



LESSONS LEARNED FROM STREAM RESTORATION IN OTHER JURISDICTIONS

November 13, 2019 | Pearson Convention Center, Brampton, ON

Register at www.sustainabletechnologies.ca/events/

8:00 – 8:45 am **REGISTRATION**

8:45 – 9:00 am **WELCOME & INTRODUCTIONS**

9:00 – 9:40 am **THE ROLE OF UNIVERSITIES IN MOVING STREAM RESTORATION FORWARD**

Presenter: Barbara Doll, Assistant Extension Professor in Biological and Agricultural Engineering, North Carolina State University, Raleigh, NC

- Demonstration projects
- Trying risky techniques
- Graduate students

9:40 – 10:20 am **THE MANY USES FOR REGIONAL CURVES**

Presenter: Dave Bidelsbach, Owner, 5 Smooth Stones Restoration, Fort Collins, CO

- Different Types of Curves
- Applications in Design
- Applications for Regulators

10:20 – 10:40 am **NETWORKING BREAK**

10:40 – 11:20 am **DAM REMOVAL AND STREAM RESTORATION**

Presenter: Mike Chelminski, Principal and Sr. Engineer, Stantec, Northampton, MA

- Issues associated with aging dams
- Removal of dams
- Stream restoration opportunities and challenges associated with dam removal

11:20 – 12:00 pm **TRENDS IN DESIGN AND CONSTRUCTION: A CONTRACTORS PERSPECTIVE**

Presenter: Riley Lecka, Director of Construction, Wildlands Engineering Inc., Charlotte, NC

- Build in the wet
- Use of wood, sod mats, hay bales
- Use of 3 D surface to build projects
- Design-build

12:00 – 1:00 pm **LUNCH**

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1:00 – 1:40 pm REGENERATIVE STREAM CONVEYANCE

Presenter: Joe Berg, Senior Restoration Ecologist, Biohabitats, Baltimore, MD

- A new technique for stream restoration in urban areas
- Possible applications
- Benefits (water quality and water quantity)

1:40 – 2:20 pm LESSONS LEARNED FROM NORTH CAROLINA'S IN-LIEU FEE PROGRAM

Presenter: Tim Baumgartner, Director, Division of Mitigation Services, Department of Environmental Quality, Raleigh, NC

- History of program
- Technical Lessons Learned (rock cross-vanes, wood, etc.)
- Program Lessons Learned (benefits of full delivery, do not sell credits too inexpensively)

2:20 – 2:40 pm NETWORKING BREAK

2:40 – 3:20 pm THE STREAM BANKING INDUSTRY IN THE US

Presenter: George Kelly, Board Member, Resource Environmental Solutions LLC, Bellaire TX

- What is 3rd Party Banking
- How big a business is this?
- What are the benefits of 3rd Party Banking?

3:20 – 4:00 pm USING BEAVERS FOR STREAM RESTORATION

Presenter: Scott McGill, Founder and CEO, Ecotone, Baltimore, MD

- Beavers were once plentiful in North America and played a role in stabilizing streams
- Beavers have generally been considered the enemy of stream restoration projects
- Beavers are now being used to help stabilize streams and offer many benefits

4:00 – 4:10 pm WRAP UP & CLOSING

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PRESENTERS:



BARBARA DOLL, PhD, PE, Assistant Extension Professor in Biological and Agricultural Engineering, North Carolina State University, Raleigh, NC

Barbara has more than 20 years experience in stream restoration. She is the principal investigator for more than \$1M in grants and leads a team of engineers and scientists that conduct outreach and research projects focused on evaluating the performance of stream restoration efforts and developing new techniques for ecological restoration and stormwater management.

Barbara is the leader of the Stream Restoration Program at NC State University, which carries out research, trains students, conducts numerous stream restoration training workshops for professionals and organizes EcoStream, the Southeast Regional Stream Restoration Conference, which is one of five regional stream restoration conference held every two years in the US. The Southeast Conference is attended by more than 400 practitioners and regulators.

Barbara will speak about the role of universities in moving the science of stream restoration forward by training students and professionals, carrying out research and organizing events to facilitate the transfer of information and knowledge.



DAVE BIDELSPACH, BS, MS, MEng, PE, Member- RiverSHARED, Owner - 5 Smooth Stones Restoration, Fort Collins, CO

Dave has 20 years of experience in stream restoration. He has published more than 20 scientific papers and presented at more than 50 conferences. During that time, he has worked on stream restoration projects in 34 states, 9 Canadian provinces and 2 Territories. Dave pioneered the use of 3D design and GPS enabled construction equipment back in 2007.

Dave is currently involved in a project involving the design and construction of more than 100 km of stream restoration as compensation for a new reservoir for Dallas/Fort Worth. Most recently, Dave has decided to devote considerable energy to creating RiverSHARED, an organization whose mission is to facilitate innovation and excellence in river science and restoration. To that end, Dave has been teaching courses and training staff from many different design firms.

