
Profile**Which Boards would you like to apply for?**

Wake County Water Partnership: Submitted

Please select your first Board preference: *

☒ Water Partnership**Please select your second Board preference: ***

☒ None Selected**Please select your third Board preference: ***

☒ None Selected**Please select your fourth Board preference: ***

☒ None Selected**Please select your fifth Board preference: ***

☒ None Selected**Please select your sixth Board preference: ***

☒ None Selected

Michael

First Name

R

Middle Initial

Burchell II

Last Name

Box 7625

Street Address

DS Weaver Labs - NC State
University

Suite or Apt

Raleigh

City

NC

State

27695

Postal Code

What district do you live in?

None Selected

Home: (919) 215-8643

Primary Phone

Business: (919) 513-7348

Alternate Phone

mike_burchell@ncsu.edu

Email Address

NC State University

Employer

Professor

Job Title

If you live in an Extraterritorial Jurisdiction Area, select Yes:

☐ Yes ☒ No

In order to assure countywide representation, please indicate your place of residence:

None Selected

Interests & Experiences

Why are you interested in serving on a Board or Commission?

To serve Wake County, home to NC State University, by providing research and outreach expertise in both water quality and water quantity.

Work Experience

Faculty - NC State University 2003 - Present. Research, teaching and extension in the areas of water resources and ecological engineering. Leading the development of the first ever faculty-driven Water Collaborative initiative at the University.

Volunteer Experience

As indicated on my CV, I have served and currently serve on multiple state and local scientific advisory committees.

Education

BS - Biology - NC State University MS - Civil Engineering - University of Mississippi PhD - Biological and Agricultural Engineering - NC State University

Comments

Applying to fill the academic seat that will be vacated by Dr. Garey Fox.

[BurchellCV_Dec2020.pdf](#)

Upload a Resume

If you have another document you would like to attach to your application, you may upload it below:

Please upload a file

Demographics



Date of Birth

Gender *

☒ Male

Ethnicity *

☒ Caucasian

Other

How did you become aware of Wake County volunteer opportunities?

☒ Other

If you selected "Other" above, how?

Recommended by current board member

Please upload a file

ETHICS GUIDELINES FOR COUNTY ADVISORY BOARDS AND COMMISSIONS

ETHICS GUIDELINES FOR COUNTY ADVISORY BOARDS AND COMMISSIONS

By submitting this electronic application, if appointed, I pledge by my signature below that I have read and will comply with the ethics guidelines for advisory boards and commissions as adopted by the Wake County Board of Commissioners which are found at the link below.

<http://www.wakegov.com/commissions/Documents/CodeofEthics.pdf>

Michael R. Burchell II, Ph.D.
Department of Biological and Agricultural Engineering
North Carolina State University
Raleigh, NC 27695-7625
E-mail: mike_burchell@ncsu.edu
Website: <http://www.bae.ncsu.edu/people/faculty/mrburche/>

Education:

2003: Ph.D. Biological and Agricultural Engineering - N.C. State University
Dissertation title – *Practices to reduce nitrate-nitrogen losses from drained agricultural lands* – under the direction of Dr. R. Wayne Skaggs
1996: M.S. Civil Engineering - University of Mississippi
1992: B.S. Biological Sciences - N.C. State University

Professional experience:

July 2019-present: Professor and Department Extension Leader, Department of Biological and Agricultural Engineering, N.C. State University.
July 2014-June 2019: Associate Professor and Department Extension Leader, Department of Biological and Agricultural Engineering, N.C. State University
July 2013-June 2014: Associate Professor and Extension Specialist, Department of Biological and Agricultural Engineering, N.C. State University
July 2007-June 2013: Assistant Professor and Extension Specialist, Department of Biological and Agricultural Engineering, N.C. State University
May 2003-July 2007: Extension Assistant Professor, Department of Biological and Agricultural Engineering, N.C. State University
August 1997-May 2003: Research Assistant, Department of Biological and Agricultural Engineering, N.C. State University
April 1993-August 1997: Environmental Engineering Contractor, U.S. Army Corps of Engineers Engineering Research and Development Center.

Membership in professional organizations:

American Society of Agricultural and Biological Engineers (ASABE), 2001-present
Society of Wetland Scientists (SWS), 2005- present
American Ecological Engineering Society (AEES), 2009-present
Soil Science Society of America (SSSA), 2003-2008

Scholarly and professional honors:

Food Systems Leadership Institute Fellow, 2017-2019
N.C. Soil and Water Conservation Society – Hugh Hammond Bennett Chapter - Professional Achievement in Water Quality, 2014
NCSU Nancy G. Pollock Dissertation Award, 2003
Gamma Sigma Delta Honor Society, 1999
Phi Kappa Phi Honor Society, 1999
USDA National Needs Fellowship, 1997-2000

Professional service on campus:*Leadership positions*

Department Extension Leader, July 2014-Present

Lead PI – A New Focused CALS Water Program – Deans Big Idea Fund, February 2018-present

Interim Director, NC State Marine Aquaculture Research Center, Jan. 2015- Dec. 2016

Other service

Provost's Coastal Resiliency and Sustainability Leadership Group – 2019-present

Co-Chair, CALS Stewards of the Future: Water for a Growing World, 2015

CALS Committee on Improving College Innovation and Efficiency (CIEC), 2015

Environmental Sciences Faculty Membership, 2015 – present

Water Resources Graduate Faculty Membership, 2015-present

CALS Big Ideas Committee, 2014

CALS Faculty Advisory Committee to the Dean, 2010

Full Graduate Faculty Membership 2009-Present

Junior, Senior, and Past Adviser – BAE Student Branch of ASABE, Fall 2009 – Spring 2015

Faculty Adviser – NC State Rugby Football Club, 2011-2013

BAE Departmental Committees:

Post Tenure Review (PTR) committee 2019 - 2022

Chair, Public Relations and Recruitment, 2017 - present

Co-Chair, Recruitment and Placement Committee 2009 – 2017

Executive Committee, 2014-present

Scholarship Committee, 2009

Web Oversight Committee, 2009

Curriculum and Course Committee, 2007-2009

Research Committee, 2004-2007

Social Committee, 2004-2005

Awards Committee, 2003

Departmental Ad hoc Committees (5+)

Faculty Search Committees (4)

University trainings attended

Workplace Violence and Prevention Training, 2016

Fostering Inclusivity, 2016

FLSA Training for Employees and Supervisors, 2016

Title IX, 2015

KABA HR Time Collection System Training, 2014

Professional service off campus:

Vice-President and President elect – American Ecological Engineering Society June 2020 - present

NC DEQ – Division of Water Resources Nutrient Scientific Advisory Board, Fall 2017-present

City of Raleigh Technical Advisory Committee - Growth and Natural Resources - 2019

Governors Executive Order 80 - Natural and Working Lands Workgroup (Pocosin Subgroup), 2019

Chair, 2019 AEES Annual Meeting Planning Committee (Hosted by NC State BAE)

Organizer, Natural and Constructed Wetlands. Society of Freshwater Science Annual Meeting, June 2017.

SERA-43: Southern Region Integrated Water Resources Coordinating Committee, 2014 - present

NC DENR - Wetlands Program Plan (WPP) Development Stakeholder Committee

NOAA Sentinel Site working group
 NC DENR Ecosystem Enhancement Program, Advisory Board for Wetland Hydrology, 2012
 Session developer, organizer and moderator – BE-7 “Wetlands Engineering” and BE-12 “Wetlands Engineering and Restoration” for the ASABE-AIM, 2007 – 2011.
 Workshop (lead organizer and tour leader) – Wetlands Engineering. 2011 AEES Meeting
 ASABE Ecological Engineering committee, 2007 - present
 Stewardship Development Program (Raleigh (2010), Wilmington (2006-2007))
 Referee for *Journal of Environmental Quality*; *Ecological Engineering*; *Transactions of the ASABE*; *Applied Engineering in Agriculture*; *Journal of Hydrological Engineering*; *Water, Air, and Soil Pollution*; *Water, Science and Technology*.
 N.C. Envirothon Program (2005)

Public Service and Applied Research Grants:

Summary: 40 Total funded projects
 Amount awarded as Lead PI - \$3,044,107
 Additional amount awarded as PI - \$1,152,954
 Total amount awarded as Lead PI or PI - \$3,986,984
 Total amount pending as Lead PI or PI - \$269,200

Note: Lead PI - indicates leading/responsible investigator that lead the proposal writing effort and is the primary party responsible for the grant. PI – indicates a role in proposal writing, major role in the grant, and is routinely active. Co-PI – indicates a supporting role in the grant, but actively involved. Collaborator – indicates an advisory or supporting role

40. **Burchell, M.R.** and N. Nelson. North Carolina Volunteer Wetland Monitoring Pilot Program. US Environmental Protection Agency. \$210,077. 10/1/19 – 9/30/21. **Role: Lead PI**
39. **Burchell, M.R.** A Feasibility Study to Examine Expansion of Infiltration Systems to Reduce Direct Ocean Stormwater Discharge. Town of Kure Beach (Prime--NC Clean Water Management Trust Fund). \$13,500. 12/17/2018-05/31/2019. **Role: Lead PI**
38. **Burchell, M.R.** Detritus Removal and Enhanced Aeration to Improve Water Quality Treatment and Extend the Useful Life of Constructed Wetlands in NC. NC Water Resources Research Institute and NC Sea Grant Community Collaborative Research Grant Program. \$15,000. 04/01/2019-03/31/2020. **Role: Lead PI**
37. Vepraskas, M.J., S.W. Broome, and **M.R. Burchell**. Developing and Testing Wetland Hydrology Performance Criteria for Restoration Sites. US Environmental Protection Agency. \$249,619. 10/15/18 – 10/14/20. **Role: PI**
36. **Burchell, M.R.**, T. Aziz, and F.P. Birgand. Improving Performance and Examining Expansion of Constructed Wetlands for Tertiary Treatment of Nitrogen from Domestic and Municipal Wastewater. \$120,000. NCSU Water Resources Research Institute. 6/1/2018 - 5/29/2020. **Role: Lead PI**
35. **Burchell, M.R.** Monitoring Water Quality Improvements and Volume Capture of 50 acre Wetland Cell. \$7,700. North Carolina Coastal Federation. 3/1/2017 - 9/28/2018. **Role: Lead PI**
34. **Burchell, M.R.** Field Testing of Mesocosm-Scale Derived Nitrate Removal Models to Verify Water Quality Improvement Potential of Restored Coastal Forested Wetlands. \$10,000. NCSU Water Resources Research Institute. 9/1/2016 - 12/31/2018. **Role: Lead PI**
33. **Burchell, M.R.**, R.O. Evans and D.E. Line. Efficacy of Linear Wetlands to Treat Agricultural Drainage Water in the Little River Watershed. \$9,000. Albemarle Resource Conservation and Development Council. (Prime - US EPA 319 Program). 3/1/2016 - 12/31/2018. **Role: Lead PI**

32. **Burchell, M.R.**, R.O. Evans and D.E. Line. In-stream Wetlands as Part of the Little River Watershed Restoration Project. \$18,000. Albemarle Resource Conservation and Development Council (Prime – NC Clean Water Management Trust Fund). 1/1/2016 - 8/31/2018. **Role: Lead PI**
31. Poole, C, M. Youssef, and **M. R. Burchell**. Development and Promotion of Drainage Water Management Systems Adapted To Maximize Crop Production In Response To Climate Variability. \$149,960. US Dept. of Agriculture (USDA) - National Institute of Food and Agriculture. 1/1/2016 - 9/30/2018. **Role: PI**
30. **Burchell, M.R.**, T.W. Thompson, S.W. Broome, L.A. Krometis and B. Badgley. Constructed Wetlands to Polish Wastewater in Small Rural Communities - Evaluation of Current and Potential Use to Improve Water Quality Trends and Protect Human Health. \$5,000. VT/NC State Regional Collaborative Proposal Planning and Development Grants. 7/1/2015 – 6/30/2016. **Role: Lead PI**
29. **Burchell, M.R.**, K. Hall, R.O. Evans, G. Roberson, and S.W. Broome. Comprehensive Wetland Monitoring Network and Spatial Database for North Carolina's Coastal Plain and Piedmont Regions. \$397,377. US Environmental Protection Agency (EPA). 10/1/2014 - 3/31/2019. **Role: Lead PI**
28. **Burchell, M.R.**, K.L. Bass and J. D. Blackwell. Eden Area Watershed Modeling Project \$28,000.00 Piedmont Triad Regional Council. (Prime--Clean Water Management Trust Fund) 05/01/2013 - 11/30/2014. **Role: Lead PI**
27. **Burchell, M.R.**, K.L. Bass , K. Hall, and J. D. Blackwell. Wetland Restoration at Great Dismal Swamp State Park. \$31,285. NC Department of Environment & Natural Resources (DENR) (Prime--US Fish & Wildlife Service). 01/01/2013 - 2/01/2017. **Role: Lead PI**
26. **Burchell, M.R.**, F. Birgand, and S.W. Broome. A Mesocosm Study to Determine Nitrogen Assimilation Capacity of a Restored Wetland Slated to Receive Pumped Drainage Water - a Critical Component to Maximize Improvement to the Pamlico Sound. \$29,914.00. NCSU Water Resources Research Institute. 03/01/2013 - 02/28/2016. **Role: Lead PI**
25. **Burchell, M.R.** Predicting Water Quality Impacts of Rerouting Drainage Water from the Pamlico Sound to Restored Wetlands. \$19,814. NCSU Sea Grant Program. 09/01/2012 – 08/31/2014. **Role: Lead PI**
24. Youssef, M., R.W. Skaggs, G.M. Chescheir, R.O. Evans, and **M.R. Burchell**. Development, Evaluation, and Demonstration of Simple Tools for Nitrogen Credit Trading System Involving Drainage Water Management. \$169,792. U.S. Department of Agriculture. 09/21/2012 – 06/30/2015. **Role: Co-PI**
23. **Burchell, M.R.** and G.D. Jennings. Testing and Evaluating a Study Design Developed to Assess the Success of Compensatory Mitigation Projects. Environmental Law Institute, Washington, D.C. \$39,854. 05/01/2012 – 08/31/2013. **Role: Lead PI**
22. **Burchell, M.R.**, F.P. Birgand, and S.W. Broome. Carbon Sequestration and Greenhouse Gas Emissions in Restored Salt Marshes. \$60,000. U.S. Geological Survey. 08/01/2011 – 01/31/2014. **Role: Lead PI**
21. Chescheir, G.M., **M. R. Burchell**, M. Youssef, K.L. Bass. Hydrologic Analysis of Mattamuskeet Drainage District to Develop and Evaluate a Watershed Restoration Plan. \$27,000. N.C. Coastal Federation. 01/01/2011 – 12/31/2012. **Role: Co-PI**
20. **Burchell, M.R.**, G.M. Chescheir, K.L. Bass, M. Youssef, F. Birgand, and R.O. Evans. Design and Implementation of an Innovative Integrated Water Management System in Hyde Co., NC. \$108,934. N.C. Coastal Federation. 02/01/2011-6/30/2019. **Role: Lead PI**
19. Birgand, F.P., **M. R. Burchell**, C.L. Osburn. Quantification of Nutrient and Organic Matter Fluxes in a Restored Tidal Marsh. NCSU Sea Grant Program. \$20,000. 04/15/2011 - 09/30/2012. **Role: PI**
18. Jennings, G. and **M.R. Burchell**. Selected Production of Stream and Wetland Restoration Related Work, and Maintenance of Sites Identified and Managed Under the EEP. \$300,000. NCDENR. 07/22/2009 – 06/30/2012. ***Note:** this grant was only partially funded for work by the Lead PI –

