



Captain Kevin Ferrell and rear sweep crewman Sebastian Backstrom direct Virginia Commonwealth University students in the Footprints on the James course to navigate the 43.5 foot bateau Mary Ingles through Goolsby's Falls rapid on the Piedmont section of the James River, Virginia.
Photo: James Vonesh.

Discovering a Passion on the James River

by Ella Buckwalter

When I began my path to earning the River Studies and Leadership Certificate (RSLC) during my second year of undergrad, I had little idea of my potential career paths. I had recently declared a major in Environmental Studies. I was often met with the question of what I planned to do when I graduated. I didn't really know, but I hoped it had something to do with rivers.

Importance of experiential learning courses

My first significant step toward that goal came when I saw a unique course advertised at my college, Virginia Commonwealth University (VCU). The course, *Footprints on the James*, was a month-long journey that spanned the James River's course from its headwaters to the Chesapeake Bay. We kayaked, canoed, and even traveled by bateau, a 40 to 50 foot long, six foot wide flat-bottomed wooden boat used to transport goods in upland Virginia

and navigate the shallow, rocky waters of the James in the mid-seventeen to eighteen hundreds. We lived in harmony with the river, waking and sleeping to its flow, while witnessing the River Continuum Concept—an ecological model that describes how river characteristics change from headwaters to mouth—unfold before our eyes. From the narrow, forested headwaters teeming with allochthonous life to the wide, sunlit expanse of the estuary, where autochthonous production fueled a rich web of life, we experienced firsthand the dynamic interplay between the river and its surrounding landscape.

The course wasn't just about scientific observation; it dove into the history intertwined with the James River. We learned how the river served as a source of natural resources for early Native American communities, a transportation artery for European colonists, and a source of hydropower for industrial development.

(continued, pages 6-7)



Main Office

Risa Shimoda, Executive Director
PO Box 5750, Takoma Park, MD 20913-5750
(301) 585-4677 / cell (301) 502-6548
executivedirector@river-management.org

**River Training Center
River Studies and Leadership Certificate**

Angie Fuhrmann, Coordinator
(480) 818-3649 / angie@river-management.org

National Rivers Project

James Major, Coordinator
(540) 717-3595 / james@river-management.org

Communications

Bekah Price, Coordinator
(423) 943-2000 / bekah@river-management.org

Professional Purchase

Rick Waldrup, Lead
(406) 925-1554 / riverguy@bresnan.net

Anja Wadman, Assistant
(801) 388-2214 / awadman@blm.gov

RMS Store / Merchandise

Judy Culver
(928) 443-8070 / jculver@blm.gov

RMS Journal

Sera Janson Zegre, Editor / Design
(970) 201-6163 / sera@river-management.org

National Officers

Judy Culver, President, Taos, NM
(928) 443-8070 / jculver@blm.gov

Shannon Bassista, Vice President, Boise, ID
(208) 373-3845 / sbassista@blm.gov

Helen Clough, Secretary, Juneau, AK
(907) 790-4189 / hcloughak@gmail.com

Rob White, Treasurer, Salida, CO
(719) 221-8494 / rob.whiteco@gmail.com

Emma Lord, Chapter Liaison, Loudon, NH
(518) 728-4029 / emma_lord@nps.gov

Ex-Officio Advisors

Bob Randall, Kaplan, Kirsch & Rockwell LLP
(303) 825-7000 / brandall@kaplankirsch.com

Nate Hunt, Kaplan Kirsch & Rockwell LLP
(303) 825-7000 / nhunt@kaplankirsch.com

Steve Chesterton, US Forest Service
(202) 205-1398 / stephen.chesterton@usda.gov

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Articles are not edited for content and may not reflect the position, endorsement, or mission of RMS. The purpose of this policy is to encourage the free exchange of ideas concerning river management issues in an open forum of communication among the RMS membership. Unless indicated, points of view are solely those of the author.

Executive Director's Eddy

Passing the Paddle

As the year turns toward sunset, so does our long-term partnership with Caroline Kurz, whom some of you met when she was Caroline Tan.

If you are a long-time friend of the River Management Society (RMS), you will be familiar with what we have shared in this issue in hopes to tip our hat to her with sufficient gusto. If you are new to RMS, I hope you'll give the *RMS Timeline* a glance to know how we appreciate her contribution to all we are today.

Long-time member and advisor Gary Marsh recalls her as, "the day-to-day face of ARMS (American River Management Society, our name until 1999) and RMS."

I will add a few body part analogs to Gary's reference: Caroline has served, provided confidence and continuity, and intervened from time to time as the backbone of our demure operation, a sure-footed leader for our entrepreneurial approach to problem-solving, and heart and soul embodiment of the river rats who take care to navigate projects, initiatives, events, and campaigns safely, yet are at-the-ready to address a need to eddy out or portage a hazard.

My first experience with Caroline was as I stepped into the role of Executive Director. During a week spent in Missoula to transfer files, advice, familiarity, and firsthand identification of future opportunities, my naive self had a bare appreciation for her institutional knowledge. While she provided all possible means of files and folders, she was subsequently super open to my relentless questions and advice about symposium planning, elections, and committee effectiveness.



Risa Shimoda, RMS Executive Director

Due to an interest in meeting both new and long-standing members and an oddly high number of life events that have sent me to Missoula, I have had the pleasure of seeing Caroline in person since that time.

We have been completely spoiled by the service she has continued to offer as our Editor, coordinating with our *RMS Journal* printer in her hometown of Missoula (we mail RMS Journals from a separate bulk mailing firm, also in town) and handling glitches with aplomb. She has thoughtfully offered suggestions when my sentences are pitifully constructed and asked knowing questions about contributed articles when an author's skill is suspect.

That she was the recipient of our *Contribution to the River Management Society* award in 2016 at the River Management Symposium in Boise was an overdue token offer of thanks and recognition for 22 years of RMS service. We should thank another person for Caroline's history with RMS, besides all that she has contributed to our legacy

and trajectory. This guy hired her: LuVerne Grussing, River Management Society Past Chair and Idaho Rivers United's current Board Chair, and he says:

Caroline got involved with RMS when she was working for me as a grad student. Since that time, Caroline and her family have become like family to us. All of the good work that RMS has been able to accomplish would not have been possible without Caroline. She deserves all of the tributes that come in.

She will not disappear from our lives entirely. She will check our *RMS Journal* press proofs, the final step before our hometown printer hits the 'go' button, saving us time and the expense of overnighting them for final approval.

Caroline, we'll think of you as RMS' friend, employee, ally, cheerleader, and surrogate mom for a long time, with applause and appreciation. ❖

Risa Shimoda
Executive Director



Risa and Caroline

President's Corner

Lessons from History

Do you ever wonder if we are destined to repeat lessons forgotten in history? This thought stems from revisiting a *RMS Journal* article from Fall 2018 about replacing the Manning Crevice Bridge over the Salmon River. Linda Jalbert wrote:

The role of RMS is becoming more important as recreational river use increases and environmental conditions change. As a member, be proud that you are among those responsible for sound management and protection of our rivers. Keep up the good work, but don't let down your guard.



Judy Culver, RMS President

It is shocking to consider the changes in that river ecosystem since 2018: drought, wildfires, flooding, extreme heat, and expansion of invasive species. Yet, river managers, fisheries and wildlife biologists, and hydrologists and watershed specialists around the country continue to innovate ways to respond to these environmental challenges. Professionals are helping to stabilize streams damaged by mining, grazing or farming by restoring the channel and floodplain. For example, innovations like beaver dam analogs (BDAs) mimic the benefits of a natural beaver dam; with BDAs and the reintroduction of beaver when possible, we see channelized waterways return and historical wetlands re-establish.

Studies of BDA installation and beaver reintroduction in headwaters of western watersheds show promising results: decreased sedimentation, recharged local waters, regenerated native species (e.g., willows and grasslands), and increased wildfire protection. Although results are hopeful, is any human action truly innocuous?

Sound management and protection of our rivers requires those passionate professionals and local stakeholders take time to analyze and communicate the successes and failures of management approaches. Innovative approaches and standard practices need to be assessed to determine whether those actions have no adverse effect, can be considered harmless or if that practice can be adapted to other environments whether it is utilizing traditional knowledge shared with land managers or recreating a natural condition such as BDAs.

As environmental conditions change, I look forward to RMS continuing discussions, sharing knowledge and providing teachable opportunities via RMS round robins, events, symposia, and through this publication. It is important that we continue to share knowledge, remember history, explore innovations, and continue to focus our efforts on maintaining status quo where appropriate as well as supporting those actions that improve landscape conditions that improve resiliency in these challenging times. ❖

Judy Culver, RMS President

RMS Journal Issue - SE Chapter Focus

Southeast by James Vonesh

Training the Next Generation

Just over ten years ago, the River Management Society (RMS) embarked on a journey to cultivate the next generation of river stewards through the River Studies and Leadership Certificate (RSLC) program. The first certificate was awarded in 2015. At that time, no schools in the Southeast participated in this program, but that has changed. RMS now celebrates a decade of training the next generation.

The Southeast Chapter stands out, embodying the transformative power of connecting university faculty and students with river professionals to inspire the river stewards of tomorrow.

This issue of the *RMS Journal* showcases the vibrant tapestry of conservation efforts and educational initiatives woven into the fabric of our chapter. The Southeast (Figure 1), a region blessed with unmatched aquatic biodiversity, serves as a reminder of the delicate balance we strive to maintain now and into the future.

These pages delve into the profound beauty and complex challenges facing our rivers. We review R. Scot Duncan's new book *Southeastern Rivers*, which celebrates the rivers of our region and provides a poignant reminder of the vital importance of our mission.

We also illuminate innovative conservation approaches, showcasing the remarkable potential of citizen science, as exemplified by the use of dragonflies as bioindicators for mercury contamination on the Wekiva River.

We foster a connection with our rivers through immersive experiences. Our chapter river trips, including a recent exploration of the historic James River and an upcoming joint adventure to the awe-inspiring Buffalo River, offer invaluable opportunities to learn, connect, and celebrate the natural wonders that surround us. Given recent flooding devastating our region, we have called and emailed every member in the worst hit areas to check on their welfare and to gather feedback on how to best support them. We hope for a service-oriented trip opportunity in the future.



Figure 1: Southeast Chapter by state and the rivers represented in this issue. Map: James Major.



Students conducting streamflow measurements on Deckers Creek in Morgantown, West Virginia, the home of West Virginia University, the newest school in the River Studies and Leadership Certificate program. Photo: Nicolas Zegre.

The Southeast Chapter's leadership legacy is deeply intertwined with our commitment to empowering the next generation. The Southeast Chapter proudly present the greatest number of RSLC awards, even though our chapter is less than half the size of the largest chapters in terms of membership (Figure 2). This achievement reflects our proactive approach to bridging the gap between academia and the field, fostering a vibrant exchange between aspiring river stewards and seasoned professionals. Supporting this, one of our most exciting developments is the addition of a new RSLC school in the Southeast Chapter at West Virginia University.

The cover article by Ella Buckwalter describes her journey as an RSLC student in the Southeast Chapter. She first participated in a field course and interacted with river professors from across the country through the National Science Foundation funded River Field Studies Network that seeks to train river scholars—many affiliated with the RSLC program—on immersive field education. Ella now merges her passion for outdoor leadership and water science during her RSLC professional experience. Her path provides an example of the key steps we seek to support in the path of becoming river manager: educate students, educate scholars, and provide professional experience.

As we look to the future, we see it problematic that the participation in the certificate program developed by RMS to train students is uneven across chapters. The majority (75%) of awards come from just two chapters—most from just two schools in these regions—and several chapters have no participating RSLC school (Figure 2). But what would happen if each chapter were to foster just one RSLC program?

A decade later, the RSLC program stands at a crossroads. Since 2015, the program has increased in certificates awarded and schools involved. However, we still have work to do to ensure the success of these programs, even after the Memorandum of Understanding with the schools are signed. The remarkable and unique potential of bridging practitioners, scholars, and students to train future stewards of our waterways is within our reach—these intentional strokes proposed will help ensure we don't get caught in an eddy.

The remarkable and unique potential of bridging practitioners, scholars, and students to train future stewards of our waterways is within our reach - these intentional strokes proposed will help ensure we don't get caught in an eddy.

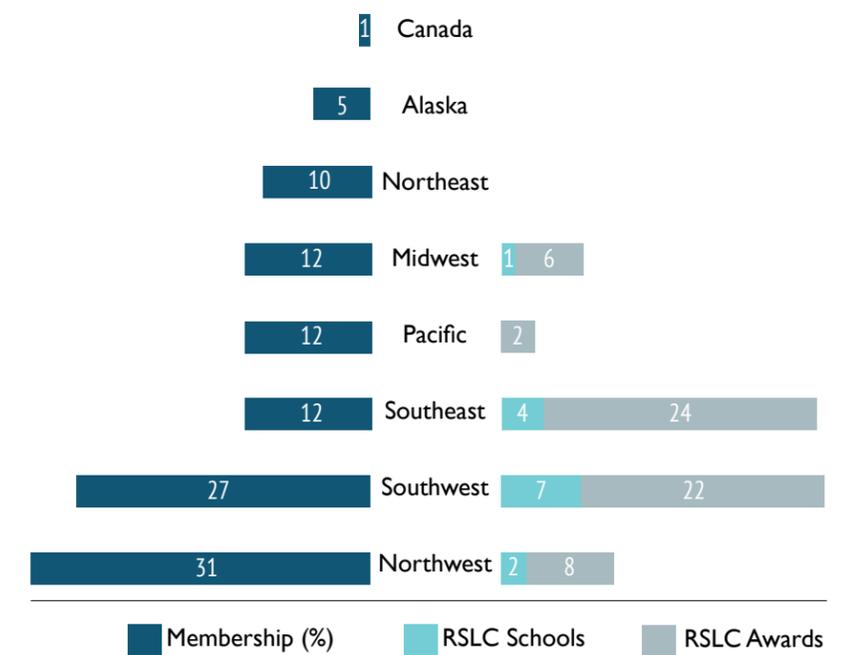


Figure 2: River Management Society (RMS) membership (in %), participating River Studies and Leadership Certificate (RSLC) schools and RSLC awards by chapter.

