

NORTHEAST FOCUS

Greenway Challenge Race.....	4
New Hampshire River Protection	6
Junior River Ranger Program.....	7
Partnership Rivers Work.....	8
Celebrating the Lenni-Lenape Tribe	9
Threats of Natural Gas	10
Fluvial Erosion Hazards.....	12
Call for Collaboration.....	14
Proposed Rule for Federal Employees	
Serving on Non-Profit Boards.....	15
Management through Mentoring	16
Exciting Prescott College Course	18
River Profile - The Cheoah, NC.....	25



Excavator at work removing Pawtuxet Falls Dam.

Rhode Island's *Largest* Dam Removal Underway at Pawtuxet Falls

by Thomas Ardito and Rita L. Holahan

Like a giant, rapid-fire fist, the 1500-pound jackhammer, mounted on the arm of an excavator, slammed into the spillway of Pawtuxet Falls Dam. The staccato din echoed off nearby Broad Street Bridge while chunks of broken concrete splashed into the river. Water swirled around the excavator, perched on bedrock just downstream of the spillway, and people lined the bridge to watch the work, enthralled by the machinery in the river and the skill of the crew.

After three days of work, nearly half the dam was down and, for the first time in 200 years, the Pawtuxet River began flowing freely over the natural bedrock falls at its mouth. The Pawtuxet Falls restoration project is the largest ecological dam removal yet undertaken in Rhode Island; when complete, it will restore seven miles

of free-flowing river habitat to one of Narragansett Bay's largest tributaries. Though the concrete spillway dates to the 1920's, the river has been dammed at this location since the 18th century.

The project will improve the ecosystems of the Pawtuxet River watershed and Narragansett Bay by restoring native migratory fish, such as river herring and American shad, which have been blocked from fully accessing their natural spawning habitat for hundreds of years. Herring and shad are important components of marine and freshwater ecosystems, providing abundant food for bluefish, striped bass, largemouth bass, herons, ospreys and many other predators—even harbor seals, which winter in the Bay. In addition, the dam removal will provide relief from smaller floods which affect homes and businesses, and improve water quality in

the lower Pawtuxet River.

The dam removal is sponsored by the Pawtuxet River Authority and Watershed Council, a state-chartered non-profit organization with the mission of restoring and preserving the Pawtuxet River, with the support of the Narragansett Bay Estuary Program, one of 28 National Estuary Programs established by Congress under the federal Clean Water Act. The project is funded through a partnership of more than a dozen federal, state, and non-profit organizations, including R.I. Dept. of Environmental Management, USDA Natural Resources Conservation Service, R.I. Coastal Resources Management Council, National Oceanic and Atmospheric Administration, US Environmental Protection Agency, US Fish and Wildlife Service, American Rivers, The Rhode Island Foundation and

(continued on page 26)

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*The mission of RMS is to support
professionals who study, protect, and
manage North America's rivers.*

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purpose of this policy is to encourage the
free exchange of ideas concerning river
management issues in an open forum of
communication and networking among the
RMS membership. Unless indicated, points of
view are those of the author and not RMS.

Thoughts from an Eddy

New officers and growing the RMS brand.

Time marches on. For river managers perhaps 'striding' is more appropriate, and RMS is indeed striding smoothly toward 2012 with a new slate of leaders, elected by an enthusiastic showing from our eligible (Professional and Lifetime) voters. To all those who cast votes: thank you for your time and interest!

Three of our 2012-204 officers President-elect Dennis Willis, Vice President-elect Linda Jalbert and Treasurer (elected for a second term) Lee Larson are long time RMS members and familiar to national positions. Secretary-elect Jorjena Daly is new to the national scene but earned her stripes as an extremely creative and 110% reliable member of the 2011 River Management Workshop and 30th Annual International Submerged Lands Conference in Girdwood, Alaska.

In addition, as a result of late summer elections, we will welcome new Northwest and Southwest Chapter Presidents to the Fall, 2011 Board of Directors Meeting in Sandstone, Minnesota. When the current and future board members gather, it will be exciting to apply new enthusiasm, suggestions for growth and the experience we have gathered this year with the 2011-2015 Strategic Plan.

I have completed a year as Executive Director so will begin to cycle on my own work, no longer able to excuse myself with inexperience! What I have learned is that we are a small group whose members are ever busier but enjoy making time to read, learn and contribute to this unique community of professionals who prioritize rivers in their work, play or both. A shout out to y'all who have taken the time to explain to me what might seem obvious, and explained it again when I've asked for a refresher (you know who you are).

For your next quiet moment, here's



a strategic marketing nugget for your consideration: RMS is a brand that is very well respected for its past conferences, workshops, and the immeasurably valuable networking provided by the listserv and other member services. However, we are only vaguely (i.e., poorly) defined by those outside the "hood." In the coming months, we look forward to defining RMS more clearly with a few unique, strategic programs which can stand alone and be funded as a body of work or area of special expertise. As we draft programs, develop related internships or seek outside funding, your input to help us grow the RMS brand to external audiences will be welcome and appreciated!

The Holidays will be at each of our doorsteps soon. Please accept RMS' wishes for peace and safe, smooth, giggly downstream strokes to you and your loved ones as you greet 2012. ♦

A handwritten signature in black ink that reads "Risa Shimoda".

Risa Shimoda
Executive Director

From the President

My parents were good Norwegian-Americans and worked hard at instilling their ethics in my young head.

They tried to make me into a good Lutheran. Didn't work. Go to church every Sunday! Huh—Sundays are for coffee, a fat newspaper and a big, late breakfast.

I ran away from all that and wound up on the streets of San Francisco in 1968, doing the hippie drug scene.

Luckily, I survived that (although I knew some who didn't). I landed back in the Midwest, got a college degree, wandered through a career change or two, and wound up in natural resources where I spent 35 years working on the Mississippi and St. Croix rivers. In 1992 I found myself at a river conference in Portland, Oregon, and that's where a long connection with what is now the River Management Society began.

One thing my parents pushed at me that did stick was the idea of community service. Your community serves you in lots of ways and you need to do your turn to help out. Ma ran the community bloodmobile for many years. Dad was a Scoutmaster, and one of Minnesota's very first certified firearms safety instructors.

So I did some volunteer things over the years. I served two terms on a city council when I lived in Wisconsin (yes, I was there long enough to become a certified cheesehead). I gave blood every chance I had.

Paul Roelandt was the RMS Midwest Chapter President at one point and asked me if I'd serve as chapter secretary. Sit in on some conference calls, take some minutes—piece of cake. Little did I know that would take me over succeeding years to the

chapter presidency and eventually a three-year term as national president of RMS.

While that was sometimes a lot of work, it's hard to describe how rewarding that work has been. And I can't begin to tell you the great people I've met and the lasting friendships that have been created. While I've had the joy of going to some pretty neat places I might not otherwise have seen, the greatest joy has been meeting so many great people in the rivers community of North America.

All of you.

I've never been to Connecticut but I have a great friend there I wish I saw more often. And there are great friends in Boston, and South Carolina and Ottawa and Idaho. Montana and Washington (both the District and the state) are full of great people. And Alaska. Wonderful friends in Oregon and California, Colorado and Nebraska. The list goes on.

Now it's your turn. Making our world hum is not just about taking, but about giving back, too. And the giving back is the best part—take my word for it.

RMS is moving forward with a great bunch of volunteer leaders. Dennis Willis, Linda Jalbert, Jorjena Daly and Lee Larson are your new national officers and will lead the organization with great skill for the next three years—maybe more.

But there's more to do, and a clear role for you. Chapters need secretaries, merchandise needs to be ordered and handled, the website needs to be redesigned, events need planning, fundraising ideas are needed.

Remember what my Ma said about community service, about giving back. It's your turn now. ♦



Steve Johnson
Board President

It's a family affair on the Gallatin River in Montana! Son Brendan Johnson (paddling front left) and his fiancé Genevieve Olenick (front right), enjoy a day on the river with RMS President Steve Johnson (second on left) and his wife, our very own RMS Merchandise Coordinator, Debbie Johnson (second on right).



Sweating, Splashing and Celebrating Through the Blackstone River Valley

UniBank Greenway Challenge adventure racers redefine “America’s hardest-working river”

by Susan Spencer

Michael Urban moved with his family from the Boston area to Grafton, Massachusetts, at the northern end of the Blackstone River Valley, a decade ago. Now the president of the Grafton



Land Trust, Urban admits that until recently, he hadn’t seen much of the region between Worcester and Providence. But two years ago, he got a crash course in touring the valley when he joined the Grafton Land Trust’s relay team in the UniBank Blackstone River Valley Greenway Challenge, a bi-state adventure race.



“When I think of the past two years on the Greenway Challenge team, I think of the gorgeous little spots of the valley I’ve learned about and want to go back to visit,” Urban says. “It’s tourism, but at an extremely fast pace.”

A growing number of people have been introduced to the Blackstone River Valley through the relay race, which includes running, paddling and bicycling, since the John H. Chafee Blackstone River Valley National Heritage Corridor Commission launched the Greenway Challenge in 2001. The event features teams of up to nine athletes, from weekend warriors to top competitors, who cover approximately 50 miles of waterways, trails and historic byways of the Blackstone River watershed. The route changes each year, but it always starts in one state and finishes in the other. And, the course remains a secret until two weeks before the event, which is held the last Saturday in September.

“The Corridor Commission staff thought of it as a great way to highlight the resources of the valley, especially the bikeway and river,” says Jan Reitsma, executive director of the Corridor Commission. “It is also just a ton of fun. Sometimes when you talk about environmental protection or preservation, it gets so stern. This is a celebration.”

Reitsma says that no matter what route the course follows, participants encounter history as well as scenic natural resources.

Runners along the Blackstone River Bikeway might stream past former mills in Ashton or Uxbridge that once powered America’s industrial revolution; paddlers navigate around locks and dams on the river and canal; and bicyclists travel rolling hillsides dotted with Colonial-era farms.

While the Greenway Challenge began as a way to showcase the Blackstone, it’s become a premier competitive event. In 2010, 67 teams from throughout New England competed in divisions including championship, ironmen, ironwomen, recreational,

masters (age 50 and older), corporate cup and all-women teams. “It’s still the kind of event that anybody can do, but the competition adds excitement and prestige,” Reitsma says.

The Greenway Challenge also demonstrates the enormous energy of volunteerism in the valley, with local organizations, youth groups and businesses managing transition stations between

segments, planning the course and hosting a “children’s challenge” fun-and-fitness event at the finish line party.

