



From Forgotten to Valued: Restoring the National Capital's Anacostia River

by Anacostia Watershed Society staff: Jorge Bogantes Montero, Ashley Parker, Joanna Fisher, and Ariel Trahan

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When the Anacostia Watershed Society (AWS) was founded in 1989, the Anacostia River was a poster child for truly neglected urban waterways. Nestled in the nation's capital amidst industrial and urban areas, the river was plagued by tremendous amounts of trash, sewage, pollutants, sediment, and a very bad reputation that blighted nearby communities already suffering from social and economic inequity.

In the 19th century, extensive marshes in the Anacostia River thrived with Wild Rice (*Zizania aquatica*) and were prime habitat for Sora Rail, which attracted armies of hunters who prized the Anacostia marshes as some of the finest in the region for rail hunting. Over 400 hundred years of direct and

indirect anthropic impacts have created a completely different river running through the political heart of the world's biggest economy. The river's aquatic ecosystems and riparian forests are now just a shadow of what they used to be. When the Europeans arrived in the early 17th century, there was a population of Native Americans living along the Anacostia River. They were Algonquian-speaking peoples and lived in a village east of the river called Nacotchtank (where the Anacostia gets its name). These cultures flourished with the abundant natural resources that the river provided. A fishery perhaps unfathomable by today's standards, the river teemed with migratory shad, perch, catfish, sturgeon, and other species. These people practiced

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Executive Director's Eddy

During the past year we have been inspired by members' tremendous involvement and contribution. Early in 2015, new chapter officers were eager to ask lots of questions. Bylaws were reviewed, and most were revised to reflect new officer roles. While trips were cancelled as a result of short advanced promotion and resultant low signups, our resilient chapter leaders quickly rescheduled them for 2016 to create one of the fullest schedules we've seen in years!

A few shout outs are in order. Scott Springer has stepped down from thirteen-years of awesome service to RMS as our Professional Purchase Coordinator. He has supported this program behind the scenes with great patience and diligence, and has soldiered through a number of 'customer service' challenges endemic to the world of retail. If you have an opportunity to give him a pat on the back, please do, for we cannot thank him enough.

Looking ahead, Judy Culver (Cottonwood, ID) has stepped up to this role, and Anja Wadman (Price, UT) will be right behind her to help out and step in if Judy is away. In our 'transition' call with Scott, these ladies were brimming with ideas for our next ProPurchase chapter: look for news and updates!

Year in, year out – Chet Crowser has been at the ready to help RMS with its website administration. Despite the growth of both his job responsibilities and family size, he still makes time for RMS when we come calling. Thank you, Chet! Another object of thanks is Caroline Kurz, our former Program Director and *RMS Journal* Editor. Since her 'retirement' from RMS administration, Caroline has helped us grow the quality of our quarterly publication with her uber-reliable professionalism seasoned with delightfully patient flexibility. Thank you Caroline, for keeping us on track!

The National River Recreation Database – This giant project is moving forward, and members have been eager and invaluable as we continue to assemble the requisite expertise and strategic partnerships. You'll learn how we are connecting the many dots to serve river managers and provide a national shopping experience of river recreation in Boise,



Risa Shimoda, RMS Executive Director

thanks to RMS members Marina Metes (DC), Susan Rosebrough (WA), Caitlin Scopel (CA), Erik Wrede (MN), Dave Cerniceck and Brian Goldberg (WY), Tom O'Keefe and Joel McCune (WA). We've also been blessed with stalwart expertise from UT Chattanooga. Support from the National Park Service and Forest Service and early work by Zac Cole (NC), Sera Zegre (WV) and Joan Harn (DC) has made the effort possible, and we can't thank them each enough for their vision and enthusiasm.

Communicating RMS' value to current and future members – Early this winter, Jennifer Reed (Alaska Chapter) soldiered us through a process to tap the minds and hearts of RMS members, both brand new and among the longest, whose work requires them to communicate effectively. Raucous applause goes to Jennifer, our focus group participants Cassie Thomas, Rachel Collins, Tom Mottl, Julie Thorner, and Doug Whittaker, and those whose late conflicts prevented their attendance. Check RMS out in Boise to learn the results of the focus group input and participate in an expansion of our input-seeking initiative.

Please stay tuned as we develop the next RMS Strategic Plan, asking ourselves how well we've done and how the path toward tomorrow should flow. We will embrace the wisdom provided by our historical successes and the prospect of realities that have not yet arrived, to fuel our value and relevance, and look forward to paddling toward that future with easy but deliberate synchrony, with your continued support. ♦

RMS President's Corner

Your board recently received an email with the subject line "*the only constant is change*" from our longest serving member, Gary Marsh, announcing his intention to resign from the RMS Board at the Boise Symposium. **This issue of our journal is dedicated to Gary G. Marsh** and the service he has provided to RMS and our predecessor organization, the American River Management Society. Gary has served as an ex-officio advisor for 27 years – joining the board in 1989!

So often we dedicate in memory of someone—it is much more fun and I hope more meaningful to dedicate something to a legend who is very much alive. Gary has served every RMS Board of Directors. We have recognized his contributions to the Society and to river management previously – in 1998 he received the "Outstanding Contribution to River Management Society" award; followed in 2010 by the award for "Outstanding Contribution to River Management."

Some of the things Gary has done for RMS and river management in general are very visible – his years with the Bureau of Land Management and his diverse and regular emails sharing information on just about anything that might be remotely relevant to rivers, river management, and sometimes just life in general.

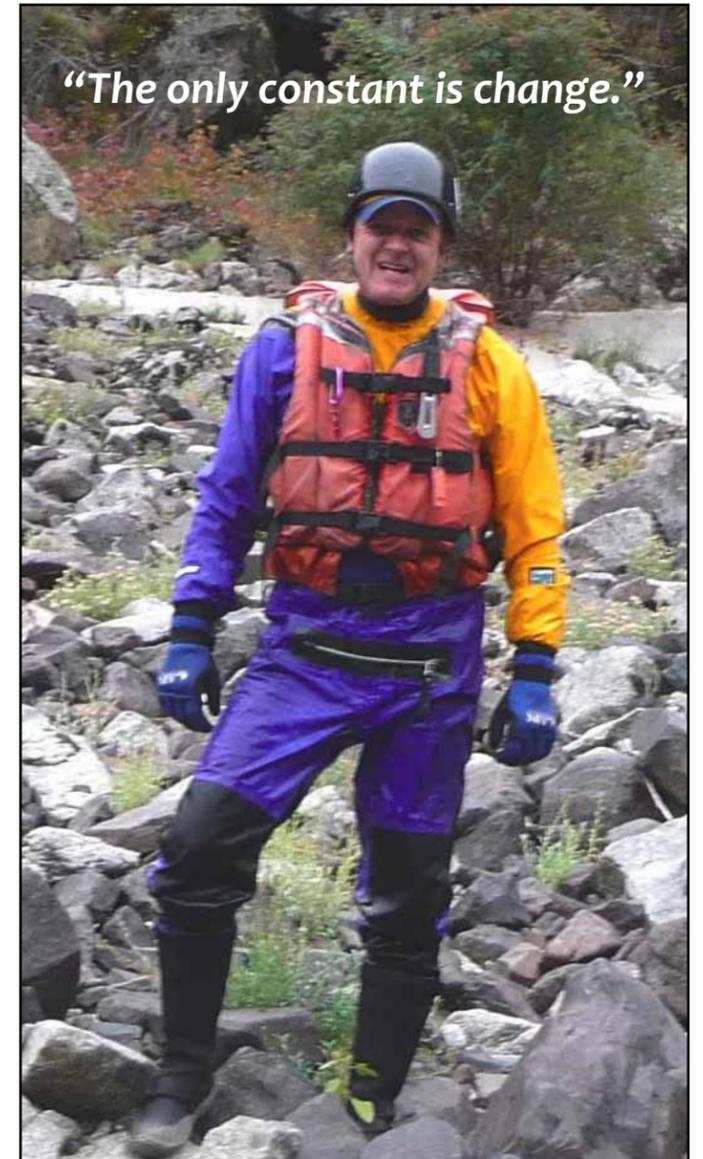
Other things Gary does are less visible. He has been instrumental in the establishment of the River Studies and Leadership Certificate program. He took Lisa Klinger's excellent history of RMS and augmented and updated it. He helped index our newsletters and Journals. He has been the author and regular updater of the very detailed planned giving policy (how to leave your money to RMS). Most importantly he has always been a source of support to whoever is occupying other leadership roles in the organization.

I hope Gary and I will see you in Boise in May. When you see Gary, please thank him for his accomplishments and hard work and tell him how much you have appreciated his work on our behalf. It will be harder for me not having him on our board; but I know I will still be able to pick his brain any time I need because Gary is just that kind of person—always giving; always sharing.

The following excerpts from Gary's recent email exemplify his generous and humble leadership style:

"In addition, after 27 years on the Board I think it's time to allow someone else to serve and contribute at the pleasure of the Board. How does one reflect upon 27 years of serving the only professional society dedicated to river managers? A lot of memories indeed. I have always considered RMS as my extended family and I have been blessed by having the opportunity."

"In my view, the term "Advisor" should be changed, as the RMS Board has needed very little "advice" in my tenure due to the outstanding leadership in the election process of officers being fed from the Chapter ranks. The Chapters and its volunteer



Gary G. Marsh on the Lower Salmon River, Idaho. Photo: Caroline Kurz

members are the gauging cfs of RMS. The board needs more funds and elbow grease, not advice. May this gauging cfs (flow) continue to increase as a reflection of the Chapters' diversity and strength."

"As a Lifetime member, I'm not disappearing and will always do what I can for this great organization and family. I look forward to seeing you along with many other friends in Boise."

Not to give Gary the last word, I will close with a quote from Ed Fite, "Gary Marsh is definitely a class act—a river man's man!" ♦

Helen Clough
President, River Management Society

New Hampshire Looks at the Big Picture

by Hannah Blondin

Although New Hampshire only encompasses 18 miles of open-ocean coastline on the Gulf of Maine, the state actually contains over 326 miles of sensitive tidal shoreline and marine/estuarine salt marsh. Apart from the Atlantic Coast, New Hampshire is also home to Great Bay. Known for being New Hampshire's "hidden coast," the bay is one of the nation's 28 "estuaries of national significance." Seven total rivers flow into Great Bay, however salt water is brought into the bay by the Piscataqua River, and water levels in the estuary are significantly influenced by daily tides, which are vital to several key species and habitats. The New Hampshire Tidal Shoreline Inventory Project (Inventory) was an effort to create, for the first time, an important baseline dataset of engineered shoreline protection structures to inform coastal shoreline management decisions in the state of New Hampshire. Interest in integrated shoreline management has increased in the state over the past few years among multiple stakeholder groups as the region is experiencing continuing population growth and development, water quality stresses, sea-level rise, and intensifying coastal storms.

Following the December 2014 New Hampshire Shoreline Management Conference, several data needs were identified to help advance integrated shoreline management and policy that promotes important assets like human health and safety, natural resources, economic development, cultural and historic resources, and recreation opportunities, among others. One important data need identified was the need for a comprehensive, spatial inventory of engineered structures along the New Hampshire tidal shoreline that could be combined with existing high quality data about natural habitats like salt marshes, sandy beaches, and natural rocky shores. This integrated dataset will improve our quantitative understanding of the state's tidal shoreline, particularly the proportion of the shoreline that is subject to manmade hardened structures. The dataset can now serve as the basis for a coastal shoreline vulnerability assessment and efforts to identify candidate sites for "soft" shoreline protection approaches (also called living shorelines or green infrastructure). The Inventory provides important baseline information to policymakers on the New Hampshire Coastal Risks and Hazards Commission and in state and regional agencies as they consider more comprehensive shoreline management approaches. Ultimately, the Inventory serves as an information source for decision-makers as they seek to improve shoreline management in order to make the NH coastal shoreline more resilient.

This study included the 17 New Hampshire Coastal Zone towns of Dover, Durham, Greenland, Exeter, Hampton, Hampton Falls, Madbury, New Castle, Newfields, Newington, Newmarket, North Hampton, Portsmouth, Rollinsford, Rye, Seabrook, and Stratham. The study area encompassed all tidal waters including but not limited to the Atlantic Coastline, Great Bay, the Piscataqua River, tidal tributaries, and all intertidal marshes.

The Inventory included four main types of engineered structures: (1) Rip Rap/Revetment: unordered rock, concrete, stone, rubble or other material used to allow for water containment or to protect shorelines and structures from erosion by the sea, rivers, or streams. Revetments are more orderly and wall-like, but are sloping structures¹; (2) Wall: an orderly, vertical structure made of concrete, wood, steel, rocks, or other materials that runs "parallel to the beach at the land/water interface;"² (3) Berm: a flat strip of land, raised bank, or terrace bordering a river, canal, or other shoreline³; and (4) Jetty/Groin: large piles of rocks or concrete built perpendicular to the shoreline.²

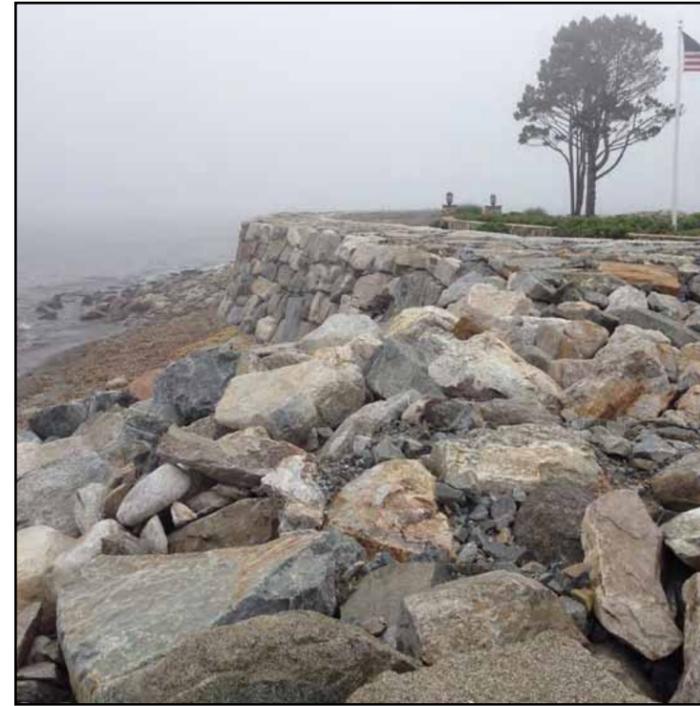
The engineered structures were digitized at a scale of 1:1500 using the 2013 Coastal High Resolution True Color aerial photograph collected by the Piscataqua Region Estuaries Project on August 24, 2013 (1-foot resolution) and the 2010-2011 Regional Very High Resolution Aerial Photography (6-inch resolution) available on NH GRANIT. After the digitizing of the 326 miles of tidal water and marine/estuarine salt marsh was finished, field verifications were completed for nearly all structures, with the exception of the back marsh. Field verifications were completed using the 'ArcCollector for GIS' App for iPhone (Collector). This application became essential to the Inventory effort. Collector allows a user to upload their shapefile to ArcOnline, and access the shapefile on any data capable iPhone in the field. I was able to edit and add features to the Inventory whether I was completing verifications by boat or car, and the edits would automatically sync to my shapefile online.

After completion of the Inventory, I was able to accurately

¹ "Rip Rap." ECN.com. Erosion Control Network, n.d. Web. Dec. 2015. <<http://www.erosioncontrolnetwork.com/rip-rap/rip-rap.aspx>>.

² "Shoreline Structures." Beachapedia. N.p., 23 Sept. 2015. Web. Dec. 2015. <http://www.beachapedia.org/Shoreline_Structures>.

³ Simpson, J. A., E. S. C. Weiner, and Michael Proffitt. "Berm." Def. 1. Oxford English Dictionary. Oxford: Clarendon, 1993. Web.



Photos: The top photo shows a section of rip rap that leads into a wall. The middle photo shows an example of a jetty. The bottom photo shows an example of rip rap with a berm existing in front of it.

determine that 12.2% of New Hampshire's shoreline is hardened by some type of engineered structure. This percentage equates to be 39.75 miles of hardened shoreline. The results were also broken down by geographical area. The Atlantic Coast shoreline contains 70.19% (14.78 miles) of hardened shoreline. Great Bay shoreline contains 7.01% (4.51 miles) of hardened shoreline. The Piscataqua River/Portsmouth Harbor area contains 29.12% (10.40 miles) of hardened shoreline.

As a result of this project, the NHDES Coastal Program is collaborating with the University of New Hampshire School of Engineering and Physical Science to conduct

a Senior Engineering Capstone project with five students. In order for the Inventory's information to be useful and inform the NHDES Wetlands Bureau

permitting and enforcement assessments, a condition rating needs to be applied to the shoreline structures. The UNH environmental and civil engineering students will develop a New Hampshire-specific condition rating methodology to be applied to walls, rip rap, and berms along tidal shorelines. The condition rating and classification system the students devise and test will then be applied to all inventoried structures.