As a membership, we are charged to bridge students, teachers and professionals. We challenge other chapters to cultivate new RSLC partners and connect with their current RSLC coordinators to create more integration across professional and academic spheres. To fully realize the vision of the RMS leadership that created the RSLC program, what we propose depends on the chapters fostering and engaging with certificate schools. If each chapter creates a regional strategy for developing the RSLC, we may also consider adding a new position to each chapter's leadership team—the *Chapter RSLC Coordinator*.

I challenge us to integrate river school coordinators into RMS Chapter leadership to nurture stronger ties between educational institutions and river management practitioners. Doing this, we can collectively amplify our impact and cultivate a new generation of leaders equipped to navigate the complexities of river conservation in the 21st century. ❖

James Vonesh, PhD, is a professor of Environmental Studies, RSLC Coordinator, and NSF River Field Studies Network Lead at Virginia Commonwealth University

(Passion on the James, continued from page 1)

We saw remnants of the Kanawha Canal, a marvel of engineering that once rivaled the Erie Canal, and the railroad tracks that later replaced it. We camped near cities that rely on the James for drinking water and power plant cooling, gaining an understanding of the river's vital role in Virginia's infrastructure. However, we also saw the impact humans have had on the river. We observed the effects of altered land use on water quality, encountering agricultural runoff and witnessing the consequences of sprawling development. We learned about the challenges of managing flood events and the delicate balance between human needs and riverine health.

During the course, our group of twelve students became close friends and a strong team. We shared a passion for the outdoors, a love for nature, and we learned from each other every day.

National Science Foundation River Field Studies Network

The diverse group of faculty on the trip was another highlight. These scholars, part of the National Science Foundation (NSF) funded River Field Studies Network scholar training program, came from across the country to share and test the lesson plans they developed in their scholar training program around rivers and freshwater science. They piloted their new lesson plans on us students, and we offered valuable feedback. It was an incredible opportunity to learn from leading experts on a range of topics, from microplastic pollution to stream metabolism, all while paddling down the James. I was inspired by my peers and the river professionals I had met and excited by the possibility of a career in freshwater science while I was driven to further develop my outdoor skills. These two passions would allow me to both understand and advocate for these vital ecosystems.



2024 *Footprints on the James* students at camp on the Upper James River. Callan Bentley, professor of Geology at Piedmont Community College and a guest speaker on the course, gives a field lecture on the geology of the region. Photo: James Vonesh.

Becoming a river leader

My next step was to become a trip leader for the VCU Outdoor Adventure Program (OAP). The Student Outdoor Leadership Experience (SOLE) program, a rigorous two-semester training course, equipped me with the skills to guide others safely and effectively on river trips and other outdoor excursions. From mastering group dynamics and backcountry camping techniques to wilderness first aid and swiftwater safety, the program honed my leadership abilities and made me confident in leading my community in the outdoors. Leading river trips for the OAP became more than just a job; it was an opportunity to share my passion for rivers with others. When guiding fellow students on kayaking and canoeing expeditions, I always had a deep sense of fulfillment watching them thrive in the outdoors. Teaching them about river ecology, safety, and *Leave No Trace* principles fuelled my passion for environmental stewardship and my respect for the delicate river ecosystems we explored.

Gaining professional experience in water

While SOLE nurtured my leadership skills, I knew my next step should be practical professional experience on rivers. An internship doing water quality monitoring with the Virginia Department of Environmental Quality (DEQ) during the following summer provided the perfect opportunity. Working with an amazing team of scientists, I spent my time traversing the state, collecting water and sediment samples from various rivers, including the James. This internship was an invaluable introduction to the world of professional water quality management. I learned about the complex regulations governing water quality, the scientific methods employed in monitoring, and the challenges faced by state agencies in protecting these vital resources. Witnessing firsthand the dedication and expertise

of the DEQ professionals deepened my understanding of the importance of water quality and the critical role government agencies play in safeguarding our rivers. One of the monitoring runs I frequently participated in took place on the James River Estuary. The scenery of the lower James, which I had first explored the previous summer by sea kayak, rushed by much faster as we navigated it by motorboat. While we traversed the James, I couldn't help but feel a deep connection to the river—it was almost like a homecoming. Returning to this familiar stretch of water to monitor its health, I felt like I was giving back to the place that had nurtured my passion for rivers just a year earlier.

Inspiring a new generation of river stewards

The culmination of my RSLC journey came full circle this past summer when I co-led the *Footprints on the James* course, the experience that had ignited my passion for rivers two years earlier. Now, with the knowledge and skills I had gained through SOLE, the RSLC program, and my DEQ internship, I was eager to give back to a new generation of aspiring river stewards. I was excited to help guide the students down the river, sharing my love for paddling and nature, while also incorporating my professional experience into the course by creating a comprehensive water quality lab for them. Early in the new class, my DEQ colleagues Matt Carter and Andrew Kirk visited as guest speakers to introduce students to Virginia DEQ's role in water quality monitoring and discuss potential career opportunities. The students learned to collect and analyze water samples, measuring parameters like dissolved oxygen, temperature, turbidity, nutrient concentrations, and bacterial counts. As they traveled down the James, they measured these parameters daily and entered the data into a custom *Survey123* app. Witnessing the students' enthusiasm as they collected data and made connections between their observations and the river's health was incredibly rewarding. I saw in them the same curiosity and passion that had guided my own journey. By sharing my experiences and knowledge, I hoped to inspire them to become future leaders in river conservation.

Flowing forward

The RSLC program at VCU has been instrumental in shaping my academic and professional path. Through a combination of coursework, hands-on experiences, and mentorship from dedicated professionals, I have gained the knowledge, skills, and confidence to pursue a fulfilling career in river conservation. The program's emphasis on leadership development, experiential learning, and professional networking has prepared me to tackle the challenges facing our waterways. I am filled with gratitude for the opportunities the RSLC program has given me. My journey from a student discovering my passion on the James River to being a confident leader and outdoor advocate has been transformative. I encourage all students with a passion for rivers to explore the RSLC and similar programs that provide the tools and inspiration to become the next generation of river stewards. I am excited to continue my journey, contributing to the ongoing efforts to protect and restore our rivers, ensuring that they remain healthy and loved for generations to come.

The month-long *Footprints on the James* course and the opportunities I've had through RMS, VCU OAP, and Virginia DEQ have profoundly impacted my life and future. The *Footprints on the James* experience was a journey of commitment, growth, learning, and camaraderie. Every evening, we gathered in a circle under the setting sun to debrief the day, sharing our most memorable moments. It was in these moments of reflection and discussion that I truly realized how much growth happens when you exchange perspectives with others who share your passion. I am confident that the mentors and students met through the RSLC program will continue to drive important conversations about protecting and restoring our natural lands. ❖

Ella Buckwalter is a 2024 RMS River Studies and Leadership Certificate recipient at Virginia Commonwealth University. She concluded her professional experience the Virginia DEQ and has just accepted a new position as an Environmental Field Technician at LaBella Associates in Richmond, Virginia.



Early in the *Footprints on the James* course, students were divided into two groups. Each group was taught a different lab by professors in the NSF River Field Studies Network who were honing their field instructor skills. Later in the course, these same student teams worked together to teach the learned lab to the other half of the class at Otter Creek in the Blue Ridge. Here the author's group taught an introductory fluvial geology lab to their classmates.

Photo: James Vonesh.

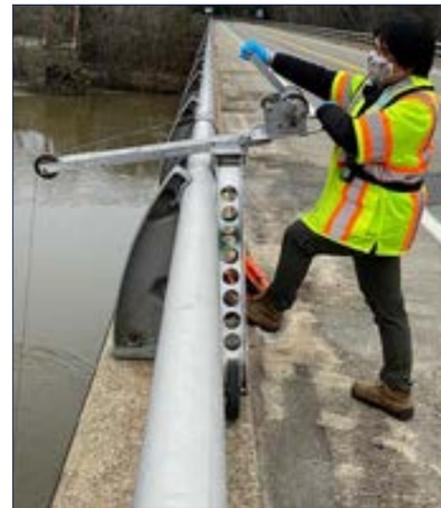
RSLC Alumni — the Next Generation of River Professionals

Where are they now?

RMS launched the RSLC program in 2015 in partnership with various universities to help students build a foundation of knowledge, skills, and experience in river-based science, policy, conservation, education, and recreation. Since then, 62 students have graduated with the certificate, and most have gone on to pursue careers in river management and stewardship. We showcase them to learn more about what the pathway from student to river professional looks like today.

Richie Dang

Virginia Commonwealth University Alumnus —
USGS Hydrologic Technician
AmeriCorps Climate Resiliency Technician



My first memory of being on the river was looking for clams with my family. We had a turkey neck on a line to catch blue crabs and were also fishing for catfish. These fond memories drove me to learn more about our environment and waterways.

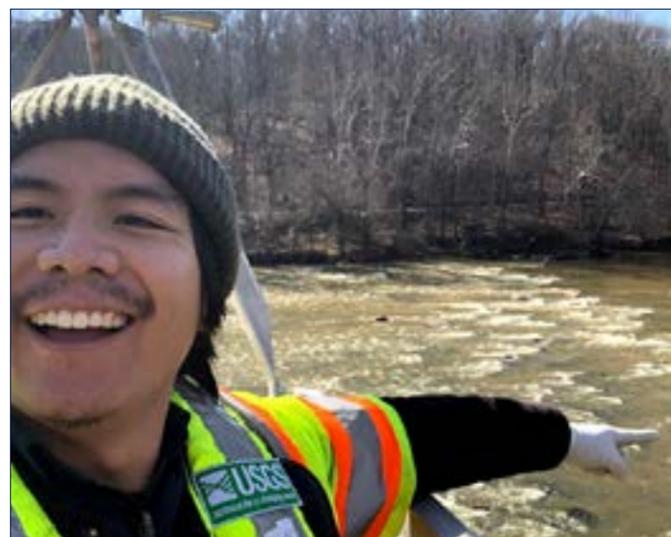
During my time at VCU and being a part of the RSLC, I slowly developed an understanding of the dynamics of our streams and what factors determine its health. To help put what I have learned in the classrooms and apply it to a real-world scenario, I reached out to a contact at the United States Geological Survey (USGS). I heard from a professor that the USGS was involved in continuous water quality work, and I was determined to get my foot in the door. My persistence led me to contact Kurt McCoy various times throughout a few months, which paid off when he asked me to come in for an interview. I was hired on as a hydrologic field assistant, where I spent my time helping to convert analog observation well data into digital data, created GIS maps and went on field trips to help with new observation well installations.

This experience was great, but I wanted to be more involved in surface water and reached out to Alyssa Thornton and tagged along with one of her technicians on a sampling run. That experience opened my eyes to the intricacies of collecting a water quality sample and how enjoyable and fulfilling the work was. However, it did not last long as my internship was cut short due to Covid, and I was no longer in contact with anyone in the USGS. Then one day, I received a call from Alyssa reaching out to me if I wanted a technician position and happily accepted.

My time with the USGS has allowed me to perform multiple tasks to help monitor the quality of our streams and aquifers, travel to different parts of the countries for training or sampling, and most importantly, utilize what I learned from VCU and RLSC. Currently, I am in charge of a set of water quality monitoring stations in Roanoke, Virginia.

One of my tasks involves checking my sites daily to ensure the stations are operational. These stations provide real-time data on water temperature, specific conductance, dissolved oxygen, turbidity and pH. The instrument providing this set of water quality data needs to be routinely checked to guarantee the data that we are providing to the public and our cooperators are of the highest quality. The Roanoke project also includes discrete water quality samples that are collected as well. Combining the continuous data from the stations and the discrete data collected from the samples, helps our cooperators make informed decisions on ways to improve the health of their streams. With the data that I collect, I am doing my part in improving the health of our rivers and streams so that future generations and families can enjoy them and create the same fond memories I did. ❖

For more information about the RSLC, visit: <https://www.river-management.org/river-studies-leadership-certificate>



RSLC Program Builds Stoke, Skills, and Community at West Virginia University

Words and photos by Nicolas Zegre

West Virginia University (WVU) has recently signed the MOU to offer the River Studies and Leadership Certificate (RSLC) program to its students. With more than 54,000 miles of rivers that dissect the heavily forested Appalachian Mountains and some of the highest concentrations of whitewater in the country, West Virginia provides an outstanding environment for studying and applying river conservation and management techniques.

River Conservation & Management serves as a core class for the RSLC.

This field-based course facilitates students building their toolbox of transferable river conservation knowledge, skills, and tools. Students learn how to measure and apply hydrologic and ecological processes; find, analyze and visualize complex hydrologic, ecological, climatological, and social vulnerability data; use interviews and participatory methods that expand participation knowledge generation and planning; and how to create river conservation plans that convey needs of communities and environment.

Collaborating with river professionals ensures course content and learning are grounded in real world practice.

This provides our students the opportunity to engage with active professionals in the river management community. We work closely with two local watershed conservation groups: Friends of the Cheat (FOC) and Friends of Deckers Creek (FODC). Partnering with a local river organizations helps situate learning both in the field and with organizations, helping out and also sampling the work that students envision themselves doing. ❖

Nicolas Zegre, PhD, is Director WVU Mountain Hydrology Lab, RSLC Coordinator, and NSF River Field Studies Network Lead.



Left: To learn how to measure streamflow and its importance for planning and decision-making, students work with FODC Executive Director Brian Hurley (left). Deckers Creek, an urban stream that flows through town, has long been polluted by coal mining and industrialization. But, the creek is recovering due to restoration efforts led by FODC; trout have reemerged. A local business owner, LJ Giuliani (right), and member of Mainstreet Morgantown, a nonprofit focusing on downtown vitality, explains how measurements are used for a whitewater park design in a community economic development project.

Below: Madison Ball, FOC Conservation Program Director sharing the story of rebirth of the Cheat River before conducting a noninvasive snorkel survey to assess the health of sensitive aquatic organisms including the hellbender salamander.