Since 2005, Greenway Challenge organizers have recognized a nonprofit



group working to preserve and promote the Blackstone by awarding each year a partnership grant of up to \$2,500. Recipients of the grant, announced in spring, help plan that year’s race and manage a transition site. Previous grants have been awarded to the Blackstone Valley Chamber of Commerce Education Foundation’s Youth Leadership Academy, the Blackstone River Coalition, Blackstone River Bikeway Association, Waters Farm Preservation, Mohegan Council Boy Scouts of America and the Blackstone River Watershed Council.

The Rhode Island Department of Environmental Management’s Office of Water Resources and the Blackstone River Watershed Association in Massachusetts have lent a hand, too, raising awareness of boat washing to prevent the spread of invasive aquatic plant species including milfoil, fanwort and

curly-leaved pondweed. “Some of these fragmenting species are transported by waterfowl and other natural means, but the majority is spread through human transport – getting caught on motors, kayaks and fishing gear,” says Evan Ross, an intern at RI DEM and a Greenway Challenge volunteer.

Ross says that the Blackstone River and Canal, as well as Olney Pond in Lincoln Woods State Park, host invasive aquatic species; but other waterways that might be on the course aren’t infested, and organizers want to keep it that way. For the first time, they plan this year to have boat-washing stations at the end of each of the paddling segments.

Despite the challenges of restoring and protecting what was once “America’s first polluted river,” the Greenway Challenge reflects the growing momentum toward sustainable, recreational use of the Blackstone. “I think it’s a great place to get out and exercise. There’s a lot of nature and wildlife to be seen here,” says Donald Martin, co-owner of Blackstone Valley Outfitters in Lincoln, RI, and a Greenway Challenge volunteer. He’s had customers from as far away as California, Europe and Japan come to fish, kayak or bike along the river.

Bringing more people to experience the beauty and adventure of the Blackstone is a hallmark of the Greenway Challenge’s success. “From the Corridor Commission’s perspective, it’s a signature event,” Reitsma says. “We want to see it continue as a signature event for the region.”

The UniBank Blackstone River Valley Greenway Challenge will be held September 24, 2011. Sponsors include: Title – UniBank; Major – John H. Chafee Blackstone River Valley National Heritage Corridor Commission; River Champions – Taco/The White Family Foundation, WXLO/The Pike/WORC radio; Trail Blazers – Whitin Community Center; and Pace Setters – Mass. State Rep. George N. Peterson, Jr. ♦

Susan Spencer is a writer, editor and photographer in Whitinsville, MA. She has participated as a Greenway Challenge volunteer and competitor for many years.

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New Hampshire Adds 135.5 Miles of River into *Protection* Program

by Lelia Mellen

A combination of rivers have been added to the New Hampshire Rivers Management and Protection Program (RMPP) this summer. Two new rivers, the Oyster and the Mascoma add 39 miles, and the Squamscott River extends the already protected upstream section of the Exeter River, adding 8.5 miles. The differentiation of the Squamscott with the Exeter is that the Squamscott is tidal with saltwater and the Exeter is freshwater. With a new flair, the Lamprey River took a watershed approach to the state Rivers Protection Program and brought in 88 miles on five tributaries plus the upstream reach of the Lamprey River itself. These 88 miles join the already 23 miles of the lower Lamprey that are protected not only by the state program but also through the federal Wild and Scenic Rivers Act. All of these new rivers, with the exception of the Mascoma, are in New Hampshire's coastal watershed area.

Becoming designated is no small feat, having to build a comprehensive document about the river, including resource significance, historical information, recreational use and community desires. Once the river communities endorse the concept, the rivers have to be recommended by the NH Department of Environmental Services (DES), pass the New Hampshire State Legislature and finally be signed by the governor. The RMPP, administered by DES, gives citizens the opportunity to demonstrate to the state why their rivers are important to their communities. Once designated, a river is protected and managed for water quality and flow by a local river advisory committee.

The Oyster River, Lower Exeter and Squamscott rivers, the upper Lamprey River with its major tributaries (the North Branch, North, Little, Pawtuckaway and Piscassic rivers) and the Mascoma River, which is a major tributary to the Connecticut River, bring the total to 18 rivers and 1031 river miles since the RMPP was legislatively established in 1988 (RSA 483). Incorporation into the RMPP represents the tremendous effort of citizens coming



Governor Lynch signs the Lamprey River bill. Photo: Colleen Maguire

together to complete a nomination process documenting the natural, historical and recreational resources on each river up for consideration.

“The Oyster River designation will provide a more formal means for riverfront towns to communicate with each other and with the state on how to protect the river in the rapidly developing Seacoast region. The Lower Exeter and Squamscott rivers help complete the goal of designating the whole Exeter River, portions of which were designated in 1995, from its source to where the tidal portion meets Great Bay Estuary. Including all of the portions of the Lamprey River and its major tributaries will allow for all fourteen towns in the Lamprey River watershed, or area of land that drains to the Lamprey, to participate in protecting the area's water resources,” says Jacquie Colburn, the new Rivers Coordinator for the NH Department of Environmental Services.

In general, it takes about two years to bring a river nomination from conception to having the bill pass through the legislature and signed by the governor.

The Mascoma, Oyster and Squamscott Rivers received support and technical assistance from their Regional Planning Commissions, and the Lamprey River and tributaries had similar help from the National Park Service Rivers & Trails Program. “During the winter of 2008, a citizen group from throughout the Mascoma River watershed first met to consider how best to protect this important natural resource. For the City of Lebanon, the Mascoma River is critically important because it is the source of the municipal water supply for the largest community in the Upper Valley. Nearly unanimous support for the river's nomination developed among local public officials, citizens and landowners and we are very pleased that the New Hampshire Legislature and Governor enacted this important legislation,” stated Shawn Donovan, Chair, Mascoma River Nominating Committee.

The Rivers Management and Protection Act of 1988 (RSA 483) established the RMPP based on a two-tier approach to river management and protection. On one tier the state legislates designation of sig-

nificant rivers and protection of instream values, and on the other tier local advisory committees coordinate development and adoption of river corridor management plans to protect shorelines and adjacent lands. RSA 483 also established the statewide Rivers Management Advisory Committee, whose members represent a wide range of river interests and work closely with DES in an advisory capacity. The RMPP mirrors the federal Wild and Scenic Act in many regards, with the New Hampshire program having four categories of designated river segments. With the additional rivers added this summer the categories break down as follows:

1031 Total Designated Miles:

- 106 Natural Miles
- 640 Rural Miles
- 112 Rural – Community Miles
- 173 Community Miles

Other information:

- 18 Rivers designated since 1990
- 18 Local Advisory Committees (LACs)
- 132 Riverfront towns participate in the Rivers Program

“Designation of these rivers acknowledges their important local and statewide natural, managed, cultural, recreational and other resources to the State of N.H.,” said Tom Burack, Commissioner of DES. “These designations formalize local and state partnerships for the management of these outstanding resources.”

The next step is the formation of local river advisory committees (LAC) for each newly designated river. The LACs will be responsible for developing a management plan and commenting on activities affecting the river that require state or federal permits. They are comprised of citizens from each riverfront community who are nominated by their municipalities and appointed by the DES Commissioner. Because the river management plan is locally developed, adopted and implemented, it reflects the specific needs, interests and concerns of local citizens.◆

For more information, you may view a map of designated rivers by going to: http://des.nh.gov/organization/divisions/water/wmb/rivers/documents/designated_rivers.pdf

Junior River Rangers

by Tiffany Caisse

On July 1st the National Park Service started up its Junior River Rangers pilot program on the Farmington Wild & Scenic River in Connecticut and the Sudbury, Assabet, and Concord Wild & Scenic rivers in Massachusetts. This pilot effort is a youth engagement program designed to get young people out and onto the river, along with learning about the Wild and Scenic Rivers System.

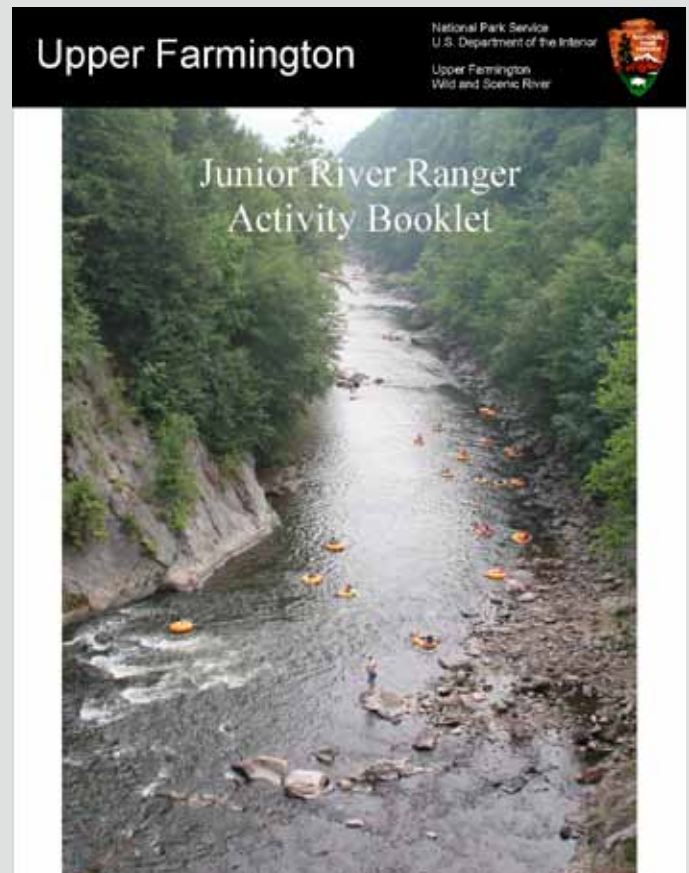
The program is a sister program to the Junior Rangers programs in National Parks. Kids can pick up an activity booklet that focuses both on the specific river, its unique resources, and the history of the Wild and Scenic Rivers program. Although mostly geared towards children ages 6 to 12, young people of all ages are encouraged to do the program. Once the activities in the booklet are completed, the participant can bring it in, have it checked over by rivers staff, and receive a Junior River Ranger badge and certificate.

The goal of this program, aside from getting young people and their adults to learn about rivers and the Wild and Scenic designation, is to get people, especially kids, outdoors. With interesting programs like this available, youth may become more apt to go outdoors and explore. This program also gives kids a chance to get their hands into the growing field of conservation. The Wild and Scenic designation promotes conservation and enhancement of

rivers and the outstanding resources they hold. Kids get a chance to understand how they can help out in the effort.

The National Park Service and associated groups, such as the Farmington River Coordinating Committee and the SUASCO River Stewardship Council, are very excited to have such a great new program becoming available on their rivers. They’re looking forward to engaging youth and teaching them about rivers. Everyone realizes that getting young people and their parents to learn more about the valuable resources around them, such as Wild and Scenic rivers, is important for the future protection of these valued resources.◆

For more information, please contact Tiffany_Caisse@contractor.nos.gov, Liz_Lacy@nps.gov or Lee_Steppacher@nps.gov. Tiffany is a SCA/Americorps Apprentice on the Farmington River.