Dr. Greg Jennings. Additional work by Burchell was never requested task orders, so is not counted towards total funding amount. **Role: Co-PI**

17. **Burchell, M.R.**, W.F. Hunt, and K.L. Bass. Stormwater BMPs and LID Measures to Protect Coastal Waters Near Eagle Point Golf Club. \$24,000. New Hanover County Planning Department. 12/01/2008-01/31/2010. **Role: Lead PI**
16. Birgand, F. and **M.R. Burchell**. Quantification of In-stream Water Quality Benefits of a Restored Coastal Marsh. \$166,170. N.C. Department of Environment and Natural Resources – U.S. EPA 319 Program. 04/2010 – 12/31/2012. **Role: PI**
15. **Burchell, M.R.**, W.F. Hunt, G.M. Chescheir, and A. Graves. Long-term Water Quality Performance of a Coastal Infiltration System. \$118,775. N.C. Department of Transportation. 08/16/2009 – 06/30/2011. **Role: Lead PI**
14. Turano, M., T. Losordo, J. Morris, and **M.R. Burchell**. Growout of Red Porgy, *Pagrus pagrus*, at three densities in a recirculating aquaculture system. \$88,000. N.C. Agricultural Foundation. 09/01/2009 – 08/31/2011. Not listed in RADAR. **Role: Co-PI**
13. **Burchell, M.R.**, G.M. Chescheir, M. Youssef, F. Birgand, R.O. Evans, and K.L. Bass. Hydrologic Impacts of Re-routing Drainage Water through a Historical Restored Wetland. \$55,075. N.C. Coastal Federation. 09/15/2008 – 07/31/2012. **Role: Lead PI**
12. **Burchell, M.R.**, W.F. Hunt, and G.M. Chescheir. Reducing Stormwater Flows and Pollution from Ocean Outfalls at Kure Beach, NC Using Dune Infiltration Systems. \$129,475. N.C. Department of Transportation. 08/16/2008-05/15/2010. **Role: Lead PI**
11. **Burchell, M.R.**, D. Osmond, C. Moorman, D. Line, M. Youssef, O. Duckworth, R. Huffman, J. Spooner, D. Penrose, G. Grabow, and K. Hall. Conservation Reserve Enhancement Program (CREP) Riparian Buffer Monitoring. \$697,002. N.C. Department of Environment and Natural Resources. 04/01/2008-08/31/2011. A new contract was executed that extended the remaining funds in grant #2 and added additional \$252,550 in new funding. **Role: Lead PI**
10. Hunt, W.F., J.D. Wright, **M.R. Burchell**, K.L. Bass, and R.A. Smith. LID Feasibility, Design, and Implementation at Cape Lookout National Seashore. \$45,484. North Carolina Coastal Federation. 08/01/2007-11/30/2008. **Role: PI (for Manteo, N.C. project portion)**
9. **Burchell, M.R.** and W.F. Hunt. Kure Beach Dune Infiltration System. \$42,322. NCSU Water Resources Research Institute. 03/01/2007-08/31/2008. **Role: Lead PI**
8. Evans, R.O., G. Grabow, **M.R. Burchell**, K.L. Bass, and C.A. Perrin. Design and Evaluation of Channelized Stream Restoration Alternatives in the Crisp Creek Watershed. \$266,724. NCDENR – Ecosystem Enhancement Program. 07/15/2006-12/31/2008. **Role: PI**
7. **Burchell, M.R.** W.F. Hunt III, and J.T. Smith. Kure Beach Dune Infiltration Unit. \$98,455. N.C. Department of Transportation. 05/02/2005 – 02/28/2007. **Role: Lead PI**
6. Evans, R.O., K.L. Bass, and **M.R. Burchell**. Monitoring of water quality impacts of controlled drainage, stream and wetlands restoration in the Core Creek watershed. \$20,000. Craven County, N.C. (from N.C. Clean Water Management Trust Fund). 11/01/2004-10/31/2005.
Role: Collaborator
5. Perrin, C.A., W.F. Hunt, and **M.R. Burchell**. Restoring the Burnt Mill Creek Watershed through Stormwater Management and Community Involvement. \$608,014 (\$465,544 to BAE). N.C. Department of Environment and Natural Resources – U.S. EPA 319 Program. 11/01/2004-10/31/2008. **Role: Co-PI**
4. Hunt, W.F. and **M.R. Burchell**. Implementation and Monitoring of Two Priority Stormwater Best Management Practice (BMP) Projects for the New Hanover County, NC Local Watershed Plan. \$54,997. New Hanover County, N.C. (through U.S. EPA). 02/04/2004 – 11/30/2006. **Role: PI**
3. Evans, R.O., Bass, K.L. and **M.R. Burchell**. Design Services for Core Creek Stream and Riparian Wetland BMPs. \$26,630. Craven County, N.C. 09/15/2003 – 06/30/2004.
Role: Collaborator

2. **Burchell, M.R.**, D. Line, D. Osmond, R.O. Evans, J. Parsons, J.W. Gilliam, G. Grabow, J. Spooner, C. Moorman, and K. Hall. Conservation Reserve Enhancement Program (CREP) Environmental Monitoring. \$1,200,000. N.C. Department of Environment and Natural Resources. 01/01/2004 – 12/31/2007. **Role: Lead PI**
1. Grabow, G., R.O. Evans., T.H. Shear, S.W. Broome, M. Vepraskas, G. Jennings and **M.R. Burchell**. North River Wetlands Restoration – Phase I. \$1,121,026. (\$604,232 to BAE) NC Wetlands Restoration Program (WRP). 08/01/2002 – 06/30/2009. Led day-to day operations from May 2003. Led proposal writing that added \$200,000 in new funding to the original amount of \$921,026. **Role - PI (added post-award)**

Publications:

Peer-reviewed Extension Publications

8. **Burchell, M.R.** and W.F. Hunt. 2019. Natural and constructed wetlands in North Carolina: An overview for citizens. North Carolina Cooperative Extension Publication AG-856. 9 pp.
7. Poole, C., **M.R. Burchell**, and M. Youssef. 2018. Controlled Drainage – an important practice to protect water quality that can enhance crop yields. NC Cooperative Extension Publication AG-851.
6. Hartup, W., M. Woodward, W. Lord, **M.R. Burchell** and B. Doll. 2018. Options for backyard stream repair. North Carolina Cooperative Extension Publication AG-846. 8 pp.
5. Osmond, D.L and **M.R. Burchell**. 2017. Agricultural riparian buffers. North Carolina Cooperative Extension Publication AG -439-38. 7 pp.
4. **Burchell, M.R.**, W.F. Hunt, and W.D. Price. 2013. Dune infiltration systems for reducing stormwater discharge to coastal recreational beaches. North Carolina Cooperative Extension Publication AG-781. 8 pp.
3. Bass, K.L., **M.R. Burchell** (Corresponding author), R.O. Evans, W.F. Hunt, D. Line, and D. Seth-Carley. 2012. Stormwater wetlands for golf courses. North Carolina Cooperative Extension Publication AG-765. 7 pp.
2. **Burchell, M.R.**, W.F. Hunt, K.L. Bass, and J.D. Wright. 2010. Stormwater wetlands construction guidance. North Carolina Cooperative Extension Publication AGW-588-13. 12 pp.
1. Hunt III, W.F., **M. R. Burchell**, J.D. Wright, and K.L. Bass. 2007. Stormwater wetland design update. North Carolina Cooperative Extension Publication AGW-588-12. 12 pp.

Outreach Bulletins and Technical Notes

6. **Burchell, M.R.** and D. Rashash. 2016. After the flood: Inspect, purge, and disinfect your well. North Carolina Cooperative Extension – Disaster Recovery. <https://content.ces.ncsu.edu/after-the-flood-inspect-purge-and-disinfect-your-well3>.
5. **Burchell, M.R.**, W.F. Hunt, and W.D. Price. 2012. Dune infiltration systems for reducing stormwater discharge into coastal waters. NCSU Bio&Ag Engineering and North Carolina Cooperative Extension. EBAE-275-12. 17 pp.
4. Shake, C., C. Moorman, and **M.R. Burchell**. 2012. Improving woody, early successional habitat patches for shrubland birds. USDA - NRCS Field Office Technical Guide.
3. Shake, C., C. Moorman, and **M.R. Burchell**. 2012. Improving woody, early successional habitat patches to benefit shrubland birds. The Upland Gazette. N.C. Wildlife Resource Commission. Fall 2012 Vol. 17 (2):8-9.
2. **Burchell, M.R.**, J.R. Etheridge, and R.O. Evans, Jr. 2011. Restoration of PC croplands: How long does it take to observe water quality improvement? *Wetlands Science and Practice* 28(1), pp. 28-32.

1. **Burchell, M.R.**, R.W. Skaggs, and G.M. Chescheir. 2004. Can shallow drains reduce nitrate losses? *Drainage Contractor*. Vol. 30.

Book Chapters

1. Broome, S.W., C.B. Craft, and **M.R. Burchell**. 2018. Tidal Marsh Creation. In *Coastal Wetlands – An Integrated Ecosystem Approach*. 2nd edition. Eds. G. Perillo, E. Wolanski, D.R. Cahoon and C. Hopkinson. Elsevier Publishing.

Refereed Journal Articles

Note: Authorship order in our discipline is from most significant to least. ¹ - Denotes graduate student was the lead author, and Burchell was the principle adviser/senior author with the overall most significant contributions towards publication.

- 36¹. Kamrath, B.J., **M.R. Burchell**, J.J. Kurki-Fox, and K.L. Bass. 2020. Impact of control structures on hydrologic restoration within the Great Dismal Swamp. *Ecological Engineering*. 158. <https://doi.org/10.1016/j.ecoleng.2020.106024>
- 35¹. Kurki-Fox, J.J., **M.R. Burchell**, and B.J. Kamrath. 2019. The potential long-term impacts of climate change on the hydrologic regimes of North Carolina's Coastal Plain non-riverine wetlands. *Transactions of the ASABE – Special Wetlands Edition*. 62(6): 1591-1606
- 34¹. Kamrath, B.J., **M.R. Burchell**, N. Cormier, K. Krauss, and D. Johnson. 2019. The potential resiliency of a created tidal marsh to sea-level rise. *Transactions of the ASABE – Special Wetlands Edition*. 62(6): 1567-1577.
33. Messer, T.L., F. Birgand, **M.R. Burchell**. 2019. Diel fluctuations of high level nitrate and dissolved organic carbon concentrations in wetland mesocosms. *Ecological Engineering*. 133:76-87.
- 32¹. Shiau, Y., **M.R. Burchell**, K.W. Krauss, F. Birgand, and S.W. Broome. 2019. Carbon sequestration in a recently created brackish marsh in eastern North Carolina, USA. *Ecological Engineering*. 127:579-588.
31. Merriman, L.S., J.M. Hathaway, **M.R. Burchell**, and W.F. Hunt. 2017 Adapting the relaxed tanks-in-series model for stormwater wetland water quality performance. *Water*. 9(9), 691.
- 30¹. Messer, T.M., **M.R. Burchell**, and F. Birgand. 2017. Comparison of four nitrate removal kinetic models in two distinct wetland restoration mesocosm systems. *Water*. 9(7), 517.
- 29¹. Messer, T.M., **M.R. Burchell**, J.K. Bohlke, and C. Tobias. 2017. Tracing the fate of nitrate through restored wetlands: A mesocosm ¹⁵N enrichment tracer study. *Ecological Engineering*. 106:597-608.
- 28¹. Messer, T.M., **M.R. Burchell**, and F. Birgand. 2017. Nitrate removal potential of restored wetlands loaded with agricultural drainage water: A mesocosm scale experimental approach. *Ecological Engineering*. 106:541-554.
- 27¹. Etheridge, J.R., **M.R. Burchell**, and F. Birgand. 2017. Can created tidal marshes reduce nitrate export to downstream estuaries? *Ecological Engineering* 105: 314-324.
26. Tilak, A.S., M.A. Youssef, **M.R. Burchell**, R.R. Lowrance, and R.G. Williams. 2017. Testing the Riparian Ecosystem Management Model (REMM) on a riparian buffer with dilution from deep groundwater. *Transactions of the ASABE*. 60(2): 377-392
- 25¹. Shiau, Y., **M.R. Burchell**, K.W. Krauss, F. Birgand, and S.W. Broome. 2016. Greenhouse gas emissions from a created brackish marsh in eastern North Carolina. *Wetlands*. 36(6):1009-1024.
24. King, S.E., D.L. Osmond, J. Smith, **M.R. Burchell**, M. Dukes, R.O. Evans, S. Knies, and S. Kunuckis, 2016. Effects of riparian buffer vegetation and width: a 12-year retrospective study. *Journal of Environmental Quality*. 45(4) 1243-1251.

