



FINAL PROGRAM

SATURDAY, MARCH 2, 2019

8:00 AM – 9:00 AM Registration/Check-In for Dam Owner Training Workshop
9:00 AM – 5:00 PM Dam Owner Training Workshop (2nd Floor Parlor D)

SUNDAY, MARCH 3, 2019

1:00 – 4:00 PM Dam Engineer’s Forum (1st Floor Bon Air Suite)
1:30 – 5:00 PM Exhibitors’ Display Set Up (Exhibitors’ Area)
2:00 – 5:00 PM Registration (Conference Reception Desk)
4:00 – 5:00 PM Meeting of VLWA Board of Directors (2nd Floor York Room)
5:30 – 7:00 PM Exhibitor and Early Registrants’ Reception (James River Ballroom, Parlor H)

MONDAY MORNING, MARCH 4, 2019

7:00 – 8:00 AM Registration and Check-In (Conference Reception Desk)
7:30 AM Coffee and Pastries
7:45 – 9:00 AM Welcome to the Conference, Stuart Stein, Conference Chair

Keynote Address – Recollection of Early VLWA Activities, Dr. Ken Young, PE, Kenneth Young, LLC, Past President VLWA

Track A–Parlor A Track B–Parlor B Track C–Parlor F Track D–Parlor G Track E–Parlor E

9:15 – 10:30 AM First Concurrent Sessions

Session 1A • Stormwater 1 • Moderator – Stephanie MacDurmon, Brown and Caldwell

- (1) **A New Tool for Stormwater BMP Selection**, Shelly Frie, PE, ENV SP, Jacobs
- (2) **GIS Solutions for MS4 Compliance**, Matthew S. Webb, PE, Timmons Group
- (3) **WEF Stormwater Institute Update – The National MS4 Needs Assessment Survey**, Rebecca Arvin-Colon, Water Environment Federation
- (4) **MS4 E-Reporting to the BMP Warehouse: What You Should Know**, Stephanie MacDurmon, Brown and Caldwell

Session 1B • Stormwater Education and Outreach • Moderator – Zhongyan Xu, PE, PhD, CFM, George Mason University

- (1) **Taking Schools by Storm**, Meredith Dash, Alliance for the Chesapeake Bay
- (2) **Learning About Stormwater Education: A School Site Implementation Plan for Urban Bioretention**, Eric Loescher, PE, Timmons Group; Liz Scheessele, PE, CFM, ENV SP, Timmons Group; Stephen W. Smith, Newport News Public Schools
- (3) **What’s in Your Water? Experiential Education and Well Water Testing for High School Students and Their Families**, Erin Ling, MS, Virginia Tech and Virginia Cooperative Extension; Rachelle Rasco, MEd, Carroll County High School
- (4) **MS4 Outreach Program at George Mason University: A Unique Approach at Higher Education Institution**, Zhongyan Xu, PE, PhD, CFM, George Mason University; Brenda Claudio, CFM, George Mason University; Margaret Lo, George Mason University

Session 1C • Dam Safety 1 • Moderator – Amanda S. Pennington, PE, Department of Conservation and Recreation-Division of Soil and Water Conservation

- (1) **A Potential Flood: Virginia’s 2018 Constitutional Amendment Addressing Flood Mitigation**, Douglas H. Moseley III, AICP, CFM, GKY & Associates, Inc.
- (2) **VDEM Application Process for High Hazard Dam Breach Flood Damage Reduction Project**, Bruce W. Schwenneker, PhD, CFM, Whitman Requardt and Associates, LLP; Ronald E. Harris, PG, City of Newport News, VA
- (3) **Virginia Dam Safety, Flood Prevention and Protection Assistance Fund Grant Program – Dam Safety Projects**, Wendy Howard-Cooper, Virginia Department of Conservation and Recreation
- (4) **Virginia DCR Dam Rehabilitation Study and Report – Plans for the Rehabilitation of Aging Flood Control Dams, 2019 Update**, Amanda S. Pennington, PE, Department of Conservation and Recreation-Division of Soil and Water Conservation; David Warriner, PE, Department of Conservation and Recreation-Division of Soil and Water Conservation

Session 1D • Hydraulic Modeling 1 • Moderator – John Paine, PE, PH, CFM, GKY & Associates, Inc.