Partnership Rivers Work

by Fred Akers

The Partnership Wild & Scenic Rivers Program is dedicated to protecting nationally significant river resources through locally based partnerships.

Starting in 1992, a new category of Wild & Scenic Rivers began in the Northeast Region that would become known as Partnership Wild & Scenic Rivers (PWSRs). Unlike the more traditional federally owned and managed Wild & Scenic Rivers, local river protection advocates motivate Congress to study and designate these “private land” rivers that would then be protected and managed locally in partnership with Congress and the National Park Service.

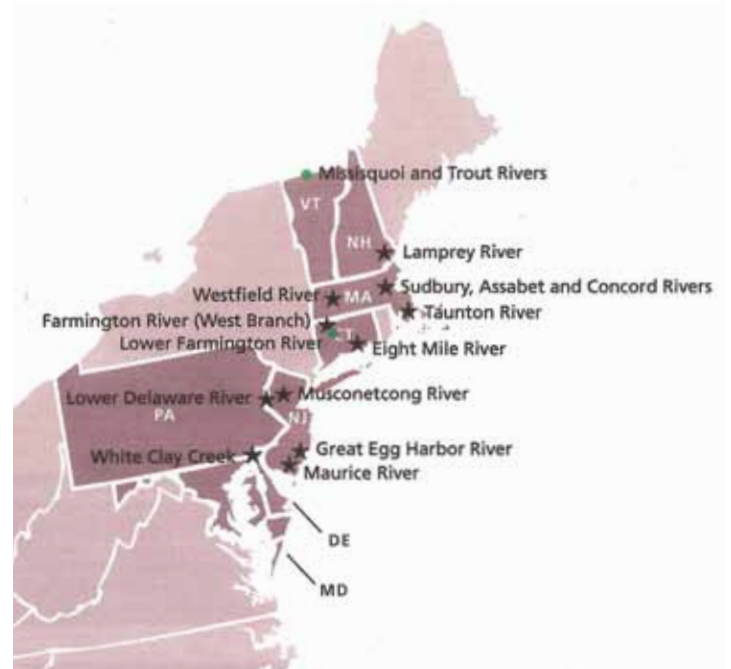
Partnership rivers flow through a patchwork of private and public lands. Many flow through local communities and are the centerpiece of community life, both past and present. The National Park Service (NPS) now recognizes 14 partnership rivers and study rivers. While the NPS maintains administrative responsibilities for the rivers, they are managed in partnership with local communities and organizations. Each river has a local committee, created by legislation, to work with and advise the NPS on protection of the outstanding resources of the river.

In 18 years since 1992, local and state river protection advocates in seven states have motivated Congress to study, designate, and fund 12 Partnership Wild & Scenic Rivers on the east coast, covering over 700 river miles. And, two more special free flowing rivers are currently under study for designation as additional new PWSRs.

The key to the success of the PWSRs river protection model is the long term advocacy, management leadership, and asset leveraging provided by the local nongovernmental organization partners (NGOs), which is facilitated and supported by NPS management and long term Congressional appropriations. For example, it is the local NGO — the watershed group, land trust, environmental education center — that has the best and most extensive advocacy and outreach programs which can be targeted at all levels of public and government.

These local partners may produce educational materials, work with the press on coverage of river related events, or host outings to bring a broad spectrum of the public to the rivers. They may organize topical forums, perform studies or gather volunteers to support monitoring activities.

Working with support from the National Park Service and leveraging local funds, these NGOs are most effective in advancing protection goals for these special rivers. Today, not



only do the PWSRs NGO’s work within their own watershed, they have joined together, across seven states, to collaborate at the national level with Congress and the National Park Service to keep PWSRs protected and to encourage new rivers to become PWSRs.

A good example of national recognition for how PWSRs meets the goals of the Wild and Scenic River Act can be found in an April 2007 recommendations report to the National Leadership Council, where the National Park Service Wild & Scenic Rivers Task Force reported that PWSRs received the highest grades of all Wild & Scenic Rivers categories for meeting legislative/legal mandates, external coordination, policy guidance and staff training, and resource protection. Also in 2007, the Ash Institute for Democratic Governance and Innovation at Harvard University’s John F. Kennedy School of Government named PWSRs one of the top 50 government innovations linking citizens with important public services.

Back in 1992, local management of federally designated Wild and Scenic Rivers was an experiment in river management that some predicted would not work. But time has proven that PWSRs is a very successful river management concept that works to protect nationally significant rivers without federal acquisition and ownership. ♦

Fred Akers is Chairperson of the national PWSRs Nongovernmental Organization’s coalition.

Lenni-Lenape Tribe *Welcomed* Back to the Musconetcong National Wild and Scenic River, NJ

by Paul Kenney

The Munsee Nation of the Lenni-Lenape tribe were welcomed home to the Musconetcong National Scenic and Recreational River for a dedication of two wayside exhibits interpreting the history of their settlements in the river corridor, located in Northwestern New Jersey. The July 8, 2011 event, sponsored by the Musconetcong River Management Council (MRMC), was attended by local residents, Congressman Scott Garrett's office, NJDEP's Allamuchy State Park Superintendent Helen Mauriella, the National Park Service, and representatives of the MRMC.

Lenni-Lenape tribal settlements predated European settlement by thousands of years, and extended the length of the Delaware River watershed, from upstate New York to Wilmington, Delaware. The Munsee Nation, a subset of the Lenni-Lenape tribe, lived in a substantial settlement along the Musconetcong River, in what is today Hackettstown.

The Munsee Nation no longer calls the Musconetcong River home. The nation was forcibly moved out of the region at the close of the American War for Independence. The tribe relocated to an area outside London, Ontario, where it exists today. The tribe, according to Chief Patrick Waddilove, has done relatively well, despite its small population of 500. It owns a casino on its reservation and a biofuel plant. Following the Chief's remarks, a traditional gift exchange took place between the tribe and the MRMC.

The name, "Musconetcong," which can be a challenge to learn, is Lenape for "place of clear water" – a testament to the river's water quality, even today.♦

Paul Kenney works as a River Manager for the National Park Service, Northeast Region.

Musconetcong Wayside Exhibit Ceremony on July 8, 2011. Photo: MRMC



Major Natural Gas Development

Envelops Parts of the Northeast

by Chuck Barsecz

Over the last several years a new threat has emerged to the health and vitality of the rivers and watersheds here in the Northeast and in Pennsylvania in particular. With the recent discovery of the Marcellus Shale formation an enormous boom here in natural gas development is occurring. The Marcellus Shale formation underlies approximately two-thirds of Pennsylvania and portions of New York, West Virginia, Virginia, Tennessee, Ohio, and Maryland.

The geology of the Marcellus Shale is well defined and its capacity to store large amounts of natural gas is explained through a process that occurred approximately 390 million years ago. Geologists believe that sediments sank to the bottom of the shallow sea that covered the Appalachian Basin and formed the Marcellus Shale. Those sediments, along

with the remains of tiny sea plants and animals, were deposited over large areas in Pennsylvania, West Virginia, New York, and Ohio, and small areas in Virginia, Maryland, and Tennessee.

Experts at the United States Geologic Survey (USGS) believe that more than 363 trillion cubic feet of natural gas may be recoverable from the Marcellus Shale formation. This is enough gas to supply the entire United States for fifteen years! This recent discovery is making the Marcellus Shale one of the newest hot spots for gas exploration and drilling in the United States and the world. Some estimates are that up to 50 thousand wells may be drilled in Pennsylvania alone to access the Marcellus gas over the next 30 years. The state of Pennsylvania has moved ahead with the permitting of many wells. Some question whether the state

of Pennsylvania is really considering the cumulative impacts of all these wells. In the last 2 1/2 years the state of Pennsylvania has issued permits for 7213 Marcellus wells, of those permits the State indicates that 3169 were actually drilled. In addition to development of wells on private property the state of Pennsylvania has opened up 656,000 acres of state forest to natural gas development.

In contrast to the state of Pennsylvania, the state of New York has taken a different approach and has implemented a moratorium on Marcellus Shale gas drilling until the state has completed a programmatic environmental review. In 2009, the state released a draft Supplemental Generic Environmental Impact Statement (DSGEIS) for horizontal drilling and high-volume hydraulic fracturing to develop the Marcellus Shale. The final SGEIS is in its final stages of review.

Impacts associated with development of the Marcellus Shale formation include water contamination related to drilling and disposal of drilling fluids; clear cutting of mature forests (many 75-100 years old) for roads, pipelines and well pads (pads have up to 6 wells and may need 6-10 acres of cleared land); air quality degradation from well pads, trucks and compressor stations and excess dust from equipment transportation; impacts to wildlife; disruption to natural soundscapes and night skies; impacts to cultural resources; safety concerns associated with the large number of trucks needed to support drilling operations; and significant infrastructure growth and related socioeconomic changes.

Oil and natural gas development is not new to the Northeast or Pennsylvania. The first successful oil well in the United States was drilled in Pennsylvania in 1859. While thousands of traditional vertical oil wells were drilled in Pennsylvania since 1859 the Marcellus Shale formation brings horizontal drilling and hydraulic fracturing

Marcellus Shale gas drilling tower





or “hydrofracking” technology with it to release the natural gas in the formation, which is located at great depths, usually between six and ten thousand feet. Hydraulic fracturing is when fluids are forced under high pressure into the well to fracture the shale surrounding the borehole in an effort to liberate more gas from the low permeability shale gas reservoirs. Development of the natural gas resource from shale often requires large volumes of water. Water is used primarily in the hydraulic fracturing process of well development.

Water related issues therefore rank high among concerns associated with the development of gas wells in the Marcellus Shale. These issues include water quantity, quality, rights, and disposal of contaminated water. Two of the biggest impacts to rivers from hydrofracking result from the amount of water needed to be withdrawn from surface waters and groundwater to drill; and dealing with the waste water or flow back water from hydrofracking operations. A drilling fluid which is made of chemicals, sand and water is used in the process of hydrofracking. Up to 3.5 million gallons of water are used to make drilling fluid for

each individual well. Drilling water often must be trucked in to remote locations and often must then be trucked out to offsite treatment facilities to treat the flow back of drilling fluids. The drilling flow back water is really brine, a thousand times saltier than sea water. Several trucks have had accidents and dumped their loads of drilling flow back waste water into nearby rivers and streams, killing all aquatic organisms in the immediate area. Recently, however, the reuse of drilling fluids and portable waste water treatment plants has greatly reduced some of these impacts.