23. Osburn, C.L., M.P. Mikan, J.R. Etheridge, **M.R. Burchell** and F. Birgand. 2015. Seasonal variation in the quality of dissolved and particulate organic matter exchanged between a salt marsh and its adjacent estuary. *Journal of Geophysical Research: Biogeosciences*. 120.
22. Etheridge, J.R., F. Birgand, and **M.R. Burchell**. 2015. Quantifying nutrient and suspended solids fluxes in a constructed tidal marsh: Insights gained from capturing the rapid changes in flow and concentrations following rainfall. *Ecological Engineering*. 78: 41-52.
- 21.¹ Wiseman, J., **M.R. Burchell**, G.G. Grabow, D.L. Osmond, and T.L. Messer. 2014. Nitrate removal potential of a riparian buffer enrolled in the NC Conservation Reserve Enhancement Program. *Journal of the American Water Resources Association*. 50(3): 653-664.
20. Etheridge, J.R., F. Birgand, **M.R. Burchell II**, A. Lepistö, K. Rankinen, K. Granlund. 2014. Alternative in-stream denitrification equation for the INCA-N model. *Hydrology and Earth System Sciences*. 18, 1467-1473.
19. Etheridge, J.R., F. Birgand, J. A. Osborne, C. L. Osburn, **M. R. Burchell II** and J. Irving. 2014. Using in situ ultraviolet-visual spectroscopy to measure nitrogen, carbon, phosphorus, and suspended solids concentrations at a high frequency in a brackish tidal marsh. *Limnology and Oceanography, Methods*. 12: 10-22.
- 18.¹ Tilak, A.S., **M.R. Burchell**, M.A. Youssef, R.R. Lowrance, and R.G. Williams. 2014. Field Testing the Riparian Ecosystem Management Model (REMM) on a riparian buffer in the NC Upper Coastal Plain. *Journal of the American Water Resources Association*. 50(3): 665-682.
17. Etheridge, J.R., A. Lepistö, K. Granlund, K. Rankinen, F. Birgand and **M.R. Burchell II**. 2014. Reducing uncertainty in the calibration and validation of the INCA-N model by using soft data. *Hydrology Research*. 45(1): 73-88.
16. Etheridge, J.R., F. Birgand, **M.R. Burchell II**, B.T. Smith. 2013. Addressing the fouling of in-situ UV-Visual spectrometers used to continuously monitor water quality in brackish tidal marsh waters. *Journal of Environmental Quality*. 42(6). 1896-1901.
- 15.¹ Jarzemsky, R., **M.R. Burchell**, and R.O. Evans. 2013. The impact of manipulating surface topography on the hydrologic restoration of a forested coastal wetland. *Ecological Engineering*. 58: 35-43.
- 14.¹ Price, W.D., **M.R. Burchell**, W.F. Hunt, and G.M. Chescheir. 2013. Long term performance of a stormwater dune infiltration system. *Ecological Engineering*. 52:1-11.
- 13.¹ Johnson, S.R., **M.R. Burchell**, R.O. Evans, D.L. Osmond, and J. W. Gilliam. 2013. Riparian buffer located in an upland landscape position does not enhance nitrate-nitrogen removal. *Ecological Engineering*. 52:252-261.
12. Wu, L., O. Duckworth, D.L. Osmond, A.K. Graves, and **M.R. Burchell**. 2012. Relationship between nitrogen transformation rates and gene abundance in riparian buffer soils. *Journal of Environmental Management*. 50(5):861-874.
- 11.¹ Messer, T.L., **M.R. Burchell**, G.G. Grabow, and D.L. Osmond. 2012. Groundwater nitrate reductions within upstream and downstream sections of a riparian buffer. *Ecological Engineering*. 47:297-307.
10. Lenhart, H.A., W.F. Hunt, and **M.R. Burchell**. 2012. Harvestable nitrogen accumulation for five stormwater wetland plant species: A trigger for Stormwater Control Measure (SCM) maintenance? *Journal of Environmental Engineering*. 138(9): 972-978.
9. Shake, C.S., C.E. Moorman, J. Riddle, and **M.R. Burchell**. 2012. Influence on patch size and shape on occupancy by shrubland birds. *The Condor*. 114(2):268-278.
8. Taggart, M.J., J.L. Heitman, M.J. Vepraskas, and **M.R. Burchell**. 2011. Surface shading, temperature, and soil moisture effects on soil C loss in a temperate peatland. *Geoderma*. 163(3-4):238-246.
- 7.¹ Bright, T.M., **M.R. Burchell**, W.F. Hunt, and W. Price. 2011. Feasibility of a Dune Infiltration System to protect North Carolina beaches from fecal bacteria contaminated stormwater. *Journal of Environmental Engineering*. 137(10): 968-979.

6. Moore, T.C., W.F. Hunt, **M.R. Burchell**, J.M. Hathaway. 2011. Organic nitrogen exports from urban stormwater wetlands in North Carolina. *Ecological Engineering*. 37(4):589-594.
5. Shake, C.S., C.E. Moorman, and **M.R. Burchell**. 2011. Cropland edge, forest succession, and landscape affect shrubland bird nest predation. *Journal of Wildlife Management*. 75(4):825-835.
4. Bright, T.M., J.M. Hathaway, W.F. Hunt, F.L. de los Reyes, and **M.R. Burchell**. 2010. Impact of stormwater runoff on clogging and fecal bacteria reduction in sand columns. *Journal of Environmental Engineering*. 136(12):1435-1441.
3. **Burchell, M.R.**, R.W. Skaggs, C.R. Lee, S. Broome, G.M. Chescheir, and J. Osborne. 2007. Substrate organic matter to improve nitrate removal in surface flow constructed wetlands. *Journal of Environmental Quality*. 36(1):194-207.
2. Evans, R.O., K.L. Bass, **M.R. Burchell**, R.D. Hinson, R. Johnson, and M. Doxey. 2007. Management alternatives to enhance water quality and ecological function of channelized streams and drainage canals. *Journal of Soil and Water Conservation*. 62(4):308-320.
1. **Burchell, M.R.**, R.W. Skaggs, G.M. Chescheir, J.W. Gilliam, and L.A. Arnold. 2005. Shallow subsurface drains to reduce nitrate losses from drained agricultural lands. *Transactions of the ASAE*. 48(3):1079-1089.

Non-refereed Abstracts and Conference Proceedings

- 27¹. Messer, T.L., **M.R. Burchell**, and F. Birgand. 2014. Determining the nitrogen loads for rerouted agricultural drainage water into restored wetlands – an experimental and modeling approach. ASABE Paper No. 1895614. ASABE-AIM. Montreal, Canada.
- 26¹. Messer, T. L. and **M.R. Burchell**. 2014. Tracing the fate of nitrate through restored wetlands: A mesocosm ¹⁵N tracer study. ASABE Paper No. 1892505. ASABE-AIM. Montreal, Canada.
- 25¹. Messer, T.L., **M.R. Burchell**, D.L. Osmond, and G. Grabow. 2011. Groundwater nitrate reductions within upstream and downstream sections of a riparian buffer. Paper No. 1111361. ASABE-AIM. Louisville, KY. August 7-11.
24. Etheridge, J.R. A. Lepisto, K. Granlund, K. Rankinen, **M.R. Burchell**, and F. Birgand. 2010. Calibration of the INCA-N model in Pyhajoki and Ylaneenjoki catchments in Finland. Paper No. 1008920. ASABE-AIM. Pittsburgh, PA. June 20-23.
- 23¹. Messer, T.L., **M. R. Burchell**, A.S. Tilak, and J. D. Wiseman. 2010. Effectiveness of nitrate reduction in riparian buffers: A riparian buffer hydrologic and biogeochemical evaluation. Paper No. 1009104. ASABE-AIM. Pittsburgh, PA. June 20-23.
22. Poole C.A., R.W. Skaggs, G.M. Chescheir, **M.R. Burchell**. 2010. Effects of drain depth on nitrate-N and phosphorus losses from drained agricultural lands receiving nitrogen and phosphorus from organic sources. In: G.M. Chescheir and M.A. Youssef (Eds.), Proceedings of the ASABE's 9th International Drainage Symposium, Québec City, Canada, June 13-17.
- 21¹. Price, W.D., **M.R. Burchell**, G.M. Chescheir, and W.F. Hunt. 2010. Kure Beach Dune Infiltration System: Examining long-term effectiveness and impacts of stormwater infiltration through sand dunes. Paper No. 1008994. ASABE-AIM. Pittsburgh, PA. June 20-23.
- 20¹. Tilak, A.S., **M.R. Burchell**, M.A. Youssef, R.R. Lowrance, R.G. Williams, T.L. Messer, and J.D. Wiseman. 2010. Hydrologic analysis of a riparian buffer enrolled in NCCREP using REMM. Paper No. 1009197. ASABE-AIM. Pittsburgh, PA. June 20-23.
- 19¹. Wiseman, J.D., **M. R. Burchell**, T.L. Messer, and A.S. Tilak, 2010. Groundwater nitrate reduction processes in a riparian buffer enrolled in the NC Conservation Reserve Enhancement Program. Paper No. 1009119. ASABE-AIM. Pittsburgh, PA. June 20-23.
18. **Burchell, M.R.**, W.F. Hunt III, G.M. Chescheir, and W. Price. 2008. The dune infiltration system - a potential BMP for reducing stormwater flow from ocean outfalls. WRRRI 11th Annual Conference. Raleigh, NC. October 8-9.

17. **Burchell, M.R.**, R.O. Evans, K.L. Bass, S.W. Broome, J.D. Wright, and J.A. Lindgren. 2008. Restoration of a prior converted farm in eastern NC with multiple target wetland communities. Paper No. 701P0208cd. ASABE - 21st Century Watershed Technology: Improving Water Quality and Environment. Concepcion, Chile. March 31-April 3.
16. **Burchell, M.R.**, W.F. Hunt III, and G.M. Chescheir. 2008. Reducing stormwater bacteria loads to North Carolina ocean recreational areas using a dune infiltration system. Proceedings of the ASCE-EWRI World Environmental and Water Resources Congress, Honolulu, HI. May 12-16.
15. Bass, K.L., R.O. Evans, and **M.R. Burchell**. Comparing design methods for restoring small streams in NC's coastal plain. 2007. Proceedings of the ASCE-EWRI World Environment and Water Resources Congress. Karen C. Kobbes - Editor. Tampa FL. May 15-19.
14. **Burchell, M.R.**, D. Line, W.F. Hunt III, and J. Wright. 2007. Conversion of a drainage ditch to constructed wetlands to treat stormwater runoff. Proceedings of the ASCE-EWRI World Environment and Water Resources Congress. Karen C. Kobbes - Editor. Tampa FL. May 15-19.
13. **Burchell, M.R.**, R.W. Skaggs, R.O. Evans, C.R. Lee, and S.W. Broome. 2007. Addition of organic matter to agricultural ditch soils to be used as constructed wetlands for nitrate treatment. Proceedings of the ASCE-EWRI World Environment and Water Resources Congress. Karen C. Kobbes - Editor. Tampa FL. May 15-19.
- 12¹. Johnson, S.R., **M.R. Burchell**, R.O. Evans, D.L. Osmond, W. Gilliam. 2007. Implications of establishing a pine conservation buffer upslope of an established buffer on nitrate reduction. ASABE Paper No. 072226. ASABE-AIM Minneapolis, MN. June 17-20.
- 11¹. Lindgren, J.A., R.O. Evans, S.W. Broome, **M.R. Burchell**, and K.L. Bass. 2007. Elevation and salinity effects on vegetation in a created tidal marsh in eastern North Carolina. ASABE Paper No. 077097 ASABE-AIM Minneapolis, MN. June 17-20.
10. Wright, J.D., W.F. Hunt, **M.R. Burchell**, C.R. Perrin. 2007. Implementing stormwater best management practice retrofits in Wilmington, N.C. ASABE Paper No. 077087 ASABE-AIM Minneapolis, MN. June 17-20.
- 9¹. Bright, T.M., **M.R. Burchell**, W.F. Hunt III. 2006. Stormwater dune infiltration system for reducing pollutant loads from ocean outfalls. Paper No. 062308 ASABE International Meeting, Portland, OR. July 9-12.
- 8¹. Hyatt, D., **M.R. Burchell**, G. Grabow, D. Line, R. Evans, D. Osmond, and W. Gilliam. 2006. Nitrate removal of riparian buffers established through the N.C. Conservation Enhancement Program. Paper No. 062182 ASABE International Meeting, Portland, OR. July 9-12.
7. Wright, J.D., T.M. Bright, W.F. Hunt III, and **M.R. Burchell**. 2006. Innovative stormwater retrofits for barrier island applications. StormCon National Conference, Denver, CO. July 24-27.
6. Wright, J.D., **M.R. Burchell**, J.D. Shelby, and R.O. Evans. 2006. Hydrologic effects of three restoration techniques on prior-converted wetlands in eastern NC. *In: Hydrology and Management of Forested Wetlands— Proceedings of the ASABE International Conference New Bern, N.C.* April 8-12.
5. Hathaway, J.M., R.O. Evans, M.J. Cook and **M.R. Burchell**. 2005. Constructed wetlands as remediation tools for shallow groundwater contaminated by swine lagoon seepage. Paper No. 052171. ASAE Annual International Meeting, Tampa, FL. July 17-20.
4. Poole, C.A., R.W. Skaggs, G.M. Chescheir, J.W. Gilliam, and **M.R. Burchell**. 2005. The effect of subsurface drains on nitrate-N and phosphorous losses from drained agricultural lands. Paper No. 052026. ASAE Annual International Meeting, Tampa, FL. July 17-20.
3. Wright, J.D., R.O. Evans, **M.R. Burchell**, and J.D. Shelby. 2005. The evaluation of a reference wetland in the coastal plain of North Carolina. Paper No. 052194. ASAE Annual International Meeting, Tampa, FL. July 17-20.
2. **Burchell, M.R.**, R.W. Skaggs, G.M. Chescheir, J.W. Gilliam and L.A. Arnold. 2003. Shallow subsurface drains to reduce nitrate losses from drained agricultural fields. Paper No. 03-2320. ASAE Annual International Meeting. Las Vegas, NV. July 27-30.