- (1) **Neighbors to Disaster – Advanced Modeling Informs Flood Response Planning**, Adrienne Shaner, PE, ENV SP, Gannett Fleming, Inc.; Don Demetrius, Ph.D., PE, CFM, Gannett Fleming, Inc.; (Retired) Fairfax County Department of Public Works & Environmental Services; Eric Neast, PE, Gannett Fleming, Inc.; Fairfax County Department of Public Works & Environmental Services
- (2) **SWMM Modeling: Assumptions and Accuracy**, Michael Sabon, EIT, AECOM; Kerstin Guillen Geba, PE, AECOM; Deva Borah, Ph.D., PE, F.ASCE, City of Chesapeake
- (3) **City of Virginia Beach Stormwater Modeling Program**, Amanda L. Medley, EIT, City of Virginia Beach Public Works/Stormwater Engineering Center; Michael C. Morgan, PE, CDM Smith
- (4) **Modeling Floodplains and Flooding: Tools, Trials, and Practical Issues**, John Paine, PE, PH, CFM, GKY & Associates, Inc.

Session 1E • Floodplain Management 1 • Moderator – Don Rissmeyer, PE, CFM, A. Morton Thomas & Associates, Inc.

- (1) **Virginia Dam Safety, Flood Prevention, and Protection Assistance Fund Grant Program – Floodplain Projects**, Kristin Owen, AICP, CFM, Virginia Department of Conservation and Recreation; Wendy Howard-Cooper, Virginia Department of Conservation and Recreation; Gina DiCicco, AICP, CFM, Virginia Department of Conservation and Recreation
- (2) **What’s the Buzz About Silver Jackets?** Michelle Hamor, CFM, U.S. Army Corps of Engineers, Norfolk District; Kristin Owen, AICP, CFM, Virginia Department of Conservation and Recreation
- (3) **Status of FEMA Flood Study Updates in Virginia**, Gina DiCicco, AICP, CFM, Virginia Department of Conservation and Recreation; Lee Brancheau, FEMA Region III
- (4) **Overview and Status of FEMA Flood Risk Products in Virginia**, Lee Brancheau, FEMA Region III; Jeff Smith, PE, PMP, CFM, AECOM

10:30 – 10:45 AM Coffee Break

10:45 AM – 12:00 PM Second Concurrent Sessions

Session 2A • Stormwater 2 • Moderator – Ben Chester, PE, ENV SP, DCR Soil and Water Conservation

- (1) **Implementing the City of Alexandria’s New Stormwater Utility Fee**, Rachael Moxley, PE, LEED AP BD+C, City of Alexandria, Virginia; Jesse E. Maines, MPA, City of Alexandria, Virginia; Danilo L. Nunez, PE, City of Alexandria, Virginia; Douglas H. Moseley III, AICP CFM, GKY & Associates, Inc.

(2) **The Potential of Phycoremediation to Reduce Metal and Nutrient Concentrations in Stormwater Ponds**, Elizabeth G. Malcolm, Ph.D., Virginia Wesleyan University; Maury E. Howard, Ph.D., Virginia Wesleyan University; Warren Canady, Virginia Wesleyan University; Arika Marosi, Virginia Wesleyan University; Margaret Reese, Ph.D., Virginia Wesleyan University; Xixi Wang, Ph.D., Old Dominion University; Katrina Henry, Ph.D., Virginia Wesleyan University

(3) **Agricultural Best Management Practices to Improve Water Quality**, Susan Liszeski, CEP, EEE Consulting, Inc.; Kathleen Cabe, PE, EEE Consulting, Inc.

(4) **If a Cow Poops in the River and Nobody Sees it, does it Count in the Chesbay Model? How Animal Waste Structures Improve Water Quality**, Ben Chester, PE, ENV SP, DCR Soil and Water Conservation

Session 2B • Green Infrastructure 1 • Moderator – Ray Hyland, PE, LEED AP, ENV SP, Brown and Caldwell

(1) **National Green Infrastructure Certification Program (NGICP) Training: Current Program & Future Developments**, Hannah Somers, GKY & Associates, Inc.; Douglas Fritz, GKY & Associates, Inc.; Stuart Stein, PE, D.WRE, GKY & Associates, Inc.; Adriana Caldarelli, Water Environment Federation

(2) **Adapting Green Infrastructure Tracking, Design & Evaluation Methods for a Variety of Program Goals**, Alysondria Eason, PE, Hazen and Sawyer

(3) **Green Stormwater Infrastructure for CSO Control**, Bernadette M. Callahan, PE, Stantec Consulting Services, Inc.