Thirty-five units of the National Park System and a number of special status areas (e.g., sites on the National Register of Historic Places, National Trails, National Wild and Scenic Rivers and other affiliated areas) exist in or near the Marcellus Shale formation. Development of this resource may cause varying degrees of environmental impacts to park units and areas located in the states which overlie the most productive areas of the shale. The National Park Service (NPS) recognizes that early involvement with states and project proponents in the planning and permitting phases of drilling operations enhances the likelihood that the NPS can

improve protection of park resources and values.

Over the last two years the NPS Northeast Regional Office (NER) and affected park units have actively communicated with state permitting agencies, River Basin Commissions, and subject matter experts to facilitate early and effective involvement in planning and permitting decisions to reduce impacts on NPS resources and values. The NER has also been working on interagency coordination with the USGS, U.S. Fish & Wildlife Service (FWS), U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (COE). Interagency efforts include activities and decisions related to the Delaware River Basin Commission (DRBC), a state/federal entity that oversees water withdrawal and usage in the Delaware River Basin, a key stakeholder for Upper, Middle and Lower Delaware National Wild and Scenic Rivers.

The issues surrounding Marcellus Shale and natural gas development in general are changing quickly. To learn more about the development of the Marcellus Shale and other information about natural gas development check out these websites: Pennsylvania State University Agricultural Extension Service (http://extension.psu.edu/natural_gas); The Institute for Energy Development and Environmental Research at Wilkes University (<http://energy.wilkes.edu/>); and the Pinchot Institute for Conservation (www.pinchot.org). ♦

Sources: “Development of the Natural Gas Resources in the Marcellus Shale, New York, Pennsylvania, Virginia, West Virginia, Ohio, Tennessee, and Maryland;” USDI, National Park Service, Natural Resource Program Center, October 2009. “Marcellus Shale Briefing Statement;” USDI, National Park Service, Northeast Region, July 2010. “Oil and Gas Program - Marcellus Shale;” Pennsylvania Department of Environmental Protection website; www.depweb.state.pa.us; August 2011

Chuck Barscz is Division Chief of the National Wild and Scenic Rivers Program for the Northeast Region of the National Park Service.

Fluvial Erosion Hazards:

A Science and Planning Approach for River Corridor Management and Hazard Mitigation

by Mike Kline and Shane Csiki

Vermont's Program

Vermont Agency of Natural Resources (ANR) established its Fluvial Erosion Hazard (FEH) program in response to Act 137 (passed by the 1997-98 General Assembly). Act 137 was passed after the State experienced four devastating floods during the 1990s and required the State to develop appropriate flood hazard mitigation and avoidance measures. Building on the initial success of the State's FEH Program, and in recognition that river corridors (meander belts plus buffers) are an appropriate spatial context for river management and protection, the 2009 Vermont General Assembly passed Act 110. This important piece of legislation defined "River corridors" as the land area adjacent to a river that is required to accommodate the dimensions, slope, planform, and buffer of the naturally stable channel, and necessary to maintain or restore fluvial equilibrium conditions and minimize fluvial erosion hazards, as delineated by the agency of natural resources in accordance with river corridor protection procedures. The Act requires State agencies to establish incentives for municipalities to adopt corridor protection strategies. Since most land use decisions occur on the local level, incentives are effective at raising public awareness about river corridor and floodplain functions and motivating landowners and municipalities to take proactive steps to reduce property loss, protect water quality, and build greater resilience to future flood damages.

In response to Act 110, ANR's Rivers Program reorganized to create a River Corridor and Floodplain Management Program (RCFMP). This new program integrates floodplain management under the FEMA National Flood Insurance Program (NFIP), fluvial erosion hazard avoidance, river corridor and buffer protection, and river science. This reorganization will enable the Rivers Program to more effectively and efficiently provide technical assistance to municipalities, landowners, and regulated community to help minimize flood hazards, improve water quality, reduce risks to public safety, and promote ecological integrity of rivers statewide.

Floodplain management is an important component of this new program, since the restoration and maintenance of floodplain function are essential for stable streams, reductions in nutrient pollution loading to Lake Champlain and other receiving waters, and the long-term insurance against future flood hazards. The following table explains the progress that has been made by the Program and its partners to date in helping municipalities adopt FEH protections:



Development under construction along the West Branch of the Little River in Stowe, Vermont, above the 100 year floodplain elevation but within the meander belt area of a highly unstable reach. Projects like this, and the increasing expense of channelizing the river to protect riparian investments in town, led Stowe to be the first Vermont municipality to adopt an FEH zone to curtail further encroachment. Photo: Vermont Rivers Program

Total number of communities targeted	169
FEH language, map, or equivalent adopted as an ordinance	15
FEH map incorporated into Town Pre-Disaster Mitigation Plan	39
Incorporating FEH language, map, or equivalent into town plan or corridor plan	60
Draft FEH maps completed	80

Vermont's FEH map development and adoption procedures are based on the science of fluvial geomorphology. Vermont Stream Geomorphic Assessment Protocols, River Corridor Planning and Protection Guides are available at: <http://www.anr.state.vt.us/dec/waterq/rivers.htm>

Fluvial Erosion Hazards in New Hampshire

New Hampshire experienced several flood disasters between October 2005 and April 2007 that created damage resulting from both inundation and the effects of erosion, producing damages valued at \$75.6 million statewide. The Cold River in Alstead and Suncook River in Epsom were two extreme events of river erosion that occurred during this time period, producing building and road washouts. After these flood disasters, multiple partners including state agencies, river management stakeholders and legislators came together in 2008 as part of a legislatively authorized Comprehensive Flood Management

Study Commission to identify options available to mitigate flood risks. Based on the understanding that major floods not only inundate the lands around them but also erode stream beds and banks as rivers naturally migrate within their floodplains, one of the key recommendations of the Commission was to establish a Fluvial Erosion Hazard (FEH) program in New Hampshire. The pioneering and nationally recognized program in Vermont was regarded as a very effective model.

Given the need to identify areas at greatest public safety risk from fluvial erosion, the Homeland Security and Emergency Management Division at the New Hampshire Department of Safety (HSEM-DOS) teamed up with the New Hampshire Department of Environmental Services (NHDES) to establish a program. HSEM-DOS provides funding and coordinates with state Regional Planning Commission's (RPC) to incorporate the collected data and resulting FEH zones into community hazard mitigation plans that allow town officials and emergency managers to examine those areas at greatest risk. At NHDES, the New Hampshire Geological Survey (NHGS) coordinates the data collection and quality control, while also providing stewardship of the data and outreach to officials and citizens on river processes. NHGS hired a trained fluvial geomorphology specialist in 2009 to coordinate these activities and provide the research capacity to adapt the protocols developed by Vermont to the physical characteristics of New Hampshire rivers. During FEH assessments, data is collected at stream crossings to establish the compatibility of existing bridges and culverts to river processes so that problematic crossings may be targeted for repair or replacement. All of the information collected is available to units within NHDES to assist in making informed decisions relative to

river project permitting, for identification of potential streambank restoration projects and riparian buffer restoration opportunities, and for inclusion in river corridor management plans.

New Hampshire's first project was during 2008 and 2009 in the Exeter River watershed, located in the Seacoast region of the state, where 60 river miles were assessed with FEH zones delineated. In 2009 and 2010, additional assessments were performed on the Ammonoosuc and Isinglass Rivers, with work currently underway in the Cocheco and Lamprey River watersheds. All of these watersheds, except the Ammonoosuc (north-central) were also located in southeastern part of the state. Grant applications have also been submitted for additional projects that will expand the assessments to south-central, southwest and west-central New Hampshire in collaboration with HSEM-DOS and RPC partners. More information on the New Hampshire implementation of FEH is available at: <http://des.nh.gov/organization/commissioner/gsu/fegh/index.htm>.

Emergency and watershed managers are becoming increasingly aware of the need to address fluvial erosion hazards as a key component of a holistic national flood management strategy. With Indiana now joining Vermont and New Hampshire in the establishment of a program, VTANR and NHGS are excited to be among the leaders of this approach and are looking forward to working with partners across Vermont, New Hampshire, and the nation on fluvial erosion hazards and their connection to floodplain management in the future. ♦

Mike Kline, Program Manager, Rivers Program, Vermont Dept of Environmental Conservation. Shane Csiki, Fluvial Geomorphology Specialist, New Hampshire Geological Survey, New Hampshire Department of Environmental Services.

This is an excellent example. The picture is from this summer out on the Mad River in Farmington, NH. Much of the river was bermed and straightened through Farmington during the 1950s by the Army Corps and the river has now (last 5 to 7 years) broken through these constructs and is trying to re-establish natural meanders on its own. Photo: New Hampshire Geological Survey.



Would those who promote outdoor recreation talk to those who pull the weeds?

by Risa Shimoda

In early August, I attended the Outdoor Retailer Summer Market as I have since it was held in Reno in 1987. This is a trade show for manufacturers and retailers of products and services that support human-powered outdoor sports. The show is now hosted in Salt Lake City and is its largest annual conference.

Due to the symbiotic relationship between users and protectors of outdoor resources, this forum for selling components such as polypropylene to apparel fabricators, and maps to distributors, is also a perfect stage for environmental groups and trade folk to promote resource protection, project successes, and most importantly, celebrate the many partnerships that have created win-win-wins.

The rebound in outdoor products' sales after sharing the slump in 2008-09 is stunning, since 'going back to basics' has benefitted from the otherwise negative aspects of getting along with less. Consumers are car camping near home instead of renting an RV to roam the country, and gear heads who might have traveled internationally are deciding they 'need' the latest gear to maximize the short time they have available to spend during an hour-long cross training session or paddling day trip. Outdoor sales are projected to increase annually from this year's estimate of \$5.6 billion to \$6.6 billion in 2015.

Familiar categories that are selling great include warm weather synthetic sleeping bags and camping shelters, day packs, women's outerwear tops, water bottles, cargo carriers (as people downsize their vehicles) and pet products. As always (thank goodness), innovation has created darling categories. These data show sales through June, 2011 vs. 2010.

What's wrong with this sales growth? Nothing, in as much as it stimulates sales and provides much needed sales tax.

Table 1. Sales growth (up from 2010)

Stand-Up Paddleboards	+ 197%
Minimalist Footwear (i.e., 5-finger Vibram) 75% of footwear category growth	+ 313%
"Instruments" - personal video (i.e., Go Pro)	+ 400%
Food - driven by items like energy blocks	+ 18%



SUPs were front and center for excitement, the primary source of incremental sales in 2011. Photo: www.outdoorhub.com

However, I could not help but think back to comments I hear weekly among river management staff about reduced budgets lowering the quality of experiences for the public and satisfaction among employees, in the face of increased impacts on the resource. Despite the fact that the number of rivers protected by Wild and Scenic Rivers legislation has grown to roughly 250, agencies do not have even one person dedicated to training personnel about this complex legislation. Training has been conducted heroically by the Interagency Wild and Scenic Rivers Coordinating Council, but it is playing catch up to the conservation group efforts to protect more rivers.

