., and Balasubramanian, R. "Biological Nitrogen Removal from Stormwater in Bioretention Cells: A Critical Review," *Critical Reviews in Biotechnology* (2021) DOI: 10.1080/07388551.2021.1969888
16. Huang, L, Luo, J., Li., L., Jiang, H., Sun, X., Yang, J., She, W., Liu, W., Li, L., and Davis, A.P. "Unconventional microbial mechanisms for the key factors influencing inorganic nitrogen removal in stormwater bioretention columns," *Water Research,* **209**(1) 117895 (2021). DOI: 10.1016/j.watres.2021.117895
17. Pamuru, S.T., Forgione, E., Croft, K., Kjellerup, B.V., and Davis, A.P. "Chemical characterization of urban stormwater: Traditional and emerging contaminants." *Science of The Total Environment*, 151887 (2022). DOI: 10.1016/j.scitotenv.2021.151887
18. Owen, D.C., Davis, A.P., and Aydilek, A.H. "Effects of Straw Mulching, Compost Percent, and Slope Ratio on Green Vegetation Establishment and Runoff Quality Control," *J. Irrigation and Drainage Engg.,* **148,** 04021067 (2022). DOI:10.1061/(ASCE)IR.1943-4774.0001641
19. Cao, S., Davis, A.P., Kjellerup, B, "Presence of Bacteria Capable of PCB Biotransformation in Stormwater Bioretention Cells," *FEMS Microbiology Ecology*, **97**(12), fiab159, (2022). DOI: 10.1093/femsec/fiab159
20. Mohtadi, M., James, B.R., Krasnoff, G. and Davis, A.P. "Removal of Stormwater Dissolved Organic Nitrogen through Biotransformation using Activated Carbon." *Water Environment Research,* ***94***(3), e10703 (2022) DOI: 10.1002/wer.10703.
21. Kaya, D., Croft, K, Pamuru, S.T., Yuan, C., Davis, A.P., and Kjellerup, B.V. "Considerations for evaluating innovative stormwater treatment media for removal of dissolved contaminants of concern with focus on biochar," *Chemosphere*, **307**(4), 135753 (2022). DOI: 10.1016/j.chemosphere.2022.135753