(4) **Green Infrastructure Maintenance Case Studies**, Ray Hyland, PE, LEED AP, ENV SP, Brown and Caldwell

Session 2C • Dam Safety 2 • Moderator – Rebecca Evans, United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS)

(1) **Do Yesterday's Earth-Cut Spillway Designs Meet Today's Standards? The ins and outs of Earth Spillway Design and Integrity Analysis**, Wesley Hollenbach, PE, CFM, AECOM; Paul Schweiger, PE, CFM, Gannett Fleming, Inc.; Kent R. Finemore, PE, NHDES – Dam Bureau; Andy Deichert, PE, West Virginia NRCS; Tim Ridley, PE, West Virginia NRCS; Jeff McClure, West Virginia NRCS

(2) **What Lies Behind the Decommission of a Dam**, Maridee Romero-Graves, PE, Schnabel Engineering, LLC

(3) **Reservoir Sediment Removal and Sustainable Management of Dams**, Paul G. Schweiger, PE, CFM, Gannett Fleming, Inc.; Eric C. Neast, PE, Gannett Fleming, Inc.; William L. Kingston III, PE, CFM, Gannett Fleming, Inc.

(4) **Sediment Survey Methods – Lessons Learned Through Dam Rehabilitation**, Rebecca Evans, United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS)

Session 2D • Hydraulic Modeling 2 • Moderator – Kaveh Zomorodi, Ph.D., PE, CFM, Dewberry

(1) **Using ArchHydro Tools in ARCGIS to Delineate Batch Watershed and Stream Network**, Zixu Zhao, AECOM; Ralph Coronel, AECOM; Seshadri Iyer, AECOM.

(2) **SWMM Modeling of High-Intensity Rainfall Events in Urban Areas**, Andrew P. Sarcinello, EIT, GKY & Associates, Inc.

(3) **High Water – SWMM at Your Own Risk: Dealing with Flood Conditions in SWMM Models**, Rachael D. Johnson, EIT, WSP

(4) **Design Coincident Flows at Stream Confluences Using NCHRP 15-36**, Kaveh Zomorodi, Ph.D., PE, CFM, Dewberry

Session 2E • Floodplain Management 2 • Moderator – Gina DiCicco, AICP, CFM, DCR/Dam Safety & Floodplain Management

(1) **Using a Tide Gate to Mitigate Floodplain Impacts on the I-64 High Rise Bridge Project**, Andrew B. Scott, PE, Virginia Department of Transportation

(2) **Stormwater Storage & Mitigation Challenges in the Lakes and Princess Anne Plaza**, Michael S. Bumbaco, PE, Department of Public Works, Stormwater Engineering; Dennis Dunham, PE, Michael Baker International

- (3) **FEMA/ASCE 24-14 Foundation Flood Opening Guidance**, Kurt Luecke, CFM, Floodproofing.com
- (4) **Drakes Branch: A History of Flooding**, Don Rissmeyer, PE, CFM, A. Morton Thomas and Associates

12:15 – 1:15 PM Luncheon

Keynote Address – Changing Lives, Having Fun, and Making Dreams Come True, Mr. Walter Hughes, Jr., Rotary Club of Rocky Mount, Virginia in District 7570

MONDAY AFTERNOON, MARCH 4, 2019

1:30 – 2:45 PM Third Concurrent Sessions

Session 3A • Stormwater 3 • Moderator – Ari Daniels, Center for Watershed Protection, Inc.

Panel Discussion – Leveraging and Upgrading Private BMPs for Mutual Public/Private Benefit

- (1) Stavros Calos, County of Albemarle, Virginia
- (2) David Hirschman, Hirschman Water & Environment, LLC
- (3) Kip Mumaw, PE, Ecosystem Services, LLC
- (4) Ari Daniels, Center for Watershed Protection, Inc.