Likewise, relicensed rivers that have 'created' new river runs have also instituted new river use patterns. In some cases agency staff, outfitters and retailers have been instrumental in the settlement discussions and therefore play integral parts in post-license operations. Sometimes, however, new river use has taxed municipalities or agencies with unfamiliar responsibilities: when the advocates have left town, those who remain who

are sometimes ill-equipped to sustain an initial vision and carry it on through implementation.

It seems worth an effort to develop some harmony between those who are saving and protecting rivers, others who are promoting outdoor activities, and the river managers whose resources are shrinking and expertise retiring, transferring or being forced to share with non-river operations.

You may have suggestions for how RMS can increase the dialogue between river managers, river conservation groups, retailers, manufacturers, and the outfitters who are working hard to drag people from their couches and computers to visit and enjoy rivers. We applaud everyone's efforts, but also should ask each group to understand and share the responsibility for the resources that are required to pull weeds, pick up poop, and attend to pounded put-ins and takeout paths of the rivers which have been protected successfully with their expertise, outreach and lobbying efforts.

This is not an invitation to criticize or complain, but rather to point out model programs, and suggest a pilot or forum by which we could begin a dialogue about a collaborative effort. Your thoughts are welcome! ♦

Federal Employees Serving on Non-Profit Boards

RMS Joins 30 Organizations to Sign Proposed Rule

On May 3rd, 2011 the Office of Government Ethics (OGE) issued a proposed rule amendment that would make it easier for Government employees to participate as leaders of non-profit organizations. Specifically, the rule would allow individuals to serve on boards like that which governs RMS, charged with making decisions that affect the financial interests of the organization.

The proposed rule was entered into the Federal Register and can be viewed at <http://www.gpo.gov/fdsys/pkg/FR-2011-05-03/html/2011-10629.htm> [Proposed Rule Exemption and Amendment Under 18 U.S.C. 208(b)(2)]

This action was catalyzed by a notification of support in the Fall of 2010 by John Barry, Director, Office of Personnel Management and noted in the Analysis of the Proposed Changes (RIN 3209-AA09, II.A)

“The Director of OPM asked OGE to consider exercising its authority under 18 U.S.C. 208(b)(2) to exempt the financial interests of organizations in which employees serve in their official capacity, on the ground that such interests are “too remote and inconsequential to warrant disqualification pursuant to section 208.” Id. at 3. In response, the Director of OGE wrote that OGE takes “very seriously” OPM’s “concerns about the impact that the current bar has on the professional development of employees.” Letter of Robert I. Cusick, Director, OGE, to John Berry, Director, OPM, September 23, 2010.”

“To address OPM’s concerns, as well as the concerns raised by other agencies and outside organizations since 1996, and consistent with Administration efforts designed to ensure scientific integrity, OGE has concluded that it is now appropriate to exercise its authority ...to exempt the imputed financial interests of nonprofit organizations in which employees serve as officers, directors or trustees in their official capacity. OGE has determined that such financial interests are too remote or inconsequential to affect the integrity of employees’ services...”

On 30 June, 2011 a letter which incorporated comments by RMS members was delivered to OGE by our colleagues at the Ornithological Society and the Wildlife Society in support of the proposed rule “that would ease the way for Federal employees to serve on the boards of directors of professional and scientific societies and organizations by declaring, in essence, that such service is not, in general or per se, a conflict of interest with their duties to their Federal agency employers.”

The letter continued, “We are therefore grateful to the Office of Government Ethics for its clear statement that it is exercising its authority to exempt the imputed financial interests of nonprofit organizations in which employees serve as officers, directors or trustees in their official capacity. We believe it is appropriate to sanction actual misconduct, rather than prohibit all activity that might entail unethical conduct.”

This proposed regulatory change should assist in the remedying of problems encountered by scientists and other specialists employed by federal agencies. It was signed by the following organizations:



American Association for the Advancement of Science
American Fisheries Society
American Statistical Association
American Sociological Association
American Institute for Medical and Biological Engineering
American Institute of Aeronautics and Astronautics
American Institute of Biological Sciences
American Chemical Society
American Mathematical Society
American Meteorological Society
American Astronomical Society
American Educational Research Association
American Society of Agronomy
Association for the Sciences of Limnology and Oceanography
Association of American Geographers
Association of Environmental and Engineering Geologists
Council of Engineering and Scientific Society Executives
Council on Food, Agricultural, and Resource Economics
Council on Undergraduate Research
Crop Science Society of America
Materials Research Society
National Society of Professional Engineers
Ornithological Council
River Management Society
Society for Conservation Biology
Society for Ecological Restoration
Society of American Foresters
Soil Science Society of America
SPIE, the International Society for Optics and Photonics
The Wildlife Society
USA National Phenology Network

The proposed rule is projected to pass later this year. Once finalized, members of RMS and our fellow professional societies will be able to fully support the work of and benefit from the passion, smarts and enthusiasm of our agencies’ best and brightest. ♦ —*Risa Shimoda, Gary Marsh (TN), Dave Ryan (MT)*

Recreation Management Through *Mentoring*

by Judy Culver

There are times when folks ask how much time does it take to mentor someone or do I have the ability to be a good mentor? The natural tendency to reach out to those who have a passion for river management and natural resources leads one to provide guidance, answer questions about your career path, and what you love about your job.

My experience as a mentor has been enhanced by being a woman in a profession that until recently was dominated by men. The perception that it is still a man's profession is reinforced when young children stare in awe as a solo female river ranger steps off a raft on the Yampa River to patrol the trails or beaches. The young children are enthralled with the idea that they could have a river ranger job when they grow up. I am not sure if their parents are as enthused as their children are, but mentoring is a lot like being a supervisor or parent without the headaches of having to complete performance evaluations or bedtime checks. Additional perks of mentoring are creating life-long friendships, building a solid network of like-minded co-workers or watching someone fall in love with the idea of a career in river management, which is also much less painful than childbirth.

Over the years I have noticed that I tend to draw employees, volunteers, river rangers and guides that I meet along the way like flies on fly paper. I am approached while shopping when wearing a uniform, patrolling the backcountry or boating or backpacking, even while on private trips. The questions have ranged from how to find jobs or fill out applications to "I didn't know that the agency had these kinds of jobs. How do I become a river ranger or park ranger?" Other popular questions are "what is the secret to working for... or what education do I need to become a ranger?" Individuals searching out mentors have initially made

contact through e-mail, telephone and in person asking for guidance in developing their career paths. Some of these random conversations have led to long-term communication about river management and the ever more competitive job market.

Realizing over the years that the mentoring radar must be set on my frequency, rather than trying to change the frequency, I have become fascinated watching young employees, volunteers, and interns who desire to enter the recreation or river management fields reach for their goals without having to side step or struggle to arrive in a coveted river job. Knowing these types of jobs exist before graduating from college is a huge step ahead of where I was when I stumbled on my first river ranger job during my final month at the University of Alaska in Fairbanks.

As the Vermilion Cliffs National Monument Outdoor Recreation Planner, mentoring individuals ranged from providing guidance to students entering college or graduate school about what coursework they should focus on to utilizing fire staff during their downtime to accomplish recreation workload measures. Building resumes, providing guidance on the levels of employment and bringing

previously by the Grand Canyon Trust. The opportunity exposed the crew to recreation duties including completing Paria Canyon-Vermilion Cliffs wilderness patrols, providing interpretation on fire management, river ecology, locations of campsites and springs, leave no trace principles, and the invasive species project. Most importantly this was the crews' first experience with recreation users passionate about a specific resource and many of them found that the experience of answering these types of questions was enjoyable.

One of the bolder crew members whom I worked with to complete his first wilderness Minimum Requirements Decision Guide worksheet, returned after the project was completed to ask if there was more recreation work that he could do for the Monument. This led to identifying his desire to change careers which resulted in reviewing his resume to identify gaps in work related to recreation management. Together we built his work schedule around those gaps in his resume identified through this process that effectively completed my workloads measures. The work included wilderness patrols within the Paria River and Coyote Buttes permit areas, resource evaluations for travel

"How do I become a river ranger?"

awareness of different types of recreation positions has been as important to those I am mentoring as is identifying the buzz words describing accomplishments and work experience for resumes.

One of the most rewarding experiences has come as a natural progression from a random conversation with a fire crew. Fire crew members volunteered to work on the Paria River tamarisk removal project which involved hiking down into the Paria Canyon to burn tamarisk debris cut and stacked

management implementation, route inventory, installation of recreation and travel management signs, identification of wilderness incursions and enforcement violations, and compliance checks for commercial and private permit holders.

As time progressed, he became more and more excited about the possibility of becoming a wilderness ranger. A job in which he could spend most of his work months in the field hiking, exploring and completing visitor contacts, and yet spend more time at home with his young

(continued on page 26)

CAREER COUNSELING & MENTORING WORKSHOPS

Are you a student in the natural resources field? Or, have you just embarked on a river career? If you want to work outdoors and you care about the health of rivers, we can help.

The River Management Society (RMS) is teaming up with RiverLink of Asheville, NC, to host the 2012 North American River Management Symposium — *“from intimate creeks to the infinite sea.”* We are throwing a huge party disguised as a learning experience, and we invite you to learn more about a career focused on rivers, in a profession where much of your workday can be spent in the outdoors!

Judy Culver, Outdoor Recreation Planner with the Bureau of Land Management, is organizing symposium sessions on careers and mentoring opportunities in this exciting and important field. Learn from experts who have long worked in the river profession. Network with professionals eager to help those interested or starting out in an environmental management or front-line river career. And if you are a student, ask professors about any travel and scholarship assistance, as well as course credit for attending the symposium. This is a ‘once-every-two-years chance’ to meet and interact with an unbelievably great network of like-minded, kindred spirits. We really hope to see you there! ♦

Visit www.river-management.org or contact Judy Culver at (208) 962-3796; jculver@blm.gov.



Former Treasury Secretary, Henry Paulson

Site of Hemispheric Importance

by Paul Kenney

The Western Hemisphere Shorebird Reserve Network (WHSRN) celebrated the 25th anniversary of the Delaware Bay’s designation as an WHSRN site of Hemispheric Importance on the banks of the Maurice National Wild and Scenic River, a major tributary of Delaware Bay, on May 9th, in Bivalve, New Jersey. The WHSRN is an international scientific organization that studies migratory shorebirds in North and South America.