The Coastal Program will continue to update the Inventory to keep track of changes to the shoreline where structures were built, removed, or renovated. The Inventory is a tool that can be used to demonstrate the results of certain management actions and other initiatives placed in the 17 coastal zone communities.♦

Hannah Blondin works for the New Hampshire Department of Environmental Services Coastal Program.

THE BRONX RIVER

by Kathalene Lamboy

With 23 miles of fresh water flow from its source at the Kensico Dam, the Bronx River is the only true river in New York City. The southernmost 8 miles of the river flow through the borough of the Bronx and empty into the estuary of the Long Island Sound. For hundreds of years, the Bronx River had been degraded by human and industrial efforts. The mentality of “out of sight, out of mind” had no clearer definition. Mills that once used the power of the river as an energy source, also ended up dumping waste and other byproducts of industry into the drainage basin. These toxins would ultimately flow down river and no immediate effects would be seen. Into the mid and late 1960’s this degradation continued. A majority of the community surrounding the river had no understanding of its importance and potential. The river continued to be used as an illegal dumping site until community activists formed the Bronx River Restoration in 1974 and began cleaning efforts of the river. The non-profit organization of the Bronx River

Alliance was founded in 2001, following the original efforts of the working group. Our mission aims to protect, improve and restore the Bronx River corridor such that it may be a healthy ecological, recreational, educational and economic resource for neighboring communities. The restoration efforts of the river have been proven positive through the reemergence of wildlife not seen for decades, including beaver, American Eel and Alewife Herring. The Alliance works with over 100 partner groups including the NYC Department of Parks and Recreation, Rocking the Boat, and DEP to meet these goals. To date, with the help of these partnerships, 70 cars and 5,000 tires have been removed from the river. Though many hours of effort have been put into the physical restoration of the river, this work would go in vain without the personal investment of the community.

Public education is an important key in the restoration of the Bronx River. Of every 10 persons encountered on or along the river - approximately 8 indicate to me that they were unaware this river existed or that there are quote “real living things

in that water.” Through connecting with the community and changing their concept of the river, we are investing in the river’s future and protecting its preservation. Over the course of the past 14 years, over 9,000 students have encountered engaging educational programming along the Bronx River. Through fun hands-on activities, students are able to apply concepts learned in a classroom to the real world. Bronx River Alliance programming incorporates NYS common core standards and “scope and sequence” concepts to ensure the students are adding onto the core learning fundamentals. Long term relationships with schools along the Bronx River have inspired programming such as the TD Bank, A Tree Grows in the Bronx Program – giving classrooms native Bronx River Forest trees to care for. The Bronx River is used as a living outdoor science and exploration lab and the Education Program encourages teachers to get their students out of their desks and into the unique ecosystem of the Bronx River by offering low cost and budget-based programming.

One such program that has evolved over the years into a community stewards

program is our water quality monitoring program. Bronx River water quality data has been collected within the river by volunteer teachers, students and community individuals since 1989. We are able to provide groups with sets of testing materials and ask for their data upload to our webpage BronxRiverWater.org in exchange. Here, live data may be uploaded and accessed by others interested in researching the river and its change in chemical composition over the years.

Within 2015, students from Shomburg Satellite Academy HS used these data to create their final science credit project of the comparison of eel populations and water quality. Students engaged in shaking eel mops to assess current populations. These catadromous fish journey to and from the Saragaso Sea to the Bronx River each year in hopes to expand their survival rate. Students love being able to see the wildlife for themselves, and hold life in their hands from the same river they describe as “dirty, gross, green water.” This experience allows students to see the river beyond all the negativity it holds. Students and adults alike marvel at the story of this world traveler and begin to understand how precious these waters are not only for these creatures but for the communities it borders.

We also encourage the exploration of the Bronx River through recreational canoeing. Recreational boating is not the first thing that comes to mind to many living within the community of the Bronx, a borough with more concrete in weight than trees, flowers and grass combined. We understand that for the community to be invested in the Bronx River, they must be able to experience its wonder and charm first hand. We offer 10 free community paddle events within our recreational season which attract over 50 participants each. Through this free experience, we are able to communicate the importance of the river and educate the community on how they can be river stewards and take ownership for their community resource. Over 2,000 people explore the Bronx River by canoe and kayak with the Alliance through public, private and free community paddles offered yearly from April-November. In 2012, the lower eight miles of the Bronx was awarded the honor of being named part of the National Water Trail system by the National Park Service, an honor that is worn proudly as our efforts continue to



Over 2,000 people paddled the Bronx River in 2015, learning the importance of caring for the river’s current and future use as a recreational resource. Credit: Bronx River Alliance

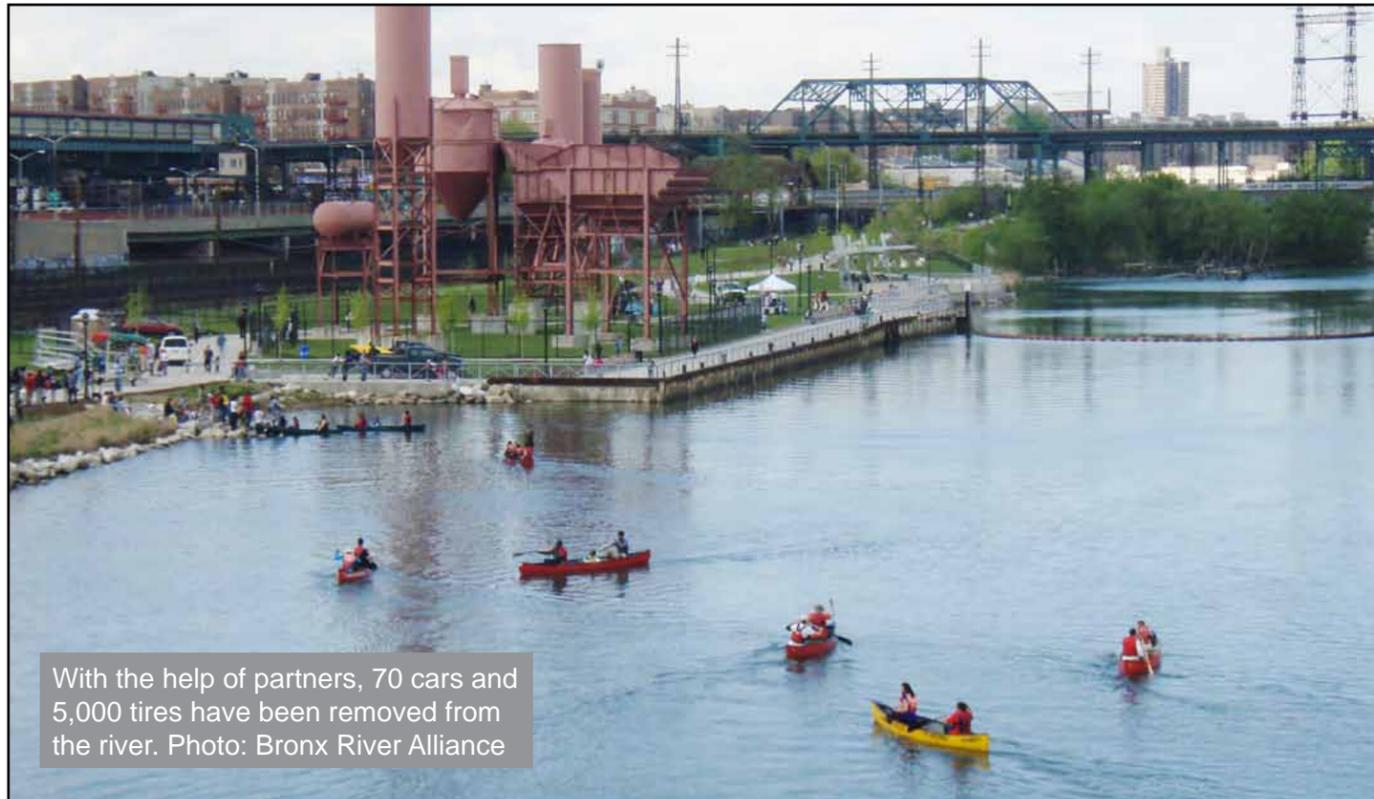
reclaim the river as a recreational asset.

No matter the type of programming I am conducting on a certain day, I always end my lessons by asking if participants would come back to the river. The answer is almost always *yes*. I follow this question by asking if they would visit this river filled with garbage and trash. The answer is almost always *no*. I then put the responsibility of the river on their shoulders—putting the ball in their court so to speak. I ask “*what will you do to keep this river the way it is now - or better*

for the future?” Students, teachers and participants alike will shout out different answers including telling their friends about it, or visiting with their family. Why is this part of the lesson the most important? It is because we are giving the community the responsibility of this river, reminding them that this river is theirs, and that only they can help sustain a future for the Bronx River.♦

Kathalene Lamboy serves as Education Coordinator for the Bronx River Alliance.

Students within the One To World program out of Bronxworks visit with the Bronx River Alliance at Concrete Plant Park within the Estuary of the Bronx River to learn the anthropological effects of neighboring communities on water chemistry. Photo: One To World



With the help of partners, 70 cars and 5,000 tires have been removed from the river. Photo: Bronx River Alliance

BRONX RIVER PARKWAY MEETS THE BRONX RIVER

by John Field

What happens when a large river runs right up against a busy roadway? This is a question Westchester County (New York) is grappling with as the Bronx River flows against the southbound lanes of the Bronx River Parkway for over 500 feet in Scarsdale, NY (Figure 1). A side channel that conveys a portion of the river's flow during floods has been infilling with wood and sediment for years, resulting in more flow in the main channel and increasing erosive pressure along the Parkway. As the design life of the current retaining wall protecting the Parkway from erosion comes to an end, the County hired Field Geology Services of Farmington, ME and Woit Engineering of Binghamton, NY to conduct an assessment to identify the best options for reducing erosion hazards to this section of the Parkway.



Figure 1. Stone retaining wall on the Bronx River running along the southbound lanes of the Bronx River Parkway. View looking downstream.

An historical study as part of the assessment revealed that construction of the Parkway resulted in the whole-scale straightening of the river in the early 20th century, only the latest of several significant periods of channel alteration since European settlement of the region in the 1600's. A 1708 map shows a highly sinuous channel that appears to have meandered across the full width of the narrow valley while the current straightened channel largely flows along the steep valley sides (Figure 2). Field studies showed that the current infilling side channel was, in fact, the main channel at some point prior to 1888 (the survey date of the earliest topographic map which shows the main channel in its current location). The current main channel may have been a tail race for an early mill complex that may have captured the majority of the river's flow during, presumably, a large flood. Whatever its original purpose, the current main channel is actively widening; rock armor once along the bank is now found in the center of the channel as erosion has caused bank recession around the armor stones (Figure 3). These slow ongoing adjustments suggest flow in the channel is much greater than in the past and is consistent with the supposition that flow

shifted from the current side channel into the present-day main channel over a century ago.

After completing the assessment, two basic conceptual restoration options were considered for reducing erosive pressure on the Parkway. One option would clear sand and wood from the side channel to reduce flow in the main channel during floods. Although this option is relatively inexpensive, periodic maintenance would be required as sediment and wood will continue to accumulate in the side channel as before if no other actions are taken. Furthermore, the repeated disturbance to vegetation that would be inevitable during the required maintenance every few years would disturb the aesthetic nearby residents enjoy as they use the bike path that runs near the edge of the side channel. A second restoration option envisions relocating the main channel back into the current side channel - the previous location of the main channel. The relocated channel, by following the trace and dimensions of the old channel, would flow in a properly-sized channel close to an equilibrium condition (and thus less prone to widening and erosion), move the river away from the southbound lanes of the Parkway, avoid removing any of the many large trees on the floodplain, and have minimal long-term maintenance needs. The material generated when enlarging the current side channel will be used to infill the current channel and extend the floodplain where the river now



Figure 2. Straightened section of Bronx River flowing against the steep valley sides.

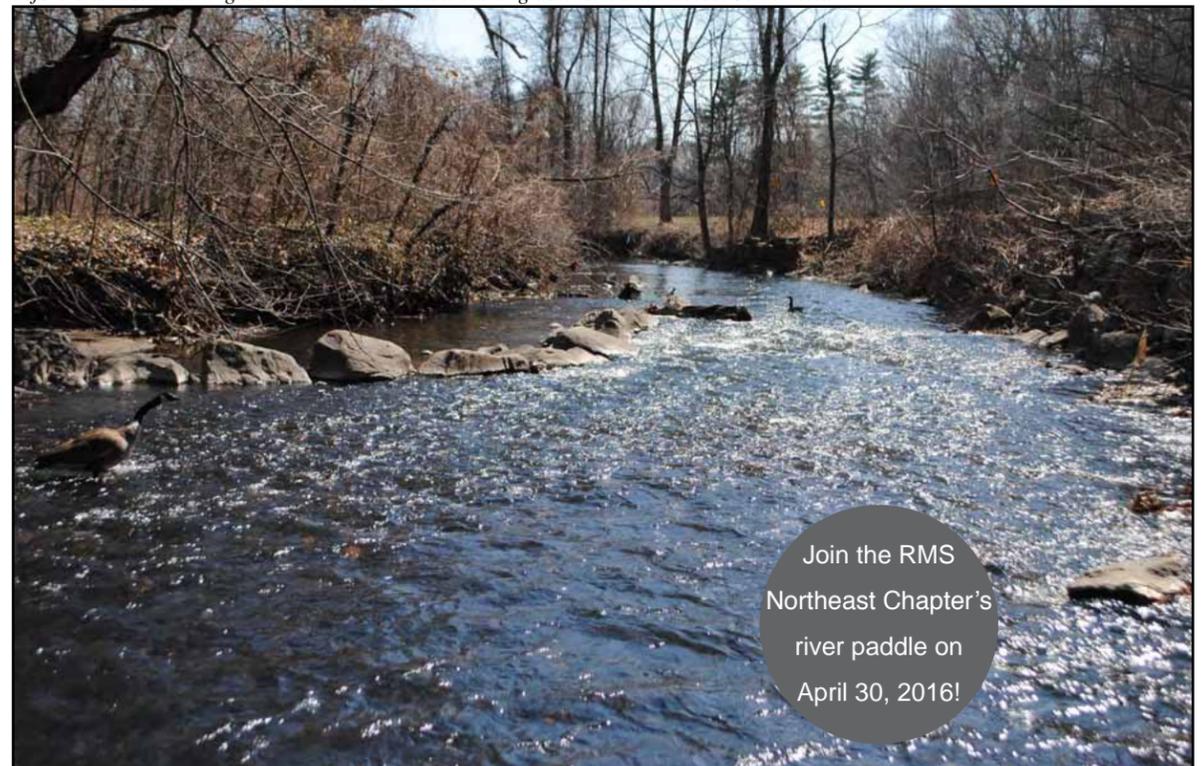
flows against the Parkway. The retaining wall on the Parkway scheduled for replacement would be far simpler and cheaper to rebuild if the river no longer flows against the Parkway. Those savings could potentially make the cost of river relocation a revenue neutral proposition.

No decisions have yet been made by Westchester County as to which option to pursue as they continue to consider, among other things, all of the short-term costs and potential long-term

maintenance requirements associated with the proposals. Which option makes the most sense to you? If you feel the information here is insufficient to make an informed decision, then please join the River Management Society on a site visit as part of the Northeast Chapter's river paddle scheduled for April 30, 2016. Hope to see you there!♦

John Field is the President of Field Geology Services.

Figure 3. Armor stone in the center of the channel was likely once on the face of the bank before channel widening and bank erosion. View looking downstream. Photos: John Field



Join the RMS
Northeast Chapter's
river paddle on
April 30, 2016!

Reconnecting A Community To Its Greatest Assets: Its People and Its Environment

by Wink Hastings

For many years, inhabitants of the small West Virginia town of Wardensville quietly went about the work of farming and the business of supporting local farmers. The town, incorporated in the late 1870's, had "grown" to a robust population of 271 people at the time of the 2010 census. At about the same time, a number of entrepreneurial-minded people were leaving the hectic lifestyle of Washington, D.C., for the quiet, pastoral setting of Hardy County, West Virginia. It was only a matter of time—and economic necessity—before a few of these transplants began establishing businesses in Wardensville, becoming full-time residents.

Seemingly as one pioneer business sprouted another was in the offing. Soon, the look and feel of Main Street had dramatically changed by thriving new businesses including a brew pub, a restaurant with monthly guest chefs and a purveyor of local art. And the changes continue as more energetic young entrepreneurs move to Wardensville, perhaps encouraged in part by the establishment of a Main Street Program. One thing, however, had not changed; the residents had long forgotten that the Cacapon River was literally a stone's throw from Main Street. As is often the case, many of the newer residents with fresh eyes recognized the river as an important natural asset.