WVU Student Stoke:

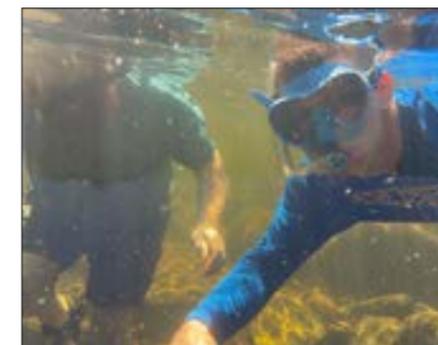
“Entering the river environment always changes my perspective and provides new experiences and knowledge.”

— Eva Bridges,
MS student Environmental Engineering



Engaging with the river in that sort of personal capacity— by actually getting into the river and feeling the water flow around you—gives a new perspective on the river and what it means to have a healthy waterway... By wading into and swimming in the river, I have a new appreciation for the health and quality of that river, and the watershed at large. I also feel I appreciate the efforts of the Friends of Cheat nonprofit more, now having seen and swam in the Cheat.

— Sam Gardner,
2024 River Conservation & Management student



Seeing the underwater life up close made me appreciate the need for fieldwork in conservation efforts. It's clear that getting in the water and observing first hand is crucial for making sure rivers stay healthy and support all the different species that live there.

— Lane Huffman,
2024 River Conservation & Management student

The experience as a whole truly was incredible. It was so much fun. I know rehabilitation of a [stream] takes years if not decades but it is incredible to see what a small non-profit was able to accomplish for our local community.”

— Cooper Lowe
2024 RSLC Program student

The FoTJ eJournal App: Assessing Participation, Belonging and Teamwork in the Field

Words and figures by James Vonesh

The assessment of participation, belonging, and teamwork in field-based learning experiences is crucial for understanding group dynamics and ensuring the success of these programs. Traditional methods, such as end-of-course surveys and anecdotal observations, often fail to capture the nuances and complexities of these experiences.

The *Footprints on the James (FoTJ) eJournal* app, developed by Dr.'s Rodney Dyer and James Vonesh at Virginia Commonwealth University (VCU), offers a promising solution to this challenge. The app provides a platform for real-time, longitudinal tracking of student perceptions, offering valuable insights into the group dynamics and individual experiences throughout a field course.

Importance of assessment

Field-based learning experiences, such as river trips and outdoor expeditions, offer unique opportunities for personal and academic growth. These experiences can foster a sense of belonging, encourage active participation, and promote teamwork among participants. However, the success of these experiences is not guaranteed. Challenges such as social dynamics, individual anxieties, and unexpected events can impact participation, belonging, and teamwork.

Assessing these factors is essential for several reasons. First, it allows facilitators and instructors to understand group dynamics more deeply and identify potential issues earlier. Second, it provides a platform for participants to express their feelings and experiences, promoting personal agency and ownership. Third, it

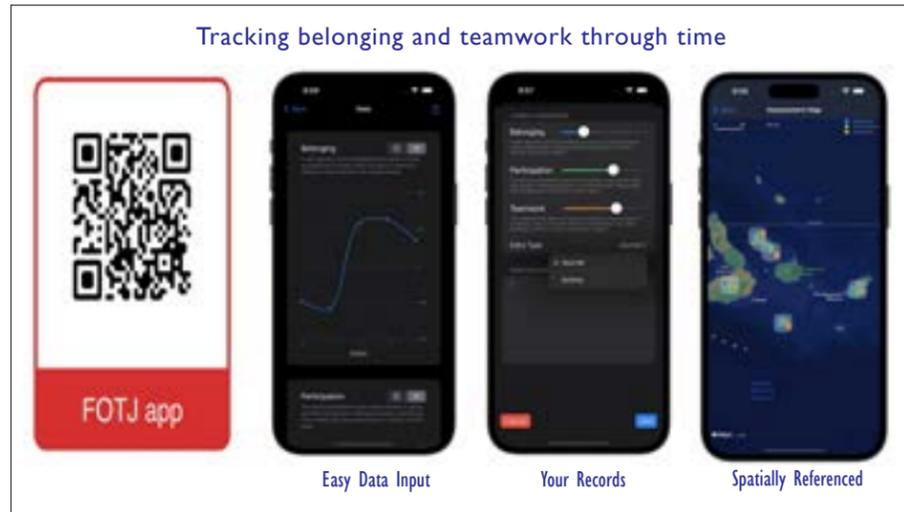


Figure 1: View of the FoTJ dashboard as the individual student would see it. From left to right: QR code for download; the sidebar input for belonging, participation, teamwork, where participants input responses; illustration showing that data are spatially recorded; and a “map” of belonging and teamwork through space (i.e. where did they feel most belonging).

generates valuable data that can be used to improve future field courses and tailor interventions to support individual needs. Assessing these elements contributes to both the personal development of participants, as well as the overall success of the program.

App development and characteristics

The *FoTJ eJournal* app was developed in response to the need for a more comprehensive and nuanced approach to assessing participation, belonging, and teamwork in field studies. The app was initially designed for the *Footprints on the James* course at VCU, a multi-week immersive course that explores the human and natural history of the James River.

The app’s design prioritizes user-friendliness and anonymity. It features a quick and intuitive interface that allows participants to record their feelings on a sliding scale and dictate journal entries for sentiment analysis. The app

also collects weather and location data, providing valuable situational context for understanding participant experiences. All data is stored on the device, ensuring privacy and minimizing the need for internet connectivity.

Introducing the app to RMS

On June 11, 2024, the River Management Society hosted a webinar titled *Belonging, Participation, and Teamwork on your River Trip? There’s an app for that!* This webinar served to introduce the *FoTJ eJournal* app to a broader audience of river professionals. Dr. Rodney Dyer presented the app’s features, functionalities, and potential applications beyond the academic setting.

The webinar also fostered a discussion about the importance of assessing belonging, participation, and teamwork in various river-related activities, highlighting the app’s potential value for river managers, guides, and educators.

Piloting the app

The *FoTJ eJournal* app was piloted during the *Footprints on the James* course, providing valuable insights into its effectiveness and potential applications. The app’s ability to capture real-time data allowed for tracking changes in belonging, participation, and teamwork throughout the course. This fine-scale temporal resolution revealed nuanced patterns and trends that would have been missed with traditional assessment methods.

...the app data showed a general trend of increasing belonging scores over time...

For example, the app data showed a general trend of increasing belonging scores over time, with some fluctuations and individual variations. This suggests that the course was successful in fostering a sense of belonging among participants, but also highlights the importance of recognizing and addressing individual differences. The app also revealed that perceived teamwork increased until mid-course and then plateaued, prompting

The app also revealed that perceived teamwork increased until mid-course and then plateaued, prompting reflection on potential interventions to further enhance teamwork development.

reflection on potential interventions to further enhance teamwork development. The app’s sentiment analysis feature provided additional insights into participant experiences. By analyzing the language used in journal entries, the app could identify patterns and trends in emotional states over time. This information could be used to identify potential issues and tailor interventions to support participant well-being.

Implications

The *FoTJ eJournal* app has implications for river management and other field-based learning experiences.

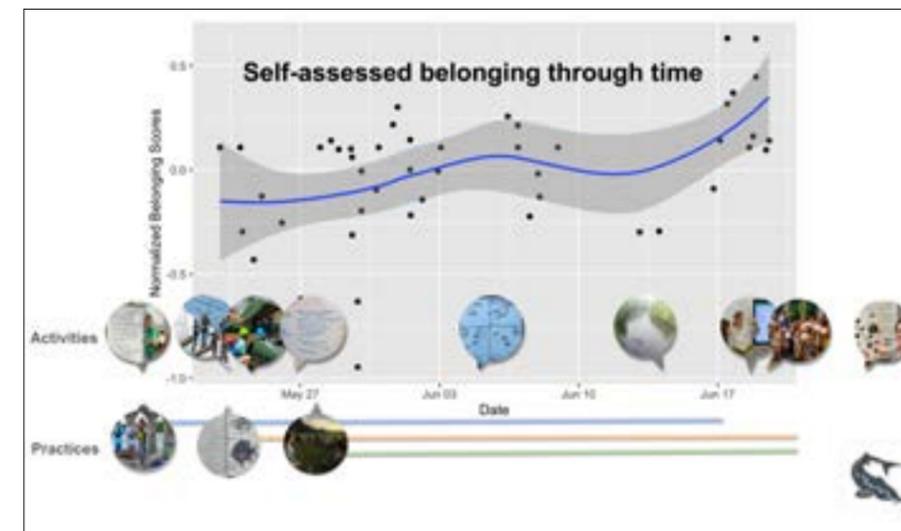


Figure 2: Normalized student response for belonging through time with specific activities or events shown in photos over the course timeline.

Notes: These are pilot exploratory data. Data summarized includes all participants in group.

Its ability to provide real-time, longitudinal data on participation, belonging, and teamwork can help facilitators and instructors:

- **Gain a deeper understanding of group dynamics:** The app’s fine-scale temporal resolution allows for the identification of subtle shifts and patterns in group dynamics, enabling proactive interventions to address potential issues.
- **Identify and support individuals:** The app’s ability to track individual trajectories can help identify participants who may be struggling with belonging, participation, or teamwork, allowing for targeted support and interventions.
- **Tailor interventions and improve programs:** The app data can help evaluate the effectiveness of different activities and practices, informing the design and implementation of future field courses.
- **Promote participant ownership:** The app provides a platform for participants to express their feelings and experiences, fostering a sense of agency in the learning process.

The *FoTJ eJournal* app represents a valuable tool for enhancing the assessment and facilitation of field-based learning experiences. Its innovative approach to data collection and analysis can help create more inclusive, supportive, and successful programs for all participants.

With future refinements, the app has potential to transform the way we understand and approach field-based education, leading to more meaningful and impactful experiences for students and facilitators alike. ❖

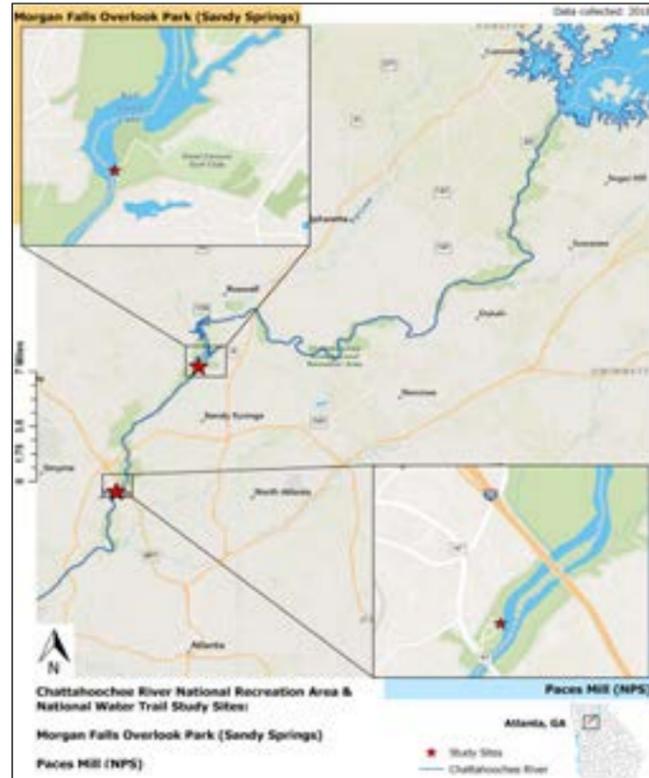
James Vonesh, PhD is a professor at Virginia Commonwealth University and RMS Southeast Chapter President.

New Research on Water Trails: Case Study at the Chattahoochee River National Recreation Area

Fowler, B. T., Green, G. T., & Boley, B. B. (2024). Integrating importance-performance analysis into transboundary natural resource management of water trails: Case study at the Chattahoochee river national recreation area water trail in Atlanta, GA (USA). *Journal of Outdoor Recreation and Tourism*, 47, 100800, <https://doi.org/10.1016/j.jort.2024.100800>. | Elsevier.

Abstract

Despite growth in National Water Trail designations year after year along with paddlesports popularity, there is little research on water trail users' experiences within transboundary managed water trail systems. Specifically, there is a lack of evidence regarding which experiential attributes paddlers find important and how these transboundary zones perform on those attributes. This is problematic because the entities managing transboundary water trail zones do not know if there are common attributes that are important to all water trail users and if they are providing satisfactory water-based recreational experiences based on these expectations. With this gap in mind, this research integrates the domain of Transboundary Natural Resource Management for National Water Trail Systems with the analytical method of Importance-Performance Analysis (IPA) to explicitly compare paddlers' perceptions (n = 360) of 12 water trail attributes between two different management zones (city park vs. federal National Park Service) of the Chattahoochee River National Recreation Area Water Trail in Atlanta, GA (USA). Results revealed that paddlers within both management zones place high importance on the biophysical attribute of water quality yet are equally dissatisfied with the performance of water quality, a reported decades long issue for the Chattahoochee River. Additionally, paddlers within the National Park Service zone expressed greater dissatisfaction with the lack opportunities available for quiet spaces and paddling in undeveloped areas. Results also indicated that water trail visitors had various levels of expectations and perceptions of river setting attributes that differed by management zones. A focused understanding of how physical, social, and managerial attributes of National Water Trails are perceived by recreational users (e.g., paddlers) aids transboundary natural resource efforts in collaborative decision making to better balance river conservation and recreation management for the future sustainability of National Water Trails.



Credits: Ben Fowler

Management implications

- The increasing popularity of river-based recreation and National Water Trail Systems spanning multiple jurisdictional zones justifies the need to proactively discuss transboundary visitor use management and collaboration across resource management entities (e.g., federal, municipal, private, state, etc.).
- Importance-Performance Analyses (IPA) are a cost-effective and relatively intuitive method for managers across multiple jurisdictions to collaboratively manage the satisfactory performance of recreational setting attributes, while also allowing visitors to express their opinions and perspectives on current and future managerial elements.
- Managers can gain a stronger understanding of the process to evaluate river setting indicators through analytical methods (e.g., IPA) that may save them time and money, as well as provide a logical decision-making pathway to prioritizing action within the Interagency Visitor Use Management Framework for parks, rivers, and other protected areas. ❖

Submitted by Ben Fowler, PhD candidate at Clemson University.



Tennessee Blueways Initiative

by Jamison Sliger

Tennessee is blessed with one of the most remarkable and abundant systems of waterways in the country. With 29 major reservoir lakes, over 61,000 miles of rivers and streams, and countless small lakes and ponds—waterways are a cornerstone of Tennessee's outdoor heritage.