1. **Burchell, M.R.**, R.W. Skaggs, S.W. Broome, and C.R. Lee. 2002. Effect of organic matter addition on nitrate removal in constructed wetlands. Paper No. 02-2038. ASAE Annual International Meeting/ CIGR XVth World Conference. Chicago, Illinois. July 28-31.

Technical reports

18. **Burchell, M.R.**, B.J. Kamrath, and J. Kurki-Fox. 2019. Efficacy of the Two-Stage Ditch modification to treat agricultural drainage in the Litter River Watershed. Final Report. Submitted to Albemarle RC&D Council. June 2019. 18 pp.
17. Hinkle, J., **M.R. Burchell**, L. Kolodij, N Avery, N. 2019. Town of Kure Beach stormwater infiltration feasibility study. Final Report. Submitted to the NC Clean Water Management Trust Fund. May 2019. 21 pp.
16. **Burchell, M.R.**, B.J. Kamrath, and J. Kurki-Fox. 2019. Efficacy of a linear wetland to treat agricultural drainage in the Litter River Watershed. Final Report. Submitted to Albemarle RC&D Council. January 2019. 51 pp.
15. **Burchell, M.R.**, B.J. Kamrath, K.L. Bass, and J. Kurki-Fox. 2017. Wetland Restoration at Dismal Swamp State Park. Final report. Submitted to NC Division of Parks and Recreation. May 2017. 18 pp.
14. **Burchell, M.R.**, T.W. Thompson, S.W. Broome, L.A. Krometis and B. Badgley. 2016. Constructed Wetlands to Polish Wastewater in Small Rural Communities - Evaluation of Current and Potential Use to Improve Water Quality Trends and Protect Human Health. VT/NC State Regional Collaborative Proposal Planning and Development Grants. Final Report. Submitted to N.C. State University College of Agriculture and Life Sciences, September 2016. 29 pp.
- 13¹. Messer, T.M. and **M.R. Burchell**. 2017. Predicting Water Quality Impacts of Rerouting Drainage Water from the Pamlico Sound to Restored Wetlands. Final Report. Submitted to UNC Water Resources Research Institute. 131 pp.
12. **Burchell, M.R.**, F. Birgand, S.W. Broome, and Y. Shiau. 2014. Long-term study of Carbon Sequestration and Greenhouse Gas Emissions in Restored Salt Marshes. U.S. Geologic Survey Final Report. Piedmont-South Atlantic Coast Cooperative Ecosystem Studies Unit - USGS Ecosystems Mission Area. 31 pp.
- 11¹. Fernandez, M.B., **M.R. Burchell** and G. Jennings. 2013. Field Evaluation of Restored Wetlands in North Carolina Using Floristic Indices, Rapid Assessments, and Environmental Parameters. Final Report. Submitted to: Environmental Law Institute, September 2013. 122 pp.
10. **Burchell, M.R.**, K.L. Bass, G.M. Chescheir, M. Youssef, F. Birgand, and R.O. Evans. 2012. Hydrologic Impacts of Rerouting Pumped Agricultural Drainage Water Through a Historical and Restored Wetland System as Part of an Innovative Integrated Water Management System in Hyde County, NC. Final Report. Submitted to the NCCF. October 2012. 18 pp.
9. **Burchell, M.R.**, D. Line D. Osmond, O. Duckworth, C. Moorman, K. Hall, J. Spooner, G. Grabow, M. Youssef, D. Penrose, and R. Huffman. 2011. Conservation Reserve Enhancement Program (CREP) Environmental Monitoring. Final Report. Submitted to NCDENR - Division of Soil and Water. October 2011. 145 pp.
- 8¹. Price W.D., **M. R. Burchell**, W.F. Hunt, G. M. Chescheir, and A. Graves. 2011. Long-term Water Quality Performance of a Coastal Dune Infiltration System. Final Report. Submitted to NC Department of Transportation. August 2011. 425 pp.
- 7¹. Price, W.D., **M. R. Burchell**, G. M. Chescheir, and W.F. Hunt. 2010. Reducing Bacterial Loads from Ocean Outfalls Using Dune Infiltration Systems. Final Report. Submitted to UNC Water Resources Research Institute (UNC-WRRI). October 2010. 56 pp.
6. **Burchell, M.R.** and K.L. Bass. 2010. Stormwater BMPs and LID Measures to Protect Coastal Waters Near Eagle Point Golf Club. Final report. Submitted to New Hanover County Planning Department. January 2010. 39 pp.

5. Evans, R.O., **Burchell, M.R. (Project Contact)**, M. Vepraskas, S.W. Broome, T. Shear, K.L. Bass, and G. Grabow. 2009. North River Wetlands Restoration Research (Contract AW03007). Final Report. Submitted to: NC Ecosystem Enhancement Program. August 2009. 125 pp.
4. Perrin, C., J.D. Wright, W.F. Hunt, P. Beggs, M. Mallin, and **M.R. Burchell**. 2008. Restoring the Burnt Mill Creek Watershed through Stormwater Management and Community Development. Final Report. FY04 EPA 319 Grant. NCDENR Contract EW05023. August 2008. 45 pp.
3. **Burchell, M.R.**, W.F. Hunt, and T.M. Bright. 2007. Kure Beach Dune Infiltration System (Project 2005-29). Final Report. Submitted to NCDOT Research and Analysis Group. July 2007. 80 pp.
2. **Burchell, M.R.** and W.F. Hunt. 2007. Implementation of Two Priority Stormwater Best Management Practice (BMP) Projects for the New Hanover County, NC Local Watershed Plan. Final Report. Submitted to the New Hanover County Planning Department. April 2007. 20 pp.
1. Sturgis, T.C., C.R. Lee, H.C. Banks, **M.R. Burchell II**, and K. Johnson. 2001. Evaluation of Manufactured Soil Using Dredged Material from New York/New Jersey Harbor Newton Creek Site – Phase 1: Greenhouse Bench-scale Test. ERDC/EL TR-01-35. USACE Engineer Research and Development Center, Vicksburg, MS.

Presentations:

Extension (invited since 2010)

24. **Burchell, M.R.** 2020. Riparian Buffers. NCDEQ-DWR Surface water identification virtual workshop. Raleigh, NC. **(10 participants)**
23. **Burchell, M.R.** 2020. The case (and challenges) for expanding the use of constructed wetlands to improve wastewater treatment in rural NC. Western NC Water Quality Conference. Sponsored by Western Piedmont Council of Governments. September 9, 2020 (virtual – hosted by Lenior-Rhyne University, Hickory, NC.) **(60 participants est.)**
22. **Burchell, M.R.** and K Matthews. 2019. Strategic planning of a citizen’s science initiative for NC wetlands monitoring: You can plan it, but will they come? 2019 Regional Wetlands/Section 401 Workshop. Cherokee, NC. October 21 - 24, 2019. **(58 participants)**
21. **Burchell, M.R.** 2019. Drainage canal strategies to protect water resources in agricultural watersheds. N.C. Association of Soil and Water Conservation Districts Research and Technology Committee Meeting. Raleigh, N.C. January 7, 2019 **(60 participants)**.
20. **Burchell, M.R.** and Kurki-Fox, J. 2018. Comprehensive wetland monitoring network and spatial database for NC’s coastal plain and piedmont regions. 2018 US EPA regional Wetlands Section 401 Workshop. Jekyll Island Georgia. November 2, 2018. **(40 participants)**.
19. **Burchell, M.R.** 2018. Current use, existing challenges, and potential expansion of constructed wetlands for tertiary treatment of wastewater. 2018 – NC Rural Water Association Special training Session – Sourcing Water from Created Wetlands. Greensboro, NC. May 2018. **(43 participants)**.
18. **Burchell, M.R.** 2017. Water quality improvement techniques for drainage systems in the Little River Watershed. Partnered with Albemarle RC&D. April 2017. Hertford, NC. **(24 participants)**.
17. **Burchell, M.R.** 2017. Alternatives to traditional agricultural water management. Eastern NC Agricultural Water Management Workshop. Vernon James Research and Extension Center. Plymouth, NC. February 2017. **(72 participants)**.
16. **Burchell, M.R.** 2017. Strategies to protect water resources in agricultural watersheds. Sponsored by East Carolina University Center for Sustainability. Greenville, NC. February 2017. **(92 participants)**.
15. **Burchell, M.R.** 2017. The importance of protecting riparian buffers. 4th Annual Western NC Water Quality Conference. Lenior-Rhyne University. Hickory, NC. August 2017. **(75 participants)**.

14. **Burchell, M.R.** 2016. Riparian buffers for water resource protection. Briefing to the NC Department of Environmental Quality Environmental Management Water Quality Committee. Raleigh, N.C. March 2016. **(45 attendees plus online live-stream viewing).**
13. **Panelist** - Duke University Wetland Symposium - Wetland Resilience in NC: Examining the ecological political, and market climate affecting the future of N.C.'s wetlands. Durham, NC. March 2016. **(50+ participants).**
12. **Burchell, M.R.** 2016. Development of a wetlands monitoring network in NC. Carolina Wetlands Association Meeting. Raleigh, N.C. May 2016. **(12 participants).**
11. **Burchell, M.R.** 2016. Partnerships to foster more widespread use of constructed wetlands. Walnut Cove Town Council Meeting. Walnut Cove, N.C. April 2016. **(23 participants).**
10. **Burchell, M.R.** 2016. Wetland restoration in eastern NC. Wilmington Men's Group. Wilmington NC. May 2015. **(70 participants).**
9. **Burchell, M.R.** 2015. Riparian buffers: Some NC perspective. USDA – Natural Resource Conservation Service Technical Training Series -Nationwide Training. Raleigh, NC. November 2015. **(51 attendees).**
8. **Panelist** - Watershed Management Priorities for the Next 5 Years – Coastal wetland restoration. 2015 NC Oyster Summit - Promoting a Healthy Coastal Environment and Economy. Raleigh, N.C. March 2015. **(60 participants).**
7. **Burchell, M.R.** 2014. Overview of natural and constructed wetlands across NC. 1st Annual Western NC Water Quality Conference. Lenior-Rhyne University. Hickory, NC. July 2014. **(32 participants).**
6. **Burchell, M.R.** 2014. Kure Beach dune infiltration system. Wilmington Men's Group. Wilmington NC. May 2014. **(120 participants).**
5. **Burchell, M.R.** 2013. Kure Beach dune infiltration system. Town of Kure Beach – Oceanfront Park Grand Opening Celebration Wilmington Men's Group. Wilmington NC. April 2013. **(24 participants).**
4. **Burchell, M.R.** 2013. Water Resource Practices for Developments and Golf Courses. Moore County Cooperative Extension– Future Water Summit. Carthage, NC. September 2013. **(25 participants).**
3. **Burchell, M.R.** 2013. *Benefits and management of existing controlled drainage systems.* Water Management Workshop hosted by the Blackland Farm Managers Association. Vernon James Research and Extension Center, Plymouth, North Carolina. January 2013. **(125 participants).**
2. **Burchell, M.R., R. Etheridge, Y. Shiau, and F. Birgand.** 2012. Advancing salt marsh restoration in NC: A case study at North River Farms. USGS – National Wetlands Research Center. Lafayette, LA. October 2012. **(52 participants).**
1. **Burchell, M.R.** 2010. NCSU-BAE Environmental Restoration and Water Quality programs. Southeast District Cooperative Extension Meeting. **(30 participants).**

Research - Non-refereed Conference Research Presentations

Note: ¹ - Denotes graduate student as lead author and Burchell was the principle adviser/senior author.

89. **Burchell, M.R.** and B. Kamrath, 2020. Extending the life of a wastewater treatment wetland in North Carolina. American Water Resources Association (AWRA) Annual Conference (virtual). Orlando, FL. November 9-11.
88. Kamrath, B.J. and **M.R. Burchell.** 2020. Improving nitrogen treatment through rejuvenation of an aging tertiary constructed wetland. ASABE Annual International Meeting (virtual). June 24.
87. Kamrath, B.J., **M.R. Burchell,** and J. Kurki-Fox. 2020. Preliminary assessment of nitrogen treatment in a tertiary constructed wetland following detritus removal. Water Resources Research Institute of the UNC System (WRII) Annual Conference (virtual). Raleigh, NC. May 19.