As the Main Street initiative gathered momentum, several committee members focused on improving Wardensville's streetscape while local business owner, Paul Yandura, and others began exploring ways to connect people to the Cacapon River. In

addition to beautification, thoughts turned to frequent storm events flooding Main Street, the realization that polluted storm water was diverted directly to the river, and that there was no public access to the river—arguably the town's greatest natural asset. Not knowing where to turn for help, Main Street committee members asked a prominent local nonprofit, Cacapon and Lost Rivers Land Trust, for advice. This ultimately led committee members to the Rivers, Trails and Conservation Assistance program of the National Park Service whose staff had been assisting the Land Trust with several conservation initiatives.

Through opportune timing and knowledgeable resource professionals, a technical capacity grant administered by the National Fish and Wildlife Foundation was identified, which appeared to be a good fit for Wardensville. This particular grant program developed by the Foundation's highly innovative staff provides funding to pre-approved and well-seasoned consultants. With several prospective project sites located

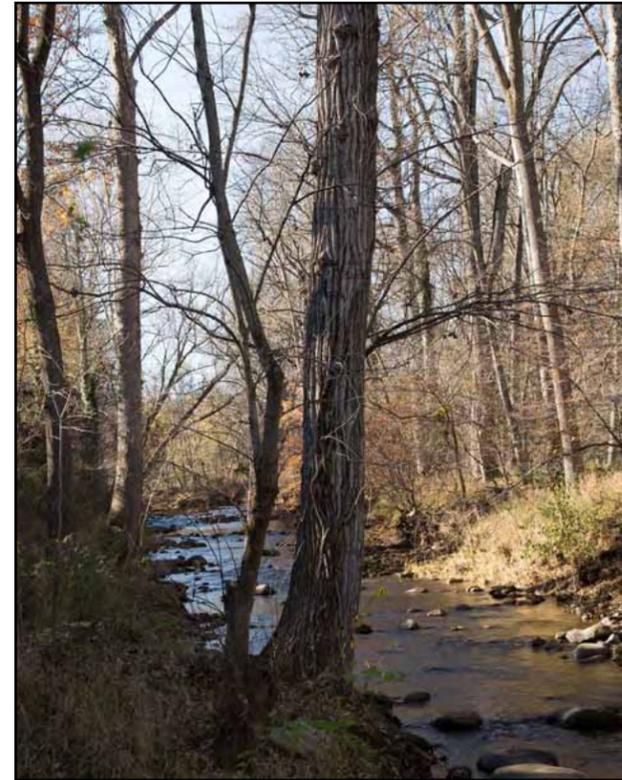
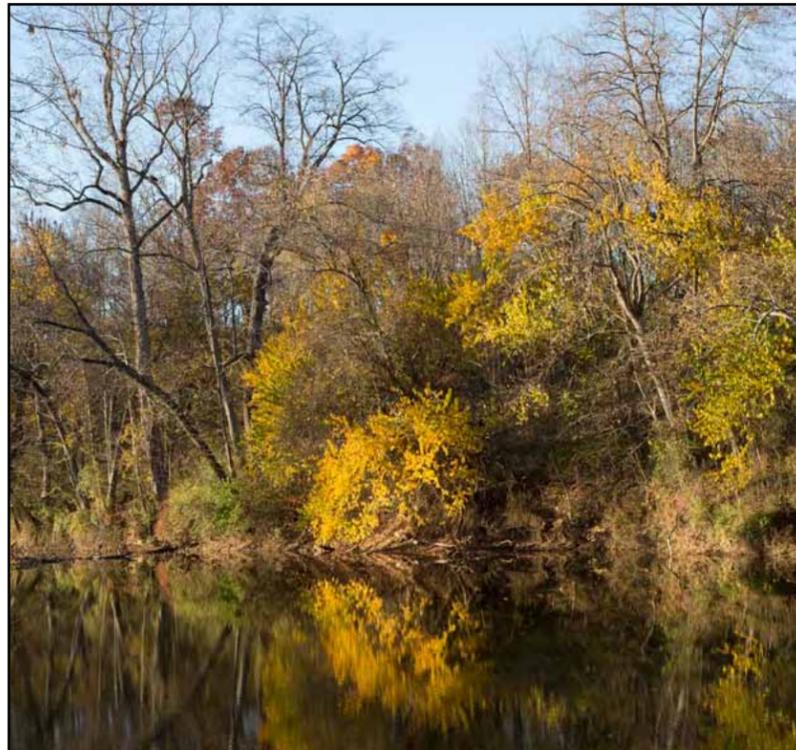
on town-owned property, Wardensville mayor, Barbara Ratcliff, introduced the opportunity at the next town council meeting. Shortly after the town's decision to pursue the grant, Main Street members and RTCA staff were providing information to staff of Biohabitats, Inc., one of the Foundation's consultants who completed the grant application.

The grant as proposed (and ultimately approved for funding in September 2015) centered on preparing preliminary designs for public river access and non-structural storm water management facilities. Sites for river access would establish points along the Cacapon and Trout Run, a tributary, where residents and visitors could easily walk to these streams and also launch canoes or kayaks. The storm water facilities, using "low impact development" techniques, would integrate green space, native plants, and natural hydrology to retain polluted run-off to slowly infiltrate into the ground rather than flowing directly into the river. Once installed, these facilities would effectively

connect people to their natural surroundings while demonstrating the benefits of resource stewardship. Further, boating access greatly enhances visitor experience while native plantings are aesthetically appealing and low maintenance.

As Joe Berg, Senior Ecologist for Biohabitats, states, "designing elements of a green infrastructure system (AKA a network of natural, functional facilities) will improve Wardensville economically, aesthetically, and environmentally. Our staff of ecologists, engineers and landscape architects, working together with the Town

Cacapon River at the location currently being evaluated for public water access and paddle craft launch.



Trout Run, a short distance upstream from its confluence with the Cacapon River. This site will also be evaluated for seasonal public water access. Photos: National Park Service

and its many partners, will establish facility designs that will be repeated throughout Town by demonstrating the many benefits to residents and visitors alike."

The grant-funded work of Biohabitats will develop the foundation of this green infrastructure system in two steps: 1) assessing opportunities for natural storm water retention practices along Main Street and restoring eroded streambanks on the Cacapon River; and 2) designing storm water facilities along Main Street to retain polluted runoff and public access to the Cacapon River and its tributary Trout Run. The inventory of opportunities for green infrastructure practices will be prioritized by the community and will guide future efforts throughout Wardensville.

Design and subsequent installation of storm water and stream access facilities will demonstrate environmental values and public benefits improving livability and reinforcing a stewardship ethic. Livability and a greater sense of community will likely encourage additional businesses, cultural amenities and strengthen ties to locally important natural features like the Cacapon River. "This project means a great deal to both the Town of Wardensville and the Cacapon," indicated Mayor Barbara Ratcliff during a recent

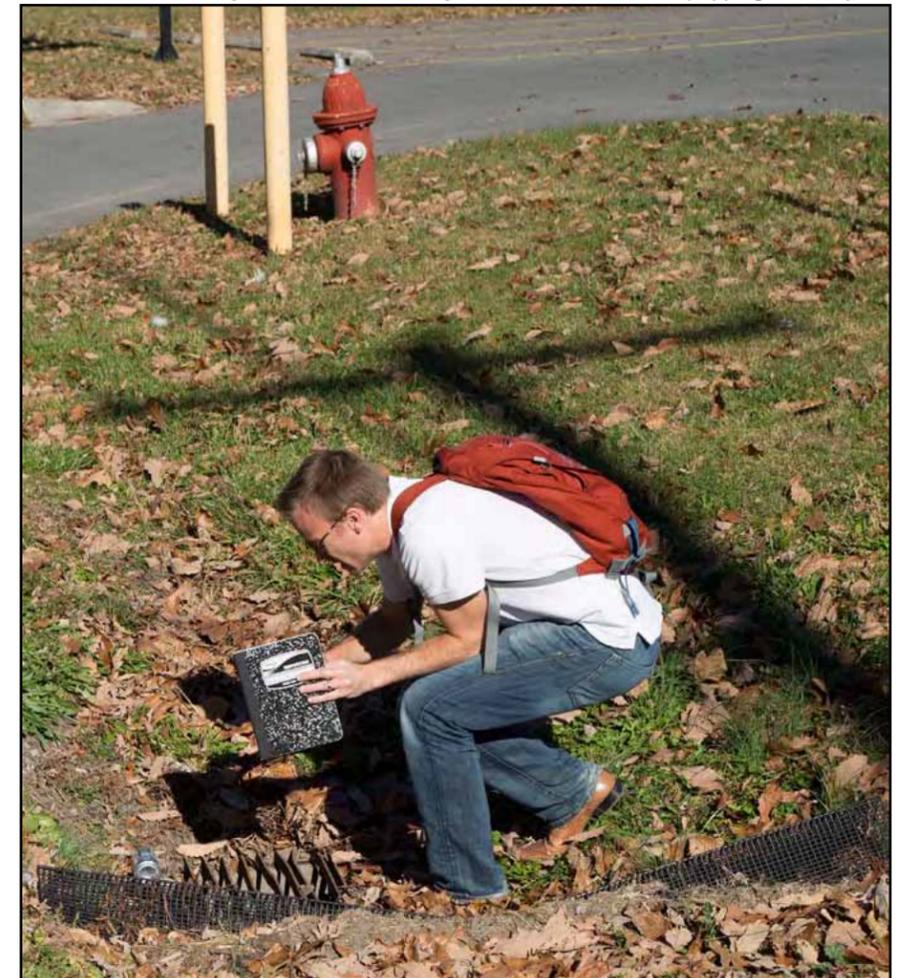
discussion. Ratcliff continued, "[T]he possibilities envisioned from this and other initiatives are generating an energy that is felt throughout the community."

The potential stream access site on the Cacapon River, a short distance downstream from the town, will feature a soft-launch for paddle craft and add a much needed connection to the Cacapon Water Trail. Through efforts of the Cacapon and Lost Rivers Land Trust, the water trail was established and formally designated by the West Virginia Recreational Trail Advisory Board. Kelly Watkinson, Executive Director of the Land Trust, adds, "we believe river access for residents and visitors will build the community's sense of environmental stewardship. More importantly, this will demonstrate how protecting unique natural resources can actually improve and sustain the local economy."

The Land Trust stands ready to work with the Wardensville partners in evaluating protection options appropriate for access sites proposed. The added protection of a conservation easement would ensure long-term public access while also sustaining the site's natural surroundings. Referring to the Water Trail designation, Watkinson adds, "we could not include the upper portion of the river because there was no public access. With the addition of the Wardensville access sites, the water trail will encompass the entire Cacapon. Beyond extending the water trail, the new access sites will establish a 'gateway' for paddlers."

(continued on page 38)

Bryan Arvai, water resources engineer with Biohabitats, Inc. evaluates an existing inlet and culvert along Main Street with a history of frequent overflow.



Connecticut River Controlled-Flow Study For Whitewater Recreation At Turners Falls Dam

by Tom Christopher, New England FLOW

As part of the Integrated Licensing Process (ILP), First Light Hydro Generating Company (First Light) filed its proposed study plans on April 15, 2013. The plans covered geologic and soil resources, water quality, geomorphology, hydrology, instream flow, fish and aquatic resources, wildlife resources, botanical resources, recreation and aesthetic resources, in support of its intent to relicense its projects at Turners Falls Dam and the Northfield Mountain Pump Storage on the Connecticut River.

The Turners Falls 2.7-mile diversion project reduces instream flows substantially, leaving only minimum flows or those flows required for fish passage by the U. S. Fish & Wildlife Service, National Marine Fisheries Service, or the Massachusetts Department of Fish & Wildlife. Natural boatable flows under current operations are high, flashy, unpredictable, and are only available during periods of seasonal spillage to reduce flooding. Some of the whitewater opportunities eliminated by the project could be provided in a moderate, stable, and predictable operational mode and occur during warm weather. The current operation of the project, and lack of access, virtually eliminates valuable summer paddling opportunities.

The Turners Falls section of the Connecticut River has the potential to offer a diversity of whitewater paddling opportunities of sufficient quality during irregular spillage events. At moderate spillage flows, rapids formed by a series of bedrock ledges in the bypass reach are

used by boaters to surf waves and perform a wide array of acrobatic tricks called “freestyle” paddling. After a section of flatwater a natural bedrock vertical feature called “Rock Dam” appears, that boaters could also use for “park and play.”

In addition to kayaking, this reach has potential for rafting, guided fishing, canoeing, instruction, and general paddling use. Collectively the recreational use of the resources at this project have the potential to add economic value to the region given its central New England location and its proximity to the University of Massachusetts, Holyoke



and Greenfield Community Colleges, and the Northfield-Mt. Hermon School.

Based on comments submitted by New England FLOW, American Whitewater and the Appalachian Mountain Club (AMC), the Federal Energy Regulatory Commission (FERC) required the project owner, First Light, to conduct a “controlled flow study for whitewater boating” in the bypassed reach. The goals of this study were to assess:

- Which craft would be suitable for recreation in the bypass reach;
- Identify the range of flows needed for whitewater boating opportunities;
- Identify suitable access points that would support whitewater recreation and;
- Identify any competing uses that would be affected by whitewater flows.

Anecdotal information from local boaters indicated that opportunities for whitewater boating were periodically available from spillage flows during springtime runoff or possibly, when the canal was dewatered for maintenance in fall. A team of boaters did have an opportunity to experience “canal flows” into

Rock ledges for surfing and river play. Photo: Tom Christopher



Rachel Loeffler at Rock Dam, 1200 cfs. Photo: Norman Sims (AMC)

the bypass reach for several days in the fall of 2013 and estimated flows ranged between 1,000 to 1,500 cfs. The general consensus was, though boatable, higher water levels would be needed to sustain an acceptable resource to support whitewater recreation.

Access points to the river were another major concern. To access the put-in below the dam, boaters would need permission to park at the Great Discovery Center, an environmental educational facility managed by the Massachusetts Department of Conservation and Recreation (DCR). The traditional Poplar Street takeout downstream was an extremely steep, muddy, and slippery banking that also presented significant challenges and had limited parking.

Study Planning:

Boating representatives met with First Light personnel and A. E. “Bud” Newell, Recreation and Land Management Specialist for TRC Environmental Consultants of Augusta, Maine, who were contracted to conduct the study. Mr. Newell and TRC were well-known to the boater representatives and had previously worked with them on other project relicensings. The parties worked together to determine the scope of the study; i.e. participant safety, site logistics, sanitation needs, and shuttle transportation. It was agreed to study a range of six flows from 2,500—13,000 cfs.

In order to indemnify First Light from any potential legal action in the event of an accident, study participants would be required to complete and sign a “Liability Release Form” prior to their acceptance into the study. Test participants were pre-

qualified relative to their skill level, boating craft, and experience and the boating evaluation was scheduled for July 19, 20, and 21, 2014.

Approximately 30 participants were involved in the three-day study and the variety of craft used included kayaks, canoes, duckies, commercial rafts, shredders and paddleboards. First Light provided study participants with free camping at their Barton Cove campground, transportation for the entire study, lunches and snacks during the study, and a \$25 dollar/ per diem for their participation. This was the first time in the author’s experience boaters were paid for their time and effort to participate and complete a controlled flow study.

Safety

As participants gathered, each day began with a safety discussion led by First Light, TRC, and this author to discuss the day’s activities and to evaluate and discuss specific safety criteria applicable to the planned test day. This included environmental concerns (weather, water temperature, flow levels) and man-made concerns including dam operations and bystanders.

Although test boaters would be responsible for on-water safety it would be up to them to determine what conditions are appropriate and safe, and what steps to take in the event of a pin, swim or any other emergency. Helmets and lifejackets were required for all on-water activity and local rescue agencies were notified of the evaluation activities.

To further insure participant safety, First Light staff had previously inspected the bypass reach to remove any rebar and



Winching boats.
Photos: A. E. "Bud" Newell,
TRC Environmental Consultants



flow advantages or disadvantages not able to be defined in the evaluation forms. Clearly, there was a diversity of flow preferences dependent on the type of craft used by participants and also related to personal levels of excitement and enjoyability. This discussion was videotaped and comments on the evaluation forms were included in the appendix of the final evaluation report.

Regardless of individual flow preferences it was generally agreed that all flows provided a measure of whitewater recreation that would be an asset to the region. Lower flow levels would be beneficial for instruction and also for beginners seeking to develop better skills. Higher flow levels would provide opportunities and challenges for those boaters with greater skills who like to surf waves and practice acrobatic tricks.

In addition to the comparative evaluation on flows, TRC was asked to determine the number of days per month and which months were boatable flows acceptable under First Light's current operations. Analysis of the historical spill duration curves estimated 40-45 days of boatable flows occurring between April and November. Therefore, First Light proposed

conducted a pre-run flush to clear any debris which may have accumulated directly behind the gates.

The Poplar Street access point was a concern both in terms of safety (a very steep banking), and the logistics of boaters getting their craft out of the water and loaded onto shuttle vehicles in a timely manner. It was decided that First Light would provide a winch to pull boats up the slope and install a safety rope for boaters to access the upper parking area.