A coalition of Delaware Bay and international conservation partners numbering two hundred, government officials, and Congressman Frank LoBiondo (NJ) were on hand to welcome keynote speaker, avid birder and former Treasury Secretary under George W. Bush, Henry

Paulson, who spoke of the need to protect the imperiled rufa, subspecies of Red Knot (*Calidris canutus rufa*). A small migratory bird whose numbers are down over 90% since 2000, the Red Knot is being pressured to the brink of extinction because of habitat loss and sharply declining horseshoe crab populations in Delaware Bay.

The Red Knot feeds on horseshoe crab eggs to increase its energy supply for its spring migratory journey from South America to the Arctic Circle. The Delaware Bay is the largest stopover for migratory birds in the lower 48 states, and was the first designated site of Hemispheric Importance by the WHSRN in 1986. The Maurice River was designated a National Scenic and Recreational River in 1993. ♦



Prescott College
For the Liberal Arts, the Environment, and Social Justice

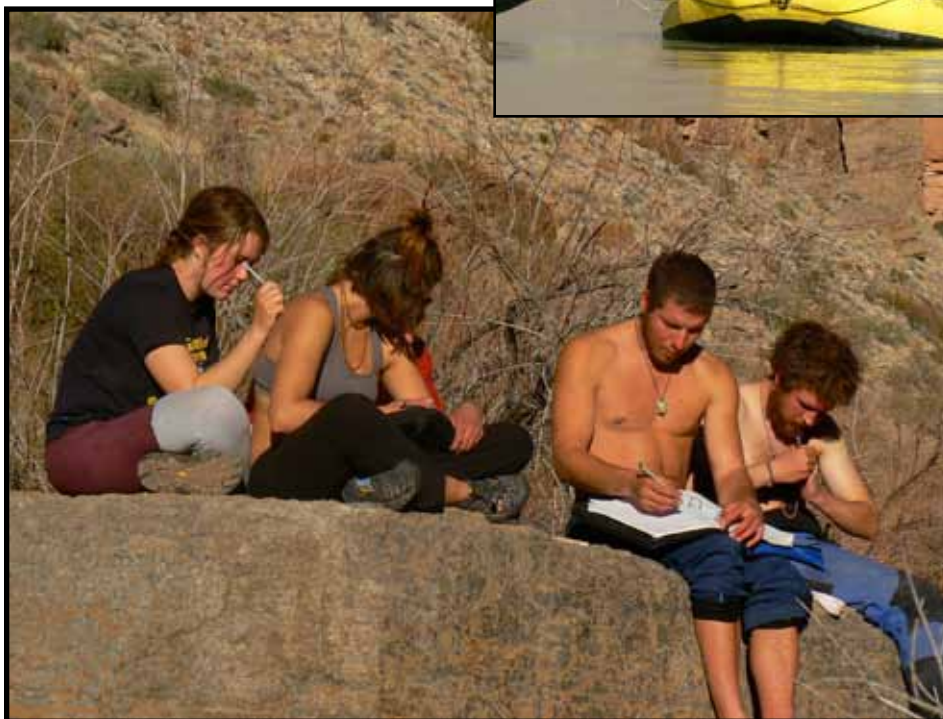
Prescott College & Grand Canyon National Park Offer A Semester Of Wilderness Explorations & Landscape Studies

by Joel Barnes

This fall, Prescott College, in partnership with Grand Canyon National Park, is offering a semester-long, interdisciplinary program embracing the liberal arts and experiential, place-based learning that uses the Greater Grand Canyon Ecoregion as both classroom and laboratory. The program is designed for undergraduate and graduate students, and the curriculum weaves together a rich cross section of topics in environmental studies and adventure education as well as a focus on the visual and literary arts.

In addition to classroom-based academics, the program will include extended field excursions. In fact, wilderness expeditions (both land- and river-based) and leadership skills will be an explicit part of the curriculum. In describing the program's overall delivery mode, Prescott College professor Dr. Joel

A warm rock on a sunny day serves as a study lab for self-directed students. Photos: Joel Barnes



Barnes says, “above all, it will emphasize a student-centered approach to experiential learning, so that whenever we’re traveling in the park, whether it’s hiking the trails or rafting the rivers, students will be engaged with all the preparations and technical skills of a backcountry expedition, as well as the academics, service projects, and field research.”

Grand Canyon National Park education specialist Jacob Fillion explains, “In

Students learn and practice expedition leadership skills daily; this a central piece of the GCS curriculum.

addition to learning about the current management issues we are dealing with at the park, a central piece of the Grand Canyon Semester will be a science-based resource stewardship project focused on some aspect of the river corridor. This enables these students to make important contributions to real management issues in the park.”

Prescott College, in collaboration with the Consortium for Innovative Environ-

ments in Learning (CIEL, www.cielearn.org) and The Eco League (www.ecoleague.org), is delivering this innovative undergraduate college curriculum to a diverse group of student scholars from across the country. Students receive 12 semester credits from Prescott College that are transferred back to their home

institution. These 12 credits consist of three distinct four-credit courses taught concurrently; one course helps students acquire the fundamental skills of wilderness expeditioning, leadership, backpacking, and whitewater rafting; the second course includes an introduction to landscape ecology with a primary focus on exploring the interconnected landscapes of the Grand Canyon Ecoregion (geophysical, biocultural and sociopolitical); the third course engages students in teaching and leadership, examines public lands issues and management challenges in the Grand Canyon Ecoregion with a focus on Grand Canyon National Park, and includes a student-directed research project focused on resource stewardship in the park. ♦

Cooking on the River

A revised version of the popular RMS *Cooking on the River* book of recipes, handy cooking tips and river quips is close to production! This updated version of our popular cookbook contains images of favorite rivers and thirty new recipes, while keeping old favorites and conversion charts. It's a 'must pack' for your next overnighter, and will be back on the RMS store shelves soon! We sincerely thank RMS member **Anna Rose Sullivan from Missoula, Montana**, for her hours of reviewing the first edition, adding new recipes, typing and laying out the book... truly a labor of love.

Skewer Cookery

Call it cooking on skewers, kebab cookery, cooking en brochette, or just plain cooking on a stick—it's all the same. Your skewers may be green twigs, wires, metal skewers, split bamboo, or even a sword (as is sometimes used in chichi restaurants). Your foods may be almost anything: meat, game, fish, poultry, fruit, or vegetables, alone or in combinations of two or a dozen of them. Your fire is, ideally, a campfire.

Probably the best known of all the skewered dishes is that of the Near East, shish kebab. In its native land this is made, almost invariably, of lamb or mutton, but Americans are most familiar with using beef, which we have dubbed "kebabs."

A few kebab options:

Any White Fish

1. Cubes of any white fish alternating with quartered tomatoes and quartered onions; soy, sherry, and oil baste.
2. Cubes of any white fish alternating with pineapple chunks and green pepper squares; soy, oil, and white wine baste, ginger-flavored.
3. Cubes of any white fish alternating with oysters. Brush with melted butter to which a little lemon juice and some chopped parsley have been added.

Sausages

1. Frankfurters, cut in thirds, with cherry tomatoes and small parboiled onions.
2. Knackwurst, cut in 1-inch slices, with parboiled potatoes and onions.

Turkey

1. Cubes of raw turkey breast, alternating with oysters wrapped in bacon.
2. Cubes of raw turkey breast, pineapple chunks, and ripe olives; butter baste.
3. Cubes of cooked turkey, sprinkled with curry powder, wrapped in bacon, and alternating with ripe olives and cherry tomatoes.

Vegetables

1. Eggplant cubes, small onions, cherry tomatoes; marinated in olive oil seasoned with salt, pepper, garlic, and oregano.
2. Thick slices of green tomato, onion, and green pepper, brushed with garlic-flavored olive oil.
3. Zucchini or cucumbers, cut in chunks, tomatoes, onions, and green pepper, marinated in garlic-flavored olive oil.

Fruit

1. Apricots, dipped in melted butter, and broiled. They may be flamed with brandy before serving.
2. Orange sections, dipped in butter, and alternating with green pepper squares.
3. Pineapple chunks, dipped in butter, broiled, and rolled in macaroon crumbs. These may be blazed with rum before serving.



Adapted From: The Complete Book of Outdoor Cookery by Helen Evans Brown and James A. Beard (1955).

Northwest by Charlie Sperry

New Surroundings in an Interdisciplinary World

Montana Fish, Wildlife and Parks (FWP) recently transferred its Fishing Access Site and River Recreation Program from the Parks Division to the Fish and Wildlife Division. My position (recreation management specialist) and office was moved into the Fisheries Bureau as a part of this program transfer. Like many government offices these days, the Fisheries office is largely made up of cubicles. My cubicle is surrounded by staff from a variety of natural resource disciplines, which has exposed me to a host of new issues and discussions.

My “cube-mate” on one side is a water rights specialist. Water rights in the west are incredibly complicated and often contentious. Maintaining instream flows for aquatic and recreation values has become a critical part of the dialogue in recent years. The tricky part has to do with the adjudication process, which is basically figuring out who gets to use the water. I’m learning that a water rights specialist needs to be part-hydrologist and part-lawyer!

On the other side of me is our Aquatic Invasive Species (AIS) program coordinator. No, this does not refer to people from out-of-state invading Montana waters! Montana, like other states, has heightened its efforts to prevent the spread of aquatic invasive species such as clams, mussels, plants, and disease causing pathogens. All of these can have significant resource, recreation, and economic impacts. The AIS program includes a significant emphasis on preventive education and monitoring through boat inspections. Remember boaters: Inspect, Clean, Dry!

Further down the hall is our pollution biologist, although I have not seen much of him this summer. His normal duties were interrupted by the oil spill on the Yellowstone River that made national headlines. A pipeline located beneath the river ruptured and spilled approximately 50,000 gallons of oil into the river near Billings, MT. This occurred during high

runoff period, which complicated efforts to assess damages. The ensuing clean-up and mitigation efforts continue.

In my new location I hear snippets of conversations about recovery of threatened species, pond permitting, piscivorous migratory bird management, and the effectiveness of cross-polarized light microscopy for detecting aquatic invasive species, just to name a few topics. Occasionally the conversation involves subject matter more familiar to me such as angling pressure estimates or the effectiveness of barbless hook regulations. I interject my own projects into the dialogue as well and I’m sure my work in the social sciences probably seems foreign at times to my ‘ologist colleagues.

My move into the Fisheries Bureau reminds me that river management truly is an interdisciplinary field. It has reaffirmed my belief that RMS fills a unique niche in integrating the various river management disciplines and providing a means to disseminate information that is relevant to a variety of professionals.