Session 3B • Green Infrastructure 2 • Moderator – Aislinn Creel, PE, Timmons Group

- (1) **Stripping Down the Design of Vegetated Filter Strips**, Kendall Effler, Stantec Consulting Services, Inc.
- (2) **Smarter Than the Average Swale: Optimizing Stormwater Retrofits**, Melissa J. Simpson, PE, PMP, LEED AP, ENV SP, WSP
- (3) **Fulfilling Multiple Needs with One Deed: A Wet Swale Story**, Amity B. Dewey, PE, WSP, Inc.; James E. Wright, Jr., PE, City of Portsmouth
- (4) **Transcending Silos to Achieve Measurable Results**, Aislinn Creel, PE, Timmons Group

Session 3C • Dam Safety 3 • Moderator – Geoffrey L. Cowan, PE, Dewberry Engineers, Inc.

- (1) **Little Creek Dam Seepage and Internal Erosion Assessments**, James City County, Virginia, James R. Swindler Jr., PE, Stantec Consulting Services, Inc.
- (2) **Inspection of Nottoway Reservoir Dam**, Chris Kuhn, Stantec Consulting Services, Inc.
- (3) **Hydroturf Overtopping Protection for Lake Arrowhead Dam**, Jesse L. McWilliams, EIT, Timmons Group; Brad H. Cooley, PE, Watershed Geosynthetics
- (4) **Horsepen Dam Alteration & the Route 606 Widening Design-Build Project**, Geoffrey L. Cowan, PE, Dewberry Engineers, Inc.; Nick Shimer, Dewberry Engineers, Inc.

Session 3D • Hydraulic Modeling 3 • Moderator – David P. Wilmoth, PE, CFM, PH, Dam Safety and Floodplain Management Division, Virginia Department of Conservation and Recreation (DCR)

- (1) **Rapid Response Modeling and Mapping for North Carolina at-Risk Dams**, Katie Hermann, CFM, GISP, ESP Associates, Inc.; Scott Gentry, PE, CFM, North Carolina Floodplain Mapping Program (NCFMP), Division of North Carolina Emergency Management
- (2) **CFD Modeling to Evaluate and Improve Public Safety Around Dams**, Benjamin Israel-Devadason, PE, CFM, Gannett Fleming, Inc.; Paul G. Schweiger, PE, CFM, Gannett Fleming, Inc.
- (3) **A Look at Several 2D Modeling Software Packages and a Case Study on How Their Results Can Vary**, Steve Godfrey, PE, CFM, Woolpert, Inc.
- (4) **DCR Dam Safety Modeling Update: Virginia Temporal Distribution Curves**, David P. Wilmoth, PE, CFM, PH, Dam Safety and Floodplain Management Division, Virginia Department of Conservation and Recreation (DCR)

Session 3E • Floodplain Management 3 • Moderator – Kristin Owen, AICP, CFM, DCR/Dam Safety & Floodplain Management

- (1) **Designing for Urban Coastal Resiliency**, Margaret Hopkins, PE, AKRF, Inc.
- (2) **Stop the Tide, Save the Storage: Solutions for Flooding in Windsor Woods and Beyond**, Nicole Dane, PE, Michael Baker International; Michael Mundy, PE, Virginia Beach Department of Public Works; Ian Kaliakin, EIT, ENV SP, Michael Baker International
- (3) **Little Westham Creek Floodplain Study**, Christy Hill, PE, Blossom Consulting and Engineering, Inc.; Nick Laretta, PE, Blossom Consulting and Engineering, Inc.
- (4) **Post Hurricane Site Improvements Seek to Improve Resiliency**, Scott C. Blossom, PE, CFM, LEED AP, Blossom Consulting and Engineering, Inc.

2:45 – 3:15 PM Coffee Break

3:15 – 4:30 PM Fourth Concurrent Sessions

Session 4A • Stormwater 4 • Moderator – John N. Burke, Fairfax County Stormwater

- (1) **The Stormwater Infrastructure Management Cycle – Cad to Cattails**, Michele Seib, PE, Loudoun County Department of General Services; Chris Stone, Loudoun County Department of General Services
- (2) **Using ARCGIS Online for Stormwater Inspections and Reporting**, Suzanne Angelo, PE, GK Y & Associates, Inc.
- (3) **Transitioning Stormwater Facility Maintenance from Reactive to Proactive: An Experiment in Risk Assessment and Predictive Analytics**, Eric Caldwell, Fairfax County Stormwater Management
- (4) **A Guide for Often Overlooked Stormwater Issues at Maintenance Facilities**, John N. Burke, Fairfax County Stormwater