86. **Burchell, M.R.**, B. Kamrath, J. Kurki-Fox, and T. Thompson. 2020. Removing detritus to rehabilitate older constructed wetlands used in wastewater treatment. Water Resources Research Institute of the UNC System (WRRRI) Annual Conference (virtual). Raleigh, NC. May 19.
85. **Burchell, M.R.**, B.J. Kamrath, and J. Kurki-Fox. 2019. Breathing new life into a 25-year old wastewater treatment wetland. American Ecological Engineering Society Annual Meeting. Asheville, NC. June 3-6.
84. Kurki-Fox, J., **M.R. Burchell**, and B. Kamrath. 2019. The potential long-term impacts of climate change on the hydrologic regimes of Coastal Plain wetlands in North Carolina. American Ecological Engineering Society Annual Meeting. Asheville, NC. June 3-6.
83. Kurki-Fox, J., **M.R. Burchell**, and B. Kamrath. 2019. The potential long-term impacts of climate change on the hydrology of Coastal Plain wetlands in North Carolina. Water Resources Research Institute of the UNC System (WRRRI) Annual Conference. Raleigh, NC. March 20-21.
- 82¹. Kamrath, B., **M.R. Burchell**, and J. Kurki-Fox. 2019. Efficacy of linear wetlands to treat agricultural drainage in the Little River watershed. ASABE Annual International Meeting. Boston, MA, July 7-10.
- 81¹. Kamrath, B., **M.R. Burchell**, and J. Kurki-Fox. 2019. The impact of control structures on the hydrology the Dismal Swamp State Park. American Ecological Engineering Society Annual Meeting. Asheville, NC. June 3-6.
80. **Burchell, M.R.**, J.R. Etheridge, Y. Shiau, F. Birgand., and K. Krauss. 2018. Water quality and carbon sequestration functional assessment of a created brackish marsh built on prior converted farmland. SWS Society of Wetland Scientists Annual Meeting. Denver, CO. May 29-June 1.
- 79¹. Kamrath, B., **M.R. Burchell**, K.W. Krauss, D.J. Johnson, and J. Kurki-Fox. 2018. Evaluation of a recently created tidal marsh's resiliency to relative sea-level rise. Society of Wetland Scientists Annual Meeting. Denver, CO. May 29-June 1.
- 78¹. Kurki-Fox, J., **M.R. Burchell**, and B. Kamrath. 2018. The potential long-term impacts of climate change on the hydrologic regimes of wetlands in North Carolina. Society of Wetland Scientists Annual Meeting. Denver, CO. May 29-June 1.
77. **Burchell, M.R.** 2018. Constructed wetlands to treat rural wastewater – Another tool to improve watershed health in NC. 20th Water Resources Research Institute of the UNC System (WRRRI) Annual Conference. Raleigh, NC. March 14-15.
- 76¹. Kamrath, B. and **M.R. Burchell**. 2018. Efficacy of linear wetlands to treat agricultural drainage in the Little River watershed. 20th Water Resources Research Institute of the UNC System (WRRRI) Annual Conference. Raleigh, NC. March 14-15.
- 75¹. Kurki-Fox, J. and **M. Burchell**. 2018. Background water quality of natural wetlands in North Carolina and the implications for wetland management. 20th Water Resources Research Institute of the UNC System (WRRRI) Annual Conference. Raleigh, NC. March 14-15.
74. **Burchell, M.R.**, J.R. Etheridge, Y. Shiau, F. Birgand, and K. Krauss. 2017. Potential for created brackish marshes to provide water quality and carbon sequestration ecosystem services. 7th International Symposium for Wetland Systems for Water Pollution Control (WETPOL). Big Sky, MT. August 21-25.
73. Messer, T.L., **M.R. Burchell**, J.K. Böhlke, and C.R. Tobias. 2017. Completing the puzzle of nitrogen cycling in restored wetlands. 7th International Symposium for Wetland Systems for Water Pollution Control (WETPOL). Big Sky, MT. August 21-25. (Invited Mini-Keynote Speaker)
72. **Burchell, M.R.** 2017. Strategic expansion of constructed wetlands to treat rural wastewater can accelerate improvements in watershed health. Society for Freshwater Science Annual Meeting (Special Session - Natural and Constructed Wetlands). Raleigh, NC. June 4-8.
71. **Burchell, M.R.** 2017. Can strategic location of constructed wetlands designed to treat low strength rural wastewater accelerate improvements in watershed health? American Ecological Engineering Society Annual Meeting. Athens, GA. May 23.

- 70¹. Kurki-Fox, J., and **M.R. Burchell**. Characterizing the background water quality of natural wetlands in North Carolina and the implications on wetland management American Ecological Engineering Society Annual Meeting. Athens, GA. May 23.
- 69¹. Kurki-Fox, J., and **M.R. Burchell**. 2017. Ambient water quality of natural wetlands in North Carolina and the implications for monitoring and management. 59th Annual Meeting of the Soil Science Society of North Carolina. Raleigh, NC. January 17. **(Invited)**
68. Etheridge, J.R., F. Birgand, and **M.R. Burchell**, 2016. Uncertainty of using in situ optical property measurements as surrogate data to continuously monitor nitrogen, phosphorus, and carbon concentrations ASABE Annual International Meeting. Orlando, Florida. July 17-20.
67. Messer, T.L., Doyle, M., **M.R. Burchell**, and F. Birgand. 2016. Do first order models accurately predict nitrate removal in wetlands and streams? American Ecological Engineering Society Annual Meeting. Knoxville, TN. June 6-9.
66. Etheridge, J.R., F. Birgand, **M.R. Burchell**. 2016. High frequency water quality monitoring: uncertainties of using optical property measurements as surrogate data for nutrient concentrations Water Resources Research Institute of The University of North Carolina Annual Conference. Raleigh, NC. March 16-17.
65. Etheridge, J.R., F. Birgand., **M.R. Burchell**. 2016. In situ absorbance and fluorescence as surrogate data to continuously measure nitrogen, phosphorus, and carbon concentrations in a brackish tidal marsh. Ocean Sciences Meeting. New Orleans, LA. February 21-26.
64. **Burchell, M.R.** 2016. Development of a wetlands monitoring network in NC. 58th Annual Meeting of the Soil Science Society of North Carolina. Raleigh, NC. January 20. **(Invited)**
- 63¹. Messer, T.L. and **M.R. Burchell**. 2015. A ¹⁵N tracer evaluation of the impact of nitrate load and soil type on nitrogen cycling in restored wetlands. 2015 International ASABE Meeting. New Orleans, LA. July 29.
- 62¹. Messer, T.L., **M.R. Burchell**, and F. Birgand. 2015. An evaluation of the reliability of for nitrate reduction models. 2015 International ASABE Meeting. July 28, 2015. New Orleans, LA.
- 61¹. Messer, T.L., **M.R. Burchell**, and F. Birgand. 2015. Comparison of four nitrogen removal kinetic models in two distinct wetland ecosystems receiving agricultural drainage water. 2015 Water Resource Research Institute Conference. Raleigh, NC. March 18.
- 60¹. Messer, T.L. and **M.R. Burchell**. 2015. Where is nitrate going in restored wetlands: A mesocosm ¹⁵N tracer study. 58th Annual Meeting of the Soil Science Society of North Carolina. Raleigh, NC. January 21.
59. **Burchell, M.R.**. 2015. Research to maximize water quality impacts of riparian buffers. 58th Annual Meeting of the Soil Science Society of North Carolina. Raleigh, NC. January 21. **(Invited)**
58. Krauss, K.W., S. Piazza, G.D. Steyer, and **M.R. Burchell II**. 2014. The role of scientists in tidal wetland restoration. Opening presentation for Workshop Session 4, Re-establishing science in the rehabilitation and monitoring of mangroves and tidal salt marshes. James Cook University, Townsville, Australia. February 26-28. **(Invited)**
57. Birgand, F., R. Etheridge and **M.R. Burchell**. 2014. Illustrating critical knowledge (gap) provided by high time resolution water quality data (or lack thereof). Water Resources Research Institute of The University of North Carolina Annual Conference. Raleigh, NC. March 19 - 20.
56. Birgand, F, R. Etheridge and **M.R. Burchell**. 2014. Using an in situ ultraviolet-visual spectroscopy to measure nitrogen, carbon, phosphorus, and suspended solids concentrations at a high frequency in a brackish tidal marsh. Water Resources Research Institute of The University of North Carolina Annual Conference. Raleigh, NC. March 19 - 20.
55. **Burchell, M.R.**, R. Etheridge, and F. Birgand. 2014. Can tidal marsh creations be used to reduce nitrogen loads reaching estuaries? Water Resources Research Institute of The University of North Carolina Annual Conference. Raleigh, NC. March 20 - 21.
- 54¹. Messer, T.L., **M.R. Burchell**, and F. Birgand. 2014. Determining ideal nitrogen loads for rerouted agricultural drainage water into restored forested wetlands – an experimental and modeling

- approach. Water Resources Research Institute of The University of North Carolina Annual Conference. Raleigh, NC. March 19 - 20.
- 53¹. Messer, T.L., **M.R. Burchell**, and F. Birgand. 2014. Tracing the fate of NO₃ through restored wetlands: A mesocosm ¹⁵N tracer study. Water Resources Research Institute of The University of North Carolina Annual Conference. Raleigh, NC. March 19 - 20.
 - 52¹. Shiau, Y., **M.R. Burchell**, and S. Broome. 2014. Carbon sequestration and greenhouse gas emissions in a restored brackish marsh in eastern NC. Water Resources Research Institute of The University of North Carolina Annual Conference. Raleigh, NC. March 19 - 20.
 - 51¹. Etheridge, J. R., **M. R. Burchell II**, and F. Birgand. 2013. What water quality benefits does a constructed brackish marsh provide when receiving nutrients from agricultural drainage waters? Southeast Creeks Tidal Summit. Wilmington, NC. December 16 – 17.
 - 50¹. Etheridge, J.R., F. Birgand, **M. R. Burchell II**, and T. M. Barto. 2013. Nutrient, organic matter, and suspended solids dynamics during and following Hurricane Sandy in a restored North Carolina brackish marsh. 13th Annual American Ecological Engineering Society Meeting. East Lansing, MI. June 10 - 12.
 - 49¹. Etheridge, J.R., F. Birgand, **M. R. Burchell II**, R. O. Evans, and S. W. Broome. 2013. Long-term nutrient and suspended solids mass balance for a restored brackish marsh in eastern North Carolina. 13th Annual American Ecological Engineering Society Meeting. East Lansing, MI. June 10 - 12.
 - 48¹. Shiau, Y., and **M. R. Burchell II**. 2013. Greenhouse gas emissions from a constructed salt marsh in eastern NC. 13th Annual American Ecological Engineering Society Meeting. East Lansing, MI. June 10 - 12.
 - 47¹. Messer, T.L., **M.R. Burchell**, and F. Birgand. 2013. Determining ideal nitrogen loads in rerouted drainage water from the Pamlico Sound to restored forested wetlands – An experimental and modeling approach. 2013 International ASABE Meeting. Kansas City, MO. July 22.
 - 46¹. Etheridge, J.R., F. Birgand, and **M.R. Burchell II**. 2013. Quantifying nitrogen fluxes in a tidal marsh: Insights from capturing the rapid changes of flow and concentrations. Water Resources Research Institute of The University of North Carolina Annual Conference. Raleigh, NC. March 20 - 21.
 45. **Burchell, M.R.**, T.L Messer and F. Birgand. 2013. Determining ideal nitrogen loads for restored wetlands. Water Resources Research Institute of The University of North Carolina Annual Conference. Raleigh, NC. March 20 - 21.
 - 44¹. Etheridge, J. R., F. Birgand, and **M. R. Burchell**. 2012. Restored salt marsh: A source or a sink for nitrogen? ASABE Annual International Meeting. Dallas, TX. July 29 - August 1.
 43. Lowrance, R.R., C. Williams, A. Tilak, **M. R. Burchell**, and R. Williams. 2012. Applications of the Riparian Ecosystem Management Model (REMM). American Water Resources Association Summer Specialty Conference – Riparian Ecosystems IV: Advancing Science, Economics, and Policy. Denver, CO. June 27-29.
 42. Bass, K.L., **M.R. Burchell**, G.M. Chescheir, T.M. Messer, E. Fleckinstein, T. Miller, W. Daughtry, B. Edwards, and J. Hinkle. 2012. Lux Farms Hydrologic Restoration Project: An innovative partnership for agriculture and water quality at the end of the world, North Carolina. 2012 Land Grant and Sea Grant National Water Conference Portland, OR. May 20 - 24.
 41. Etheridge, J. R., F. Birgand, **M. R. Burchell**. 2012. Nitrate mass balance in a restored North Carolina salt marsh. Water Resources Research Institute of the University of North Carolina Annual Conference. Raleigh, NC. March 27-28.
 40. **Burchell, M.R.**, F. Birgand, S. Broome, K. Bass, R. Etheridge, Y. Shiau, R. Evans, and K. Krauss. 2011. Strategic restoration designs can maximize ecosystem services in tidal marshes. Southeast Tidal Creeks Summit. Charleston, S.C. December 5-6. **(Invited)**
 39. Etheridge, J.R.**, F. Birgand, and **M.R. Burchell**. 2011. Benefits and challenges of continuous flow and nitrogen monitoring in a restored salt marsh in NC. Paper No. 1110738. ASABE-AIM. Louisville, KY. August 7-11.