Dave will be speaking about regional curves, particularly the relationship between drainage area and bankfull cross-sectional area, and its value to designers and regulators.



MICHAEL CHELMINSKI, MS, PE. Principal and Sr. Engineer, Stantec, Northampton, MA

Mike is responsible for technical aspects of ecological evaluation, mitigation, and restoration analyses and designs with specific emphases and expertise in dam removal. He has worked on approximately 100 dam removal studies, including several in Canada, and is the engineer-of-record for 17 completed dam removals. His project experience includes ecological restoration design and monitoring, fish passage assessments and dam safety evaluations.

Mike will speak about the opportunities and challenges for stream restoration presented as we deal with aging infrastructure presented by thousands of dams that are no longer needed or at risk of failure.



RILEY LECKA, Director of Construction, Wildlands Engineering Inc., Charlotte, NC

Riley Lecka has been constructing stream restoration projects for more than 18 years. He has taken training from Dave Rosgen and is certified in erosion control in 12 states. He has worked with four different firms and constructed more than 100 projects in 40 states. The projects range in size from a few hundred yards of bank stabilization to as long as 30 miles. His favorite project involved the Yampa River in Steamboat Springs Colorado. The project involved the excavation of a new alignment, toe wood was installed for fish habitat and bank stabilization, and boulder rock structures put in place for grade control. Lastly, sod mats and 15-foot-tall willow transplants were put in place for revegetation. Riley loves his work and the opportunities it provides to restore the natural environment.

Riley will speak about some of the trends that he is seeing as a contractor. This will include the use of wood for instream structures, design-build as a project delivery mechanism and new technologies for construction (e.g., GPS guided equipment).



JOE BERG, PWS, CSE, CERP, Senior Restoration Ecologist, Biohabitats, Baltimore, MD

Joe is an ecosystems ecologist with more than 30 years experience in the assessment and analysis of natural resources, documentation and permitting experience and the preparation and implementation of restoration plans. The focus of his efforts include restoration of integrate stream, wetland and floodplain functions as a means to deliver ecosystem services to society, increase natural capital, and integrate local community needs with an appreciation of natural resource values. He is the Practice Leader for Ecological Restoration for Biohabitats.

Joe graduated with an M.S. in Marine, Estuarine, and Environmental Science from the University of Maryland in 1984 after two years working on Chesapeake Bay issues as a research fellow.

Joe will speak about regenerative stream conveyance. Originally developed as a technique for managing water quality and water quantity issues associated with stormwater in urban areas, Biohabitats is now applying it to stream channels.



TIM BAUMGARTNER, BS, Director, Division of Mitigation Services, North Carolina Department of Environmental Quality, Raleigh, NC

Tim has more than 20 years of experience working with compensatory mitigation both in the private and public sector. As a private mitigation consultant, he developed and managed multiple stream and wetland mitigation projects for both public and private uses.

Tim now manages the North Carolina In-Lieu Fee Program and is responsible for project implementation and credit procurement that meets the needs of North Carolina Department of Transportation and private development. The Division of Mitigation Services has restored more than 1,200 km of streams and more than 11,000 hectares of wetlands over the last 22 years. During that time the DMS has partnered with numerous researchers to help improve the quality of the restoration projects in the southeast.

Tim will speak about the policy and technical lessons learned from administering a large and successful in-lieu fee program.



GEORGE KELLY, BA, JD, MSL, Board Member, Resource Environmental Solutions LLC, Bellaire TX

George has more than 30 years experience in the field of performance-based environmental restoration, including as a mitigation banker. He currently serves as the founder and director of Bespoke Mitigation Partners. He also founded Environmental Banc & Exchange LLC, which was acquired by Resource Environmental Solutions in 2014 and now serves on RES' Board of Directors. He has permitted and sold over \$200M of environmental credits in the United States relating to water quality, wetlands, streams, stormwater and endangered species in Maryland, Idaho, Montana, Virginia, West Virginia, Pennsylvania, North and South Carolina, Georgia, Texas, Louisiana, California and Florida.

George is also active in representing the mitigation banking industry. He served on the Board of the National Mitigation Bankers Association for ten years and was elected President in 2009. As an advisory member of the International Business for Biodiversity Offsets, George was invited to speak in Alberta about options for providing environmental offsets for oil sands impacts.

George will speak about the mitigation banking industry and the role of the private sector in environmental restoration in the US..



SCOTT MCGILL, BS, Founder and CEO, Ecotone, Baltimore, MD

Scott has more than 29 years of applied experience in both design and construction of ecological restoration projects throughout the United States. His "less is more" approach to design and construction that incorporates conservation biology and adaptive management is widely accepted as an innovative model for sustainable cost-effective ecological restoration.

Scott founded Ecotone in 1998 and since that time the firm has restored more than 130,000 linear feet of stream.

Once thought to be the enemy of stream restoration, Scott will speak about the idea of using beavers to help restore streams and rivers.