Session 4B • Green Infrastructure 3 • Moderator – Kateri S. Shreve, PE, LEED AP, VCCO, Luck Ecosystems

- (1) **Evaluating the Effectiveness and Cost Efficiency of Green Infrastructure in Reducing Stormwater Runoff in Developing Countries: A Case Study of Havana, Cuba**, Sherwin Zahirieh, George Mason University
- (2) **Trees & Water Sensitive Urban Design**, Jeremy Bailey, GreenBlue Urban (Presented by Matthew Werle, GreenBlue Urban)
- (3) **Land Cover Change, an Innovative Stormwater Solution?** Laurie Coffman, PE Timmons Group
- (4) **Characteristics of Bioretention Soil Media Utilizing Crushed Stone Sand**, Kateri S. Shreve, PE, LEED AP, VCCO, Luck Ecosystems; Catherine Hughes, Luck Ecosystems

Session 4C • Dam Safety 4 • Moderator – Michael McIntyre, PE, AECOM

- (1) **Damage Sustained by Virginia Soil and Water Conservation District Dams from Hurricane Michael (We Survived Florence, How Bad Could Michael Be?)**, Charles T. Wilson, PE, Virginia Department of Conservation and Recreation, Division of Soil and Water Conservation
- (2) **Virginia Dam Safety Region 3: A Tour Across the Region**, Scott J. Thomas, PE, Virginia Department of Conservation and Recreation, Division of Dam Safety and Floodplain Management
- (3) **Dams of the Grand Tours**, N. Johan Anestad, PE, O'Brien & Gere Engineers, Inc.
- (4) **Mosul Dam: Challenges in Foundation Stabilization & Dam Rehabilitation**, Michael McIntyre, PE, AECOM; David Sawitzki, PE, AECOM

Session 4D • Flood Resilience 1 • Moderator – Meredith Upchurch, PE, ASLA, RK&K

- (1) **City of Virginia Beach – Ashville Park Stormwater**, Charles J. (C.J.) Bodnar, PE; City of Virginia Beach; Michael (Mike) W. Mundy, PE, City of Virginia Beach; Bradley (Brad) W. Vanderwarker, PE, City of Virginia Beach
- (2) **Injecting Energy and Focus in Local Planning Efforts; The Hampton Roads Area Planning Implementation and Project Development**, Mari Radford, Federal Emergency Management Agency Region 3; Jake Schmierer, Federal Emergency Management Agency Region 3; Robbie Coates, Virginia Department of Emergency Management

(3) **NC FIMAN: Hurricane Florence Success Stories and Future Vision**, Scott Gentry, PE, CFM, North Carolina Division of Emergency Management, North Carolina Floodplain Mapping Program (NCFMP); Matt Dudley, PE, CFM, ESP Associates, Inc.

(4) **DC DOT Flood Emergency Response Plan: Preparing a City Agency for Severe Events**, Meredith Upchurch, PE, ASLA, RK&K; Brian Finerfrock, PE, RK&K; With Support from Siva Sangameswaran, PhD, PE, D.WRE, CFM, Dewberry Consultants LLC; Aileen Craig, PE, RK&K

Session 4E • Floodplain Management 4 • Moderator – Ken Somerset, CBO, CFM, City of Poquoson

(1) **The National Flood Insurance Program 2019 – Overview and Updates**, Richard J. Sobota, CPCU, Federal Emergency Management Agency (FEMA)

(2) **An Introduction to NOAA’s National Water Model**, Jennifer McGee, PE, CFM, GISP, Wood E&IS

(3) **An Introduction to FEMA Coastal Floodplain Mapping: Designing a National, Interactive Tutorial**, Bradley Dean, CFM, CE, Michael Baker International

(4) **Coastal Virginia Resilience: Data Needs, CRS Program Recommendations, & Regional CRS Support Positions**, Mary-Carson Stiff, CFM, JD, Wetlands Watch

MONDAY EVENING, MARCH 4, 2019

4:45 – 6:00 PM Reception (James River Ballroom Parlor H)