Tennessee, a state celebrated for its rolling hills and vibrant cities, is also home to an extensive network of waterways that are quickly gaining recognition as *recreational blueways*, also known as water trails. These scenic rivers, streams, and creeks meander through some of the state's most picturesque landscapes, offering both locals and visitors unique opportunities for recreation and conservation. The recreational blueways of Tennessee are more than just natural wonders; they are vital arteries that connect communities, sustain wildlife, and foster a deep appreciation for the state's rich natural heritage.

As efforts to preserve and enhance these waterways grow, Tennessee's blueways are becoming not just a destination for outdoor enthusiasts but a symbol of the state's commitment to balancing progress with environmental stewardship.

Governor Bill Lee provided a glimpse of his vision for Tennessee's outdoor heritage and its waterways in his *2024 State-of-the-State* address:

Tennessee's outdoor heritage also extends to our rivers, lakes, and streams. We are proposing a "blueway trail development" to improve access to state waterways and invest in dozens of state lakes, boosting rural economies, welcoming more Tennesseans and visitors to kayak, canoe, and fish our beautiful waters. We are also proposing investments to improve water quality across rivers and streams, making them safe to enjoy.

The Tennessee Blueways initiative will capitalize on the momentum around recreation waterways. The primary purpose of this initiative is to strategically conserve, develop, and support recreational waterways across the State of Tennessee. This initiative will ensure sustainable recreational use, better sharing among a variety of users, promote rural tourism, support economic development, and pursue exemplary water quality. Conservation of these waters will be just as important as the recreational opportunities that these blueways afford.

The funding for this initiative will focus on specific rivers in each grand division that have nominal or zero industrial traffic on the waterway. The initial rivers will be determined through input from state and local officials and stakeholders. While each Tennessee Blueway will provide a unique experience, they will all have similar features to ensure users know what to expect before they arrive at a Tennessee Blueway. These will include features such as rapid classifications, detailed maps, access-points with watercraft launches, parking areas, identification of any man-made hazards such as low-head dams, and ample signage and wayfinding.

The Tennessee Blueways Initiative will help to ensure that Tennessee's extraordinary recreational waterways are preserved, protected, and shared with Tennesseans, our grandchildren, and their grandchildren for generations to come. ❖

For more information visit: <https://www.tn.gov/environment/outdoorrec/tennessee-blueways.html>

Jamison Sliger, CPRP, CPSI, AFO is the Tennessee Blueway Coordinator in the Bureau of Conservation Office of Outdoor Recreation, and RMS member.



Metamorphosis on the Wekiva: How dragonflies bridge science, community, conservation

Words and photos by Ashley Konon

“THAT is a dragonfly?!” is one of my favorite reactions from participants the first time a nymph is caught in one of our nets. For the past five years, I have led the annual sampling for the Dragonfly Mercury Project in the Wekiva Wild and Scenic River System, but that inevitable reaction never gets old.



The [Dragonfly Mercury Project \(DMP\)](#) is a nationwide program administered by the National Park Service (NPS) to assess mercury concentration in juvenile dragonflies, known as nymphs or larvae. The project focuses on surface waters inside National Park Units, National Wild and Scenic Rivers, or other protected areas such as National Natural Landmarks and National Wildlife Refuges. These rivers and natural areas are significant because of their nationally protected status; they are often assumed to be pristine and unimpacted by environmental pollutants.

Launched in 2014, the DMP was initially limited to a few National Parks. In 2019, the opportunity to join the growing program became available because of the [Wekiva River's status as a National Wild and Scenic River](#). This program now samples over 140 parks and protected areas nationwide.

The Wekiva River System offers many popular fishing spots where previous and [ongoing studies by the Florida Fish and Wildlife Conservation Commission](#) have measured mercury levels in fish. Participation in the DMP allows for the sampling of more locations and offers additional support from national partners, including the NPS Air Resources Division and the United States Geological Survey (USGS). Although macroinvertebrate surveys used to assess water quality are nothing new, the DMP connects scientists, public waters, and the community to create a growing nationwide project of research, monitoring, education, and public engagement.

Sources and Paths of Mercury: Mercury is released into the atmosphere from various sources, including coal-burning power plants, gold mining, and other industrial and natural processes. When atmospheric mercury comes in contact with freshwater ecosystems, it changes in a process known as methylation, becoming methylmercury. Methylmercury becomes a [health concern](#) as it can pass through the blood-brain barrier, causing [severe human health impacts](#). Dragonflies bioaccumulate this toxin in their tissues as nymphs when they feed voraciously in their aquatic habitat.

Dragonfly as a macroinvertebrate

icon: If there were an icon for macroinvertebrates, it would be the dragonfly. They are the veritable charismatic macrofauna of the sky. Their flashy moves and glimmering wings make it easy to see why they have been well-represented in art and culture throughout the ages; however, their

lesser-known lives as aquatic macroinvertebrates are even more fascinating. Spending the time from hatching to emergence (which can range from 6 months to 6 years) as a predator in many freshwater systems, they are vulnerable to ecosystem-wide changes like the presence of mercury in aquatic ecosystems.

Sampling importance: It is important for local and global communities to understand how small changes can lead to bigger ecological impacts. No community exists in isolation; the interconnectedness between human and non-human communities is immeasurable, and understanding this interplay is crucial for addressing both present and future environmental challenges. The mercury levels in dragonfly nymphs serve as a mirror, reflecting the broader health of other aquatic life forms. The data on mercury in dragonflies has also been [shown](#) to be a reliable indicator of bioaccumulation in fish and amphibians. This finding underscores the interconnectedness of our ecosystems, as well as the importance of monitoring and conservation efforts.

Acknowledging the potential for small changes to magnify in a system is especially important in the Wekiva River Basin; at first glance, the river system appears healthy. However, many environmental factors are causing shifts in the ecosystem. The river system faces many threats from increased development and is classified as impaired due to elevated nitrogen and phosphorus levels. In addition to mercury levels in dragonflies, the DMP recently added [water collection](#) to determine the factors influencing variation in methylmercury bioaccumulation, further widening the project's scope and our understanding of mercury accumulation in aquatic ecosystems.



Sampling process: Although the science and outreach efforts continue year-long, sampling starts annually in early spring, wrapping up before Central Florida's fall hurricane season. [We sample four sites a year, rotating between seven basin sites](#); at least one is repeated from the previous year. All sites are within protected areas, representing various inputs from surrounding uplands, significant for understanding landscape connectivity.

Dragonfly nymphs are selected if they measure at least 10 mm in body length to ensure sufficient mass for analysis. They are collected with dip nets and mud sieves and then transferred to clean bins until they are processed. To avoid over-sampling, they are housed in individual cups of an ice cube tray until we have reached our goal of 20 nymphs. We then select the largest and the most well-represented families, and small or single-family representatives can be released. After measuring and recording, they are placed on ice until they can be moved to a freezer. Finally, all nymphs are shipped on dry ice to USGS for analysis.

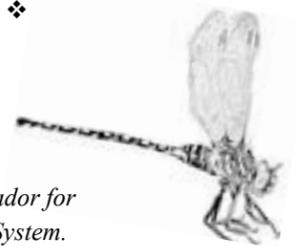
Reflections on first year: We started river sampling in 2019 with a few community scientists, agency staff, and one district scientist. That first year, I learned importance of considering access, depth, safety in site selection. What seems like an easy task collecting 10 to 20 dragonfly nymphs— can be quite difficult! The locations were selected based on previous transects used by the state for fish sampling. These sites, however, proved challenging because they were only accessible by boat, too deep to stand, and covered many river miles. After the team reassessed sampling sites for depth, access, and variation of potential mercury inputs, subsequent sampling has gone smoother.

Reflections on the program: In five years of dragonfly sampling at the Wekiva, over 155 individual community scientists have been engaged with the project. Participants include Scouts, schools, neighbors, families, professional or hobby entomologists, and occasional curious river users who stop to see what we are doing. Many have returned annually, fully capable of teaching new participants. While newcomers look on skeptically, this core group is first in the water after welcome and instructions. Sampling events are open to all; we recruit community scientists through newsletters, social media, word of mouth, and partner organizations. These events provide an excellent opportunity to talk about macroinvertebrates, water quality, pollution, and the potential impacts on humans and animals. New participants start by recording data or transporting nymphs from dip-nets to the central location, but everyone inevitably ends up immersed waist-deep.

Beyond the informative flyers, dubbed [Dragonflyers](#), for each year, the benefits ripple outward. The most apparent benefit is this project's core tenet: we are connected to our rivers. Mercury contamination is widely recognized and often feared, making the link between this toxin to our cherished river a significant revelation for community scientists. It undeniably connects what happens elsewhere to our place, emphasizing the link between broader environmental issues and local impacts.

While science is important, community outreach makes this project stand out. We love our rivers, but air pollution is often an understated threat. Establishing a connection to place underpins the importance of environmental education. Knowledge of ecosystem function only becomes truly impactful when there is an emotional or spiritual connection to the river system. The DMP provides participants with a connection to a special place and the knowledge to make choices that benefit the environment. Becoming an expert dip-netter does not inherently benefit the system; however, becoming connected to the system does.

Seemingly small environmental changes can significantly impact sensitive freshwater ecosystems like the Wekiva watershed. These threats underscore the importance of strengthening the bond between the community and the river, with the Wekiva community and participants of the Dragonfly Mercury Project playing a critical role in the project's success. Freshwater ecosystems are susceptible to many adverse effects related to climate change, which will put increasing pressure on aquatic insects, making monitoring efforts through immersive initiatives like this more important than ever. ❖



Ashley Konon is the River Ambassador for the Wekiva Wild and Scenic River System.

Downstream Travels: From the Desk of Caroline

by Caroline Kurz

It's true, Doug. After serving RMS from 1993-2010 as the organization's first and only paid employee (Program Director), followed by nearly 15 more years as RMS Journal Editor / Designer (producing 122 issues... yep, I counted), I have stepped away to focus on a new fulltime job as Executive Director of Garden City Ballet here in Missoula, Montana.

When asked to pen a farewell and reflect on my time with RMS, I thought "very few in the membership will know me" ... who from the old days (besides Gary) still reads the Journal? So, what could I offer to young(er) professionals starting a career in river management? And what would I say to retired RMS friends? With a cup of coffee and stream of consciousness approach, here goes something...

There were pros and cons to working from home for a then tiny nonprofit organization. To my great benefit, I was almost always available (literally in the other room) for the needs of three daughters (Madeline 26, Anna 23, Audrey 20). On the flip side, I have no retirement or pension and did wonder what my career might have been had I stayed on the federal government path. (My University of Idaho graduate research project took place on the Lower Salmon River with the Bureau of Land Management, and I briefly worked for the Forest Service in Fort Collins, CO, before RMS.)

While I was reminding folks to renew their RMS membership, you all were saving rivers — and though there were times I felt left out of the conversation, I have no regrets. Looking back,



I took care of people. And those people took care of rivers. Networking still plays a critical role in river management, and it most certainly supports the mental health of river professionals. Perhaps above all else, RMS recognizes the importance of fostering collaboration and communication.

I can't begin to start naming and thanking people who have been part of my RMS life... but I will say, we were a family. It might feel overwhelming to squeeze a chapter float into your schedule, and it might break the bank to attend a symposium, but cultivating and tending to meaningful relationships will make the hard work easier (and more fun).

River programs and jobs are passed from one to another—we are all replaceable and change is good. As Ken Vines would say, "Do the best you can and if you love someone, tell 'em". I have a special place in my heart for this organization and so many people I've met along the way. My deepest gratitude for the opportunity to be part of the river community... keep up the good work, one day at a time. ❖

Caroline is former RMS Program Director and outgoing RMS Journal Editor/Designer, new Executive Director of Garden City Ballet in Missoula, MT.



*2002 RMS Board Meeting
Flathead Lake, Montana*

*L to R:
Kneeling
Barry Beasley, Jim
MacCartney*

*Standing 1:
Lisa Klinger, Liz Close,
Kathy Stangl*

*Standing 2:
Dave Ryan, Mark Chase,
Dennis Willis, Denny
Huffman, Gary Marsh*

*Standing at the back:
Caroline Kurz, Steve
Johnson, Morgan Jones,
Dan Haas, LuVerne
Grussing*

Ode to Caroline

Caroline was the very first person I met at RMS back at the South Sioux City Symposium in 2006. From the first emails to the day I stepped up to the registration desk, Caroline was the welcoming and warm outstretched hand of RMS. When I shared my river management challenges, she made me feel like I was right at home and with "my people." Although I was brand new, Caroline was the epitome of an RMS concierge—including me in conversations, introducing me to new colleagues, and leaving me feeling as though I had made 300 friends! As an all-volunteer organization—except for Caroline—she was the glue that kept RMS together. Her work as editor on the Journal would leave the most seasoned air traffic controller envious of her skill... and patience. While being working moms together and raising kids of the same ages, she became a dear friend. I love her to bits. It's hard to imagine an RMS without her. May the ballet world be as enriched thanks to her as RMS has been! ❖

*Kristina Rylands
RMS Board of Directors, Pacific Chapter
President; Vice Chair, Upper Merced
River Watershed Council*

It has been an utter joy to work with Caroline all these years. She was always positive and upbeat, enthusiastic and helpful—a real benefit to RMS and its members and officers. She will be greatly missed by many. I wish her and her family the very best. ❖

*Douglas D. Carter
Professional Riverologist (retired)
Michigan Dept. of Natural Resources*



*2008 RMS Board of Directors Retreat
South Fork of the American River*



*Linda Jalbert, Caroline Kurz, and Sheri Hughes at the
May 2016 RMS symposium in Boise, ID.*

Caroline was absolutely great to work with at the *RMS Journal*. She was quick to understand where you were going with a submission, and clever with suggestions about improvements. She encouraged adding photos (which makes everything better), even though that made journal layout harder for her. We've worked with lots of editors over the years, and she's the best of the best—a real pro all around, committed to a high quality journal. And she's friendly and personable, which really stands out in a business where editors sometimes discourage authors. We will miss her at RMS, but wish her all the best at Garden City Ballet in Missoula—our loss is their gain. ❖