38. Bass, K.L., **M.R. Burchell**, W.F. Hunt, J. Hathaway, and J. Blackwell. 2011. Stormwater wetlands in NC: Scaling lessons learned for watershed level projects. 11th Annual American Ecological Engineering Society. Asheville, NC. May 22-25.
37. **Burchell, M.R.**, W. Price, and W.F. Hunt. 2011. Dune infiltration systems for protecting recreational beach areas. 11th Annual American Ecological Engineering Society. Asheville, NC. May 22-25.
36. Etheridge, J.R., F. Birgand, and **M.R. Burchell**. 2011. Intensive monitoring to develop a water and nitrogen balance for a constructed tidal stream. 11th Annual American Ecological Engineering Society. Asheville, NC. May 22-25.
- 35¹. Messer, T.L. and **M.R. Burchell**. 2011. Groundwater nitrate reductions within upstream and downstream sections of a riparian buffer. 11th Annual American Ecological Engineering Society. Asheville, NC. May 22-25.
- 34¹. Tilak A.S., **M.R. Burchell II**, M.A. Youssef, R.R. Lowrance, R.G. Williams and T.L. Messer. 2011. Simulating effects of differing riparian buffer widths on hydrology and nitrate-N attenuation using REMM. 11th Annual American Ecological Engineering Society. Asheville, NC. May 22-25.
33. Bass, K.L., **M.R. Burchell**, F. Birgand, R.O. Evans, E. Corbin, and J.R. Etheridge. 2010. Water quality impacts of coastal stream and wetland restoration. Stream Restoration in the Southeast: Connecting Communities with Ecosystems. Raleigh, NC. November 15-18.
32. **Burchell, M.R.**, G.M. Cheschier, and K.L. Bass. 2010. Hydrologic and wetland ecosystem restoration through re-routing pumped agricultural drainage water: An innovative integrated water management system in Hyde Co. Restore Americas Estuaries. Galveston, TX. November 17.
(Invited)
31. **Burchell, M.R.**, R.O. Evans, K.L. Bass, S.W. Broome, R. Jarzemsky, E. Corbin, J Etheridge, and J.A. Lindgren. 2010. Six years of lessons learned about restoration of multiple wetland communities in eastern NC. ASABE-AIM. Pittsburgh, PA. June 20-23.
30. Chescheir, G.M., **M.R. Burchell**, M. Youssef, F. Brigand, K.L. Bass. 2009. Evaluation of an innovative integrated water management system in eastern North Carolina. ASABE-AIM. Reno, NV. June 21-24.
- 29¹. Corbin, W.E., **M.R. Burchell**, G.D. Jennings, S.W. Broome, W.W. Kirby-Smith, and K.L. Bass. 2009. A water quality and morphological analysis of a restored tidal marsh and stream system in coastal North Carolina. ASABE-AIM. Reno, NV. June 21-24.
28. Broome, S.W. **M.R. Burchell**, and J.A. Lindgen. 2008. Advancing techniques to establish vegetation in a tidal marsh created at North River Farms. Restore American Estuaries 4th National Conference on Coastal and Estuarine Habitat Restoration. Providence, RI. October 11-15.
27. **Burchell, M.R.**, K.L. Bass, R.O. Evans, S.W. Broome, and J.D. Wright. 2008. North River Farms - five years of lessons learned about restoration of multiple wetland communities. Restore American Estuaries 4th National Conference on Coastal and Estuarine Habitat Restoration. Providence, RI. October 11-15, 2008.
26. **Burchell, M.R.** and W.F. Hunt II. 2008. Groundwater response of a dune infiltration system for reducing stormwater discharge from ocean outfalls. ASABE-AIM Providence, RI June 29-July 2.
- 25¹. Corbin, W.E., **M.R. Burchell**, W.W. Kirby-Smith, and K.L. Bass. 2008. Water quality analysis of a restored tidal stream in eastern NC. 2008 SRP Stream Restoration Conference, Asheville, NC. November 2-6.
- 24¹. Jarzemsky, R.D., **M.R. Burchell**, J.D. Wright, R.O. Evans. 2008. The hydrologic response of a restored wetland during tropical events in eastern NC. ASABE-AIM Providence, RI June 29-July 2.
23. Jennings G.D., **M.R. Burchell**, D. Penrose, B. Doll, J. Zink, Z. Price, L. Rozzell, K. Hall, M. Shaffer. 2008. Stream restoration project evaluation in North Carolina, USA. ASABE - 21st Century Watershed Technology: Improving Water Quality and Environment. Concepcion, Chile. March 31-April 3.

- 22¹. Lindgren, J.A., **M.R. Burchell**, S.W. Broome, R.O. Evans, and K.L. Bass. 2008. Salt-marsh vegetation response in a created tidal marsh in eastern, NC. ASABE-AIM Providence, RI June 29-July 2.
- 21¹. Bright, T.M., **M.R. Burchell**, W.F. Hunt III. 2007 Stormwater Dune infiltration Systems for Reducing Pollutant Loadings from Ocean Outfalls. 2nd National LID Conference, Wilmington, NC. March 12-14.
20. **Burchell, M.R.**, T.M. Bright, and W.F. Hunt III. 2007. Kure Beach dune infiltration system for reducing stormwater bacterial export from ocean outfalls. ASABE-AIM Minneapolis, MN June 17-20.
19. **Burchell, M.R.**, D. Hyatt, D. Line, R.O. Evans, G. Grabow, J.W. Gilliam, D. Osmond, J. Blackwell, and S. Payonk. 2007. Effectiveness of two buffers established through the NC Conservation Reserve Enhancement Program in removing groundwater nitrate. ASABE-AIM Minneapolis, MN June 17-20.
18. Bass, K.L., R.O. Evans, and **M.R. Burchell**. 2006. Comparing Design Methods for Small Stream Restoration in Coastal NC. Presentation at the ASABE International Meeting. Portland, Oregon. July 9-12.
17. Bass, K.L., R.O. Evans, and **M.R. Burchell**. 2006. Comparing Design Methods for Small Stream Restoration in Coastal NC. Presentation at the 2006 Southeast Regional Stream Restoration Conference. Charlotte, NC. October.
16. **Burchell, M.R.**, J.D. Wright, and R.O. Evans. 2006. Assessing the effectiveness of wetland restoration techniques at North River Farms. Restore America's Estuaries 3rd National Conference on Coastal and Estuarine Habitat Restoration. New Orleans, LA. December 11-13.
15. Evans, R.O., K.L. Bass, **M. R. Burchell**, D. Hinson, R. Johnson, and M. Doxey. 2006. Management alternatives to enhance water quality function of channelized streams and drainage canals. Ditch Project Symposium – Improved management of agricultural drainage ditches for water quality protection: science policy and management. College Park, MD. August 22-23.
14. Evans, R.O., **M.R. Burchell**, and K.L. Bass. 2006. In-stream wetlands to enhance water quality function of channelized streams and drainage ditches. CEAP-Wetlands Gulf Atlantic Regional Assessment Scoping Meeting. Edgewater, MD. November 8-9.
13. **Burchell, MR**, W.F. Hunt, J.T. Smith and T. Bright. 2005. Stormwater Dune Infiltration System – Kure Beach, NC. ASAE Joint Section Meeting – SC, GA, and NC. Charleston, SC. June 2 - 3.
12. **Burchell, M.R.**, J.D. Wright, R.O. Evans, and J.D. Shelby. 2005. Hydrologic effects of three wetland restoration techniques on a prior converted site in eastern NC. Society of Wetland Scientists 26th Annual Meeting. Charleston, SC. June 5-10.
11. **Burchell, M.R.**, J.D. Wright, R.O. Evans, J.D. Shelby, J. Burdette, and S.W. Broome. 2004. North River Farms Wetland Restoration: Phase I and II. Restore America's Estuaries 2nd National Conference on Coastal and Estuarine Habitat Restoration. Seattle, WA. September 12-15.
10. **Burchell, M.R.**, Osmond, D., Gilliam, J.W., Evans, R.O., Parsons, J. 2004. North Carolina Conservation Reserve Enhancement Program. CRP: Planting for the Future. Ft. Collins, CO.
9. Gilliam, J.W., R.O. Evans, D.L. Osmond, **M.R. Burchell**, and J.E. Parsons. 2004. Are we spending our money wisely on riparian buffers? Presentation at Am. Water Resources Association's Summer Specialty Conference. "Riparian Ecosystems and Buffers: Multi-Scale Structure, Function and Management. Olympic Valley, CA. June 28-30.
8. Lombardo, L., J. Spooner, T. Feitshans, B. King, **M. Burchell**, and K. Bass. 2004. A Farmer's Guide to Agriculture and Water Quality Issues. Presented at USDA-CSREES National Water Quality Conference: Integrating Research, Extension and Education. Clearwater, FL. January 11-14.
7. **Burchell, M.R.**, R.W. Skaggs, S.W. Broome, C.R. Lee, and P. Adam. 2001. Constructed wetlands to control nitrate laden drainage from agricultural fields. American Society of Agronomy Annual Meetings. Charlotte, NC. October 21-25.

6. **Burchell, M.R.**, R.W. Skaggs, S.W. Broome and C.R. Lee. 2001. The role of wetland substrate in maximizing nitrate removal from swine wastewater. Seventh International Symposium on the Biogeochemistry of Wetlands, Duke University Wetland Center, Durham, NC. June 17-20.
5. **Burchell, M.R.**, M.E. Zappi, J. Talley, and R. Morgan. 1997. Biocell treatment of petroleum hydrocarbon contaminated soils. Association for the Environmental Health of Soils (AEHS) Seventh Annual West Coast Conference on Contaminated Soils and Groundwater, Oxnard, CA. March 10-14
4. **Burchell, M.R.**, M.E. Zappi, J. Talley, and N. Francingues. 1997. Biocell treatment of diesel contaminated soil. Army Corps Joint Innovative Technology and HTRW Chemist Workshop, Las Vegas, NV. March 17-21.
3. **Burchell, M.R.**, M.E. Zappi, J.E. Cullinane, D. Gunnison, and R.K. Bajpai. 1994. Above ground bioreactors used in restoration of contaminated sites. 16th Symposium on Biotechnology for Fuels and Chemicals, Gatlinburg, TN. May 9-13.
2. Zappi, M.E., R. Morgan, **M. R. Burchell**, and N. Francingues. 1994. Biocells for treatment of petroleum hydrocarbon contaminated soil. Southern States Annual Environmental Conference, Biloxi, MS.
1. Zappi, M.E., **M. R. Burchell**, and D. Gunnison. 1993. Selection of nutrient levels for use in *insitu* bioremediation systems using respirometric techniques. 3rd Annual USACE Innovative Technology Transfer Workshop. Williamsburg, VA.

Research - Non-refereed Poster Presentations

Note: ¹ - Denotes graduate student as lead author and Burchell was the principle adviser/senior author.

24. Vepraskas, M., M. Youssef, H. Moursi, and **M. R. Burchell**. 2020. Developing and testing wetland hydrology performance criteria for restoration sites. Poster presentation at the Soil Science Society of America International Annual Meeting (virtual). November 9-13.
- 23¹. Kamrath, B.J., **M.R. Burchell**, N. Cormier, K. W. Krauss, and D. J. Johnson. 2020. The potential resiliency of a created tidal marsh to sea level rise. Poster session presentation at the ASABE Annual International Meeting (virtual). June 24.
- 22¹. Kamrath, B.J. and **M.R. Burchell**. 2020. Walnut Cove treatment wetlands: A wetland rejuvenation case study. American Ecological Engineering Society (AEES) Virtual Poster Symposium. June 1-5
- 21¹. Kamrath, B.J. and **M.R. Burchell**. 2019. Evaluating nitrogen removal performance and potential improvements for a tertiary treatment constructed wetland in North Carolina. Poster session presentation at the 21st Water Resources Research Institute of the UNC System (WRII) Annual Conference. Raleigh, NC. March 20-21. (Third place winner)
- 20¹. Kamrath, B.J., **M.R. Burchell**, and J. Kurki-Fox 2018. The impact of control structures on the hydrology of the Dismal Swamp State Park. Poster session presentation at the 61st Annual Meeting of the Soil Science Society of North Carolina. Raleigh, NC. January 16-17.
- 19¹. Kamrath, B.J., **M.R. Burchell** and J.K. Fox. 2017 Impact of control structures on the restoration of wetland hydrology within the Great Dismal Swamp State Park. American Ecological Engineering Society Annual Meeting. Athens, GA. May 23.
- 18¹. Kurki-Fox, J. and **M.R. Burchell**. 2016. Developing a reference wetland network to assess long-term trends and improve wetland restoration outcomes in NC. EcoStream Conference. Asheville, NC. August 15.
- 17¹. Kurki-Fox, J. and **M.R. Burchell**. 2016. Assessing forested wetland trends and identifying key hydrologic and ecologic baseline characteristics to improve wetland restoration in NC. American Ecological Engineering Society Annual Meeting. Knoxville TN. June 8.
- 16¹. Messer, T.L., and **M.R. Burchell**. 2015. Where is nitrate going in restored wetlands? A ¹⁵N tracer evaluation on nitrogen cycling in restored wetlands. NCSU Graduate Research Symposium. Raleigh, NC. March 25. (Poster Contest: 3rd Place in Ag and Life Sciences Division).

- 15¹. Messer, T.M. and **M.R. Burchell**. 2014. Methods for tracing the fate of NO₃⁻ through restored wetlands: A mesocosm ¹⁵N tracer study. NC State University Graduate Research Symposium. Raleigh, NC. March 26.
- 14¹. Etheridge, J. R., F. Birgand, and **M. R. Burchell II**. 2013. Insights into the impact of tropical systems on tidal marshes: Results from high frequency monitoring in a constructed marsh during Hurricane Sandy. Southeast Creeks Tidal Summit. Wilmington, NC. December 16 – 17.
- 13¹. Shiau, Y., and **M.R. Burchell**. 2013. Long-term and daily changes of greenhouse gas emissions from a constructed salt marsh in eastern NC. Southeast Creeks Tidal Summit. Wilmington, NC. December 16-17.
- 12¹. Messer, T.L., **M.R. Burchell**, G.M. Chescheir, and K.L. Bass. 2013. Determining Ideal Hydraulic Loads in Rerouted Drainage Water from the Pamlico Sound to Restored Forested Wetlands Utilizing DRAINMOD-W. 2013 International ASABE Meeting. Kansas City, MO. July 22.
11. Barto, T., F. Birgand, R. Etheridge, **M. Burchell** and M. Polizzotto. 2013. The role of solid phases in nutrient cycling in a restored coastal marsh. NC State University Undergraduate Research Symposium. Raleigh, NC. April 2013.
- 10¹. Bell, Kathleen, **M.R. Burchell**, and T. Messer. 2013. Nitrate removal in restored wetlands used to treat agricultural drainage. NC State University Undergraduate Research Symposium. Raleigh, NC. April 2013.
- 9¹. Messer, T., **M.R. Burchell**, and G.M. Chescheir. 2012. Determining ideal nitrogen loads of rerouted drainage water from the Pamlico Sound to restored forested wetlands. 2012. Water Resources Research Institute Conference. Raleigh, N.C. March 27.
- 8¹. Etheridge, J.R. and **M.R. Burchell**. 2009. Reduction of nitrogen loads from a large-scale wetland restoration in eastern NC. ASABE-AIM Reno, NV. June 21-24.
- 7¹. Messer, T.L. and **M.R. Burchell**. 2009. Effectiveness of nitrate reduction in differing riparian widths. ASABE-AIM Reno, NV. June 21-24.
- 6¹. Price, W.D., **M.R. Burchell**, W.F. Hunt, and G.M. Chescheir. Kure Beach dune infiltration system: Reducing stormwater bacteria export from direct ocean outfalls. ASABE-AIM Reno, NV. June 21-24.
- 5¹. Tilak, A., **M.R. Burchell**, and M.A. Youssef. 2009. Simulating the hydrology and nutrient dynamics of riparian buffers using the Riparian Ecosystem Management Model (REMM). ASABE-AIM Reno, NV. June 21-24.
- 4¹. Wiseman, J.D. and **M.R. Burchell**. 2009. Groundwater nitrate reduction in a riparian buffer enrolled in the NC CREP. ASABE-AIM Reno, NV. June 21-24.
3. Knies, S., D. Osmond, **M. Burchell**, and O. Duckworth. 2008. Riparian buffer effectiveness as influenced by vegetation type, buffer width and groundwater depth in the middle coastal plain. Soil Science Society of NC, Raleigh, NC. January 2008.
2. Knies, S., D. Osmond, **M. Burchell**, and O. Duckworth. 2008. Riparian buffer effectiveness as influenced by vegetation type, buffer width and groundwater depth in the middle coastal plain. AWRA Virginia Beach, VA. June.
1. Osmond, D., R.O. Evans, J.W. Gilliam, **M.R. Burchell**, and J. Parsons. 2004. Buffer Implementations: Are programs meeting expectations? ASA-CSSA-SSA Annual Meeting. Seattle, WA. October 31-November 4.