Transportation logistics and each day's objectives were laid out and boaters were informed of any details needed to complete the day's work in a timely manner. Test participants were asked to complete a "single-flow" evaluation form at the end of each run. At the end of the three day study, each participant would fill out a "comparative-flow" evaluation to characterize the values and experiences of the entire flow range relative to each other. In other words, a 2,500 cfs level may have been suitable for a paddleboard, but 10,000 cfs would be more preferable for kayaking or commercial rafting.

Post-Evaluation Discussion

At the completion of the study on Day 3, a post-evaluation discussion was led by this author to collect additional information and opinion from test participants that could not necessarily be characterized on the evaluation forms. Having a follow-up discussion to "tease out" perceptions and characteristics is helpful in getting test participants to identify river features and other

NO scheduled releases in the draft license application recently submitted to FERC.

Unfortunately for boaters, what the First Light analysis characterizes as boatable flows primarily occur as major spill events in the springtime when the river is out of control, and discharges could often exceed 20,000 cfs. In spite of a very successful controlled-flow assessment that demonstrated a regional water-based recreational resource could be developed, First Light has little interest in moving away from the status quo.

Whitewater boaters are fortunate to the extent the controlled-flow study has been completed and demonstrate a positive recreational value. Many other studies in First Light's relicensing docket have not been completed to date and it will be challenging to come up with a new license that balances all of the needs of the stakeholder groups. It is unlikely that FERC will be granting an extension to the existing license.

With the Integrated Licensing Process at the halfway point in the timeline an unanticipated monkey wrench has been thrown into the works. GDF SUEZ, the French company owning First Light Power Resources, has recently decided to put the company on the auction block which has cast a wide shadow of uncertainty over how the relicensing process will proceed.

Will First Light be sold off to another foreign multi-national corporation, or will it be carved up into its separate generating functions and sold to a domestic energy provider?

Only time will tell. ♦

FIND YOUR PARK

More than just a party!

The National Park Service parks, programs, and partners

kicked off the *Centennial Year* in grand fashion!

The National Park Service (NPS) will celebrate its 100th birthday on August 25, 2016, but throughout 2016 there are many opportunities for partners, parks, and programs to engage in making the centennial a success.

What is the goal of the National Park Service Centennial?

To connect with and create the next generation of park visitors, supporters, and advocates.

How can you get involved?

Use the #FindYourPark hashtag on your next river adventure. *Find Your Park* is a broad public outreach initiative to explain the work of the NPS to all Americans and invite them to join in our second century of stewardship. Funded through the National Park Foundation, the campaign uses all forms of media (print, television, digital, and social media) to share NPS messages with the public. The goal is to build relevance, connection, and support for the work of the National Park Service and our family of partners and to invite every American to *Find Their Park*.

Encourage fourth graders to download their free pass to see America's natural wonders, including our rivers, for free at www.everykidinapark.gov. *Every Kid in a Park* is an Administration-wide initiative that gives fourth graders nationwide free access to experience federal lands and waters throughout the 2015-2016 school year in order to connect children to their cultural and natural heritage.

Share Your Story about why you love river conservation and recreation. Get inspired by Department of Interior Secretary Sally Jewell who found her park as a child. In her "share your story" video [<https://www.youtube.com/watch?v=Q7h0RdedizQ&feature=youtu.be>], Secretary Jewell urges everyone to get up, get out, and #FindYourPark.

Stay tuned. If you're interested in getting a monthly eNewsletter from the NPS Centennial Office, email your contact info and request to be added to the list at: nps_centennial@nps.gov ♦





One of the largest pieces of LWD that we found in the Dead Diamond River.

LWD Management: A Practicum

by Brendan Schuetze (with editorial contributions from Timothy Messen)

I glanced over, and Tim’s facial expression said it all. Our canoe was going to collide with an outcropping of unnoticed rocks and wood that stretched across the Dead Diamond River, and no amount of frantic paddling was going to prevent that. A loud thud confirmed the inevitable boat-on-rock collision. Fortunately for us, our second-hand canoe was already plastered with several bituthene patches, memorials of previous rough encounters; one more scratch would be nothing new to this white-water boat. I looked at the debris blocking us with a mixture of both chagrin and gratitude. Without the debris blocking our passage, we would have never been canoeing down the Dead Diamond River of Dartmouth’s Second College Grant in the first place.

When my friend and co-researcher, Timothy Messen, first proposed that we study the impact of large woody debris (LWD) over the summer in northern New Hampshire, I had quite a few questions ranging from the obvious (“What is LWD?”) to the more unconventional (“Do I need to learn how to poop in the woods?”). At least the definition of large woody debris is fairly simple—LWD is the combination of dead wood and moving water. For woody debris to be considered large, it must be at least 2 meters in length and its average diameter must be greater than or equal to 10cm.

Gathering data about LWD is a fairly simple task in the slow-moving waters of the Dead Diamond, provided you wear socks to stave off the bloodthirsty leeches. Because the Dead Diamond is relatively shallow, we could walk the length of it, while cataloguing several variables about every piece of LWD we found along the way. As novice fluvial geomorphologists, The

Timber Fish and Wildlife’s (1999) *Method Manual for the Large Woody Debris Survey* (Schuett-Hames, D.; Plues, A.E.; Ward, J.; Fox, M.; Light, J.) was our bible in the field. I highly recommend it to anyone who wants to run a successful LWD study. Once I understood the rudimentary definition of large woody debris and how we would survey it, I was left wondering why woody debris was so important that anyone would spend six weeks in a forest studying it.

Put simply, LWD is complicated, underappreciated, and an essential component of healthy riparian habitats. Fishermen, especially, should take note of the logs submerged in the water around them, as woody debris provides the pools and shade which trout seek out. In larger streams, over 60 percent of LWD pieces are associated with pool formation. Another geomorphological impact of LWD is its ability to sequester sediment, allowing it to act as a buffer during periods of high upstream-sediment release. One particularly important impact of LWD is its ability to slow down stream bank erosion. Some environmental scientists have purposely introduced it to rivers through a variety of means, ranging from the simple chop-and-drop to engineered LWD jams. LWD is also fundamental to stream health because it is one of the few mechanisms that can store organic nutrients long-term. Therefore, with each added piece of debris, the energy base of the ecosystem grows larger and becomes more robust and able to support more life.

River stewards have not always recognized the utmost importance of a natural distribution of large woody debris. In the nineteenth and twentieth centuries, the logging industry went about eliminating LWD accumulations. Foresters systematically

cleared rivers of woody debris in order to facilitate log drives to the mills downstream. A secondary effect of forestry is that logging removes wood from riparian habitats, reducing the total biomass available for riverine LWD recruitment. The fewer the trees that live to old age, the fewer that can be recruited naturally. Irresponsible logging in riparian habitats also has the effect of removing the largest trees from the ecosystem. Unsurprisingly, our research found that the largest trees in our study had a disproportionate likelihood of storing sediment and creating pools. The magnitude of this effect depends greatly on how foresters choose to cut around streams. In the Second College Grant, for example, there is a 100-meter no-cut buffer around the Dead Diamond. Nevertheless, we still believe that the Dead Diamond contains less LWD than it could, due to the legacy of environmentally unfriendly forestry practices that were practiced during the early twentieth century. The impact of an individual piece of LWD must not be discounted; certain LWD pieces have been found to be over 300 years old. Streams and rivers everywhere are undoubtedly still dealing with the effects of the log drives of the last century.

The lack of woody debris in our streams and rivers cannot be pinned solely on the forestry practice. Before the days of fish tracking and acoustic telemetry, environmentalists thought that LWD hindered the natural migration of fish. Even under the most responsible environmental management plans, the removal of LWD is occasionally necessary. As Tim and I encountered on the Dead Diamond River, LWD has the unfortunate tendency to obstruct boating. If I had not learned about the enormous benefits of woody debris, I would have been the first one to remove logs from the river. This kind of thinking is the very reason we need to educate the public about the imperceptible benefits of unsightly debris. Not all things that land in rivers or streams are litter. Counterintuitively, clear passages may obstruct healthy habitat development.

One thing to be aware of is that ecosystems located around smaller streams and tributaries are more heavily influenced by

the presence of large woody debris. In these smaller systems, large woody debris, too, tends to be smaller. Logs need to be larger in higher order streams so that they may stay put. The fourth-order Dead Diamond’s relationship to LWD cannot be easily compared to the LWD dynamics of the Mississippi River. LWD accumulation varies greatly with respect to geography. In general, the West and Midwest have much higher rates of debris accumulation. These rivers often have hundreds of pieces of LWD per kilometer. In contrast, New England rivers such as the Dead Diamond others have relatively low woody debris presence; our study found only approximately 56 pieces per kilometer.

Nevertheless, because the systems that drive the recruitment and settling locations of LWD are incredibly complex, the scientific community still does not have enough information to estimate healthy LWD loads in streams of different sizes and locations. If you are wondering whether a certain river has enough or too much woody debris, unfortunately there is no equation to calculate the ideal concentration of LWD. For now, the best advice is to leave wood where it is found. As our advisor, professor Frank Magilligan, says, “wood is good.” Practically speaking, if logs must be moved in order to facilitate boating or to protect property, try to move the pieces to another location in the river, and do not discard of them entirely. Of course even this advice comes with some caveats. We have found that with LWD, there are many generalizations to be made, but few universal laws to be discovered. The study of logs submerged in bodies of water may seem simple in comparison to the mathematical rigor of particle physics or artificial intelligence, but in my experience this has not proven to be the case. Sometimes the most humble objects of daily life prove to be the most complicated.

Tim and I would like to thank everyone who encouraged us to research large woody debris this summer. We are especially grateful to Dartmouth’s Outdoor Programs Office, Kevin Evans, Frank Magilligan, Tim McNamara, Dan Nelson, and everyone else that kept us company in and among the granite of New Hampshire.♦

Brendan Schuetze gathers the dimensions of an LWD jam.



Building Capacity on the North River:

A cumulative approach to restoration, one subwatershed at a time



This photo of the North River was taken shortly after Hurricane Irene hit in August 2011. Note the significant bank erosion, represented by the bent monitoring well in the river, which was located 10 feet from top of bank before the storm. Location is Colrain, Massachusetts. Photo: Paul Beaulieu, Trout Unlimited, MA/RI Council

by Erin Rodgers

The climate across the United States is changing; in the northeast the air temperature is getting warmer, there is more precipitation throughout the year, and storms are becoming more intense. This is hitting cold water streams with multiple stressors and taking a toll on even the hardest watersheds. Warmer air means warmer water while more intense storms are creating more erosion, sedimentation, and homogenized habitat. Temperature-sensitive fish like brook trout, mottled sculpin, several species of dace and darters will be forced to migrate to thermal refugia in warmer summer months or become extirpated. Increased frequency and intensity of large storm events homogenize in-stream habitat¹ and remove large woody material that is key habitat for fish, turtles, and several semi-aquatic mammals. Combine that with the high density of culverts and dams that fragment our headwater streams and prevent aquatic species

from reaching colder water or new habitat, then you begin to get a sense of just how vulnerable many cold water species are. How do we approach such a multi-faceted problem? How do we increase adaptive capacity while restoring the latest damage?

Climate change has a significant role in whether our overall conservation goals can be achieved on many fronts. Making changes to a system requires a period of establishment whether it is sediment settling, new vegetation taking root, or species finding newly reconnected habitat. For more constructed projects, such as culvert replacements and in-stream wood additions, we design installations based on certain assumptions. We design culvert replacements to 1.2 times the stream bankfull width to accommodate larger storm events and in-stream material movement², but that is based on current or near-future (up to 10yr) bankfull averages. With an anticipated lifetime of 50-75

years per structure, 1.2 times current bankfull may eventually be inadequate compared to the future average storm flows. When creating in-stream wood additions, we lodge key pieces on objects we assume are highly stable. Depending on the intensity and frequency of storms in the years immediately following project completion, there is always a risk of ecological modifications and new installations failing or being at least partially disassembled.

These are just a few of the considerations the scientists and conservationists at Trout Unlimited take into account when planning restoration projects. Not only do these projects aim to restore damaged and degraded rivers, but we also try to increase resilience of these systems to future environmental issues. We plan to manage these ecologically and economically important stream and riparian areas to transition with the changing climate to maintain the important functions of these paired systems necessary for the survival of vulnerable aquatic and semi-aquatic species. Trout Unlimited recently was awarded a grant by the Wildlife Conservation Society to implement a suite of restoration and resilience-based projects in Massachusetts and Vermont on the North River, which was severely impacted by Hurricane Irene in 2011. This will include work to remove barriers, stabilize banks, and add large woody material to streams that will help stabilize sediment in the streambed, re-engage floodplains where appropriate, and improve overall fish habitat. While these are all good restoration projects by themselves, combining such work together on properties throughout a watershed will increase resilience of the stream and the fish populations within them. In creating ecological redundancies, each restoration practice builds support for the others and

reduces the overall vulnerability of the system. This theory extends beyond just in-stream work; it should also include the riparian area and how it will be affected by climate change in the coming decades.

Based on future predictions, some tree species across the region will fare better than others under the warmer, wetter conditions while other species will be more susceptible to invasive pests moving into the area. Because tree cover and shading over a stream are key factors influencing stream temperature, it is important to manage riparian areas to encourage tree stands with mixed ages as well as less potentially vulnerable species. This long-term management strategy should increase regular additions of woody material into streams while reducing the amount of large gaps in the canopy. That is the idea behind our new *Foresters for the Fish* program in collaboration with the Franklin Land Trust and Massachusetts Woodlands Institute. Together we will develop this training program for foresters and local landowners who want to enhance cold water stream fisheries that run through their land.

That is TU's multi-faceted approach to a multi-faceted problem: engage both public municipalities and private landholders in a variety of conservation and restoration actions that will help all parts of the stream system to transition with the changing climate. We implement multiple reinforcing, scalable actions in stream reaches aimed at improving the foundational characteristics of high quality cold water stream habitat. As our work in the North River continues through the coming years, we hope to highlight this approach in toolkits and guides for municipalities and landholders to use and share.◆

Erin Rodgers, Ph.D., Aquatic Restoration Specialist, works for Trout Unlimited.

¹ Death, R. G., Fuller, I.C., Macklin, M.G. (2015). Resetting the river template: the potential for climate-related extreme floods to transform river geomorphology and ecology. *Freshwater Biology*, (early online publication). DOI: 10.1111/fwb.12639

² Cenderelli, D., Clarkin, K., Gubernick, R., Weinhold, M. (2011). Stream simulation for aquatic organism passage at road-stream crossings. *Transportation Research Record: Journal of the Transportation Research Board*, 2203, 36-45. DOI: 10.3141/2203.05

Welcome Members!

Professional

Shane Dittlinger
Outdoor Recreation Planner
U.S. Bureau of Land Management
Kremmling, CO

Ed Gazendam
Geomorphologist/ President
Water's Edge
Cambridge, ON, Canada

Ken Neubecker
Associate Director
Colorado River Basin Program
American Rivers
Glenwood Springs, CO

Scott Rion
Outdoor Recreation Planner
Bureau of Land Management
El Dorado Hills, CA

Organization

Laura Ault
Sovereign Lands Manager
Forestry, Fire & State Lands
Salt Lake City, UT

Madison Smith
River Concessions Manager
Dinosaur National Monument
Dinosaur, CO

Scott Trainor
City Manager
City of Fountain
Fountain, CO

Associate

Joel McCune
Volunteer
American Whitewater
Olympia, WA

(Anacostia River, continued from page 1)

farming and hunting and gathering along the river. Captain John Smith was the first European to explore the river in 1608. Smith's expedition paved the way for European settlement and started a new era of very intensive, and unsustainable, land use that still lingers to this day. Four hundred years of agriculture and urbanization deeply changed the river's landscape from a relatively unmodified forested landscape into a bustling modern capital city.

In 1989, AWS was created to advocate for the river's restoration, with the ultimate goal of making it "fishable and swimmable" in keeping with the federal Clean Water Act. The organization has an ambitious vision of a fishable and swimmable Anacostia River by 2025. Even today, with more public attention on the river, some people still think this vision is unattainable; however, there are reasons to be optimistic:

- **It's the law:** 26 years of advocacy have yielded better regulations and policies across jurisdictions to address damage done to the river and to prevent further damage. Most of the major pollution issues affecting the river and the parties responsible have been identified and are being held accountable.
- **It's funded:** DC Water has broken ground on a \$2 billion project to prevent sewage overflows into the Anacostia River. New regulations requiring the District of Columbia, Montgomery County, and Prince George's County to fund stormwater management efforts will generate resources to clean local waterways.
- **The community demands it:** Unlike in the 80's, there are a lot more eyes on the river. The communities of the watershed have become passionate advocates for the Anacostia River. More hikers, bikers and recreational users of local park lands means more invested communities that are pitching in by volunteering and advocating for sound environmental policies that protect the river.
- **Everyone is at the table:** Federal, state, and local governments; businesses, conservation groups, and other community stakeholders have been engaged in the solution and are creating a framework for action.