Practice What We Preach

Tragically, yesterday’s news revealed another drowning, this time on the Gallatin River. No details have emerged yet but a number of the fatalities earlier this year involved people not wearing a personal flotation device (PFD). While PFD use is usually pretty standard on the whitewater rivers, this is not the case on many of the rivers used primarily by anglers. With no major rapids to encounter and in response to the heat and an interest in comfort, many anglers choose not to wear their PFD (Montana law requires all boaters to have a PFD in their boat but adults are not required to wear them). The decision not to wear a PFD can turn tragic for those that find themselves in the water.

Despite there being plenty of evidence pointing to the dangers of cold water emersion, particularly in the absence of PFDs, it seems that the angling culture has yet to embrace wearing PFDs on non-whitewater rivers. Common opinion is that the odds of going into the water are lower and wearing a PFD is uncomfortable, particularly if it is a warm day. There is also the cool factor; no one wants to look like a dork wearing a life jacket while fly fishing! While the odds of a boating accident may be lower compared to a whitewater river, the risks are still there. It could be a case where the boat bumps a rock and a standing angler goes over the side (many anglers fish standing up in the boat). Sometimes it is a case of running into a submerged cottonwood and swamping the boat.

I had a chance to test my own resolve on a recent fishing trip down the Madison River. It was a fairly warm day but the flows were still a little high from runoff. I started the float with my PFD at my feet. My two angling passengers also chose not to wear theirs. A couple small boat-bumps early on reminded me how easy it would be to hit a rock hard enough to launch an unsuspecting angler into the drink. I silently scolded myself for not practicing what I preach and put my PFD on and encouraged my passengers to do the same. Nothing bad happened that day and I came away thinking that I really wasn’t that uncomfortable wearing my PFD and that I probably look like a dork no matter what I am wearing! ♦

Anglers without PFDs.



RMS Chapters

Alaska by Melissa Blair

Whoosh! Another non-stop summer in Alaska is swept away. Whether you saw mostly sun or mostly rain this season, I hope you enjoyed your time studying, managing and protecting our outstanding wild rivers, catching a drift or a few dozen fish, and spending quality time under the midnight sun with the people and creatures that are drawn to our clean waters.

It was wonderful seeing many of you, and many new faces, in Girdwood, Alaska, at our River Management Workshop and 30th Annual Submerged Lands Conference in May, 2011. This innovative partnership received rave reviews for its combination of presentations, experiential learning, field trips supported by presentations, and networking opportunities. Kudos and many thanks to our interagency sponsors and the entire planning team (you know who you are!), especially co-chairs Helen Clough (USFWS) and David Schade (Alaska DNR), and RMS' own Risa Shimoda, Steve Johnson and Lee Larson.

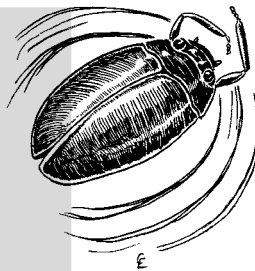
Presentations were offered as webinars and recordings are available online for your reference and review: <http://www.submergedlandsconference.com/webinars.php>

Congratulations to Jorjena Daly on her new role as RMS National Secretary! A recreation planner by day for the Bureau of Land Management, Anchorage Field Office in Alaska, and an engaged RMS member for a number of years, Jena is a welcome addition to our Board of Directors.

Our next RMS Alaska chapter meeting is scheduled for the lunch hour on September 27, 2011. Stay tuned for details via e-mail and feel free to contact me anytime at mblair@npca.org. ♦

Dear RMS Members —

Please inform RMS when your contact information changes. If you change jobs or retire, we won't know you have moved on until you give us a yell, since undeliverable journals are not returned. You can change your RMS address any time at www.river-management.org by logging into the Members Only section (your email address logs you in, and your member number is your default password) and clicking "To view or change your account information, click here." Thanks for helping RMS keep up with your busy, ever-changing lives. ♦



Welcome New RMS Members

Professional

Tracy Atkins, Planner, National Park Service, CO

Nancy Fraley, Liaison, SE-EPMT, National Park Service, NC

Charles Mintkeski, Carpenter, MT

Jimmy Gaudry, Wilderness Wild & Scenic River Program Leader,
Forest Service, GA

Ashley Reed, Natural Resource Specialist,
Department of Fish and Game, AK

Dan Brewer, Fish and Wildlife Biologist,
Brewer Ecological Services, MT

Andy Windsor, Outdoor Recreation Planner,
Bureau of Land Management, CO

Rebecca Haynes, Associate Director of Southeast Conservation,
American Rivers, SC

Associate

Kathy Shelby, OR

Kerri DeShetler, NE

Andrew Branum, NE

Kris Wahlers, CO

Todd Greenwood, CO

Organizational

Brendan McGinnis, The Horinko Group, DC

Joel Lenk, Altamont Environmental, Inc., NC

RMS Chapters

Southwest by Bunny Sterin

In early August, the RMS Southwest Chapter and Arkansas Headwaters Recreation Area co-sponsored the 2011 River Ranger Rendezvous. Representatives from BLM, NPS, Colorado State Parks and Utah State University attended the sessions. Some of the activities included a demonstration of the infamous BLM weed boat and stand-up paddle boarding, a round table discussion about what qualifications and experience a river ranger should have before being hired and what should be on the job training, discussions about invasive species removal, and, of course, a float trip through Browns Canyon on the Arkansas River in Colorado.

The Desolation Canyon trip planned for this summer had to be cancelled. However, the Southwest Chapter and the Bureau of Land Management are sponsoring a float trip on the **Rio Chama River in New Mexico from September 15- 19, 2011.** The Rio Chama River, a designated Wild and Scenic River since 1988, is a major tributary of the Rio Grande and flows through a multi-colored sandstone canyon whose walls grow to 1,500 feet.

The river runs through areas that are designated as wilderness or as wilderness study areas. Towering cliffs, heavily wooded side canyons, and historical sites offer an outstanding wild river backdrop for the angler or float boater. The river is co-managed by BLM and the U.S. Forest Service. This is a rare opportunity as the flows are typically not as predictable as they are this season. Contact Mark Sundin at 575-751-4720 as soon as possible.

November 11- 13, 2011 the annual Moab River Rendezvous will be taking place along the Colorado River in Moab (<http://www.moabriverrendezvous.com/index.html>), co-sponsored by the RMS Southwest Chapter. The Moab River Rendezvous is a gathering and celebration of rivers, conservation, history and community, conducted by Plateau Restoration. In addition, the event helps support guide training and ecological restoration projects in the Colorado River watershed. A fantastic

cadre of speakers are on the schedule as well as a winter river trip on the Colorado River, a wine tasting and an historic river film festival. This is the third year of the event and is a wonderful experience to get to know the river happenings on the Colorado River and to make some great connections with local river advocates.



Bunny Sterin (rowing) and Cassie Thompson on the Main Salmon River, Idaho

This is the last chapter update I will be writing as the Southwest Chapter President. This RMS chapter is full of incredible desert rivers with dedicated river mangers and river rangers who it has been my pleasure to get to know and work with. I have gotten to know many of you through River Ranger Rendezvous, river trips, extended phone calls, symposia, and at launch ramps. Many of you have become very good friends, mentors and mentees.

I wish to thank those of you who have willingly and graciously organized events, as well as those who have actively participated over the years. It has been an honor to serve you over these past three years. I will continue as an active chapter member of RMS and hope to see you on the river.....very soon! ♦

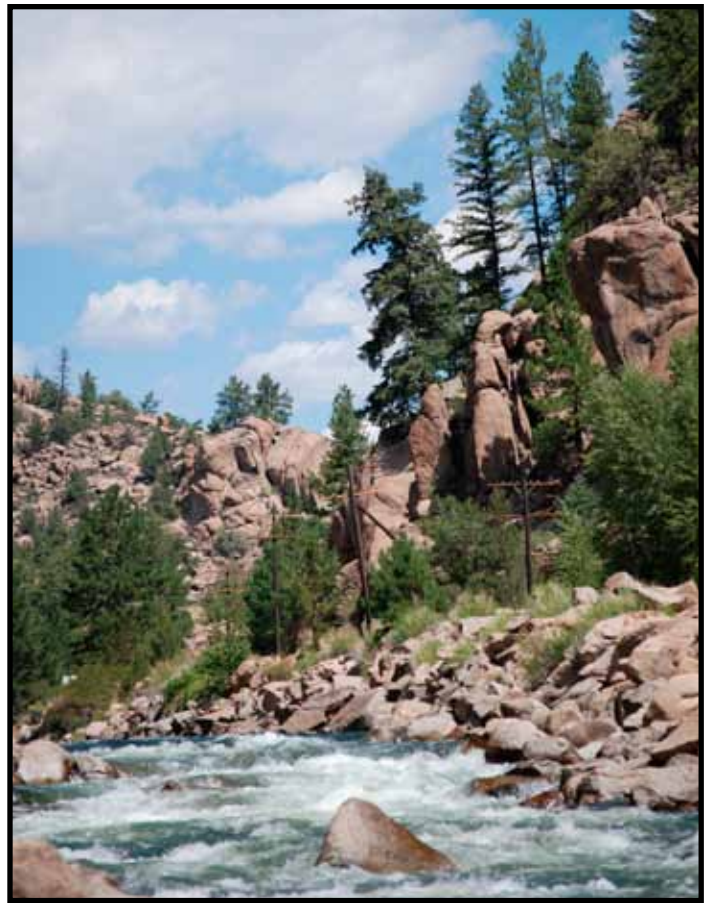
9th Annual River Ranger Rendezvous

by Andrew Maddox

The 2011 Southwest Chapter River Ranger Rendezvous was a great success! It was hosted by Colorado Parks and Wildlife in Salida at the Arkansas Headwaters Recreation Area. Seventeen people attended from as far east as Valentine, Nebraska, to as far west as Boise, Idaho. It was great to have some people attend from out of the region.

Many great presentations were given that included invasive species removal, rescue techniques and stand-up paddle boarding. Several productive round tables were held which discussed topics such as hazard removal, river ranger minimum qualifications, and high water issues encountered this season.