*Bo Shelby, Doug Whittaker, Dan Shelby
Confluence Research and Consulting*

Caroline was an overcomer and multi-tasker. She managed three children, her husband, and pets in a cramped space as a Program Director and Journal Editor and at times served as the Pro Deal Coordinator, Secretary and Treasurer, as well. She trained and mentored interns. She worked closely with RMS Presidents and was sometimes unappreciated due to officers' leadership styles. Her annual status reports and member surveys challenged the organization to better performance. She organized Board meetings and monthly conference calls and herded many cats to meet short deadlines for articles and work assignments, gently prodding Board officers to lead and solve problems. She organized river trips in connection with Board meetings and other events that needed her skill with logistics—often under difficult circumstances—soldiering on, for instance, through the harrowing experience of a dump truck crashing through her yard and tearing off her home deck. ❖

*Gary Marsh
Bureau of Land Management
Advisor to the RMS Board (retired)*

RMS Timeline

Modified from the **2016 Outstanding Contribution to the River Management Society Award** by Linda Jalbert (then RMS Vice-President) & Gary Marsh (then RMS Ex-Officio Board Advisor)

1991- American River Management Society (ARMS) gets NGO status

1992- ARMS east & west regions merge to form national organization

1993- ARMS hires part-time Program Director Caroline Tan (now Kurz) who produces first newsletter: *RMS News*

1994- ARMS Second biennial symposium, Grand Junction, CO
 • Canadian River Management Society (CRMS) becomes RMS chapter

1995- Creates online bulletin board via listserv

1996- ARMS & River Federation merge, becomes RMS
 • First *RMS Journal*
 • Third biennial symposium *Beyond the Banks*, Columbus, OH

1997- RMS receives contributions from Combined Federal Campaign
 • New logo, website, publishes membership directory



1998- Fourth biennial symposium *Rivers: The Future Frontier*, Anchorage, AK (first annual RMS awards)

1999- Second interagency river management wksp, Phoenix, AZ, USFS

• *River Information Digest* & River Permit chart posts online

2000- Fifth biennial symposium, Charleston, SC

- First RMS business meeting held during symposium
- Fundraising charter & strategic planner for board meeting, resulting in second strategic plan adopted for 2001-2005
- Publishes new membership directory
- Assisted Doug Carter in the *Rivers 2000 Project*

2003- Various river management workshops & river ranger rendezvous

- Membership growth results from new brochure & renewal survey
- Benefits include membership directory, new webpage, pro deals
- University of Montana partnership establishes RMS intern program

2004- Seventh biennial RMS symposium, Squaw Valley, CA

- Second river ranger rendezvous, Kooskia, ID

2005- Fifth interagency river management workshop, Salt Lake, UT, BLM

- New website content & database management
- Membership renewal survey
- *RMS Cookbook*
- River etiquette bumper stickers
- Hang tag project with BLM & Leave No Trace
- Board evaluation survey & board meeting evaluation

2006- Eighth biennial RMS symposium in South Sioux City, NE jointly sponsored with Missouri River Natural Resources Committee

- Membership renewal survey & officer nominations online
- *Better Boater Bathroom* publication
- *Consultant Yellow Pages*
- Renews filing of Articles of Incorporation
- Director's & officer's liability insurance



2006- continued

- Produces *2006-2008 Membership Directory*, new membership brochure with restructured membership levels & fees
- Adopts policy for filling RMS volunteer positions
- *Section 7 Wild & Scenic River for Landowners* brochure (NPS, FS, BLM)
- Establishes *Education Task Force*

2007- Sixth interagency river management workshop, Missoula, MT, USFS

- New full-color membership brochure
- First comprehensive membership survey
- Secures written terms of use for *River Giver* trademark
- Coordinates multiple agency cost share agreements
- Updated *BLM River Database* webpage

2008- Ninth biennial RMS Symposium, Portland, ME

- *Planned Giving* brochure
- RMS technical report via BLM: *Allocating River Use*
- Conducts *8 and 8 in '08* contest (river management case studies)
- Joins Conservation and Preservation Charities of America
- Produces *Boating Pre-Trip Reminder Checklist*
- Publishes RMS policy papers & allocation paper

2009- Seventh interagency river managers workshop, Yosemite, CA, NPS

- First time online national election for 2009-2011

2010- Tenth RMS symposium in Portland, OR jointly sponsored with the National Association of Recreation Resource Planners

2016- Program Director Caroline Kurz passes torch to Risa Shimoda

- After 17 years of service as RMS Program Director, Caroline Kurz moves on, but continues editing *RMS Journal*
- receives *Outstanding Contribution to RMS* for over 22 years of service

2024- After 31 years as *RMS Journal* editor, Caroline moves on ❖



Gary Marsh and Caroline



2016 RMS Award winners Ed Fite, Doug Whittaker, Stew Pappenfort, and Caroline Kurz.

New Technical Resource: *Water Quality Management and Protection on Wild and Scenic Rivers*

by Roy Smith

Water quality challenges facing river managers have evolved significantly over the last couple of decades. New water quality issues have emerged, such as harmful algal blooms that have the potential to affect the health of visitors. Similarly, climate change is inducing stream flow alteration that has the potential to degrade flow-dependent values. Water quality management techniques have also evolved over this same timeframe. Modern treatments focus on identifying pollution sources and applying treatments throughout the watershed and utilizing partnerships to bring in resources for that work.

The Interagency Wild and Scenic Rivers Coordinating Council saw a need for an accessible tool to assist professionals who manage and work on Wild and Scenic Rivers (WSRs) when navigating these new developments. The Council recently posted *Water Quality Management and Protection for Wild and Scenic Rivers* on its www.rivers.gov website under *River Resources*, under *Technical Papers*. The paper is aimed at federal employees and river managers from state, tribal, and local partnerships. It recognizes that river managers have varying levels of expertise in hydrology, ecology, and biology.

The Council invested in creating this paper given water quality protection was a fundamental purpose for the establishment of the National WSR System. River managers, state, and federal water pollution control agencies, as well as other federal agencies with jurisdiction over lands adjacent to or bordering a designated river, have a statutory responsibility to “protect and enhance” the water quality. Protection means keeping the current water quality, while enhancement aims to improve or restore water quality to a better state than when the river was designated.

The paper offers guidance on how to include water quality protection and enhancement in the comprehensive river management plan required by the Wild and Scenic Rivers Act of 1968.

The paper also addresses how to incorporate water quality considerations into other planning and management activities that affect water quality, including but not limited to construction projects; maintenance of facilities, roads, and trails; restoration projects; and land use authorizations. The topics include:

- Water Quality Regulatory Framework, including Clean Water Act and National Environmental Policy Act Provisions;
- WSR Act Water Quality Policy, from the four federal agencies charged with managing designated rivers;
- Water Quality Monitoring Program Design, including sample site selection, water quality parameters, frequency/duration/spatial factors, and quality assurance/control;
- Water Quality Challenges, including agricultural use, forestry practices, urban runoff, mining, climate change, and hydrologic alteration; and
- Development of Water Quality Protection and Enhancement Strategies, including watershed management, threat assessment, best management practices, coordination with other states, tribes, agencies, and federal land use regulations.

The paper also applies technical concepts for river managers in three case studies:

- Managing turbidity (Birch Creek (Ikheenjik), AK)
- Managing harmful algal blooms (Virgin River, UT)
- Water quality management (Red River, KY)

The paper seeks to illuminate similarities of water quality issues across locations, empower readers with proven practices for addressing these issues, and show how to secure resources for addressing water quality issues using partnerships. ❖

Roy Smith is the Water Rights and Wild and Scenic Rivers Lead for the Bureau of Land Management in Denver, Colorado.

Water Quality Management Principles for River Managers

Take a watershed approach. Effective water quality management requires looking beyond the river corridor, assessing all pollution sources in the watershed. This entails identifying best management practices for protection and restoration, and involving and coordinating with multiple stakeholders.

Engage state, tribal, & local agencies. The water quality protection policies outlined in the Act require river managers to actively engage with state water quality regulatory agencies, as well as tribal and local governments with water quality regulatory authority, to protect and enhance the water quality of designated rivers.

Create a plan for data collection. To protect water quality, this plan should include baseline water quality data, as well as long-term data collection and assessment. Ideally, the monitoring plan should be specifically supported by the river management plan.

Know trends. River managers must understand trends and current state in water quality to make informed decisions, collaborate with others, and evaluate management practices. Collecting and analyzing water quality data quantitatively measures changes, while monitoring systematically tracks river conditions regularly. With data in hand, river managers can confront and mitigate threats amid the goal of long-term protection of water quality.

Differentiate trends & sources. Rivers are dynamic systems shaped by interactions of climate, flow, sediment, and biogeochemical processes. Long-term systematic data collection helps distinguish trends and fluctuations, differentiates natural variations and human effects, evaluates management efficacy, and fosters sustainable resource protection strategies for the future.

Wild and Scenic River Workshop on the Red River

by Angie Braley, *Training Coordinator*

On April 9 and 10, 2024, the Daniel Boone National Forest and other US Forest Service (USFS) staff gathered in Winchester, Kentucky for a training workshop for USFS Regions 8 and 9 on managing a Wild and Scenic River (WSR). The event was organized by RMS’s River Training Center in collaboration with John Campbell from Region 8, Jon Thompson from Region 9, and Eric Dodd and David Pope from Daniel Boone National Forest.

Led by instructor Bill Hansen (Chief, Water Rights Branch - Water Resources Division, National Park Service, retired), this workshop sought to enhance participants’ understanding of the Wild and Scenic Rivers Act and its management requirements, including introducing the Act and WSR system, providing participants with insights into its historical context, key provisions, and management requirements.

In the classroom, participants covered various topics, including the history and purpose of the Act, an overview of key provisions, and the importance of free flow, water quality, and outstandingly remarkable values (ORVs). They also discussed the agency’s obligations under the Act’s Section 7. A day-long field trip provided hands-on experience, including a visit to a proposed new launch location, followed by a short hike to the river at the confluence with Gladie Creek and a hike along the Douglas Trail.



Discussing Red WSR to river access improvements and Section 7 requirements. Photo: John Campbell

During these field activities, participants discussed partner involvement, the history of the Red WSR, visitor use management, and river access improvements.

Participants provided positive feedback, noting that they found the session on Section 7, group activities, and the flowchart exercises particularly useful. Many appreciated the quality of the presenters and the practical examples discussed. The agenda was praised for its alignment with the Act, making it easy to follow along with the presentations. Participants also valued hearing from other forest management professionals about common issues and engaging in side conversations to aid them in their future work.

The workshop fostered a deeper understanding of the challenges in the Red River Gorge, facilitated the exchange of ideas, and strengthened the foundation of WSR knowledge in Regions 8 and 9. When the workshop concluded, there was a collective enthusiasm for applying the insights gained to future WSR management efforts in the region.

Thank you to everyone who attended and a BIG thanks to the Daniel Boone National Forest staff for hosting! ❖



Learning WSR management from instructor Bill Hansen in Winchester, KY. Photo: John Campbell

Analyzing Adventure Scientists Wild and Scenic Rivers Water Quality Data

by Paige Orals and Sierra Weirens

Federal agencies have partnered with [Adventure Scientists](#), a nonprofit organization in Bozeman, Montana, to collect water quality data on Wild and Scenic Rivers (WSRs) throughout the United States. From 2020 - 2023 citizen scientists from the nonprofit organization collected discrete (verses continuously collected) water quality samples at remote locations on Wild and Scenic Rivers. Data was collected on conventional parameters such as pH, temperature and dissolved oxygen, as well as on toxics like arsenic and chloride levels.



Adventure Scientists water quality data collection project. Credit: Adventure Scientists.

The goal of collecting this data is to populate gaps in water quality data on Wild and Scenic Rivers, thereby updating the impairment status of these rivers.

The Adventure Scientists data is publically available on the EPA's Water Quality Portal, which provides public access to water quality data. As of June 2024, this data is being analyzed to understand its implications on each river's water quality impairment status.

This article summarizes the data analysis process that River Management Society's (RMS) Water Quality Data Analysis interns used for three states (Washington, Oregon, and California), but this report only discussed the State of Washington and offers steps forward in continuation of the project.

Methods

To begin the analysis, an understanding of state water quality standards and policies is first required to contextualize the data. Samples collected in the State of Washington were analyzed first as this state had the most densely sampled sites. Sample data was downloaded from the EPA Water Quality Portal and organized and summarized by site and parameter. Data was collected on all Washington WSRs: Illabot Creek,

Klickitat River, Middle Fork Snoqualmie River, Pratt River, Skagit River, and White Salmon River. Water quality standards for the State of Washington were researched and recorded to understand the specific criteria that each river segment must meet.

Water quality data for each parameter was compared to the water quality criteria at each sample site to have a better understanding of which samples meet or exceed standards. State water quality standards can be incredibly complex and additional research is required to make any impairment status determinations.

Impairment status determinations are made by placing water bodies into a category as follows:

- Category 5, aka, the 303(d) list, indicates polluted water that requires a water improvement project;
- Category 4 indicates impaired water that does not require a total maximum daily load plan to restore clean water by defining tolerable pollutant amount and still meet water quality standards;
- Category 3 indicates insufficient data;
- Category 2 indicates concern; and
- Category 1 indicates a water body meets tested standards for clean water.



Ellie Friedman uses a field probe on an exploration trip in Southern Oregon's Kalmiopsis Wilderness. Photo: Ellie Friedman.

Results

After review of Washington State Department of Ecology (Ecology) assessment listing methodology for categorizing dissolved oxygen, pH, and water temperature, it was determined that the frequency and number of samples collected by the Adventure Scientists was insufficient to make Category 1 decisions. Further discussions with the Ecology are necessary to make categorization decisions pertaining to the Adventure Scientists data.

Assessing a river's impairment status requires collaboration with state entities that administer state water quality programs. The federal agencies managing WSRs (US Forest Service, Bureau of Land Management, National Park Service, and US Fish and Wildlife Service) have been in contact with many of the states where water quality data was collected.

The RMS Water Quality Data Analysts met with water quality contacts from Ecology and the Oregon Department of Environmental Quality (DEQ) to understand if and how the Adventure Scientists data is being used. Both Ecology and Oregon DEQ have been utilizing the Adventure Scientists data into their biennial water quality reports and appreciate that many samples were taken in remote locations.