6:00 – 6:30 PM Virginia Lakes and Watersheds Association Business Meeting, Parlor F

TUESDAY MORNING, MARCH 5, 2019

7:15 – 8:15 AM Virginia Floodplain Management Association Business Meeting, Parlor E

7:30 AM Coffee and Pastries

8:30 – 9:45 AM Fifth Concurrent Sessions

Session 5A • Stormwater 5 • Moderator – Michael Hogan, PE, RK&K; Bert White, PE, RK&K

- (1) **Evaluating Opportunities for Public/Private Partnerships with Non-Profit Organization Property Owners to Increase Stormwater Management in a Fully Developed Municipality**, J. Douglas Fritz, CPESC, GKY & Associates, Inc.
- (2) **Stormwater Pond Improvements – Adding Water Quality and Public Safety in a Neighborhood Setting**, David Duncan, PE, Timmons Group; Liz Scheessele, PE, CFM, ENV SP, Timmons Group; Rey Hernandez Jr., PE, City of Norfolk
- (3) **Arlington National Cemetery: Protecting Our Waterways and Honoring Those Who Protect Us**, Jim Novak PE, WSP; Rachael D. Johnson, WSP; Melissa Simpson PE, WSP
- (4) **Jacked but Never Bored on the Turnpike Road Railroad**, Michael Hogan, PE, RK&K; Bert White, PE, RK&K

Session 5B • Water Quality Modeling • Moderator – Deva K. Borah, Ph.D., PE, F.ASCE, City of Chesapeake

- (1) **A New Process and Tool for Screening Nutrient Responses in Streams**, Clifton Bell, PE, PG, Brown and Caldwell; Mira Micin, Brown and Caldwell
- (2) **Simulation of Watershed-Scale Practices for Mitigating Thermal Pollution Due to Urbanization**, Mehdi Ketabchy, MASC, ENV SP, EIT, A.M.ASCE, Gannett Fleming, Inc.; David J. Sample, Ph.D., PE, Virginia Polytechnic Institute and State University; Theresa Wynn-Thompson, Ph.D., Virginia Polytechnic Institute and State University
- (3) **Nonparametric Techniques in Model Calibration and Performance Evaluation**, Jaewan Yoon, Ph.D., Old Dominion University
- (4) **Total Maximum Daily Load Analysis and Modeling: An ASCE Manual of Practice Being Written**, Deva K. Borah, Ph.D., PE, F.ASCE, City of Chesapeake

Session 5C • Emerging Issues • Moderator – Cory Anderson, Stantec Consulting Services, Inc.

- (1) **Design and Implementation of a Decision Support System to Enable Standardized Environmental Compliance Procedures for Virginia’s Nutrient Credit Exchange**, Linnea Saby, University of Virginia; Michelle E. Fults, GISP, Virginia Department of Transportation; Jon Goodall, University of Virginia
- (2) **Reclaiming the “Rainbow Reedy”: A New Phosphorus Standard for Development**, John E. Schooler, Jr., PE, SWM CA, Woolpert, Inc.
- (3) **Where Do We Flow from Here? A Legal Perspective on Interstate Groundwater Management**, Amber Leasure-Earnhardt, J.D. Candidate, William and Mary Law School, MELP, Vermont Law School
- (4) **The Elephant in the Stream: Case for Hydraulic Standards for Stream Restoration**, Cory Anderson, Stantec Consulting Services, Inc.

Session 5D • Stream Stability and Restoration 1 • Moderator – Raleigh Coleman, Department of Conservation and Recreation, Division of Soil and Water Conservation

- (1) **Triassic Lowlands, a Unique Region of the Piedmont: Implications for Regulators, Local Governments and Practitioners**, LeAnne E. Astin, Fairfax County Dept. of Public Works & Environmental Services (DPWES)
- (2) **Transitions from Velocity Based Channel Lining Designs to Shear Stress in Accordance with the 2016 VDOT Road and Bridge Specifications**, Kathleen Cabe, PE, EEE Consulting, Inc.