AWS is a small but growing non-profit organization based in Bladensburg, Maryland, in the Washington metropolitan area. With over 25 employees, AWS is a diverse and dynamic NGO that is working to create the next generation of Anacostia River stewards who will restore and protect this urban waterway. AWS utilizes a three-pronged approach:

Stop Pollution

The highest priority is to stop current pollution and to address legacy pollution sites. AWS seeks to prevent trash from becoming litter and reduce pollution at its source through sound policies and environmental awareness. AWS has been a vocal advocate for addressing legacy toxic contamination in and along the river. Managing stormwater runoff is one of the cornerstones of AWS watershed stewardship efforts in the highly urban Anacostia watershed. In 2015, AWS reduced pollution caused by stormwater runoff by establishing more than 7,000 square feet of rain gardens and conservation landscapes in the watershed. The stormwater retrofits installed will annually capture more than 3,000 gallons of stormwater.

AWS has promoted the goal of a fishable and swimmable Anacostia River among key officials in the District of Columbia's government. In Prince George's County this year, AWS developed a strategy and crafted a bill to ban coal tar sealants that was unanimously passed by the council. With the Trash Free Maryland partners, AWS succeeded in enacting bans on polystyrene foam foodservice containers in each of the watershed jurisdictions. These pieces of legislation are especially significant because now all three watershed jurisdictions have bans on coal tar sealants and polystyrene foam. The organization continues to maintain multiple trash traps in the watershed, which are used to collect and compile data on trash. With this information,

Students in AWS's Rice Rangers program participate in classroom education, boat tours of the Anacostia River, and hands-on restoration, such as transplanting native plants in one of the river's tidal wetlands. (All photos courtesy of the Anacostia Watershed Society.)



AWS has been able to present compelling testimony at hearings in support of trash reduction legislation and debunk false claims made by industry stakeholders.

Restore Natural Systems

A big part of what makes a vibrant Anacostia River is its biodiversity. With the help of local, state and federal partners AWS is working to restore wetlands, riparian forest buffers, meadows and other ecosystems. These ecosystems will create and enhance habitat for fish and wildlife. In the last few years, AWS has been trying to bring sustainability to the built environment by working with schools, churches, and property owners to manage stormwater using low-impact development strategies.

For the last three years, AWS has been restoring more than 11 acres of tidal and non-tidal wetlands in the Anacostia River. This has been accomplished through native plant revegetation, the installation of goose exclosures to allow natural regeneration, and the removal of invasive plants like Phragmites. In the summer of 2015, a new effort to bring back submerged aquatic vegetation beds was attempted, it will help restore the acreage of this important ecosystem in the river.

Managing stormwater runoff is one of the cornerstones of AWS watershed stewardship efforts in the highly urban Anacostia River watershed.



Rebuild Our Relationship to the River

In 2015, AWS engaged more than 3,000 students in environmental education programs. Each of these students participated in hands-on classroom education, a field experience on the Anacostia River and a restoration project, such as wetland restoration, storm drain paintings, and trash clean-ups.

Through the Rice Rangers program, students propagated more than 2,000 native wetland plants in their classrooms and then transplanted them into Kingman Marsh along the Anacostia. Students participating in the Stream Stewards program planted more than 500 native plants along riparian buffers in their schoolyards and painted and installed 6 rain barrels on their campuses. AWS has also provided professional development and mentoring to 100 teachers from DC and Maryland schools. These trainings have equipped teachers with content knowledge, lesson plans, and materials, which enable them to incorporate environmental education

(continued on page 38)



Staff and interns from the Anacostia Watershed Society plant native wetland plants (June 2014).



Blooming Wild Rice in restored marshland along the Anacostia River (June 2015). The grass was seeded using mud balls in the spring of the same year.

My oars will pull me through

During winter in a Utah town
snow lays old on the mountain side.
Above the valley floor.

Poplar-lined lanes drown in swirling fog,
frost lies on crusted fields.
Dry and frozen ditch banks
Wait for summer's babbling yield.

Snow piled on top of fence posts,
leaning like crooked top hats.
Weary of winter too.

I sit at my kitchen window
musing at the azure sky.
Cheek resting against my fist.
Not warm today, but by n' by.

My mind wanders.
"Lord, I got them Walkin' Blues."
That's what I need,
Doc Watson and his toe-tappin shoes.

Too cold to ride the bike,
guess I'll dump the trash,
shake the bed,
shovel the walk,
wrinkle the wash,
stoke the stove...

Then rivers come to mind,
oars too.
Chores can wait
as they always do.

This time of winter is heavy.
Spring six weeks away.
YouTube's got some things to watch,
help me pass the day!

Joe Hutch, Triplet, Granite, Pierce, and Crystal
I watch and contemplate the possible.
If I ever lost my lower unit,
hand me my revolving pistol.

Now, awake from my musing!
I'd spin my boat
that's what I'd do!
I'd climb the first wave stern first.
Yelling at the crew!

Looking over my shoulder
at the rise, then the drop.
Hoping the oar strokes
will bring me,
up and over the top.

Down and down,
now, up again.
Up and over the top.

I feel the pull of my arms and back,
the heft of spruce pulling deep,
the familiar comfort of oars,
Pulled by hands cracked, strong, and beat.

I smile and know that
May will hurry soon.
Meantime, my oars will pull me through
the cold and frigid gloom.

Guess I'll sort some straps,
poke through my Canyon Home.
Shake the toluene,
stir the glue.
Write a river tome or two.

Gazing out the kitchen window,
during winter in a Utah town.

Greg Trainor
Spanish Fork, Utah
February 2016



Tony Arnhold from the Arkansas Basin teaches David Lewis of the Yavapai-Apache Nation how to plant willow bundles to alter the channel and maximize recruitment. Photo: Stacy Beough



by Lindsay Murdoch and Risa Shimoda

Western watershed restoration professionals, individuals and groups who are supporting vast, landscape scale initiatives, are calling for new ways to share knowledge. Traditional venues for information-sharing between practitioners are often slow, laden with cumbersome processes. Best management practices from priorities identified by government officials are passed down the chain and may not be delivered in their entirety. Peer-reviewed journals boasting theories derived from years of meticulous data collection often yield outputs that are formal, broad, and genericized, rendering them less than useful.

Practitioners seek venues where they are able to share informal knowledge, a place for the technical advocate, scientist and bootstrap-educated landowning steward who has been experimenting with riparian invasives removal and stream restoration for years. They want to meet people who understand their issues—whom they themselves will learn from by saying “I do this, it works well for me, and it might just work for you, too.”

At least one community of practitioners has surfaced to meet the need for informal knowledge-sharing across watersheds, the **Cross-Watershed Network (XWN)**. RMS and representatives of the Tamarisk Coalition and impressive partnerships working for the Gila, Escalante, Dolores and Virgin Rivers have been working for four years to develop this community of professionals interested in learning from and sharing lessons with peers across state and watershed boundaries.

The annual XWN sharing-workshop in Pueblo, Colorado, was hosted October 5-6, 2015, by the Arkansas River Watershed Invasive Plants Partnership. This workshop, the third of its

kind, served as a structured venue for professionals with a wide variety of backgrounds to share lessons-learned and address common challenges associated with repairing the altered river systems of the arid West. This year, the XWN brought together 64 practitioners from nine different states to talk about seeding and revegetation methods, goal-setting, resiliency, and understanding geomorphic processes.

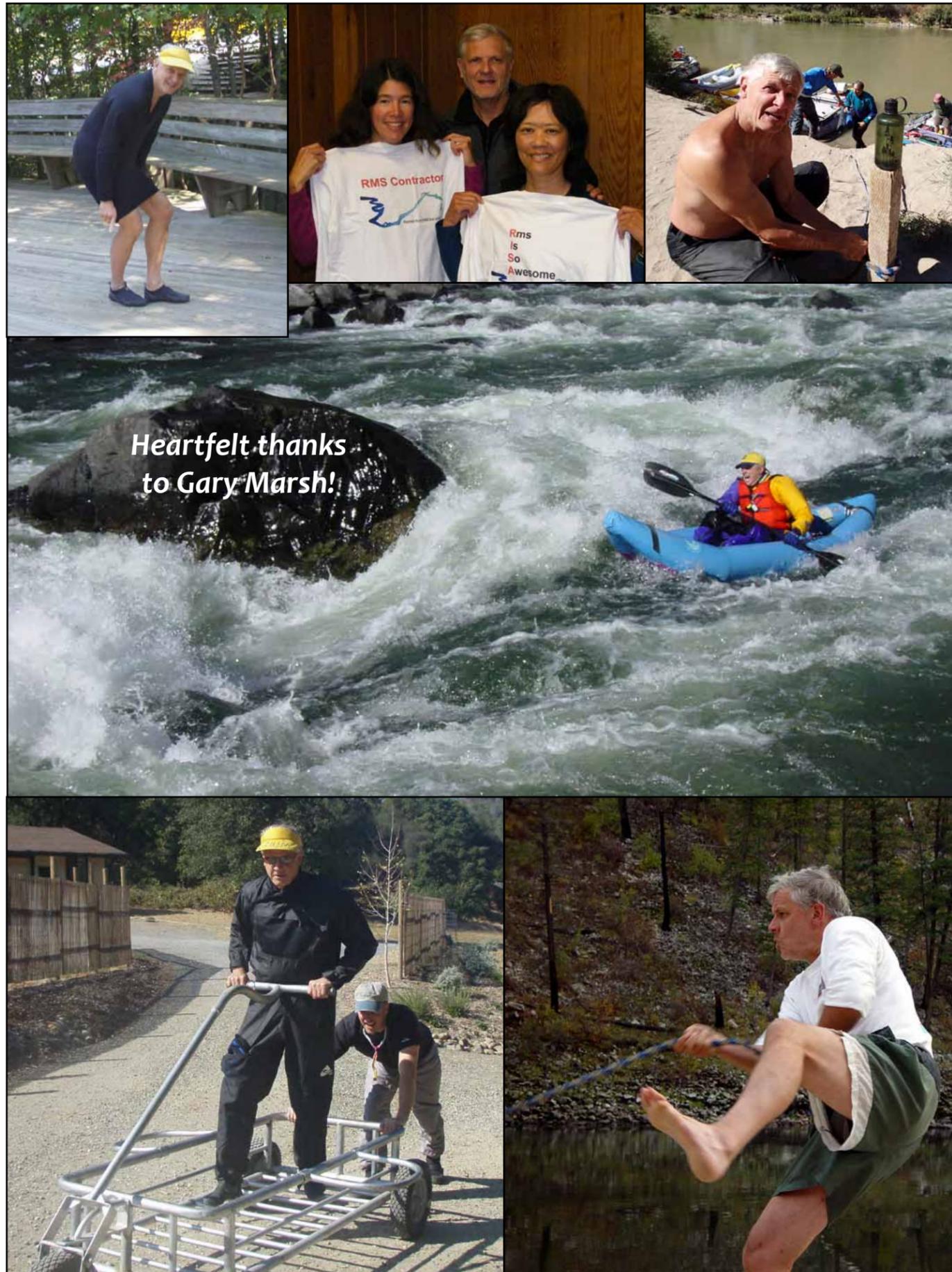
Representing waterways in at least 10 states, these practitioners worked through a wide variety of technical topics, ranging from broad discussions of resiliency to focused exchanges around cottonwood pole-planting. Sessions were designed to allow attendees to share their own experiences and the value of the workshop was created by both attendees' willingness to share and the ability of facilitators to direct conversations toward tangible takeaways such as setting realistic and achievable restoration goals for sites with multiple uses in the context of:

- Multiple-use upland management;
- Multiple-use wetland riparian management;
- Developing goals in a multiple-use context; and
- Developing and monitoring indicators/
Adaptive management metrics

Other presentation and discussion topics included:

- Building restoration projects to withstand disturbance;
- Defining goals and objectives for restoration projects in the context of resiliency; and
- Strategies for addressing upland disturbances

(continued on page 25)



Heartfelt thanks
to Gary Marsh!

Gary Marsh's Contributions to the River Management Society...

- Appointed as first Ex-Officio Advisor to RMS Board; served for 27 years (1989 to 2016)
- Drafted role of Ex-Officio Advisor
- Wrote Editorial Policy for RMS Journal
- Spearheaded 1st Interagency River Managers Workshop in Folsom, CA (1997)
- Contributed substantial funding to RMS/BLM partnership projects (1997 to 2010)
- Initiated Professional Development and Student Scholarship Fund Program
- Developed RMS Planned Giving program, brochure and website
- Co-designed BLM's National River Database hosted on RMS website
- Initiated RMS Mentoring Program
- Developed RMS Ethics, Conflict of Interest, and Standards of Conduct Policy
- Developed first ever technical report on Allocating River Use
- Developed Leave No Trace Boating Hang Tags with LNT/RMS/BLM
- Developed WSR, BLM, and RMS river logs
- Helped develop first RMS Strategic Plan
- Developed RMS Boating Pre-Trip Checklist
- Designed RMS and BLM chums/key rings
- Served as Board liaison to River Studies and Leadership Certificate Program
- Wrote RMS Journal articles
- Nominated river managers for awards and promoted honors within BLM
- Sponsored 1st RMS Golf Tournament at Asheville Symposium
- Captured Board meeting humorous quotes
- Updated ARMS/RMS History Document
-

Come see our friend Gary in Boise, Idaho, and thank him for his years of service to RMS!

(XWN Workshop, continued from page 23)

Case Clinics

An important component of this workshop was the 'Case Clinics' segment during which a workshop participant presented one or more restoration challenge(s) to a working group of experts. Four cases from three different watersheds were highlighted and these groups were able to walk away with tangible solutions and ideas to apply in their home watersheds. These proved to be some of the week's most valuable sessions.

The new coordinator of the Arkansas River Watershed Collaborative left the workshop with numerous email addresses of practitioners willing to connect her with key stakeholders in the (massive, multi-state) Arkansas Basin. A discouraged practitioner was given a slew of techniques for recruiting native grasses on a highly degraded site after years of failed attempts. Larger-scale suggested strategies for the Case Clinic presenters included a framework for setting site-specific priorities that span ecological, water quality, and hydrologic site values.

Taking to the River

On the second day, the group visited two field sites on the Huerfano River. We witnessed examples of restoration and seeding that ranged from manual willow planting to seeing an enormous, multiple row seeding machine. Shared successes included having developed a simple attachment to improve the efficiency of an ATV broadcast seeder, and the discovery that paint-on sand is particularly effective at deterring the jaws of cottonwood-hungry beavers.

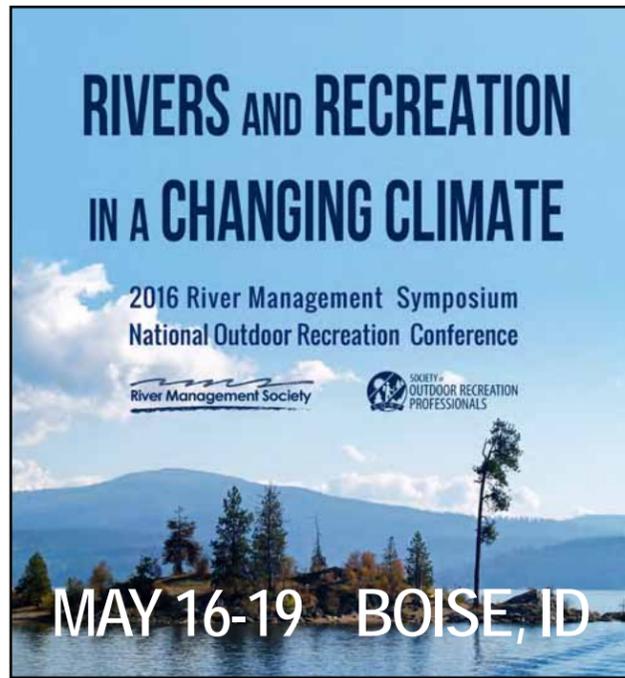
Feedback

When asked to fill out voluntary evaluations, all respondents stated that they were likely to use the contacts they made at the workshop in the future. Most respondents stated they would more than likely attend a similar event in the future. These are some of the comments volunteered by participants:

- "Excellent mix of presentations and breakout sessions... [the workshop] was well put together and the case clinics were well moderated"
- "All best practices for seeding and working in rural communities [are] helpful for my work in Western Colorado"
- "I now understand the importance of collaboration with other agencies to achieve goals/share knowledge and advice"
- "I will share the information I learned with my restoration corps members and other partners"

The founders, coordinators and participants of the XWN movement believe that no one model of communicating and sharing fits all. We need to diversify the forms of knowledge transfer if we are to cultivate a well-informed restoration community. Pairing formal best practices with informal on-the-ground knowledge, practitioners themselves are the most valuable components of our watershed workshops. We have learned very clearly that the XWN mission is sound: peer-to-peer sharing venues recognize the value of practitioner-driven knowledge of how to enact ideas for a specific site, work with different personalities, and adapt as challenges arise. We look forward to creating a workshop experience that furthers the XWN movement again in the fall of 2016. ♦

Lindsay Murdoch serves as XWN Coordinator. A graduate of Colorado College, we appreciate and are relying on her to help the XWN continue to establish itself as a collaborative resource for river restoration practitioners in the Arid West.