Future Considerations

To continue this project in the future, additional states should be contacted



to record whether the data is being incorporated into water quality assessment reports. It is important to ask state contacts about the usefulness of data collected in informing water quality impairment status so data collection efforts can be streamlined in the future.

Data from other states can be analyzed and compared to state water quality criteria in a similar manner to the Washington and Oregon analysis. Feedback from states and comparison of the data with state water quality standards will inform how sampling methods could be modified in the future. Revisions may include requiring replicate samples at each site,

only sampling for parameters that the given state has criteria for or taking samples on unassessed WSR segments.

Data from this pilot project is already being incorporated into state water quality 303(d) reports, but it is unclear how much of the data is usable to inform impairment status. If the sampling methods were tailored to each state's water quality standards with sufficient sampling, future data collection efforts could likely inform the impairment status of WSRs. ❖

Paige Orals and Sierra Weirens are recent water quality interns with RMS/National Park Service/US Forest Service.

Top: 2021 Rogue River Adventure Scientist data collection. Photo: Lindsay Wancour.

Right: 2022 Adventure Scientists data collection. Photo: Brian Cripe.



NATIONAL PUBLIC LANDS DAY

Parks replenish the soul. We need more of them.

Note: This article is reprinted from Richmond Times - Dispatch Editorial Page from September 23, 2023.

by Michael Lipford

“This land is your land; this land is my land” are well-known lyrics to a folk song written by Woody Guthrie. His words are both truthful and fitting.

Most of us don't own expansive acreages of forests, fields or streams, but each of us is made land-rich by local public lands, such as James River Park, Richmond National Battlefield Park, Powhatan State Park, Tuckahoe Creek Park, Cumberland Marsh Natural Area Preserve, the Appomattox River Trail and the Virginia Capital Trail.

These familiar public spaces, protected by the Capital Region Land Conservancy, partner organizations and governmental agencies, allow us to experience natural beauty, cultural history, and to refresh our souls. In addition, public lands provide ecological benefits, such as clean water and air, habitat for plants and animals along with healthful, local food.

Today, Sept. 23, we celebrate National Public Lands Day to commemorate one of the greatest assets of our country and our region — from the biggest national park to a local neighborhood park. On this day, many of us across the country will find opportunities to visit a park or trail, or volunteer to help restore our green spaces.

Public lands are a treasure, and we turn to them for outdoor solace. James River Park, where 2.5 million visitors per year hike, bird watch, fish, kayak and recreate, is a good example. But not all of us have equal and easy access to our local public lands. In 2017, Richmond Mayor Levar Stoney pledged to provide parks to all Richmonders within a 10-minute walk of their home, and he brought together city agencies, including Parks and Recreation and the Office of Sustainability, with nonprofit organizations, such as Capital Region Land Conservancy, to make progress toward that goal.

Green spaces in neighborhoods within a 10-minute walk are a highly valued and precious resource. Ten minutes is the average time people are willing to walk to reach a destination and is the average distance (0.5 mile) that the National Park Service and Centers for Disease Control and Prevention use to link park access and public health.

Exposure to nature improves physical, psychological and



social health, and is a critical component of child development. According to a recent report from City Health and the Trust for Public Land, access to nature provides documented health benefits, including decreased risk of heart disease, depression and anxiety. In addition, equitable access to nature positively addresses environmental justice, clean air, urban heat islands and recreational opportunities.

The 2023 Park Score report from the Trust for Public Land compared Richmond with 100 of the largest cities in the United States. Richmond ranked 39th with a score of 55.7, an improvement from 58th in the 2018 report. Washington, D.C., ranks first, Arlington fifth, Atlanta 28th and Baltimore 29th. Behind Richmond are Virginia Beach (49th) and Norfolk (52nd).

The report also showed that 80% of the population has access within a 10-minute walk to at least one of the city of Richmond's 175 parks or 2,755 acres of parkland. However, the median size of Richmond's parks is 4.7 acres, which is one of the reasons that Richmond's overall score is low. The percentage of land used for parks in Richmond is 6.9%. We should strive to put Richmond on par with other cities, such as Baltimore (8.6%), Arlington (10.5%), Philadelphia (11.8%), Raleigh (12.5%) and Washington, D.C. (21.2%).

When we consider the broader Richmond metropolitan urban area, just 33% of the population has access to a park within a 10-minute walk. A closer look shows the following percentages of populations living within a 10-minute walk of a park in their respective localities: Ashland (41%), Chester (24%), Colonial Heights (53%), Glen Allen (29%), Ettrick (24%), Hopewell (53%), Lakeside (43%), Mechanicsville (4%) and Midlothian (22%).

Supporting efforts to secure parks and green spaces sends a strong message to our region's decision makers, in both the public and private sectors, that more publicly accessible lands strengthen our local communities, our quality of life and our own well-being.

On this Public Lands Day, we encourage everyone to get outside and visit our local public lands. You can sign up to volunteer for a native plant restoration project at the Capital Region Land Conservancy's 350-acre Varina Land Lab in Henrico County, or check in with a partner organization to do something similar. Or you can beautify a park by bringing a bag to pick up litter. Invite a friend to explore a park destination you have yet to visit. Hike or bike a trail, paddle or sit by a river, identify a bird or tree you haven't come to know, take a deep breath of fresh air and enjoy nature. After all, public land is our land! ❖

Michael Lipford serves as the Chief of Wildlife for the Virginia Department of Wildlife Resources after a 36-year career with The Nature Conservancy.

Grant and Partnerships Support Equitable Access to the French Broad River in Western North Carolina

Note: This article is reprinted from Transylvania Times from MountainTrue's Monthly Column from August 12, 2024.

by Jack Henderson

While Transylvania County is known for its abundance of scenic beauty and opportunities for outdoor recreation, many of the ways to explore and enjoy these natural resources come with the need for expensive equipment and vehicular transportation. This includes paddling on the French Broad River, which requires, at a very minimum, some sort of boat, paddle, life jacket, and shuttle—not to mention water-appropriate clothing, footwear, drybags, etc.

With MountainTrue's role as a leader in the promotion and management of the French Broad Paddle Trail, equitable access to the river has become a major priority amongst our work related to stewardship and outreach. Thus, when MADE X MTNS — a regional partnership working to expand Western North Carolina's outdoor industry economy and catalyze rural economic development—launched their Outdoor Equity Fund grant in the spring of 2023, we immediately wanted to propose a project to help get more people out on the French Broad River regardless of means.

MADE X MTNS' Outdoor Equity Fund was established to empower community-led initiatives that address identified barriers to outdoor recreation access and economic opportunity and help close these gaps in Western North Carolina via micro-grants to nonprofits, for-profits, community groups, and sole proprietors. To advance equitable access to the French Broad Paddle Trail specifically, MountainTrue proposed a project called “Expanding Access to the French Broad Paddle Trail” to lead guided float trips on the French Broad River in Transylvania and Henderson Counties.

While one of the goals of the French Broad Paddle Trail in general is to support a new generation and community of competent paddlers, river stewards, conservationists, guides, etc. to ensure that our waterways continue to be loved and respected as Western North Carolina becomes increasingly diverse in the years to come, our objective of this particular project was to share the world of paddling with community members that had not previously had the chance. For the grant, we proposed offering paddling instruction

and skill-building throughout each trip along with basic training on trip-planning, map-reading, Leave No Trace principles, and relevant plant/animal-identification, all of which are essential components to building a career in the outdoors. MountainTrue is fortunate to own a truck, trailer, boats, and associated paddling gear, and have staff with paddling expertise and experience leading trips, and thus we wanted to leverage those resources to bring increased opportunity to new paddlers.

After being awarded the grant in the summer of 2023, we got to work preparing equipment, organizing logistics, and connecting with interested organizations to plan floats with. We then partnered with leaders of local affinity groups, including FIND Outdoors' Club de Exploradores, Latinos Aventureros, NC BIPOC Climbers, and El Centro Transylvania County — planning and carrying out four floats during the summer of 2023 and two so far in 2024 with two more floats scheduled for September.

In addition to the witnessing the adventure, joy, and growth that these trips have brought to the adults and youth that have attended, there has also been the unexpected benefit of having these interactions with non-traditional paddlers inform our work as it relates to accessibility. As we think about ways to improve public river access, campsites, signage, information, stewardship, events, and outreach, it's been very helpful to factor what we have observed and learned from these paddling trips into our plans. We are extremely grateful to have received this grant and look forward to continuing to do this work. ❖

Jack Henderson is the French Broad Paddle Trail Manager with MountainTrue — Western North Carolina's oldest environmental non-profit.



French Broad River with Latinos Aventureros. Photo: Jack Henderson

Hurricane Helene

Grieving the River We Knew

Words and photos by Bekah Price

Author's note: The following is my account from Erwin, Tennessee, written days after Hurricane Helene caused record flooding on the Nolichucky River and subsequent loss of life, homes, and businesses. Nearby cities and towns are impacted similarly or worse. I won't enumerate which bridges have fallen, which communities are currently isolated, how many were rescued, and how many were not. The news and residents' videos have covered this extensively and will continue to as this disaster unfolds. I am writing to share what happened here and how I'm attempting to process the percolating grief.

On Friday, September 27, we witnessed what no one alive had: the Nolichucky River surged to 162,000 cubic feet per second. At least that's our best estimate from the nearest functional gauge. Upstream and downstream gauges on this section quit updating Friday morning. That's double the velocity of the 1977 flood. For context, it had been flowing at about 350 CFS for most of the month, and a fun whitewater level is between 1,500-5,000 CFS.

At first it felt like an exciting high-water event. That morning, I drove over to Chestoa Bridge to see the rising water. The bridge marks the end of the Nolichucky Gorge section and serves as the river crossing for Appalachian Trail thru-hikers. I ran into a couple of friends, walked a short distance on the bridge, buzzed about how crazy it was, then headed home. Less than four hours later, I received a text saying the bridge was gone. To clarify, I asked if it was submerged. "It's gone."

This news was followed by reports of more collapsed bridges, landslides, and enormous debris piles, which have since isolated entire communities. Many across the Southeast are without power, water, phone service, internet, or a way to drive out. This has made it difficult to account for people and deliver supplies. And many who were reported missing have since been confirmed deceased.

Search and rescue continues bravely by air, water, and by foot. As I write this, I hear helicopters flying overhead. From our yard, we watched the wind blow helicopters from side to side as they rescued more than 50 people stranded on the roof of the new hospital and elsewhere. Help continues to arrive, and we're immensely grateful.

On Sunday, I parked at Chestoa Bridge—where it was only two days prior—and walked along the river to USA Raft.



Silt, rocks, shells of familiar buildings, debris, and someone's pink formal dress hang limply over a downed tree not far from where we were married.

My husband and I trained as raft guides here nearly 15 years ago, and along with friends have guided for several years since. The road has collapsed in places and is currently impassable by vehicle. Parking lot: gone. Islands: gone. Beloved squirt boat feature Cowbell: gone. Favorite beaches for camping and fishing: gone. What remains is an apocalyptic scene of destruction and a palpable sense of loss. I see silt, rocks, shells of familiar buildings, debris, and someone's pink formal dress hanging limply over a downed tree not far from where we were married.

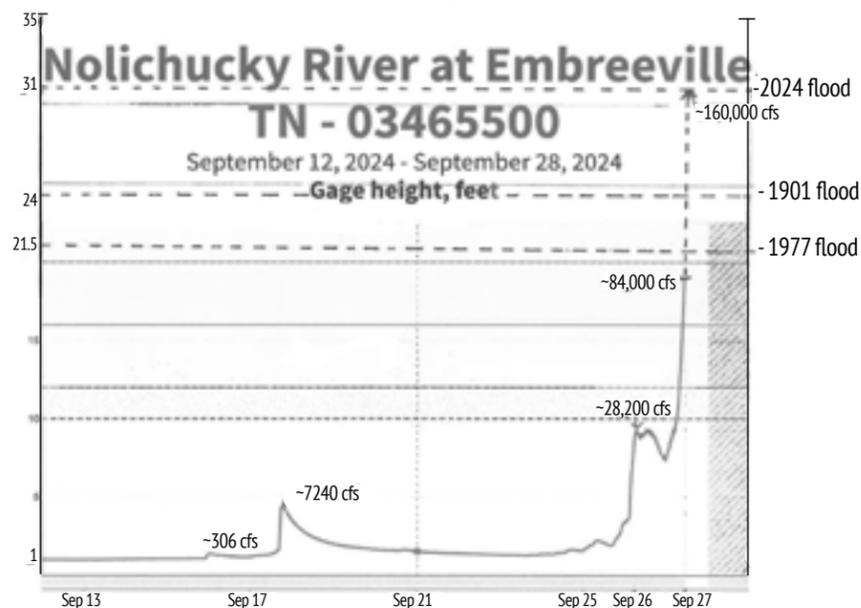


Figure created by editor with data from USGS, NOAA, and TVA to illustrate flood magnitude.

Hurricane Helene



The Chestoa Bridge collapsed, taking with it a piece of the Appalachian Trail.



Chestoa recreation area parking lot, picnic area and bathrooms are gone.



Jones Branch Road onlookers note an absent Cowbell, a world-renowned "sinkspot" that hosted gatherings and competitions for the kayaking subculture of squirt boating.

The river and the community around it are a huge part of what makes this area feel like home. And after such irreparable damage, it feels like some of that sense of place has also washed away. When I had my first son, someone said, "One day, you'll hold your child for the last time, before they're too big, but you won't know it's the last time." It feels like that "last time" to hold this place, at least as we knew it, has passed. The rapids will be different. The takeout will be... where? My favorite gathering place for half of my life will never look the same, whenever it may reopen. When my kids want to "go to the river," where will that be? Will there be serendipitous encounters with friends?

I'm trying to appreciate what we've enjoyed for so long while also feeling like I'm processing the death of a place. Things won't go back to the way they were. They will go forward, maybe better. But for now, it feels like profound loss and sadness. As we reckon with rivers' ability to destroy, I hope we can also appreciate the ways that they bring us together and give us such a sense of community and belonging.