- (3) **The Self-Recovery of Stream Channel Stability in Urban Watersheds Due to BMP Implementation, Carroll County, MD**, Neely L. Law, PhD, Center for Watershed Protection, Inc.; Bill Stack, PE, Center for Watershed Protection; Lisa Fraley-McNeal, Center for Watershed Protection; Gale Engles, Carroll County Bureau of Resource Management; Byron Madigan, Carroll County Bureau of Resource Management; M. Covington, PE CFM, DWRE., Carroll County Bureau of Resource Management; Reid Christianson, PhD, PE, University of Illinois Urbana-Champaign College of Agricultural, Consumer & Environmental Sciences
- (4) **Engineering Grade Stabilization Structures to Stabilize Extreme Gully Erosion and Protect Water Quality**, Raleigh Coleman, Department of Conservation and Recreation, Division of Soil and Water Conservation

Session 5E • Floodplain Management 5 • Moderator – David Waggoner, Waggoner & Ball Architecture/Environment

- (1) **Langley Air Force Base Sea Level Rise Mitigation Efforts**, LesLee S. Roderick, Major, USAF, PE, 633d Civil Engineer Squadron
- (2) **Modeling Impacts of Climate Change on Riverine Floodplains**, Shane Parson, PE, CFM, AECOM
- (3) **Flood Resiliency in Princeville, North Carolina**, Ryan Smith, PE, Moffatt & Nichol (Presented by Allison Bryan, Moffatt & Nichol)
- (4) **Applying Layered Resiliency Strategies to Reduce Flooding Risks While Enhancing the Natural, Built, and Human Environments**, Christopher Frye, VHB; Kimberly Blossom, VHB

9:45 – 10:15 AM Coffee Break

10:15 – 11:30 AM Sixth Concurrent Sessions

Session 6A • Flood Resilience 2 • Moderator – Tonia P. Alger, PE, City of Virginia Beach

- PANEL DISCUSSION: Pivoting to the Future: Planning for Flood Resilience in Virginia Beach**, Jessica Fleck, Dewberry; Sue Kriebel, PE, City of Virginia Beach Public Works Engineering; Brian K. Batten, PhD, Dewberry; Rahul Parab, PE, CFM, D.WRE, Dewberry; Robert Acker, PE, Dewberry; Tonia Alger, PE, City of Virginia Beach Public Works Engineering; Xiaohai Liu, PhD, PE, Dewberry; Tarig Omer, PE, City of Virginia Beach Public Works Engineering; Siva Sangameswaran, PhD, PE, D.WRE, CFM, Dewberry; Andrew Shillingsford, PE, Dewberry; Steven Poe, PE, City of Virginia Beach Public Works Engineering; Kevin Slover, CFM, Dewberry
- (1) **Establishing a Policy Response to Instill Flood Resilience Across City Governance**, Sue E. Kriebel, PE, City of Virginia Beach, Public Works Engineering; Jessica Fleck, Dewberry
- (2) **Conceptual Structural Alternatives for City-wide Flood Risk Reduction**, Brian Batten, PhD, Dewberry
- (3) **Assessing Performance of Structural Strategies with an Integrated Coastal Rainfall-Runoff Model**, Steven J. Poe, PE, City of Virginia Beach, Public Works Engineering; Xiaohai Liu, PhD, PE, Dewberry
- (4) **Understanding Comprehensive Watershed Vulnerability in the Southern Rivers Watershed of Virginia Beach**, Tarig Omer, PE, City of Virginia Beach, Public Works Engineering; Siva Sangameswaran, PhD, PE, D.WRE, Dewberry

Session 6B • Lake Water Quality • Moderator – Mary Lofton, Virginia Tech

- (1) **Analysis of Historical Monitoring Data to Forecast Future Phytoplankton Blooms in a Small Drinking Water Reservoir**, Whitney M. Woelmer, Virginia Tech; Mary E. Lofton, Virginia Tech; Ryan P. McClure, Virginia Tech; Bethany J. Bookout, Virginia Tech; R. Quinn Thomas, Ph.D., Assistant Professor, Virginia Tech, Cayelan C. Carey, Ph.D., Assistant Professor, Virginia Tech
- (2) **Simulation of Phytoplankton, Rooted Plants, and Sediment Fluxes in a Shallow Eutrophic Lake**, Sen Bai, Ph.D, PE, Tetra Tech, Inc.; Ping Wu, P. Eng, Alberta Environment and Parks
- (3) **Advances in Field-Deployable Particle Image Velocimetry**, Brandon Dillon, Virginia Tech; Kyle Strom, Ph.D., Virginia Tech