For more details, including the latest program, visit: www.recpro.org/conference

Monday, May 16, 2016 highlights

Pre-symposium Training — While the symposium officially begins Monday afternoon, three pre-symposium training sessions are offered in the morning.

1) **Visual Resource Management Short Course (8400-04)** will be offered as a track all week. Visual/scenery resources are integral to both river-based and upland recreation opportunities and experience. Attendees will receive an overview of management approaches used by the Bureau of Land Management, Forest Service and National Park Service. Participants must register: www.doigov/doilearn. Contact Mike Brown, BLM Training Center, m55brown@blm.gov for information.

2) **Story Maps Workshop – Everyone has a story to tell.** *Story Maps* combine maps, photos, text, and other media in a single interactive application. The engaging, fun-to-use format is ideal for public outreach, stakeholder engagement, and GIS project presentations. Esri *Story Map* app templates require no coding. Learn which template best meets your project needs, and how to create compelling *Story Maps*. You'll simply need a *free ArcGIS Online account* which you can sign up for here: <https://www.arcgis.com/home/createaccount.html>. (Group accounts work too!)

3) **Statewide Comprehensive Outdoor Recreation Plans (SCORP).** The Society of Outdoor Recreation Professionals will host a discussion forum about the Statewide Comprehensive Outdoor Recreation Plan (SCORP). The interactive forum will explore options for improving SCORP and SCORP training, and help define the future of SCORP planning. This forum will be in partnership with the National Park Service and will be geared towards SCORP planners and those interested in the future of Land and Water Conservation (LWCF) funding.

Symposium/Conference Opening – Monday, May 16 at 1:00 p.m.

The event will formally open with a Welcome from SORP and RMS leadership, and local and state officials. Then, we'll start the main program, *The Face of Tomorrow's Leaders*.

The future management of our public lands and waterways will soon be led by those who have never known a world without the Internet. Their environmental ethos has evolved tree hugging to a place where passionate ideas or best practices can be shared, replicated and launched into action worldwide, within hours. In addition, the majority of these individuals whose ethnic communities will soon represent our popular majority are noticeably underrepresented in college classes, field internships and incoming classes of emerging leaders.

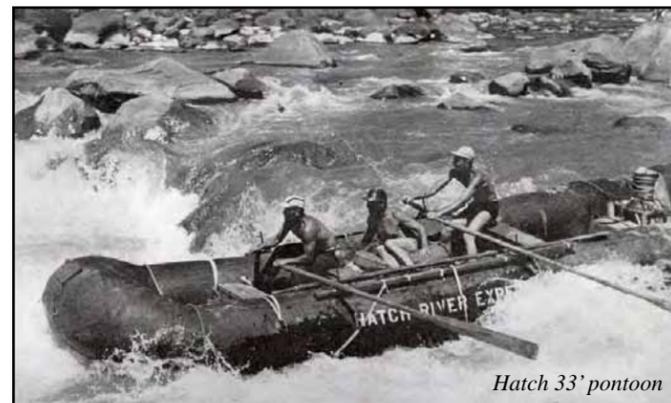
We are familiar with this elephant standing amidst us, and she has thoughts on the matter. Are we listening to what she wants to share? Meet early career workforce leaders from the following organizations whose bold initiatives are fueling tomorrow's 'normal' with focus, enthusiasm and collaborative tenacity: 21st Century Conservation Service Corps, Environmental Stewards Program, Greening Youth Foundation, Utah Conservation Corps.

Reception with Exhibitors and Poster Session

Following the afternoon session will be an opening reception with exhibitors and the poster session. Meet our exhibitors and learn about their products and services. About 20 posters will cover everything from the 2018 50th Anniversary of the Wild and Scenic Rivers Act to using computer simulation to forecast the effects of recreation on protected species.

History of Inflatable Boats – How they Saved Rivers

Don't miss a very special evening presentation by Herm Hoops! The family tree of today's modern river inflatables springs from its roots of animal skin boats and the discovery and application of rubber. Modern-like inflatables were used in the early 1800s. Advancements in fabric, manufacturing, and design accelerated during World War II and the Korean Conflict. After those wars, thousands of surplus assault rafts, life rafts and river pontoons became available. Commercial outfitters quickly became aware of their ability to carry more people and heavier loads—plus, repairs were easier than on wooden river craft. The exposure of so many people to rivers has played a big role in preservation.



Hatch 33' pontoon

Tuesday, May 17, 2016 highlights

Concurrent Sessions:

- **Water Trails** – Presenters from the non-profit sector, state, federal and local agencies share a wealth of information about this growing area of river management.
- **Climate Change (*this day only*)**– Speakers address “climate” in both a physical and social sense, with a closing panel entitled *Public Land Recreation Evolves Towards Sustainability*.
- **People & Partnerships** – Topics range from children and nature to community benefits of trails and other outdoor recreation opportunities and facilities.
- **Recreation Capacity** – Learn from a mix of papers and panels. Information about the recently formed Interagency Visitor Use Management group will be presented.
- **Technology & Legal** – This track begins with a series of presentations about the National Recreational Rivers Data Base. Afternoon sessions focus on new topics such as use of drones.
- **Visual/Scenery Resource Management** – Tuesday's program builds on the Monday session and includes presentations on inventory, research on visibility of constructed encroachments, and impact assessment.
- **Innovative Recreation and River Management** – This track is perhaps the most diverse – speakers will cover topics including social media, data driven applied tools, technological innovations, and regional trails to name a few of the presentations.

Luncheon

SORP and RMS will present their annual awards. Cost of the luncheon is included in the registration fee.

Celebration Park Outing (evening – optional)

Transportation is provided for an additional \$15.00 fee. Music will be provided and food and beverages will be available for purchase. Situated along the Snake River, Celebration Park was established as Idaho's only archaeological park in 1989. A walk through the huge basalt melon gravels deposited by the Bonneville flood reveals petroglyphs 100 to 10,000 years old. Visitors will learn about the Paleolithic and Archaic lifeways and enjoy throwing a dart with an atlatl. Experience a walking tour of historic Guffey Railroad Bridge and be captivated by southwest Idaho's early mining and railroad history.

Wednesday, May 18, 2016 highlights

Field Sessions - Please see details on next page.

Continuing education units will be available for these sessions:

- Visual/Scenery Resources Management
- Universal Design and Adaptive Equipment

The half-day field trips are organized so participants may participate in both a morning and afternoon session if they desire.

Movie Night

Wednesday evening will be a movie night held at a local venue – giving conference participants an opportunity to view some new films and explore another part of downtown Boise.

Thursday, May 19, 2016 highlights

Concurrent Sessions:

- **Water Trails** – Speakers continue to explore water trails from the Mississippi River to San Francisco Bay, with presentations also about the Boise River (along which the conference hotel sits)
- **People & Partnerships** – Bike parks, volunteers, managing stress and coping related to dealing with wilderness/outdoor recreation accidents are among the topics to be covered.
- **Recreation Capacity** – This track continues with additional presentations and panels on managing visitor use in diverse settings, and current capacity/visitor impacts issues.
- **Technology & Legal** – Technology topics will include: Lidar, GIS, GPS, and wifi. Opportunities provided by Federal Energy Regulatory Commission (FERC) relicensing will also be addressed.
- **Visual/Scenery Resource Management** – Hear an array of speakers addressing scenic values, flows and aesthetics, and other important training topics.
- **Wild & Scenic Rivers (*this day only*)** – Begin with an introduction to Wild and Scenic Rivers, and end with a discussion of the 50th Anniversary of the Wild & Scenic Rivers Act and how to engage millennials (and others).
- **Innovative Recreation and River Management** – ADA Assessment of Developed Outdoor Recreation Sites to Improve Access and Create Access Information — Meeting the Law

Closing Plenary - “Blind Spots in the Administrative Fabric of Parkland America”

Expedition kayaker Bryan Brown has completed historic solo, self-supported, source-to-mouth descents of the most embattled watersheds in North America. 7,000 miles of solo travel have reinforced his focus upon the big-picture environmental issues these rivers face. Comparing the heavily modified Colorado watershed with the nearly pristine Yukon River network, and using Canada's Mackenzie watershed as a critically important midpoint benchmark, Bryan's over-the-bow overview reflects a unique approach to a complex problem.

Closing Banquet and Live Auction

The all conference banquet and live auction is also included in conference registration. In addition to regular conference registration, we are offering a “social” registration for those (perhaps retired SORP/RMS members, spouses, friends) who would like to attend only the social events. Social registration includes entry to the Monday poster and exhibitor reception, Tuesday awards luncheon, Tuesday Celebration Park excursion, Wednesday Field workshop, and Thursday Closing Banquet and Live Auction.

Field

South Fork Payette Canyon Rafting (Class III-IV)

(full day, \$65 cost, max. 36)
Strong paddling technique and experience required for this adventurous run. Navigate most of the rapids, and watch the guides line the boats over Big Falls while you hike the portage trail around the drop. Beautiful scenery, with granite canyon walls and ponderosa forest.

Cabarton Run North Fork Payette Rafting (Class II-III)

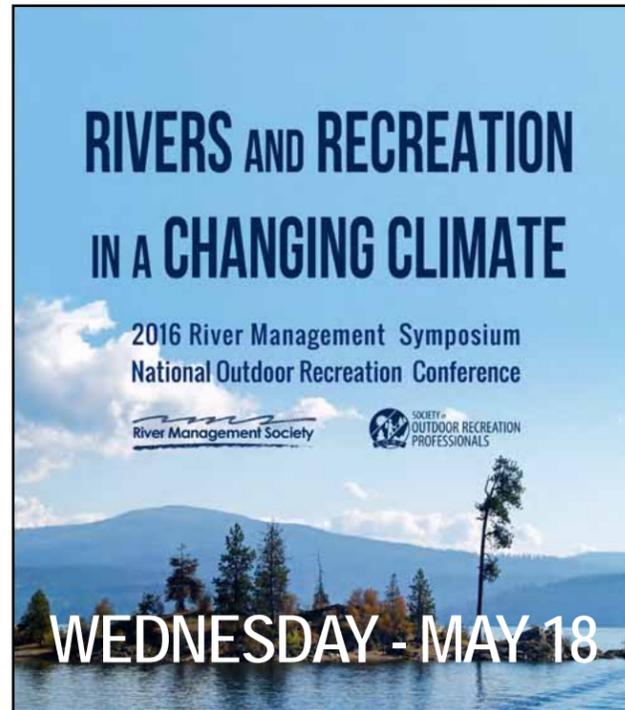
(full day, \$40 cost, max. 36)
Enjoy the wildlife and pine forest during the calm stretches, mixed in with some fun whitewater. Hang on to your hat as you wrap up the trip at Howard's Plunge.

Cabarton Run. Photo: Bear Valley Rafting



Snake River Birds of Prey Float Trip (Class I-II)

(full day, max. 25)
Float the impressive canyon of the Snake River through the BLM's Morley Nelson Snake River Birds of Prey National Conservation Area. The NCA contains one of the world's densest population of nesting raptors, as well as an interesting array of prehistoric and historic archaeological sites. BLM naturalists will interpret the natural and cultural history of the canyon on the flatwater float.



Trips

Visual/Scenery Resources Management

(full day, max. 20, limited to those in training track)
This land-based field tour will visit relevant sites and landscapes to review and practice key elements of the week's training short course. Participants will gain first-hand experience implementing a baseline visual resource inventory and impact analysis in both a river-based and upland recreation settings, including

the context of linear recreation landscapes (rivers, trails, etc.). The concept of visibility of constructed encroachments will be discussed in a field setting, allowing participants to better understand how design options can be used to integrate built features and minimize impacts to visual/scenic resources.

Universal Design of Watercraft Landing Sites and Adaptive Equipment for Access

(full day, max. 12)
Join us for an informative launch site demonstration, equipment fitting, and on-water exploration of human powered watercraft. Learn about different types of adaptive watercraft seating and other accessories, then head out to explore a variety of existing and potential small watercraft landing sites in Boise. In discussing design solutions for improving accessibility, the following topics will be addressed: how to select adaptive equipment for water sports programs that have universal access; how to set up and adjust adaptive equipment for water sports; how to improve access at existing small water craft landing sites; and how to design new universal access water craft landing sites. A classroom presentation will follow on Thursday, May 19.

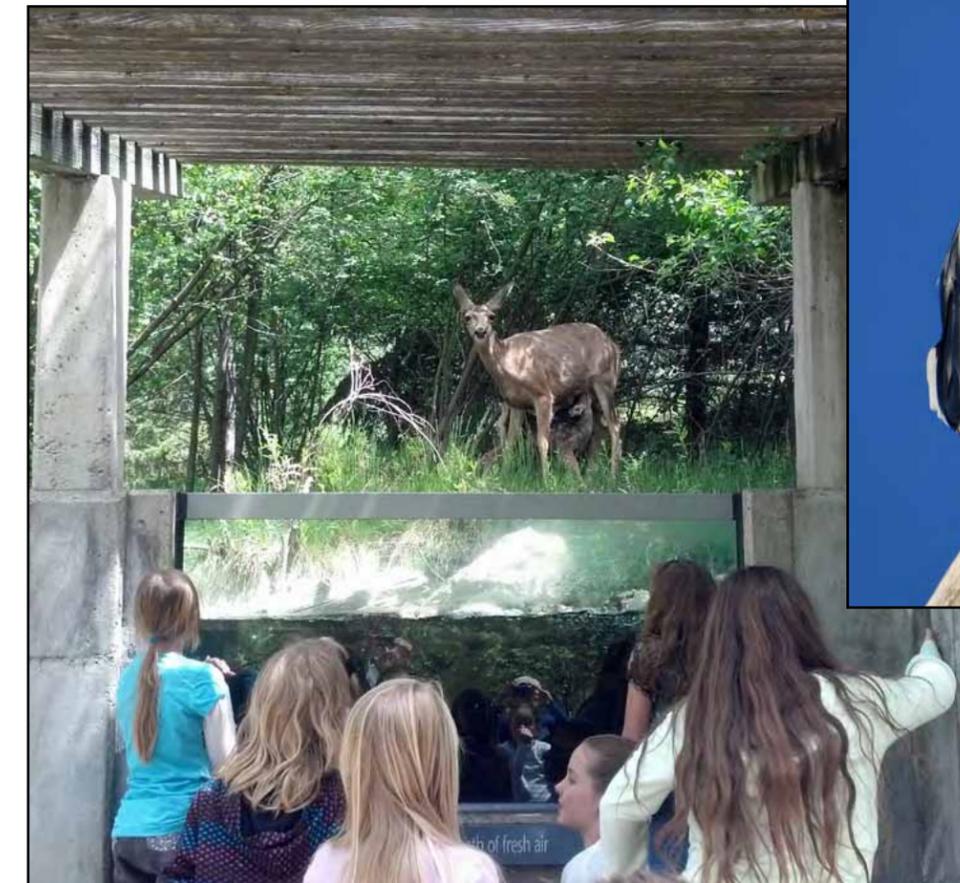
For more information:
 Online: www.river-management.org
 Facebook: www.facebook.com/rivermanagementsociety
 Twitter: @RiverManagementSociety
 #SORPRMS2016

Ridge to Rivers Center and Hike

(morning 1/2 day)
Visit the Jim Hall Foothills Learning Center to learn about Ridge to Rivers, a unique multi-agency community partnership dedicated to preserving Boise's iconic foothills and managing and maintaining a remarkable 130-mile trail system. Includes a short trail hike in Hulls Gulch.

Learning and Research Tour

(morning 1/2 day)
The Morrison Knudsen Nature Center offers an exceptional wildlife experience on a 4.6-acre site along the Boise River Greenbelt. The Stream Walk and Visitor Center provide a glimpse of Idaho's many landscapes and abundant wildlife. Underwater viewing windows along the stream walk give visitors a fish-eye view of the world. The tour also includes a visit to the Idaho Water Center, where participants will see a demonstration of the "Stream Machine," a huge mechanical stream that is adjustable to simulate the slope and conditions of any stream.



Morrison Knudsen Nature Center

Art Tour

(afternoon 1/2 day)
This walking tour will give participants a taste of the fabulous public art in the City of Trees, from the organic Freak Alley to what locals sometimes call the Great Steaming Crack. You'll find that Boise has a rich tradition of supporting the arts, especially as they interface with outdoor recreation.

Boise River Greenbelt Bicycle Ride

(morning 1/2 day, maximum 18 participants)
Explore the Boise River by biking about eight miles on a level, paved path, and get more than a breath of fresh air. Visit sites of interest including the new whitewater park, riverside city parks, storm water management projects, canals, diversions, stream stabilization projects, and a wetland bank. A number of experts will be on hand to talk about the sites we visit.