Other Extension and Outreach Products:

Extension Workshops Led

6. Surface Water Identification Training and Certification, 2014 - 2019 (**320 participants**). Lead organizer, provide technical content and lead field trips 2x per year. This course is offered as a partnership between NC State BAE and the North Carolina Division of Water Resources (DWR) to comply with N.C. General Statute 143-214.25A. This statute requires DWR to train and certify staff of the North Carolina Forest Service (NCFS), the Division of Water Resources (DWR), and local delegated programs to make a legal determination of stream origins and identify surface waters subject to buffer rules enacted by the NC Environmental Management Commission. Staff within NCFS (who are also Registered Foresters), DWR, or local delegated programs who take the course and pass both the written and field tests will be certified to make determinations of stream origins subject to the buffer rules. Individuals other than those authorized for certification who take the course and pass both the written and field tests will receive a “Certificate of Training”.

5. NC Wetlands Summit. September 24-25, 2019. Hosted by N.C. State University, RTI, International, and N.C. DEQ-DWR and supported with funds from a U.S. EPA Wetland Program Development Grant. During this 1 ½ day summit, sessions included: a) the state of wetland programs in NC, b) current and emerging research methods, c) research needs, d) ways to improve communication of results and e) wetland education and citizen science opportunities. (**44 attendees**)

4. Private Well Water Extension Workshop. October 29-30, 2018. Funded by Virginia Tech and supported by BAE Workshops Program. 13 states represented.

3. Extension’s Role in a Residential Well Outreach and Water Quality Monitoring Program. NC Cooperative Extension State Extension Conference. Raleigh, NC. November 2018. (**29 attendees**)

2. Adding Water to Your Program Mix: Water and Watershed Protection Programs and Resources. NC Cooperative Extension State Extension Conference. Raleigh, NC. December 2015. (**15 agents**)

1. 2011 Agent Training: Water Quality and Environmental Sustainability. New and experienced agents covering environmental program areas learned about current environmental issues and environmental conservation management opportunities to successfully fulfill Extension objectives. Organized workshops and delivered three modules of content in each session. (**28 total attendees – 24 agents trained at 3 regional workshops**).

Popular press articles –authorship, contributor, or editor

11. “Wetland Chemical Composition Changes Hourly”. By Katelyn Vause. *NC Sea Grant Coastwatch Currents*. September 10, 2019. <https://ncseagrant.ncsu.edu/currents/2019/09/wetland-chemical-composition-changes-hourly/>
10. “Wetland Restoration and NC State: The North River Farms Wetland Restoration Project” by John Classen. July 2017. <https://online.bae.ncsu.edu/2017/07/wetland-restoration-nc-state-north-river-farms-project/>
9. “A little slice of Hyde County: Investigating the science of wetland restoration” by Rhett Register. *Coastwatch Magazine*. Winter 2014.
8. “Sand trap: How to make a beach clean itself” by Pavithra Mohan. *Popular Science*. September 2013. P 31.
7. “Researchers Devise Hidden Dune Filters to Treat Coastal Stormwater Runoff” by Mathew Shipman. NCSU Newsroom press release. March 2013. <http://news.ncsu.edu/releases/wms-burchell-dune-filters/> **Note:** this press release picked up by over 16 internet media outlets
6. “Low-cost filtration systems making ocean water cleaner” by Kate Querum. *Wilmington Star News*.

- April 2013. <http://www.starnewsonline.com/article/20130407/ARTICLES/130409730>
5. "Buried Treasure: System Cleans Runoff". *Results – Research and Graduate Studies at North Carolina State University*. Volume XI, No. 1. Winter 2011. p. 8.
<http://www.ncsu.edu/research/results/vol11n1/04.html>
 4. "North Carolina Beach Water Quality". *Natural Resources Defense Council – Testing the Waters 2011*. Highlights Kure Beach Dune Infiltration demonstration site.
<http://www.nrdc.org/water/oceans/ttw/sumnor.pdf>
 3. "Researchers restore lost wetlands". *Results – Research and Graduate Studies at North Carolina State University*. Volume IX, No 2. Summer 2009. <http://www.ncsu.edu/research/results/vol9n2/06.html>
 2. "Increasing population boosts hazardous contamination" by Caitlin Cunningham. *Stormwater Solution*. February 2008. <http://www.estormwater.com/sites/default/files/IncreasingPopulation.pdf>
 1. "A Sandy Solution" (Cover story and article) by Art Latham. *Perspectives - The Magazine of the College of Agriculture and Life Sciences*. Summer 2007.
<http://www.cals.ncsu.edu/agcomm/magazine/summer07/sandy.html>

Popular press articles and websites–3rd party authorship¹

27. "Experts Can Discuss Hurricane, Flood, Recovery Issues." NC State University News. By Mick Kulikowski. September 14, 2019 <https://news.ncsu.edu/2019/09/hurricane-dorian-experts/>
26. "Towns Eye Dune Systems for Stormwater." *Coastal Review Online*. By Trista Talton. May 20, 2019. <https://www.coastalreview.org/2019/05/towns-eye-dune-systems-for-stormwater/>
25. "Tournament Puts Spotlight on Conservation". *Coastal Review Online*. April 2017.
<https://www.coastalreview.org/2017/04/tournament-puts-spotlight-on-conservation/>
24. "Does NC Need Buffers?" *North Carolina Health News*. April 2017.
<https://www.northcarolinahealthnews.org/2017/04/27/does-nc-need-buffers/>
23. "Challenge Accepted". *NC State College of Engineering News*. Fall/Winter 2017.
<https://www.engr.ncsu.edu/news/2017/10/09/challenge-accepted/>
22. "Students' Innovation to Renew a Coastal Wetland". *NC State CALS News*. May 2017.
<https://cals.ncsu.edu/news/students-innovation-to-renew-a-coastal-wetland/>
21. "Walnut Cove wetlands to be studied" by N. Elmes. *The Stokes News*. April 2016.
<http://thestokesnews.com/news/4629/walnut-cove-wetlands-to-be-studied>
20. "Russian environmentalists tour North River Farms". *Carteret County News-Times*. October 2015.
http://www.carolinacoastonline.com/news_times/article_90fd0c82-7801-11e5-9b53-7ba114e61117.html
19. "Self-Cleaning Beach." *Science World Magazine*. 70(11), 2-3. April 2014.
18. "Restored Coastal Marshes Fight Climate Change". *Coastal Review Online*. August 2014.
<http://nccoast.org/Article.aspx?k=453ba160-6286-45c7-9fe7-5b8bbdd975e4>
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16. "Technique allows frequent water monitoring for suite of pollutants". *Science 360 News*. March 2014.
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<http://www.bizjournals.com/triangle/blog/2013/03/cleaner-and-safer-beaches-nc-state.html>
14. "NC State researchers protect farmers, soil, environment" by Jessica Hatcher. *Technician*. April 2013. http://m.technicianonline.com/mobile/news/article_7adecb1e-ad5d-11e2-ad22-001a4bcf6878.html

13. “Restoring Peatlands in the Albemarle-Pamlico Region” by Jim Hawhee. N.C. Department of Environment and Natural Resources - Albemarle-Pamlico National Estuary Program. July 2012. <http://portal.ncdenr.org/web/apnep/2012-07-10>
12. “Major Restoration Project Takes Shape in Hyde” by Jan DeBlieu. North Carolina Coastal Federation. <http://www.nccoast.org/Article.aspx?k=a57532fc-7eec-4ff5-9706-68794ff7660a>
11. “North River Farms – Making the Land Work Again” by Christine Miller. North Carolina Coastal Federation. <http://www.nccoast.org/Article.aspx?k=59c23ef8-82d2-4e91-a252-929fee18923f>
10. “Eagle Point Golf Course” – NC Coastal Federation Restoration and Protection Project Factsheet. http://www.nccoast.org/uploads/documents/factsheets/FS_EaglePoint.pdf
9. “North River Farms” – NC Coastal Federation Restoration and Protection Project Factsheet. http://www.nccoast.org/uploads/documents/factsheets/FS_northriver.pdf
8. “Environmentally friendly golf course project cleans storm runoff” by Gareth McGrath. *Wilmington Star News*. June 23, 2009. <http://www.starnewsonline.com/article/20090623/articles/906239952?Title=Environmentally-friendly-golf-course-project-cleans-storm-runoff>
7. “Kure Beach plants beach grass to restore dunes dug up for drainage project” by Gareth McGrath. *Wilmington Star News*. March 26, 2009. <http://www.starnewsonline.com/article/20090326/ARTICLES/903269939?Title=Kure-Beach-plants-beach-grass-to-restore-dunes-dug-up-for-drainage-project>
6. “Stepping up the pace for coastal water quality” by Pam Smith. *Coastwatch*. Winter 2009.
5. “Wetlands naturales y constuidos fue tema de studio entre EULA y NCSU” in *Panorama*. No. 621 . Chronicles Burchell and Dr. Robert Evans’ summer teaching trip to UDEC in Chile. April 2008. <http://www2.udec.cl/panorama/p621/p18.htm>
4. “Wetlands Restoration Makes an Impression” by Patricia Smith. *The Daily News* Jacksonville, NC. October 19, 2006.
3. “Kure Beach Stormwater Outfall Experiment Shows Good Results” by W.H. Killough III. *The Island Gazette* Carolina Beach, NC. October 5, 2006.
2. “New Storm Chambers to Reduce Stormwater Discharge to the Ocean” by W.H. Killough III. *The Island Gazette* Carolina Beach, NC. February 9, 2006.
1. “Math and science just became more natural – Laney H.S. adds wetland to its landscape. *Encore Magazine*. Wilmington, NC. August 2005.

Television, Radio, and Podcasts (Featured guest or interview)

7. WRAL News Documentary- “Sea Change”, Television. Original Air Date October 26, 2017. Featured at the 11:00 mark discussing sea level rise and its impact on eastern NC Agriculture. <http://www.wral.com/news/local/video/16972753/>
6. NC Policy Watch “Must-see documentary on rising sea levels on North Carolina’s coast premieres tonight”. Podcast. Burchell quote between the 4:20 - 5:30 minute mark. October 24, 2017. <http://pulse.ncpolicywatch.org/2017/10/24/must-see-documentary-rising-sea-levels-north-carolinas-coast-premieres-tonight/#sthash.5NYqFVCA.dpbs>
5. ABC News Channel 11, Television. Interviewed following Hurricane Matthew to discuss human health and safety concerns with receding floodwaters. October 14, 2016.
4. UNC-TV NC NOW “Focus on the Environment - Celebration of NC Cooperative Extension's 100 Years of Service”. Television. Original Air Date June 26, 2014. Featured throughout this episode about how Extension helps to improve our natural resources. <http://video.uncvtv.org/video/2365279288/>.
3. Radio interview - NC Public Radio (WUNC). “NC State Tests Dune Filtration System On Coast” Gurnal Scott . March 2013. <http://wunc.org/post/nc-state-tests-dune-filtration-system-coast>

2. UNC-TV. “North River Farms wetlands restoration”. Television. Air dates: May 6 and July 10, 2013. Featured throughout the documentary talking about the North River Farms wetland restoration demonstration site and partnerships. <http://video.unc.tv/video/2365007159/> <http://www.youtube.com/watch?v=ToYHcfbtcyE&feature=youtu.be> (580 views)
1. Time Warner Cable. “Coastal Review”. Television. July 2006 (30 minutes). Was a featured guest on the television show to discuss wetland restoration at North River Farms.

Videos

1. NC Cooperative Extension Agent training: “Water Quality Protection and Environmental Sustainability”. Videos were produced from the day-long agent training that I organized and led in May 2011. A set of 9 videos were produced, 3 of which I was solely responsible for the content. A series of videos were recorded during the workshop and edited by NCSU Communications Services. Placed on-line in Spring 2012 for agents who were not able to attend 2011 workshops.

Websites

6. Natural and Constructed Wetlands <https://wetlandrestoration.wordpress.ncsu.edu/>
5. Drainage and Water Table Management <https://drainage.wordpress.ncsu.edu/>
4. Kure Beach Dune Infiltration Systems, 2009 – 2016
3. North River Farms Wetland Restoration website, 2009 – 2016.
2. Riparian Buffer Research, 2009 – 2016
1. Assisted in creating the website “A Farmer’s Guide to Agriculture and Water Quality Issues” under the USDA/EPA sponsored National Agricultural Producer Compliance-Assistance and Pollution Prevention Needs (Water Quality Focus Areas). Provided technical input and review of the “Wetlands and Riparian Protection” section. Developed 2004.