If there can be a silver lining, I have been inspired by the enormous outpouring of support for our community and region. On my walk back from USA Raft on what's left of the road, I passed friends and strangers with supplies and tools, either working or ready to work. In town and beyond, people are offering money, supplies, time, and skills—even those who are currently displaced. It is strange to feel so grievous and yet so proud, but I look to the future with hope. The river remains, and when the funk flushes out, we will run it again.

On a drive to town, *Bridge Over Troubled Water* came up in my shuffle and seemed appropriate. My dad liked the song. Maybe my dad or Paul Simon or a FEMA helicopter is watching over us. Anyway, sing along at full volume for full therapeutic effect:

*When you're weary, feeling small
When tears are in your eyes, I will dry them all,
I'm on your side, oh, when times get rough
And friends just can't be found
Like a bridge over troubled water
I will lay me down ❖*

Bekah Price is the RMS Communication and Membership Coordinator who lives with her family near the Nolichucky River in Erwin, Tennessee.

Revitalizing Urban Waterway Communities: Streams of Environmental Justice

Smardon, R., Moran, S., & Baptiste, A. K. (2018). Routledge.

by Ralph Hambrick

Urbanization has undoubtedly caused significant harm to the rivers and streams that flow through cities worldwide. Pollution, channelization, and destruction of surrounding vegetation have turned many once-vibrant waterways into dirty ditches. The recent frenetic and costly effort to clean up the Seine ahead of the Paris Olympics symbolizes the environmental damage inflicted on urban rivers.

It is often the case that the damage to urban waterways, as well as their restoration, has disproportionately affected minorities, the poor, and people of color. These communities have historically been compelled to live in high-risk floodplains or polluted areas, and they often face displacement due to gentrification. Industrial and commercial growth has often disregarded the principles of environmental justice. This book tackles both issues: it seeks to achieve river and stream revitalization *and* fair distribution of the benefits for communities near waterways. In the authors' words, this book seeks to "explore academic scholarship as well as pragmatic applications that center on waterway restoration and environmental justice."

In summary, this book addresses an important and timely topic, and is packed with useful information to guide those who wish to find more. Be warned, however, that its dense academic style may turn away some readers who might otherwise benefit from the guidance it seeks to provide.

Importance. The past several decades has seen increased attention given to the health and changing function of urban waterways. Private citizens, environmental advocates, governmental officials and business enterprises all have seen the potential benefits of transforming their rivers and streams from dirty ditches to attractive and healthy waterways. Of course, the motivations and the hoped for results may vary considerably among stakeholders seeking to improve and use these waterways. The objective may be a tourist attraction, or a more desirable site for business, or a recreational amenity for the public, or simply a healthier waterway. Nearby community members may benefit from the revitalization effort or they may be ignored or even pushed away as a river or stream takes on a new function. After all, riverside gentrification is not an unknown phenomenon.

The concern for communities along or near waterways is central to the contribution and importance of the book. As the book shows, leadership from these nearby communities can be a significant force in bringing about stream revitalization and their participation can assure that such projects benefit rather than harm those communities.

Environmental justice is best achieved by stakeholder participation in decision-making. But, as the authors argue, in a political environment in which there are technical issues and



Photo: Rick Smardon.

diverse stakeholders with different interests and varying levels of knowledge, achieving effective participation can be difficult. The cases and the literature reviewed provide useful insights, ideas and techniques for organizing and managing an effective process. In essence, community building and stream restoration that achieves a level of equity are mutually reinforcing. Effective community building makes watershed restoration more likely to succeed and appropriate restoration reinforces community.

Information. This book is an abundant source of information about experiences with waterway restoration and public participation in the process. It would be a valuable resource for guiding public participation. The references and citations alone are useful for anyone seeking to devote serious attention to engaging a community, especially in a project that has technical and social components. The book compiles an extensive body of literature and case studies from across the US and Europe to identify and illustrate effective and ineffective strategies.

For scholars pursuing research in waterway restoration, citizen participation, expert-lay interaction, environmental justice, or some combination, the book is an invaluable resource. It offers a comprehensive roadmap to relevant literature and highlights issues that warrant further investigation.

Style. As noted, *Revitalizing* provides an incredible amount of information both in its prose and in the references and bibliographic material it offers. For someone seeking practical guidance and advice, however, the sheer volume of detailed information with extensive inserted citations might seem overwhelming. While the goals of "academic scholarship" and "pragmatic application" may sometimes be at odds, this book remains an invaluable resource for those looking to engage in watershed restoration with a focus on environmental justice. ❖

Ralph Hambrick, PhD, is professor emeritus at Virginia Commonwealth University & author of "Transforming the James River".

Southeastern Rivers: Restoring America's Freshwater Biodiversity

Duncan, R. S. (2024). University of Alabama Press.

by James Vonesh

Southern Rivers is a compelling and timely exploration of the challenges facing the Southeast's vital river systems.

It's not often that life orbits so poignantly. As an undergraduate biology major at Eckerd College in St. Petersburg, Florida, I had the good fortune of sharing a passion for conservation with a fellow student, R. Scot Duncan. We were both involved in founding the first Eckerd College Earth Society, a student organization dedicated to environmental protection. Our paths crossed again in graduate school at the University of Florida's Zoology Department. Remarkably, we both ended up conducting field research at the same national park in Western Uganda.

Years passed. Scot became a professor at Birmingham-Southern College in Alabama, and I found my academic home at Virginia Commonwealth University in Richmond, Virginia. While our paths diverged geographically, a new shared interest emerged – rivers. It was with great excitement that I discovered R. Scot Duncan's latest book. *Southern Rivers* serves as a powerful testament to his enduring commitment to preserving the natural world; it reignited the spark of our shared passion for environmental advocacy.

Duncan masterfully depicts the regions rivers as significant hotspot for freshwater biodiversity, teeming with a notable array of aquatic life. He eloquently describes the region's unique beauty, from the "rocky creeks in the headwater valleys of the Southern Appalachians to the muddy behemoths that grind across the Coastal Plain." Yet, this beauty belies a growing crisis. Centuries of human activity, coupled with escalating impacts of climate change, have left these rivers in peril.

Duncan's writing is both scientifically rigorous and deeply personal. He seamlessly weaves together ecological insights, historical perspectives, and poignant anecdotes, drawing the reader into the complex tapestry of the Southeast's river systems. His passion for the subject matter is evident on every page, and his prose is both informative and engaging.

The book serves as a stark reminder of the consequences of our actions. The first part of the book examines how historic pollution, habitat destruction, and altered flow regimes have taken a heavy toll on these ecosystems, threatening not only the survival of countless species but also the well-being of the

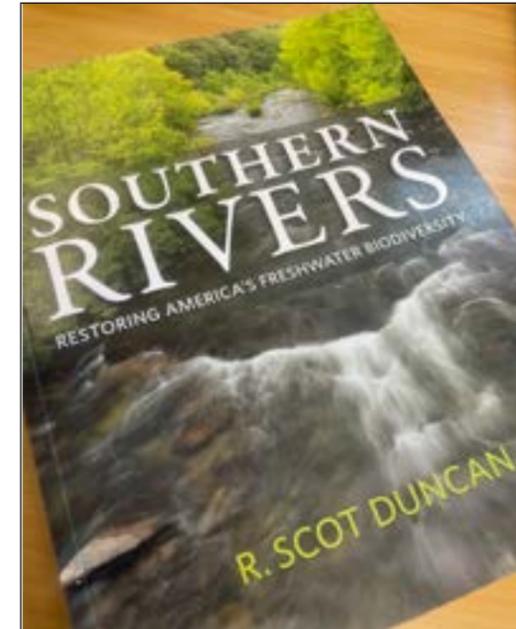


Photo: James Vonesh.

millions of people who depend on these rivers for their livelihoods and quality of life.

Duncan's narrative is not one of despair, but rather of informed urgency. He eloquently demonstrates that the choice between nature conservation and human needs is a false one. Conservation, he argues, is not just about saving species; it's about enhancing human life. In the same engaging and accessible style that made his earlier book, *Southern Wonder*, so captivating, Duncan

guides us through the complexities of river management. He explains how water quality impacts the daily lives of millions who cherish these historic waterways.

In the second half of the book, Duncan unveils the technologies and ideas needed to manage rivers and water resources better, paving the way for a more secure future for both humanity and the ecosystems we depend on. He emphasizes a crucial lesson: the needs of society and earth's biodiversity are now inseparable.

With climate change intensifying droughts and heat waves, the threats to Southern rivers are more pressing than ever. Duncan's book arrives at a crucial moment, offering actionable solutions and illuminating a path forward. *Southern Rivers* is not just a scientific treatise; it's a call to action, reminding us that we all have a role in safeguarding these vital ecosystems.

The central message is clear: the fate of the Southeast's rivers is inextricably linked to our own. We must recognize the intrinsic value of these ecosystems, taking immediate steps to safeguard them, requiring a concerted effort from individuals, communities, and governments. We must embrace innovative solutions, such as low-impact development and green infrastructure; we must reimagine our relationship with our vital waterways.

Southern Rivers is a must-read for anyone concerned about the future of freshwater ecosystems in the Southeast and beyond. It is a powerful reminder of the interconnectedness of human and natural systems, and it offers a roadmap for building a more sustainable and resilient future. Duncan's work is a testament to the power of science, advocacy, and hope, and it serves as an inspiration to all who strive to protect our planet's precious natural resources. ❖

Midwest & Southeast

Join River Management Society's Southeast and Midwest chapters this spring for a gathering and multi-day float trip on the Buffalo National River in Arkansas.

Rendezvous on the Buffalo River March 13-16, 2025

We're partnering with:

- Arkansas Game & Fish Commission,
- University of Arkansas,
- Northeastern State University, and
- National Park Service

to paddle and camp along a beautiful section of river and learn about its management.

Sign ups will go live late November!

Please reach out to us with questions:

James Vonesh
RMS Southeast Chapter President
voneshjr@gmail.com

Jack Henderson
RMS Southeast Chapter Vice President
hendersonjc3@gmail.com



Photo: Arkansas Department of Parks, Heritage and Tourism

New Journal Editor Loves Rivers

by Sera Janson Zegre

I left my high school graduation with a kayak stuffed in a van, bound to spend my summer as a BLM river ranger in Westwater Canyon, Utah.

Although I attended college in Washington, DC, I spent summers as a BLM River Ranger in the Gunnison Gorge and commercial river guide in Grand Canyon. After college, I worked as a river and wilderness ranger for BLM in Western Colorado and Eastern Utah, spending winters in Washington DC, working for Gary Marsh setting up the *BLM Rivers Database*. I met Caroline working with RMS drafting assistance agreements, updating websites, and editing educational outreach materials (e.g., river hangtag, Landowner's Guide to WSR). As I wrote for the *RMS News* and participated in conferences, my admiration for her grew and my love for RMS solidified.

I left BLM for graduate school at Oregon State where I was a teaching assistant for longtime RMS contributor, Bo Shelby. It was there I met my partner and now father of our two kids. We moved to West Virginia University after graduate



school where he is now a hydrology professor. Once living in Morgantown and working as a professor and researcher, I contemplated how to get back to RMS and river-related work. Previous consulting work led me to collaborate with Risa and I also kept encouraging my spouse to consider the River Studies and Leadership Certificate, of which he is now a new advisor.

A serendipitous connection with Risa over *squirt boating* has led me to this wonderful opportunity to serve as the new editor of the *RMS Journal*, following the paddle strokes of women I admired for half my life (Caroline...and Risa). The river of life has offered me countless opportunities for growth since I first met Caroline and RMS. I am thrilled to apply my skills as a river professional, consultant, educator and scientist, being surrounded by relevant river topics and coordinating with beloved river colleagues in a shared purpose of rivers.

Journal Feedback, Please!

Transitions are a great time to take inventory. Please take a few minutes to offer feedback on the *RMS Journal*.

Visit: https://wvu.qualtrics.com/jfe/form/SV_5ncoB9MjUa1C7A



Scan this

Pacific by Kristina Rylands

Pacific Chapter Returns to the Kern

On a gorgeous August weekend, the Pacific Chapter returned to the Kern River for its second annual Kern River Trip. A tidy group of six RMS members met at Pacific Chapter Vice President Leigh Karp's cabin just outside of Kernville for some tasty eating, yard camping, and river floating on the beautiful Lower Kern. With Southeast Chapter president James Vonesh joining us, this instantly became a dual chapter event. Connecting the coasts of RMS leadership, we talked about our respective river work and opportunities for collaboration. More specifically, we discussed ideas for how to engage California students in the River Studies and Leadership Certificate (RSLC) program.

With thanks to our friends at the University of California Riverside Outdoor Rec Program (who provided a raft and gear), we were able to boat the Kern River's Jungle Run, an 8.1 mile, Class III section of the Lower Kern that features granite gorges, a slickrock water slide, and Tabatalabal Indian pictographs. With Leigh Karp as our guide, we discovered the meaning behind the section's name when the river glided through such dense foliage pressing from both banks that we had barely enough room for the raft to squeeze through. In the evening, we enjoyed chatting around meals and under the stars, even catching some of the Perseid meteor shower.

As the fall settles in, we look to our next river trips in the spring, which will include the East Fork of the Carson River in May and a potential float on the Los Angeles River.

With two Kern Trips in the books, the Pacific Chapter makes this annual event official and invites you to the third annual Return to the Kern trip in August 2025.



Pacific Chapter President Kristina Rylands and Vice President Leigh Karp on Kern River (top); Group photo on Kern River (bottom)
Photos: Kristina Rylands



Mark
your calendars
August 2025
for the 3rd annual
Return to the Kern



2025 River Management Symposium: Restoring Rivers for a Resilient Future

April 8-10, 2025 | Ashland, Oregon

Join us for a week of skill building and collaborative learning following the largest dam removal in U.S. history! The *Restoring Rivers for a Resilient Future* River Management Training Symposium will be held April 8-10, 2025 in Ashland, Oregon, with field sessions at regional restoration sites.

River managers, scientists, advocates, and recreation leaders across the country will share approaches to navigating visitor use, flood prevention and recovery, fire and forest resilience, water quality, responsible recreation, and development.

Each biennial river management symposium offers a unique opportunity to network with experts and learn alongside professionals who are responsible for river restoration and management. You'll return home with practical tools to enhance your river's ecological, social and cultural resilience.