Peregrine Fund's World Center for Birds of Prey

(afternoon 1/2 day, maximum 80 people)
Visit the facility where the Peregrine Fund breeds endangered birds of prey for release around the world, and where they conduct research on raptors. Tour the educational facilities, view a live flight demonstration, see California Condors and other rare birds up close, and visit the falconry archives.

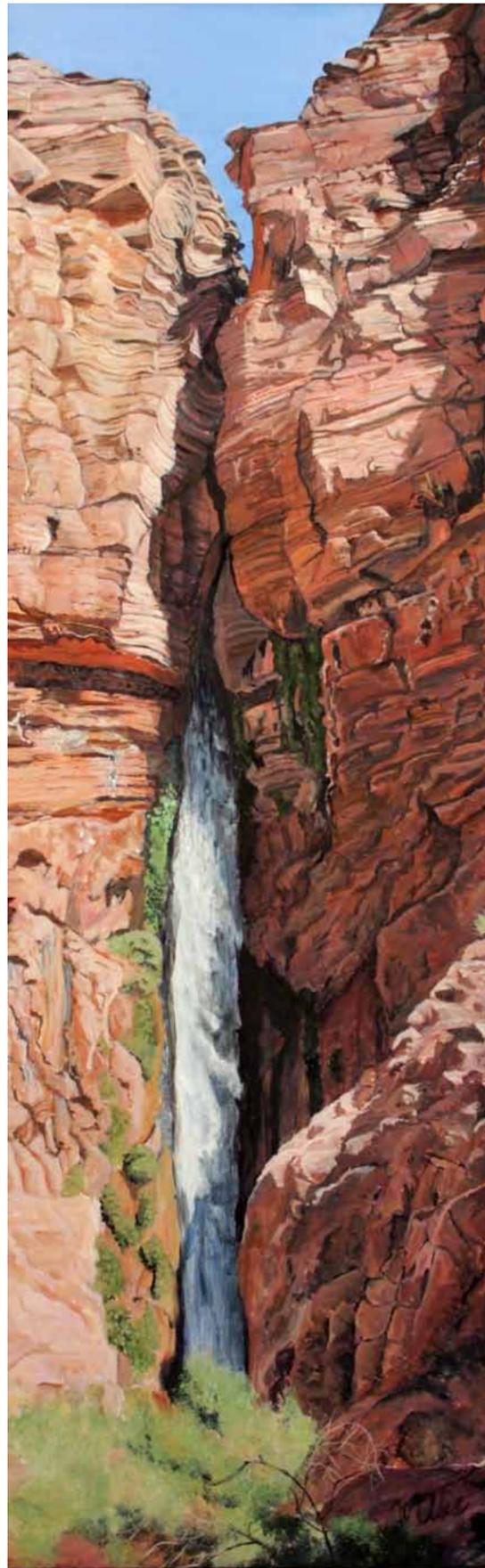


Morrison Knudsen Nature Center — Heron. Photo: Tony Attanasio

Idaho Botanical Garden and Old Penitentiary

(afternoon 1/2 day)
The Idaho Botanical Garden and Old Idaho Penitentiary District are at the base of Table Rock in NE Boise. At

the 'Old Pen', a visitor can experience over 100 years of Idaho's unique prison history including 30 historic buildings, a visit to solitary confinement, the cell blocks, and gallows. (A 2-hour prison tour will be offered for a minimum of 10 participants.) The Botanical Garden is adjacent to the Old Pen. Highlights include the English Garden, Rose Garden, Children's Garden, Lewis & Clark Garden and the Fire Wise Demonstration Garden. (A 1-hour garden tour may be extended if there are special requests for additional in-depth information.)



Deer Creek Falls (11x38). Signed by Artist: Terry Willis
www.willisworksstudio.com

Boise 2016 Leadership: Citizens of the Boise 2016 RMS/SORP village

RMS members leading the effort to plan and promote Rivers and Recreation in a Changing Climate, May 16-19 in Boise have been meeting weekly since May 2015—planning excellent panels, workshops and field sessions; securing the sponsorship that we will rely on to sustain RMS operations; and brainstorming activities that will make the best use of the time we'll share. Their efforts have exhibited diligence, patience, collaboration and commitment to both RMS and our partnership with the Society of Outdoor Recreation Professionals, and we cannot thank these folks and their SORP counterparts (committees include members from each organization) enough!

Bunny Sterin and Robin Fehlau have been running the show as Co-Chairs, along with Sergio Capozzi from SORP. Liz Lacy, Randy Welsh and Sheri Hughes have co-led the Program and Sponsorship and Silent Auction efforts, respectively, also with their SORP counterparts. Judi Zuckert, Bonnie Wood, Frank Jenks and Rick Thompson have killed it in the field trip department with a fantastic set of half and full day trips. Emily Newell's communication posse is getting our messages out on Facebook and Twitter, and Linda Jalbert's Scholarship Committee has thoughtfully evaluated many scholarship requests. In addition, Linda has also led the effort to debut new, high quality RMS merchandise in Boise. NW Chapter President Louise Kling has stepped into leadership ranks with creativity, energy and grace, serving on the Program Committee and spearheading the very special Visual Resource Management Training. Gary Marsh, Monica Zimmerman, Rob White, and Mary Crockett have also been putting in thought, email and phone calls on our behalf, as well.

Last but not least, Helen Clough has served nobly on the Program, Sponsorship and Steering Committees to dig in anytime, back people up for a variety of tasks, and serve extra roles before being asked for assistance. Brenda Adams-Weyant, SORP's Association Manager and member of RMS, has been the administrative backbone of the planning process by distributing announcements, collecting responses, and hosting the registration process. Whew!

When you are in Boise, please thank these people and others who will be listed on the app and elsewhere, for their commitment and service to this year's main event.

Donate to the Live and Silent Auctions!

A signed copy of this original print by Terry Willis, *Deer Creek Falls*, will be part of the RMS/SORP fundraising auctions.

Please consider making a donation... artwork, clothing, books, wine, outdoor gear, guided trips on your local river, music, maps, donating time at your lake cabin, asking local businesses for gift certificates... anything goes and will be much appreciated!

Sponsored By...

Payette River



Boise River



Snake River

Exhibitors



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Student Scholarship Sponsors

Glenn Haas

Margaret Bailey



Supporting Sponsors

RMS Chapters

Northeast by Marina Metes

I would first like to thank everyone who submitted an article for this Northeast focus issue. These articles reflect the diverse issues that river managers are facing in this region and address some of the innovative approaches being taken to mitigate them.

If you are intrigued by the work being done on some of our most urban rivers, then you will be thrilled to know that you will have the opportunity to explore some of these rivers in person during the upcoming chapter float trips.

The first trip of 2016 will take place on the **Bronx River Blueway**, a designated National Water Trail. This trip (which was postponed from last year) will begin at 219th Street in New York and end at Riverside Park, in the estuary to Long Island Sound. The Bronx River Alliance will lead us through the New York Botanical gardens, Bronx River Forest, cityscapes and The Bronx Zoo. This will take place on **Saturday, April 30**.

The second trip will be planned for the fall on the **Anacostia River** in Washington, D.C. The specific date is TBD. I had the opportunity to intern with the Anacostia Watershed Society and participate in some of their restoration work, so I can tell you first hand that you will not be disappointed with a trip down the Anacostia, led by staff from the Anacostia Watershed Society. As you paddle through freshwater tidal wetlands you might even forget that you are in the middle of our nation's capital! If you are interested in participating in either float trip this year, please contact me at: mjmetes@gmail.com.♦

Southwest by Rob White

Greetings! The Southwest Chapter has an exciting 2016 river trip planned for July 30-31 within the Arkansas Headwaters Recreation Area through the newly designated **Browns Canyon National Monument**. The Arkansas River winds its way through this unique area of stunning beauty and rich biodiversity. Browns Canyon is noted for its unique geology and abundant wildlife such as elk, deer, mountain lions, black bears, golden and bald eagles and bighorn sheep. This whitewater trip will offer an opportunity for river professionals to learn what the BLM, USFS and Colorado Parks and Wildlife has in store for this newly created national monument.

We are also pleased to host the 2016 **River Ranger Rendezvous**, August 16-18, 2016, in Dinosaur National Monument. This three-day immersion in river safety, enforcement and management related topics will bring together river professionals from all over the country, sharing their knowledge in all aspects of river administration. This is a great event, so come and share your experiences while gaining knowledge from other long-time river professionals!

Finally, the Southwest Chapter has been working on rewriting its bylaws so that they more closely align with those of other RMS Chapters. More information regarding the proposed bylaws will be posted to the RMS Southwest Chapter website soon.

Thank you again for your support of the Southwest Chapter and all of our members!♦

RMS Chapters

2016 River Ranger Rendezvous

Registration and fee deadline is July 15.

by Greg Trainor — Plans are underway for the 2016 River Ranger Rendezvous scheduled to be held on August 16, 17, 18, 2016. With the co-sponsorship and help from Dinosaur National Monument, the gathering will be on the Green River within Dinosaur National Monument, specifically in Lodore Canyon.

The Canyon of Lodore lies in the upper end of the Dinosaur National Monument, which was created in 1915 by President Woodrow Wilson. In 1938 the park was enlarged to include this incredible canyon and the Yampa River. Lodore has an exciting history including trappers, river runners and outlaws who were traveling on their way to their nearby hideout in Browns Park.

“Lodore” takes its name from a poem by the English poet Robert Southey. Titled the “Cataract of Lodore,” the epic poem was a favorite of Andrew Hall, who was a hunter on John Wesley Powell’s first trip down the Green River in 1869. Hall suggested the name Lodore and it was adopted by Powell.

Some of the lyrics you might enjoy...

“The cataract strong
Then plunges along,
Striking and raging
As if a war waging
Its caverns and rocks among;
Rising and leaping,
Sinking and creeping,
Swelling and sweeping,
Showering and springing,
Flying and flinging,
Writhing and ringing,
Eddying and whisking,
Spouting and frisking,
Turning and twisting,
Around and around
With endless rebound:
Smiting and fighting,
A sight to delight in;
Confounding, astounding,
Dizzying and deafening
the ear with its sound....

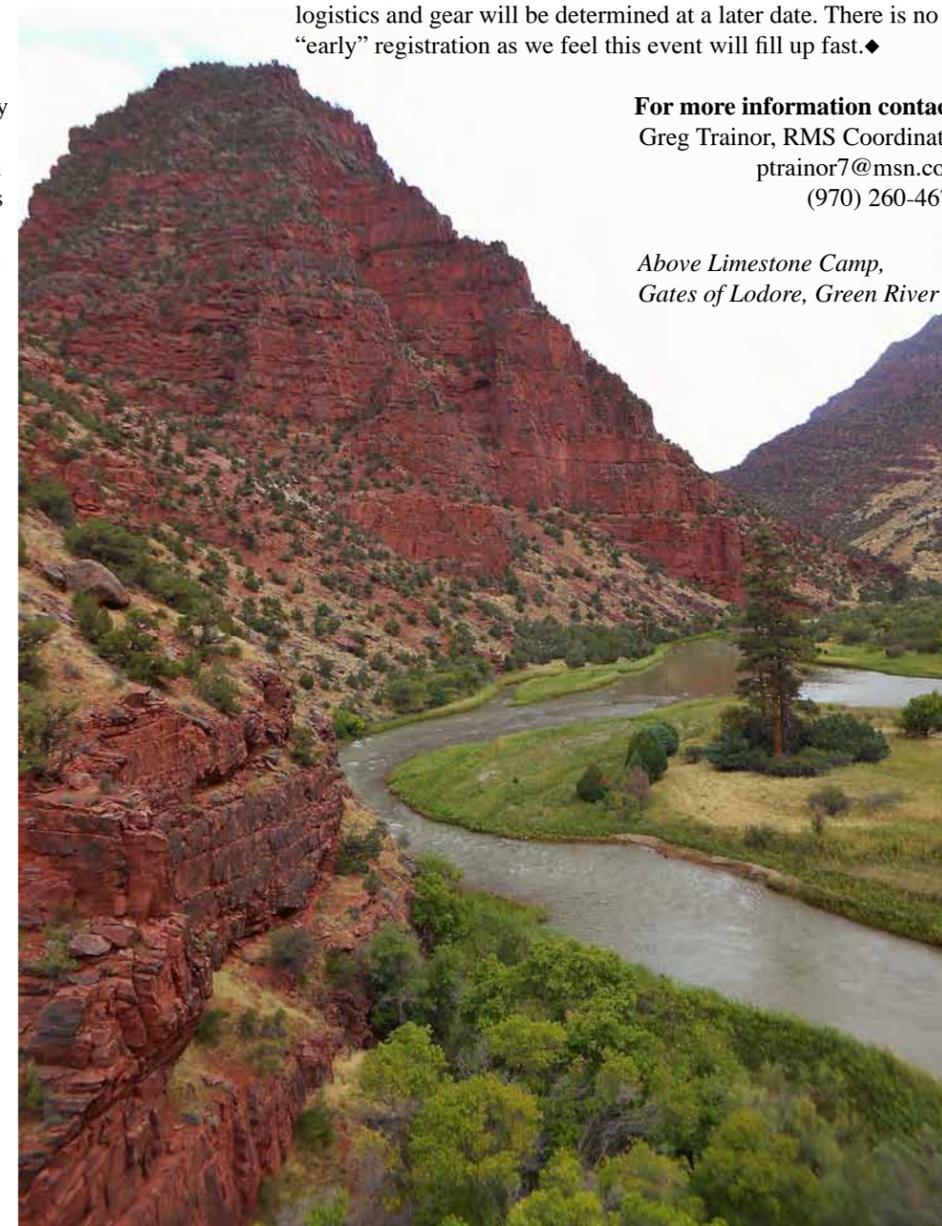
All at once and all o’er,
with a mighty uproar,
And this way the water
comes down at Lodore.”

The three day, two night on-the-river training agenda is designed not only for river rangers but also for technical staff and managers involved in river management. Topics include: land restoration, man and fire, interactions among human and animals, humans and humans, firearms on the river, outfitter and ranger relationships, “Friends” groups, campsite impacts, storytelling and journals, lessons of leadership, and much, much more.

Save the dates and plan to attend. The trip is limited to 25 persons. Member cost is \$200, non-member cost is \$235, and includes permit costs, food, cook staff, and shuttle expenses. Boat logistics and gear will be determined at a later date. There is no “early” registration as we feel this event will fill up fast.♦

For more information contact:
Greg Trainor, RMS Coordinator
ptrainor7@msn.com
(970) 260-4670

*Above Limestone Camp,
Gates of Lodore, Green River*



<http://scholarexchange.furman.edu/rma/>

The international **World Conference on Natural Resource Modeling** will be held June 14-17, 2016, in Flagstaff, Arizona. The theme is quantitative modeling for managing natural resources in an era of climate change.

Four keynote speakers will address the use of mathematical models to study biodiversity and the effects of climate change on various ecosystems and offer recommendations for managing them in a sustainable manner.

We anticipate some support for students and also offer generous cash prizes for student presentations and posters!

RMS Chapters

Northwest by Louise Kling

Greetings Northwest Chapter! I write today from the snowy winter wonderland of Mt. Hood. It's the end of January, and though Spring seems far away, we're busy planning for an active spring, summer and fall! Many of you have jumped in to lend a hand; we are all so appreciative!

Most importantly: **Ryan Turner**, our Vice President, celebrated the arrival of his baby boy, Cache James Turner on 11/19/15 in Cottonwood, Idaho. Ryan and his wife, Carly, got his name from their hometown river in Ft. Collins, Colorado, the beautiful Cache La Poudre, where Ryan guided for eight years and also where he proposed to Carly. Cache is sure a lucky little boy to join a family that loves rivers!



Now for some news...

The **RMS / SORP Symposium and Conference** is fast approaching. Many NW Chapter members have been working hard to ensure this year's symposium is a great success. Save the date, and please attend! The line-up of speakers, posters, field trips and other events will not disappoint! A few things to have on your radar as you plan your trip:

Grande Ronde River Trip: Our own Events Coordinator, Colby Hawkinson and Bonnie Wood are working on a pre-symposium float on the Grande Ronde (*see sidebar*). Perhaps you can extend your trip and join the NW Chapter on the river – better yet, bring a friend and show them the great work RMS does to study, protect, and manage North America's Rivers.

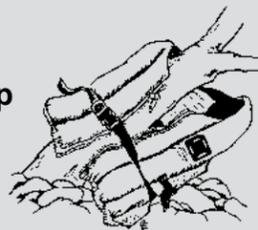
Silent Auction: We are still in need of silent auction items. Please think about local businesses who may have an item to donate. People contribute to a great cause when asked!