Social Media

1. Twitter - @NCState_Wetland. Since May 2016. 352 Followers, 197 tweets, 63 photos and videos,

Academics:

Courses Taught

BAE 474 – Principles and Applications of Ecological Engineering (3 units - developed), 2012–present
 BAE 577 – Wetlands Design and Restoration (Distance Education – 3 units - developed), 2012-present
 BAE 200 - Computer Methods in Biological Engineering (2 units - significant revision of course content), 2008-2016

Guest Lectures

BAE 100 - Introduction to Biological Engineering
 BAE 442 - Systems Approach to Agricultural and Environmental Issues
 AES 250 - Survey of Agricultural and Environmental Issues
 BAE 204 - Introduction to Environmental and Ecological Engineering
 NR 610 - Land Water and People. Salinization Issues and Responses

International teaching

Universidad de Concepción - Environmental Sciences Center (EULA), 2008. 23 M.S. and Ph.D. students over a 1 week summer course were taught methods used in the United States to restore and protect wetlands. These students also learned how wetlands can be used to remediate stormwater and agricultural wastewater.

Undergraduate Mentoring

1. Undergraduate academic advisor, average 12 students/year, Fall 2009-Present
2. Park Scholar Mentor, Fall 2016 - Spring 2018, Fall 2020-present
3. Faculty Junior, Senior, and Past Adviser –student branch of ASABE, Fall 2009 – Spring 2015
4. Directed and sponsored 8 year-long, 4-5 member senior design teams for the BAE capstone Series (BAE 451/452)

Projects:

- *Enhanced Pre-treatment Aeration to improve N removal in Tertiary Treatment Wetlands (2019-2020)*
 - *Floating Wetlands at Lake MacGregor (2017-2018)*
 - *Innovative Wetland Restoration at Pocosin Lakes Through Outlet Structure Modification (2017-2018),*
 - *Harkers Island Stormwater Wetland and Solar Powered Pump Station (2016 –2017)*
 - *MacGregor Downs Stream Restoration/Stabilization (2015-2016)*
 - *Trash Mitigation at MacGregor Downs Country Club (2014 – 2015)*
 - *Proposed Management Practices at MacGregor Downs Golf Course to Improve the Water Quality of Swift Creek (2013 – 2014)*
 - *Wastewater Treatment Wetland and Pilot Mountain State Park (2010-2011)*
 - *Design of a New Stormwater Dune Infiltration System at Kure Beach, NC (2007-2008)*
5. Funded and directed undergraduate summer internships for 15 students
 6. Faculty Adviser – 35 member NCSU Rugby Football Club, Spring 2011-2013
 7. Mentor –EPA Star Fellowship Applicant (2008-2011 – awarded fellowship in 2011), NSF Graduate Research Fellowship Applicant (awarded fellowship in 2008)

Graduate Students - Ph.D. Chair or co-Chair

6. Brock Kamrath (Expected 2021)
5. Jack Kurki-Fox (2018). *Characterization and Evaluation of the Condition and Long-term Trajectory of Wetlands in North Carolina: Implications for Management and Restoration.*
4. Tiffany Messer (2015, EPA Star Fellow). *Predicting Impacts of Rerouting Drainage Water from the Pamlico Sound to Restored Wetlands: A Hydraulic and Water Quality Assessment.*
3. Yo-Jin Shiao (2014). *Greenhouse Gas Emissions and Carbon Sequestration Potential of a Created Tidal Marsh.*
2. J. Randall Etheridge (2013, NSF Fellow, co-Chair). *Quantifying the Water Quality Benefits of a Constructed Brackish Marsh and Tidal Stream System Using Continuous Water Quality and Flow Monitoring.*
1. Amey Tilak (2012, co-Chair). *Modeling Groundwater Hydrology and Nitrate-Nitrogen (NO₃-N) Dynamics of Two Riparian Buffers in Eastern North Carolina Using Riparian Ecosystem Management Model (REMM).*

Graduate students - M.S. Chair or co-Chair

9. Molly Landon (co-chair, expected 2022)
8. Brock Kamrath (2018). *Evaluation of Performance and Long term Viability of Wetland Creation and Restoration Projects in North Carolina.*
7. Mark Fernandez (2013, co-Chair). *Field Evaluation of Restored Streams and Wetlands in North Carolina Using Biological Indices and Rapid Assessments.*
6. Jacob Wiseman (2011). *Groundwater Nitrate Reductions in a Managed Riparian Buffer Located in the Upper Coastal Plain of North Carolina.*
5. William Price (2011). *Dune Infiltration Systems for Treating Coastal Stormwater Runoff.*
4. Tiffany Messer (2010). *Groundwater Nitrate Reductions within Upstream and Downstream Sections of a Riparian Buffer.*
3. Robert Jarzemyk (2009). *Hydrologic Evaluation of a Restored Wetland in Eastern North Carolina.*
2. Sara Johnson (2008, co-Chair). *An Evaluation of Nitrate Reduction through a Conservation Buffer Upslope of an Established Buffer.*
1. Tiffany Bright – M.S. (2007, co-Chair) *An Examination of a Dune Infiltration System's Impact on Coastal Hydrology and Bacteria Removal.*

Graduate students - Masters of BAE, Chair

7. Cory Larsen (IP)
6. Rebecca Vinter (IP)
5. Mary Curtis (2020)
4. Ben Carroll (2015)
3. Crystal Muller (2013)
2. Jodi Lindgren (2011)
1. J. Randall Etheridge (2010)

Graduate students - Committee Member

24. Jacqueline Welles, M.S. (IP)
23. Caleb Mitchell, M.S. (IP)
22. Arpit Sardana, Ph.D (IP – Dept. of Civil and Environmental Engineering)
21. Austin Wissler, M.S. (2019)
20. Katy Mazer, M.S. (2018)
19. Bryan Maxwell, Ph.D. (2018)
18. Chiao-Wen Lin, Ph.D. (2017)
17. Jessica Cain, M.S. (2017 - Dept. of Crop and Soil Science)
16. John Lewis (2016 - Dept. of Crop and Soil Science)
15. Ryan Winston, Ph.D. (2015)
14. Fatemeh Mohammadshirazi, M.S. (2015 - Dept. of Soil Science)
13. Laura Merriman, Ph.D. (2015)
12. Todd Guerdat, Ph.D. (2012)
11. Trish Culberson, Ph.D. (2011)
10. Lin Wu, M.S. (2010 - Dept. of Soil Science)
9. Mathew Taggart, M.S. (2010 - Dept. of Soil Science)
8. Jennifer Burdette, M.S. (2009 - Dept. of Crop and Soil Science)
7. Sara Knies, M.S. (2009 - Dept. of Soil Science)
6. Corey Shake, M.S. (2009 – Dept. of Forestry and Environmental Resources)
5. Hayes Lenhart, M.S. (2008)
4. Nicholas Lindow, Ph.D. (2007)

3. Swami Pati, Ph.D. (2006)
2. Jon Hathaway, M.S. (2005)
1. Jason Wright, M.S. (2005)

Visiting Scholars

1. Po-Kang Shi - PhD student on 1 year scholarship from the Department of International Cooperation and Science Education Ministry of Science and Technology Taiwan, 2015-2106

Post-doctoral students

1. Chad Poole – USDA-NIFA post-doc program. Co-Mentor, 2016-2018.

Profile**Which Boards would you like to apply for?**

Wake County Water Partnership: Submitted**Please select your first Board preference: ***

☒ Water Partnership**Please select your second Board preference: ***

☒ Wake County Water Partnership**Please select your third Board preference: ***

☒ None Selected**Please select your fourth Board preference: ***

☒ None Selected**Please select your fifth Board preference: ***

☒ None Selected**Please select your sixth Board preference: ***

☒ None Selected

Daniel

First Name

C

Middle Initial

Wiebke

Last Name

1912 Old Greenfield Rd

Street Address

Suite or Apt

Raleigh

City

NC

State

27604

Postal Code

What district do you live in?

None Selected

Mobile: (919) 614-0289

Primary Phone

Mobile: (919) 614-0289

Alternate Phone

dcwiebke@ncsu.edu

Email Address

McAdams

Employer

Water Resources Project
Manager

Job Title

If you live in an Extraterritorial Jurisdiction Area, select Yes:

☒ Yes ☐ No

In order to assure countywide representation, please indicate your place of residence:

☒ Unincorporated Wake County

Interests & Experiences

Why are you interested in serving on a Board or Commission?

I truly look forward to the innovation and ability to capture, conserve, and retain our great natural resources. I am a Professional Engineer with a concentration in Stormwater Management but some background in Water and Sewer. I look for the ways of the future to integrate the uses of water and how to move toward management solutions for the issues of too little water during times of drought and too much water due to intense rains and tropical storms.

Work Experience

NC Professional Engineer, Certified Floodplain Manager, NCSU Stormwater BMP Inspection and Maintenance, NCDENR Stormwater BMP Reviewer Certification May 2018-Present Water Resources Project Manager, McAdams July 2016-May 2018 Stormwater Engineer, AECOM June 2015- July 2016 Water Resources Engineer, UNC Chapel Hill May 2011- June 2015 Assistant Engineer/Engineering Intern/Engineering Tech, Withers & Ravenel, Inc.

Volunteer Experience

President of NC Water Resources Association; Member American Public Works Association, Member APWA Young Professionals Group

Education

North Carolina State University, Raleigh NC Masters Bio & Ag Engineering (Stormwater & Environmental) May 2013 B.S. Civil Engineering (Water Resources) May 2011

Comments

[20202_Resume.doc](#)

Upload a Resume

If you have another document you would like to attach to your application, you may upload it below:

Please upload a file

Demographics


Date of Birth

Gender *

☒ Male

Ethnicity *

☒ Caucasian

Other

How did you become aware of Wake County volunteer opportunities?

☒ County Website

If you selected "Other" above, how?

Please upload a file

ETHICS GUIDELINES FOR COUNTY ADVISORY BOARDS AND COMMISSIONS

ETHICS GUIDELINES FOR COUNTY ADVISORY BOARDS AND COMMISSIONS

By submitting this electronic application, if appointed, I pledge by my signature below that I have read and will comply with the ethics guidelines for advisory boards and commissions as adopted by the Wake County Board of Commissioners which are found at the link below.

<http://www.wakegov.com/commissions/Documents/CodeofEthics.pdf>

Daniel Wiebke PE, CFM

dcwiebke@ncsu.edu

1912 Old Greenfield Road

Raleigh NC, 27604

(919) 614-0289

Education

North Carolina State University, Raleigh NC

Masters Bio & Ag Engineering (Stormwater & Environmental) May 2013

B.S. Civil Engineering (Water Resources) May 2011

Work Experience and Certifications

NC Professional Engineer, Certified Floodplain Manager, NCSU Stormwater BMP Inspection and Maintenance, NCDENR Stormwater BMP Reviewer Certification

May 2018- Present

Project Manager, Water Resources, McAdams

July 2016-May 2018

Stormwater Engineer, AECOM

- Perform BMP/SCM inspections for Federal and State Agencies to fulfill NPDES requirements as well as modifications to SWPPP's and inspections of Industrial SCM's for target pollutants
- Review retrofits and designs and provide construction oversight of roadside SCM's for NCDOT
- Design SCM's using existing technologies in new applications
- Perform drainage studies utilizing models similar to EPA SWMM
- Provide erosion and sediment control plans for Industrial and Power Clients for large scale projects
- Review implications of changing NCDEQ permitting tools for Municipal and State Agencies

June 2015- July 2016

Water Resources Engineer, UNC Chapel Hill

- Help primarily with the Stormwater System and serve as additional support for Non-potable Water
- Review large scale design drawings from contractors to be built on campus as well as inspections
- Work with field crews to identify errors and omissions in GIS data
- Perform small scale retrofit and design sketches and calculations
- Respond to campus drainage issues
- Review and revise campus Stormwater Rules, Design Guidances, and Design Forms

May 2011- June 2015

Assistant Engineer/Engineering Intern/Engineering Tech, Withers & Ravenel, Inc.

- Direct Efforts of CAD Technicians, Engineering Technicians, Engineering Interns
- Advise Project Managers on larger scale projects
- Manage small to moderate sized Stormwater and greenway projects
- Flood Study- CLOMR, LOMR, No Rise
- Stormwater Design: BMP's, Detention Structures, LID Practices, Culverts/Drainage systems
- Hydrology: Watershed Studies; Delineation and Runoff Determination, TR-55, Arc-GIS
- Dam Maintenance; Dam Repair, Emergency Action Plan Preparations
- Stream Restoration Monitoring (NCEEP – Stream Monitoring, McKee Creek – Charlotte, NC)
- Waterline Design: Model Proposed Water Systems, Model WWTP Backwash and Filters, Pump Sizing
- Sanitary Sewer Design: Basin Demand at Buildout; Sewer Line Design; Wetwell Design; Pump Design
- Design Prep: AutoCAD drafting/drawing preparation, Quantity Takeoff, Permit Acquisition-CAMA, DOT Encroachment, Municipal Review

Academic Course Work

- Course Related: Structural BMP Design, Watershed Delineation (Both manual and Arc-Hydro), Hydrological Prediction, BMP Routing, Culvert Design, Flood Study, Watershed Assessment, Stream Restoration, Failure and Risk Assessment of Stream Restoration Structures, LID Planning,, Water

Treatment Design, Pipe Network Design, Water and Nutrient Management for Home-scale Agriculture, Surveying, Highway Design, Interchange Design, Traffic Optimization, Various Environmental Applications,

Computer Skills

- Course and Work Related: Arc Map, Arc-Hydro, AutoCAD , Civil Storm, HY-8, HEC-RAS, HEC-HMS, EPA SWMM, FHWA Hydraulics ToolBox, Sanitary and Storm Analysis (SWMM based), Flow Master, Pond Pack, Storm CAD, Water CAD(Limited), TAS (Terrain Analysis Software) Jump (Statistics Software), FORTRAN, Solid Works,
- Microsoft Office: Excel, Access, Word, PowerPoint, Movie Maker

Activities

North Carolina Water Resources Association, North Carolina Association of Floodplain Managers, American Public Works Association