Thank you, 2025 Gold sponsors & partners!



There is still time to become a Symposium Sponsor!

Support river leaders nationwide by sponsoring the event or donating items to our auction. Sponsorship provides unbeatable visibility for your organization within the river management community. Explore benefits like event registration, exhibitor space, logo on event materials and RMS membership in our [Sponsor Information Packet](#). Let's collaborate on showcasing your products and services at this impactful event!

Donate items to the auction!

The online and in-person auction elevates our partners' brands and, importantly, helps make this event possible. Please consider donating river and outdoor equipment, outfitted trips or instructional classes, jewelry or works of art. Bidding will take place online in early April 2025, the week before the Symposium, and it will close on the final day of the Symposium with a live auction. As a donor, you receive benefits noted in the 2025 Symposium Sponsorship Program. Please reference the sponsor information packet above to see how this might benefit you! To donate an item, visit our [Auction Item Donation Form](#).

Registration opens November 2024.

With questions, contact Risa Shimoda at rms@river-management.org or (301) 585-4677.

Learn more at <https://www.river-management.org/2025-rms-symposium>

RMS Awards and Criteria

Outstanding Contribution to River Management (*open to all*)

This award recognizes a longer history of contributions to the greater field of river management (as opposed to more recent or project/location-specific accomplishments). Consider longer-term and broader impacts in at least two areas:

- Advanced the field of river management through contributions in areas such as science, education, interpretation, research, and/or law enforcement;
- Developed innovative (or creatively adapted) river management techniques;
- Organized conferences/meetings that advanced river management as a science and as a profession;
- Developed or implemented new communication techniques to coordinate and connect managers;
- Provided opportunities for increased awareness by citizens and river visitors regarding their role in caring for rivers and watersheds; and/or
- Was an outstanding advocate for one or more aspects of professional river management.

Frank Church Wild and Scenic Rivers (*open to all*)

This award recognizes contributions focused on the management, enhancement, or protection of designated Wild and Scenic Rivers. This award recognizes a history of contributions with a broad geographic scope (as opposed to more recent or project/location-specific accomplishments) in at least two areas:

- Advanced awareness of WSRs through contributions in areas such as education, research, technology, training, public contact, interpretation, law enforcement;
- Demonstrated, developed, or creatively adapted innovative WSR management techniques;
- Worked effectively and cooperatively to build partnerships with other agencies, scientists, user groups, private landowners, and/or general public to promote, protect, enhance, or manage WSRs;
- Organized conferences or training that advanced WSRs;
- Exhibited leadership in promoting and protecting WSRs within the context of the established corridors and beyond designated lines on a map; and/or
- Worked to improve managing agency process, budget, and/or support for wild and scenic river programs.

River Manager of the Year Award (*RMS Members only*)

This award recognizes field-oriented and location-specific contributions, with a focus on recent accomplishments. The committee considers contributions on the river (field-oriented, technician level) and at the managerial or supervisory level (policy, planning, program development) in at least two areas:

- Provided leadership in promoting and protecting natural, cultural, or recreational resources;



2025 RMS Awards – Nomination Deadline – December 31, 2024

The RMS recognizes outstanding individuals and achievements in four categories. Please nominate persons who deserve to be recognized for their work and contributions to managing our rivers and developing our organization. If you submitted a nomination in the past and your nominee was not selected that year, you are encouraged to update and resubmit the nomination.

Submit [online](#) or email to RMS Secretary Helen Clough: hcloughak@gmail.com

- Worked effectively and cooperatively with other agencies, user groups, private landowners, and/or general public;
- Established or re-established key partnerships to protect and manage the river corridor;
- Created an effective, professional, and enjoyable working group environment;
- Worked to protect one or more rivers within the context of their watershed and beyond designated lines on a map;
- Created innovative approaches to river management, advancing the field and creating new enthusiasm;
- Shows strong dedication and commitment towards advancing and improving river management into the future.

Outstanding Contribution to RMS (*RMS Members only*)

This award recognizes contributions to the success of the River Management Society itself. This award recognizes contributions at the national or regional level that result in greater organizational effectiveness, efficiency, growth, positive change, or enthusiasm. The award focuses on impact on the organization as a whole, rather than a particular length of service, in at least two areas:

- Exceptional contribution to national policy, planning, and program development that brings recognition to RMS as a leader among river and / or professional organizations;
- Demonstrated leadership within RMS that has created sustainable positive change;
- Donated considerable time, money, or effort that has resulted in advancement of RMS as a unique and robust institution;
- Brought new and positive private and public awareness;
- Increased membership substantially;
- Developed or located new funding or resources; and/or
- Provided exemplary service through an elected office.

Awards will be presented at the RMS Symposium in Ashland, OR, April 8-10, 2025.

Welcome New RMS Members

Associate

Emma Cole, Engineering Trainee Resource Assistant
US Forest Service / Environment for the Americas
Boise, ID

Jes Gray, Senior Plant Ecologist
City of Longmont
Longmont, CO

Karen Kinslow, Assistant Professor of Geography and Environmental
Sciences, Longwood University
Farmville, VA

Michelle Platz, Environmental Engineer
LimnoTech
Ann Arbor, MI

Individual

John Botros, River Access Program Coordinator
Texas Parks and Wildlife Department
San Marcos, TX

Hannah Burgstaler, River Ranger
Kalispell, MT

Erin Dickman, Plant Ecologist
El Portal, CA

Paige Orals
Recent intern, RMS/National Park Service/US Forest Service
Watershed Program Manager
Sweet Water - Southeastern Wisconsin Watersheds Trust, Inc.
Milwaukee, WI

Mary Ott, Aquatic Biologist
Bluweaver
Denver, CO

Jeff Venturino, CA Stewardship Associate
American Whitewater
Nevada City, CA

Ben West, Founder and CEO
Risora Consulting
Jackson, TN

Matthew Whalen, Assistant Professor
Virginia State University
Petersburg, VA

Organization

LWR Consultants, Inc.
Eric Berg, Wildlife Biologist
Emigrant, MT

Trout Unlimited
The Fred S. Burroughs North Jersey Chapter
Hal Hartman, Conservation Chairman
Greely, PA

George Demby
Budd Lake, NJ

National Park Service
St. Croix Wild and Scenic Riverway
Marian Shaffer, Aquatic Biologist
St. Croix Falls, WI

Capitol Reef National Park
Jessica Tyra, Outdoor Recreation Planner
Torrey, UT

Student

Felicia Mills
Climate Corps Member, Local Sustainability Office
Northern Arizona University
Flagstaff, AZ

Cody Phillips
Montana State University Billings
Billings, MT

Sierra Weirens
Recent intern, RMS/National Park Service/US Forest Service
University of Colorado Boulder
North Oaks, MN

Fall Workshop: Using Fluvial Geomorphology to Improve Stream Restoration & Watershed Management



November 18-20 — Virtual Short Course
November 21 — Optional Virtual Field Trip
Instructor: Dr. John Field, Field Geology Services

Learn more and register: <https://bit.ly/3UIw5h2>

This course is pre-approved for 10 CE credits under SER's Certified Ecological Restoration Practitioner (CERP) program.

Chapter Officers

ALASKA (vacant)

PACIFIC

Kristina Rylands, President
Upper Merced River Watershed Council
Mariposa, CA 95338
(209) 761-6674 / kristinarylands@gmail.com

Leigh Karp, Vice President
BLM California Desert District
1201 Bird Center Drive
Palm Springs, CA 92262
(951) 697-5291 / lkarp@blm.gov

Larry Freilich, Secretary
Inyo County Water District
PO Box 337
Independence, CA 93526
(760) 920-1169 / lmfreilich@gmail.com

Bob Stanley, Events Coordinator
Tuolumne Wild and Scenic River
24545 State Highway 120
Groveland, CA 95321
(209) 962-7825 / bebob@yahoo.com

NORTHWEST

Cannon Colegrove, President
Montana Fish, Wildlife and Parks
4600 Giant Springs Rd, Great Falls MT 59405
(406) 454-5854 / cannon.colegrove@mt.gov

Chris Elder, Vice President
Whatcom County, WA
PO Box 43, Acme WA 98220
(360) 840-3064 / celder@co.whatcom.wa.us

Echo Miller Barnes, Secretary
Hungry Horse Ranger Station
10 Hungry Horse Dr, Hungry Horse MT 59919
(971) 940-3585 / emillerbarnes@gmail.com

Lelia Mellen, Events Coordinator
National Park Service
2310 Flourhouse Way, Bozeman MT 59715
(406) 224-3509 / lelia_mellen@nps.gov

MIDWEST

Ed Fite, President
Grand River Dam Authority
15307 North Swannanoa Rd, Tahlequah, OK 74464
(918) 456-3251 / ed.fite@yahoo.com

Ed Sherman, Vice President
USDA Forest Service
#66 Confederate Ridge Road, Doniphan, MO 63935
(573) 996-2153 / edward.sherman@usda.gov

Bobbie Jo Roshone, Secretary
Niobrara National Scenic River
214 W. HWY 20, Valentine, NE 69201
(402) 376-1901 / bobbiejo.pennington@gmail.com

SOUTHWEST

Matt Blocker, President
Bureau of Land Management
440 West 200 South, Suite 500
Salt Lake City, UT 84106
(801) 539-4021 / mblocker@blm.gov

Stew Pappenfort, Vice President
Colorado Parks and Wildlife, Retired
308 Palmer St, Salida, CO 81201
(719) 221-4905 / sgpappy@gmail.com

Secretary (vacant)

Events Coordinator (vacant)

NORTHEAST

Emma Lord, President
National Park Service
54 Portsmouth St, Concord, NH 03301
(603) 224-0091 / emma_lord@nps.gov

John Field, Vice President
Field Geology Services
P.O. Box 985, Farmington, ME 04938
(207) 645-9773 / fieldgeology@gmail.com

John Little, Trip Coordinator
Missisquoi River Basin Association
737 Rushford Valley Rd
Montgomery Ctr, VT 05471
(802) 326-4164 / jalittle58@gmail.com

SOUTHEAST

James Vonesh, President
Virginia Commonwealth University
1000 W. Cary St, Richmond VA 23284-2012
(804) 426-8553 / jrvonesh@vcu.edu

Vice President (vacant)

Elise Chapman, Secretary
University of Tennessee at Chattanooga
615 McCallie Ave, Holt Hall, Room 328
Chattanooga, TN 37403
(423) 227-6131 / elise-chapman@utc.edu

Jack Henderson, Events Coordinator
French Broad Paddle Trail
P.O. Box 1242, Pisgah Forest, NC 28768
(703) 638-3616 / hendersonjc3@gmail.com

Canadian River Management Society

Contact: Max Finkelstein
tel (613) 729-4004 / dowfink@gmail.com

Become a Member

Name _____

Home Address _____

City _____

State _____ Zip _____

Home Phone _____

Organization _____

Office _____

Work Address _____

City _____

State _____ Zip _____

Work Phone _____

Email _____

Job Title _____

Duties/Interests _____

Rivers you manage _____

Membership Category (please check one)

- Individual \$60/yr (\$240 for 5 years - save \$60!)
- Associate \$40/yr
- Student \$30/yr
- Lifetime \$750 (for individuals only)
- Organizational (1-2 people) \$75/yr
- Organizational (3-4 people) \$150/yr
- Organizational (5-8 people) \$300/yr

Membership benefits are described online:
www.river-management.org/membership

Who referred you to RMS? _____

Make checks payable to "RMS" –
RMS also accepts VISA or Mastercard:

Card #: _____

Exp date: _____ Amount: _____

Send this form, with payment, to:
RMS, P.O. Box 5750, Takoma Park, MD 20913-5750
(301) 585-4677 • rms@river-management.org



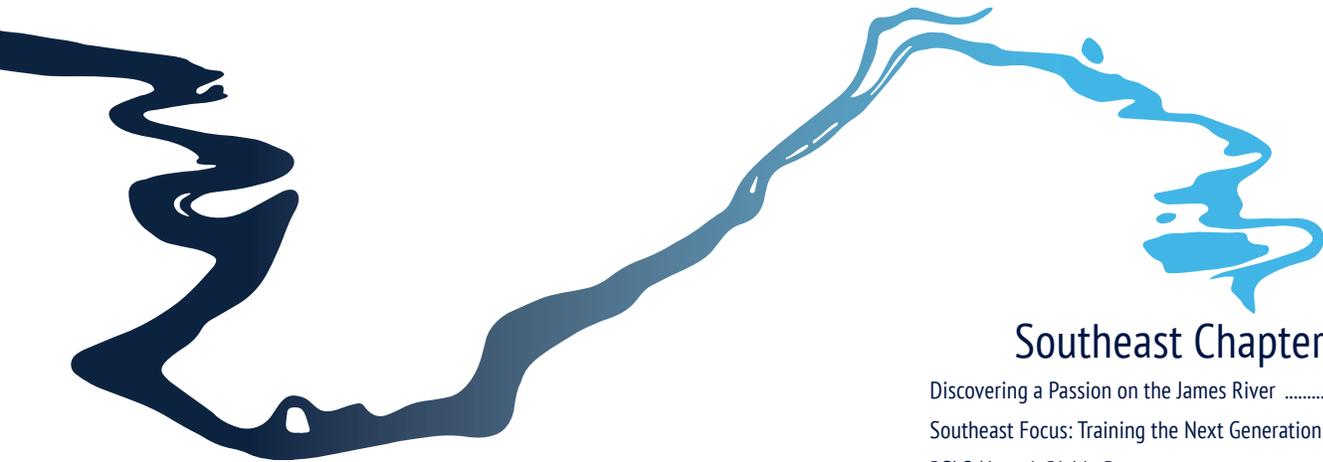


RMS, P.O. Box 5750, Takoma Park MD 20913



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RMS Journal Submission Deadlines

Winter 2024	Vol. 37, No. 4	Midwest	Nov
Spring 2025	Vol. 38, No. 1	Southwest	Feb
Summer 2025	Vol. 38, No. 2	Northwest	May
Fall 2025	Vol. 38, No. 3	Northeast	Aug
Winter 2025	Vol. 38, No. 4	Pacific	Nov
Spring 2026	Vol. 39, No. 1	Alaska	Feb

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