NW Chapter Meeting: At the symposium we'll gather as a group and discuss goals for the year. We hope to identify at least two more river trips for 2016. These trips are so important! We will also discuss RMS' plans to celebrate the 50th Anniversary of the Wild & Scenic Rivers Act in Vancouver, Washington, in 2018. Would you like to be involved in the planning? As always, come armed with new ideas to make our chapter stronger!

Fall Rogue River Trip: Great news! This trip has been restored! Huge thanks to Colby Hawkinson and Becky Brown for their role in making sure this trip is a GO. Plans are set for October, though dates are still being fine-tuned --so, mark your calendars and we'll be sure to provide an update as soon as we have it.

Looking forward to seeing and meeting you all in May!♦

Pre-Symposium River Trip Grande Ronde, Oregon May 11–14, 2016



Trip Size Estimate: 18-20 (approx.)

Food Cost Estimate: (\$75 per person for 3 days), beginning 6:00pm group dinner Wednesday at Minam State Park. Participants are responsible for "personal" beverages (only coffee, tea, cocoa provided in meal cost).

Vehicle Shuttle: Lottie at Minam Store (541) 437-1111. \$100 per vehicle (no added fee for trailers). Each driver will arrange his/her own shuttle, in advance of arrival.

Put In: Next to Minam State Park. Launch 10:00 a.m. May 12th. Drive time from Boise approx. 4.5 hours. (Most of the rigging should be done Wednesday. Thursday morning will be breakfast, final rigging and move shuttle vehicles a couple miles to the shuttle pickup location.)

Take Out: Wildcat, near Troy, OR. At the ramp in time for lunch (last meal). Drive time to Boise approx. 5 hours.

Float Guides: \$6.00 each. Order from BLM Baker Field Office (541-523-1256). Suggested reading: *The Doing of the Thing* about pioneer boatman Buzz Holmstrom, or any flora and fauna guides that would apply to eastern Oregon.

Camp suggestions: Night 1: Clear Creek, downstream on right from Clear Creek itself, just after sharp turn. If full, the next camps are 3-4 miles downstream. Night 2: Either of two camps upstream of Sickfoot Creek. If full, there are a number of good camps just downstream.

Please RSVP: Rick Thompson: 208-386-8391 (or) rthompson11474@gmail.com

We'll need to know:

- Do you have a boat? If so, what type?
- How many passengers can you carry?
- What group equipment can you bring? Toilets, tables, fire pan, tarp, large water containers, etc.
- Will you handle your own shuttle, or do you want to double up with someone?
- Do you have allergies we should be aware of?
- Will you be camping (\$10 per site) at Minam State Park, or parking a vehicle there (\$7 each) Wednesday night?
- Have you floated the Grand Ronde before?

Hope you'll join us on the river!

RMS Chapters

Alaska by David W. Schade

Greetings from Alaska. After a relatively mild winter, we are expecting an early spring as the daylight is getting longer once again.

Currently, we have two trips planned for Summer 2016. The first will be the Delta Clearwater. The second will be on the Chulitna River, featuring the last whistle-stop trip in the United States. As always, the Alaska Chapter invites *all* RMS members to join us! We continue to look at other opportunities, and are always looking for new members and ideas for other events. We currently are looking at helping with an invasive species seminar, and any other ideas will be considered. I am looking forward to seeing many of you at our Boise, Idaho symposium and looking forward to another great summer as well.

Delta Clearwater — April or May
Because the Delta Clearwater River is the largest spring-fed tributary of the Tanana, it is known locally to never freeze up completely—and, to be the best early Interior Alaska float going. A spring season float also provides an opportunity to experience the dramatic migration of waterfowl heading toward their nesting grounds. To achieve the ideal combo of weather and waterfowl, we'll determine the dates for this event later, but we know it will happen beginning April 15, 22, 29, or May 5. This crystal clear river is 20 miles long and flows into the Tanana River about 20 miles upstream of the Richardson Highway Bridge. Access is via a State Recreation Site outside of the community of Delta Junction, AK, and egress is via either Clearwater Lake or the Richardson Highway Bridge. This river is commonly floated in canoes, and requires a total of about 8-12 hours of paddling. Anchorage-area members can expect to miss only a day of work on Friday and still fit this gem

in! (Drive Glenn/Rich Fri; Float Sat-Sun noon; return late Sun evening). RMS members traveling from other areas should note that though the Clearwater is flowing, weather will still be quite transitional around most of the state. Contact: Trip Leader, Jen Reed: jennifer_reed@fws.gov or (907) 455-1835.

Chulitna River — June 10-12

This is a quintessential Alaska experience with Flag-stop train access, combined with the convenience of a road-accessible take-out in the destination town of Talkeetna, Alaska. Be prepared for two nights out in the wonderful Alaska wilderness. A Class II opportunity requiring moderate skill that family and friends are welcome to join, but one family member must be a member of RMS in advance. If you plan to join, please contact Trip Leader Dave Schade: david.w.schade@alaska.gov by June 1, 2016, with the number in party and number of boats. Dave can also be reached at (907) 230-6061.♦

Rest break on the Chulitna. Photo: David W. Schade



2015 TREASURER'S REPORT

by Randy Welsh, RMS Treasurer

It was another successful year for the River Management Society (RMS). This article describes our income, expenses and overall financial situation for 2015.

Income

Total income for the year was \$183,583, which was about \$4,000 more than in 2014, and over \$30,000 more than our initial budget. Membership income continues to represent less than 10% of the income to RMS. The bulk of our

income was generated from expanding our Challenge Cost-Share and Grant programs with federal agencies and other organizations and from successful partnerships with River Rally, the Water Trails Forum, and Wild and Scenic River training. Risa is to be congratulated for expanding our efforts on these fronts to enlarge our bottomline while meeting the needs of river professionals. We also had modest success with our end of the year donation letter. Thank you to all who

participated. Tim Palmer's book, "Rivers of America" was a popular addition for donors.

Expenses

Overall expenses totaled \$173,208, which was slightly lower than in 2014 by \$6,100. The bulk of our operating expenses are the typical things to keep the office open and communication with members flowing.

This also includes fees for our consultant trainers for WSR training. Personnel costs have increased somewhat from last year as the Board adjusted our Executive Director compensation in line with accomplishments, and better covered the costs of maintaining an office in Washington DC. We also had three interns who contributed mightily to National River trails and the National River Database efforts. Program expenses saw the biggest gain, mainly due to some pass through federal funding, the Journal, and the River Rally costs.

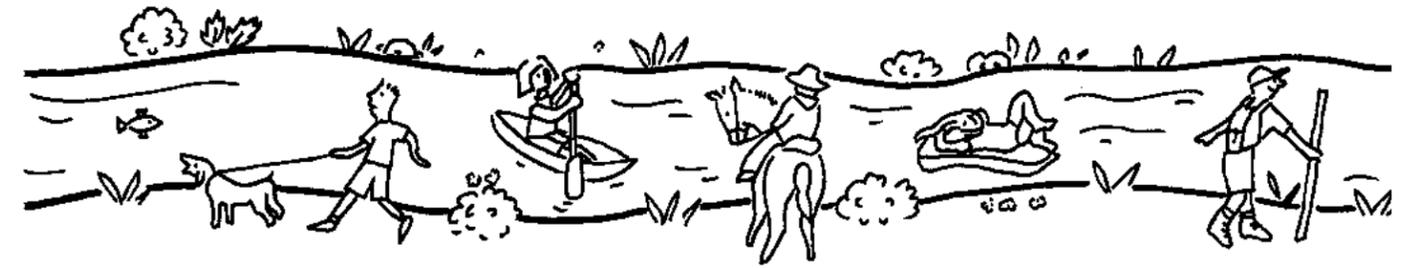
Overall

RMS continues to operate lean and conservatively within our resources. We actually added \$10,000 to our operating capital in 2015. The contribution of members, business partners, cooperators, and federal agencies keeps RMS growing as a vibrant robust organization.

The Future

Looking to the future of 2016 RMS has adopted a similar budget that will keep expenses in line with income so that we do not lose the operating cushion generated by many past efforts. We look forward to a successful Symposium in May in conjunction with the Society of Outdoor Recreation Professionals (SORP), that should be one of our biggest sources of income. In addition, federal challenge cost share and grant programs are exceeding expectations in 2016. It should be a very good year! ♦

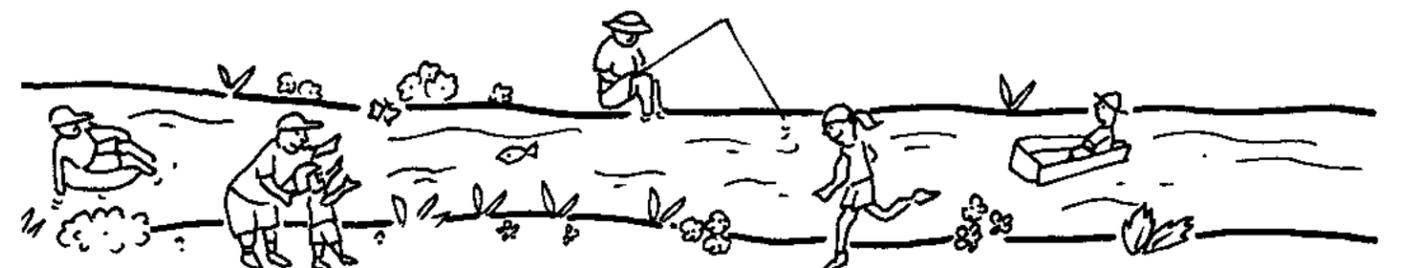
RMS 2015 Profit and Loss Statement ¹			
Cash in the bank 1-1-2015			\$ 80,408
Income	Event Income	42,721	
	Charitable contributions	4,125	
	Contract receipts	95,612	
	Grant Income	5,000	
	Interest Earned	0	
	Membership	12,953	
	Sales - Merchandise	61	
	Sales - Professional Services	22,893	
	Other Income	218	
	Total Income	183,584	
Expenses	Operating	42,131	
	Personnel Costs	62,817	
	Program Expenses	68,260	
	Total expenses	173,208	
Net Income		\$ 10,375	
Cash in the bank 1-1-2016			\$ 90,783
¹ rounded to nearest dollar			



SAVE THE DATE — 2016 RMS National and Chapter Events

- March 16** Pacific Chapter Webinar - Contact: Jim Eicher (jeicher@blm.gov)
- April / May (TBA)** Delta Clearwater River Trip, Alaska Chapter - Contact: Jen Reed (jennifer_reed@fws.gov)
- April 30** Bronx River Blueway Trip, Northeast Chapter - Contact: Marina Metes (mjmetes@gmail.com)
- May 12-14** Grand Ronde River Trip, Northwest Chapter - Contact: Rich Thomson (rthompson11474@gmail.com)
- May 16-19** *Rivers and Recreation in a Changing Climate* in Boise Idaho: <http://www.recpro.org/2016-conference> Co-hosted by RMS and Society for Recreation Professionals (SORP).
- June 10-12** Chulitna River Trip, Alaska Chapter - Contact: Dave Schade (david.w.schade@alaska.gov)
- June 25-26** Tuolumne River Trip, Pacific Chapter – Contact: Jim Eicher (jeicher@blm.gov)
- July (TBA)** St. Louis River Trip, Midwest Chapter in conjunction with St. Louis River Alliance event – Contact: Randy Thoreson (Randy_Thoreson@nps.gov)
- July 30-31** Brown's Canyon National Monument River Trip, Southwest Chapter - Contact: Rob White (rob.white@state.co.us)
- August 16-18** River Ranger Rendezvous, Dinosaur National Monument - Contact: Greg Trainor ptrainor7@msn.com A training co-hosted by Southwest Chapter and National Park Service.
- October (TBA)** Rogue River Lodge Trip, Northwest Chapter (tentative October 21-23 or October 28-30) Contact: Colby Hawkinson (chawkinson@blm.gov)
- October 7-10** Annual RMS Board of Directors Meeting, California (location TBD)
- TBA** Anacostia River Trip, Northeast Chapter - Contact: Marina Metes (mjmetes@gmail.com)
- TBA** Owens River Trip, Pacific Chapter - Contact: Jim Eicher (jeicher@blm.gov)

Stay tuned for more listings. If you want to host an event, workshop, or river trip, please contact your Chapter President.



(Anacostia River, continued from page 21)
and watershed concepts into their curricula. Lastly, 34 adults have been trained through the National Capital Region-Watershed Stewards Academy, to design and implement watershed restoration projects in their neighborhoods.

AWS continues to promote the recreational use of the Anacostia River and conducting site enhancements along the Anacostia Water Trail. The trail covers a nine-mile stretch of the Anacostia River, running from Bladensburg, Maryland, through Washington, DC, to its juncture with the Potomac River. A dock was installed at Kingman Island to increase accessibility for paddlers. AWS Paddle Nights program in the summer provides free canoeing and kayaking opportunities throughout the river. Just in 2015, 1,890 people were engaged in safe recreation events in the watershed. AWS is working with partners to develop new events and programs that will animate the parkland along the river.

Volunteers play an integral role in accomplishing the organization's goals. In 2015, over 3,000 community members volunteered to improve their watershed by collecting trash, restoring wetlands, and planting native plants to filter stormwater. By volunteering with AWS, these citizens are not only playing an active role in restoring the watershed, they are also building a relationship with the Anacostia River; thus becoming more invested in it's future.

The reversal of hundreds of years of environmental destruction and the restoration of the Anacostia River can be one of the nation's greatest success stories. While the path forward is not easy, the goal is clearly in sight. To reach this goal by 2025, the river needs everyone to pull together and demand a fishable and swimmable river. ♦

Authors: Jorge Bogantes Montero (*Stewardship Program Specialist*), Ashley Parker (*Senior Program Manager / Acting Director of Stewardship*), Joanna Fisher (*Manager of Volunteer Programs*), Ariel Trahan (*Director of Education Programs*)

RMS Journal

Care to share?
Submission deadlines:

Summer 2016	Vol 29, No. 2	Climate Change	Apr 1
Fall 2016	Vol 29, No. 3	Pacific	Jul 1
Winter 2016	Vol 29, No. 4	Alaska	Oct 1
Spring 2017	Vol 30, No. 1	Southeast	Jan 1
Summer 2017	Vol 30, No. 2	Special Focus	Apr 1
Fall 2017	Vol 30, No. 3	Midwest	Jul 1
Winter 2017	Vol 30, No. 4	Southwest	Oct 1

(Wardensville, continued from page 11)

At the landscape scale, the grassroots initiative in Wardensville has substance and meaning far beyond this small West Virginia farming community. The Cacapon is the third largest tributary to the Potomac River which, in turn, is a major tributary of the Chesapeake Bay. As the first estuary (and country's largest estuary) in the nation to be targeted for restoration as an integrated watershed and ecosystem, headwater streams such as the Cacapon are critical to a watershed's overall health. Thus, the Chesapeake Bay Program partnership was formed in 1983 to restore and protect this national treasure. As stated in the 2014 Chesapeake Bay Agreement, the partners "envision an environmentally and economically sustainable Chesapeake Bay watershed with clean water, abundant life, conserved lands and access to the water, a vibrant cultural heritage and a diversity of engaged citizens and stakeholders."

Although small within the context of the 64,000 square mile Bay watershed, the work taking root in Wardensville demonstrates a critical aspect of the partner's vision—engaging citizens to become stewards of the land. The importance of engaging "citizen stewards" was succinctly stated by longtime resident Marsha Rudolph who believes the Wardensville project will "help save the integrity of the Cacapon River by addressing polluted storm water runoff from roads and other development that has for years been diverted to the river."

So what does all this mean to Wink Hastings, the Rivers, Trails and Conservation Assistance staffer orchestrating this collaborative effort? "The grassroots approach and citizen work in Wardensville is a microcosm of what I believe needs to be replicated throughout the Bay watershed," Hastings commented recently. He continued, "when I see folks working together to overcome a seemingly insurmountable goal, I have hope for the future." ♦

Wink Hastings, National Park Service, RTCA, is assigned to the Chesapeake Bay Program in Annapolis, MD. Mr. Hastings assists citizens, local governments and special interest groups with watershed management and strategic conservation planning—all of which contribute toward the restoration and protection of the Chesapeake Bay.



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Work Phone _____

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Rivers you manage _____

Membership Category (please check one)

- Professional \$50/yr (\$200 for 5 years)
- Associate \$30/yr
- Organization \$120/yr (government/corporate)
- Organization \$60/yr (NGO/non-profit)
- Student \$25/yr
- Lifetime \$500 (for individuals only)

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Summer 2016 RMS Journal - *Special Focus: Climate Change* - Deadline April 1

RIVERS AND RECREATION IN A CHANGING CLIMATE

2016 River Management Symposium
National Outdoor Recreation Conference



Pre-Symposium Field Trip

The Northwest Chapter is planning a float on the Grand Ronde River in Oregon. This is a fast-moving river with a few rapids, in a beautiful forest setting.

May 12-14, 2016!

Details inside on page 34.

May 16-19 in BOISE, IDAHO