(4) **Real-Time Ecological Forecasting Enables Adaptive Water Quality Management in a Drinking Water Reservoir**, Cayelan Carey, Virginia Tech; R. Quinn Thomas, Virginia Tech; Renato Figueiredo, University of Florida; Mary Lofton, Virginia Tech; Bethany Bookout, Virginia Tech; Vahid Daneshmand, University of Florida; Dexter Howard, Virginia Tech; Ryan McClure, Virginia Tech; Whitney Woelmer, Virginia Tech (Presented by Mary Lofton, Virginia Tech)

Session 6C • Shoreline Protection • Moderator – Andrew Tiefenback, EIT, Stantec Consulting Services, Inc.

- (1) **Post-Construction Review of Living Shoreline Projects**, Ben Nash, PLA, Brown and Caldwell
- (2) **Sand Filled Mattresses; New Technology for a Living Shoreline**, Tom Stephens, TenCate Geosynthetics
- (3) **Alternative Shoreline Stabilization at Brunswick Town/Fort Anderson**, Phillip C. Todd, Atlantic ReefMaker
- (4) **Living Shoreline Siting and Nutrient Crediting Estimates: Avoiding Deceptive Data**, Andrew Tiefenback, EIT, Stantec Consulting Services, Inc.

Session 6D • Stream Stability and Restoration 2 • Moderator – Joni M. Calmbacher, PE, CFM, City of Alexandria

- (1) **Suitland Regency Outfall Stabilization/Stream Restoration Project for Chesapeake Bay TMDL Credit**, David W. Black, PE, Rummel, Klepper & Kahl, LLP
- (2) **Navigating the Obstacles of Urban Stream Restoration**, Alex C. Lucado, PE, CFM, Timmons Group; Katie E. Atkinson, EIT, Timmons Group
- (3) **Expanding Asset Protection to Include Stream Restoration**, Joel McSwain, Hazen and Sawyer
- (4) **Eenie, Meenie, Miny, Moe – Alexandria’s Stream Restoration and Outfall Stabilization Project Selection Methodology**, Joni M. Calmbacher, PE, CFM, City of Alexandria; Troy Biggs, PE, PH, D.WRE, Wood Environment & Infrastructure Solutions

Session 6E • Floodplain Management 6 • Moderator – Mark Slauter, CFM, Slauter Industries, LLC

- (1) **Comparing Streamline Generation Tools for Large-Scale Applications**, Kristine Mosuela, EIT, Wood Environmental & Infrastructure Solutions; John Paul Miller, HIT, Wood Environmental & Infrastructure Solutions
- (2) **Flood Hazard Mapping Behind Non-Accredited Levees**, M. Tariq Makhdoom, Ph.D., CFM, Atkins (SNC-Lavalin)
- (3) **Three is a Magic Number: 3-D Hydrodynamic and Water Quality Modeling of Storm Surge Barriers on Three Estuaries for a USACE 3X3X3**, Brian Joyner, PE, Moffatt & Nichol
- (4) **Technological Advances in 2D: What is Probabilistic Modeling**, Christine Estes, PE, CFM, AECOM; David Rubenstein, AECOM

11:45 – 1:00 PM Luncheon

VLWA Dam Safety Committee Announcement

Dave Pearson Watershed Excellence Award

Taking Schools by Storm, by Meredith Dash, Alliance for the Chesapeake Bay

Honorable Mentions

Fulfilling Multiple Needs with One Deed: A Wet Swale Story, by Amity B. Dewey, PE, WSP, Inc.; James E. Wright, Jr., PE, City of Portsmouth

The Potential of Phycoremediation to Reduce Metal and Nutrient Concentrations in Stormwater Ponds, by Elizabeth G. Malcolm, Ph.D., Virginia Wesleyan University; Maury E. Howard, Ph.D., Virginia Wesleyan University; Warren Canady, Virginia Wesleyan University; Arika Marosi, Virginia Wesleyan University; Margaret Reese, Ph.D., Virginia Wesleyan University; Xixi Wang, Ph.D., Old Dominion University; Katrina Henry, Ph.D., Virginia Wesleyan University

Keynote Address – Living with Water, Mr. David Waggoner, Waggoner & Ball Architecture/Environment