A fun filled day was had on the river floating through Browns Canyon with amazing weather, wildlife viewing, and of course some great whitewater. The participants used a large variety of boats to navigate the rapids ranging from your standard 14-foot paddle boat to inflatable kayaks, a 10' R-2 boat, a Super Puma and several kayaks. Believe it or not we only had one swimmer all day! The food was provided by Rustingram Catering who did a phenomenal job! Hope to see everyone next year, where ever the 2012 River Ranger Rendezvous may be! ♦



Right: Brown's Canyon on the Arkansas River, Colorado. Photos: Stuart Schneider

Back row (L to R): Troy Schnurr (BLM Grand Junction), Andrew Branum (NPS-Niobrara NSR), Stuart Schneider (NPS-Niobrara NSR), John Nahomenuk (Colorado State Parks-AHRA), Alex Van Vechten (NPS-Niobrara NSR), Stew Pappenfort (Colorado State Parks-AHRA), Neil McNutt (NPS-Canyon Lands), Zach Moore (Colorado State Parks-AHRA), Kris Wahlers (Colorado State Parks-ROL), Maile Adler (BLM-Boise district), Gordon Bassett (Colorado State Parks-AHRA)
Front row: Eileen Weidner (BLM-New Mexico), Kerri DeShetler (NPS-Niobrara NSR), Erik Besselman (Colorado State Parks-AHRA), Andrew Maddox (Colorado State Parks-AHRA), Robyn Ceurvorst (Utah State University), Todd Greenwood (Colorado State Parks-ROL), Shaun Ray (BLM Grand Junction)



Southeast by Mary Crockett

Our chapter members have had a busy summer and fall season. They are not only working to manage their rivers, watersheds, and river studies, but also finding time to devote to the planning of our 2012 National River Management Symposium “*from intimate creeks to the infinite sea,*” April 24-26, in the heart of southern Appalachia—Asheville, North Carolina.

I hope everyone sent in an application to present or provide a poster offering to tell all of North America about the great things you are doing. We plan to hear what is happening in six major issue areas such as engaging youth, water trails, river access, water quality and threats to aquatic species, managing use, and river-based infrastructure and built environs.

The Wednesday field trips will expand the discussion of those issues at beautiful locations near Asheville. On the weekends before and after the conference we may hold a world class river trip on one of the many whitewater rivers in the area.

And, on Monday before the conference we will conduct a workshop regarding Wild and Scenic Rivers, and possibly a hydropower workshop. Also on Monday there will be golf and tennis tournament fundraisers as our hotel, the Crown Plaza Conference Center, in Asheville, has a beautiful golf course and tennis courts with great views of the mountains.



There will be opportunities to experience local music, beverages, and great food. The program and registration will be opened in November, so keep a watch and visit our RMS website often.

There are still opportunities for everyone to help with this effort. You can approach a local business to be a sponsor or you can scour your local river haunts and establishments for silent auction items. The silent auction items should be at least a \$50 dollar value. If you have questions about sponsorships please give Risa or myself a call. Once you retrieve auction items you can either bring these items with you to the conference, or mail them to the RiverLink office (see this website: <http://www.riverlink.org>).

If you are interested in helping to plan this event, we still need various tasks and jobs completed and would love to have your help. Please contact myself or Steve Hendricks so we can plug you into a task. We meet via conference call once a month (on the last Thursday of the month) at 1:00 PM eastern.

The Southeast Chapter looks forward to seeing you all in Asheville, North Carolina, for the best ever 2012 Symposium “*from intimate creeks to the infinite sea.*” ♦

North Carolina River Profile — Cheoah River

by Sera Janson Zegre and Kevin Colburn

Note: The 2012 National River Management Symposium (April 24-26) will offer a variety of opportunities for river professionals to experience southern Appalachian rivers and creeks. This article highlights one of the area's gems.

The Cheoah River is located in the southwestern corner of North Carolina two hours outside Asheville. Although it has always been called a river, for 77 years, the Cheoah lacked one of the most essential river attributes: its water. As with many rivers and creeks across the US, the river's flow was reevaluated as part of the dam relicensing process.

In 1999, the Federal Energy Regulatory Commission (FERC), the government entity that oversees licensing projects for hydropower projects, initiated relicensing talks for the Santeetlah Dam on the Cheoah River. American Whitewater, a national whitewater advocacy group, got involved by initiating a whitewater flow study to assess the river's boatability. On one weekend in 2000, the river had water in its banks for the first time in years, and paddlers assessed its remarkable recreational value.

The relicensing process was hugely contentious and involved almost four years of negotiations with various stakeholders, including American Whitewater, the Forest Service, Fish and Wildlife Service (USFWS), Western North Carolina Paddlers, rafting outfitters, the power company, and various state agencies. The power company objected to releasing any water into the river, and initially recreational and ecological flow needs were considered separately and thought to be in conflict. Eventually the river-oriented groups and agencies devised an innovative flow regime that would mimic the region's natural rain-driven patterns, restoring a base flow and 18 days of higher flows that meet critical ecological objectives and offer paddlers a spectacular recreational experience.

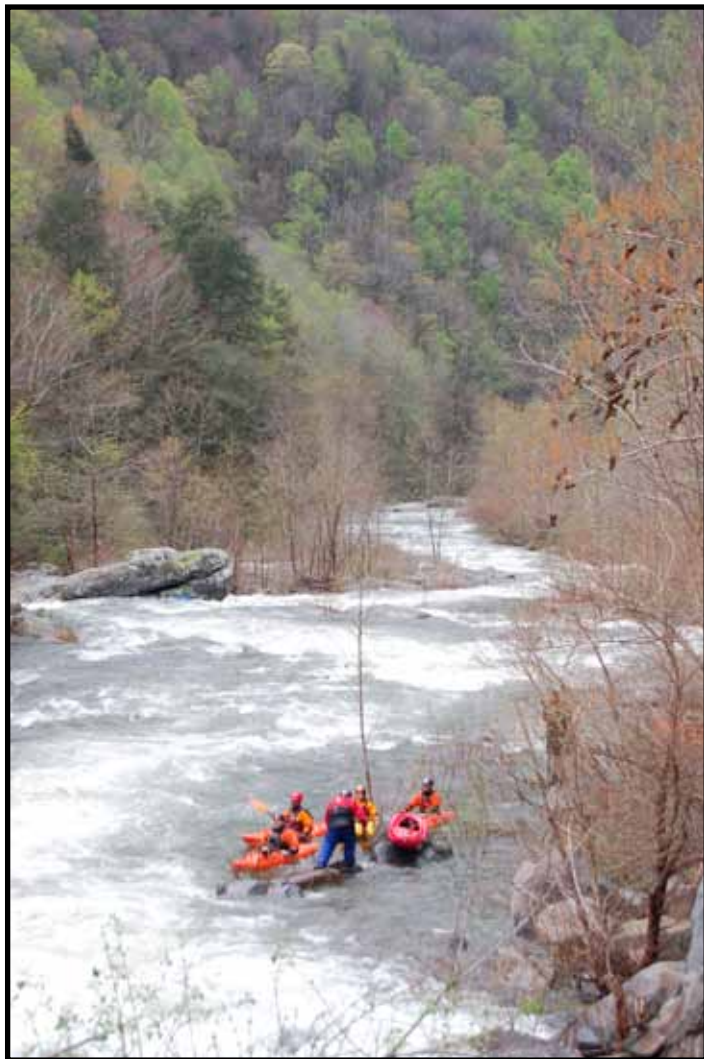
In the final days of the negotiations the power company negotiated a provision that would have required the public to pay them for releasing water for recreation. American Whitewater and other paddling groups left the negotiations in protest. The ultimate result was a 40 year federal license for the dam that adopted the negotiated flow regime – but dropped the pay-for-water language. Releases began in 2005, and since then access areas have been built by the Forest Service, rare fish have been released in the river by the USFWS, and recreational use has stabilized well within capacity of the river.

Although some sections are easier, the river contains about nine miles of class IV-V whitewater. Those paddlers lucky enough to have experienced this river have called it western-style paddling, comparing it to the Numbers of the Arkansas River in Colorado, or the Lochsa River in Idaho.

The Cheoah will be releasing the weekend before or after the symposium, so the planning team is considering scheduling a pre- or post-trip on this relicensed river. Stay tuned!♦

Source: American Whitewater's National River Database: Cheoah River

Paddlers on the recently restored Cheoah River, in North Carolina, taking advantage of a rare opportunity to rest from the continuous Class III and IV rapids. Photo: Kevin Colburn



(Dam Removal, from page 1)

Save The Bay. EA Engineering, Science and Technology, Inc., is the project engineer.

PRA's construction contractor, SumCo Eco-Contracting of Salem, Mass., is using an innovative approach to controlling the river while removing the dam. Rather than employing extensive cofferdams to de-water a large work area, SumCo is using "superbags" — giant two-ton sandbags — and engineered steel plates to divert the water around shorter sections of the dam. SumCo hammers a notch in the spillway downstream of the cofferdam, pulls the plate to allow the river to flow through the notch, then moves to another area. The work began during the week of August 8th, but was suspended the following week when heavy rains raised river flows above safe working levels for SumCo. At the time of this writing, the flows are subsiding and the demolition is getting underway again.

Once the dam removal is complete, new areas of riverbank will be exposed on each side of the river. SumCo will plant native bushes and grasses on the exposed banks, beginning with downstream areas. Upstream areas will be planted beginning in September. The entire restoration project is expected to be completed by the end of October, and we expect to see river herring and shad running back up the Pawtuxet River beginning next Spring, 2012. Fish will naturally find their way upstream once the dam is removed; however, R.I. Dept. of Environmental Management will transplant fish from other streams to accelerate the recovery process. RIDEM is also undertaking a series of fisheries surveys on the river, upstream of the dam, to document changes

in fish communities expected to result from the restoration.

River herring and American shad were once highly abundant in Rhode Island's rivers, an important component of the marine food web and the basis of a large fishery. Beginning in the 1700's, however, more than 600 dams were built in Rhode Island to provide water power for the mills of the Industrial Revolution. The dams blocked the fishes' access to historic spawning habitat and led to precipitous declines in their numbers. Biologists estimate that more than 100,000 herring and shad will return to spawn in the Pawtuxet following the dam removal.

In developing the restoration project, the PRA and its partners completed major engineering, environmental and cultural studies of the Pawtuxet River, examining river flow, sediments, wetlands, and historic resources in order to ensure that the dam removal will improve the environment of the Pawtuxet River and Narragansett Bay while avoiding adverse impacts to human health or economic uses. In order to begin construction, extensive permitting was necessary, including approvals by the R.I. Dept. of Environmental Management, R.I. Coastal Resources Management Council, and U.S. Army Corps of Engineers. ♦

Follow our progress: <http://pawtuxet-falls-dam-destruction.blogspot.com/>

For more on the Lower Pawtuxet River restoration project, see: www.nbep.org or www.pawtuxet.org

Thomas Ardito is a Restoration Program Manager with the Narragansett Bay Estuary Program. Rita L. Holahan is Treasurer of the Pawtuxet River Authority.

(Mentoring, from page 16)

family than he would on a fire crew. Within a short period of time, I also began mentoring another fire crew member who joined him in wilderness patrols and field work requiring two people. Their future career goals are not only similar but the reason to progress into the recreation field is nearly identical; their love for the recreation and wilderness work they were doing for the monument.

Ironically, I have reached the age where I can refer to 15 or 20 years ago when talking about my river career. The refreshing view of new blood experiencing my choice of career for the first time reminds me of the arduous path I have taken to become an Outdoor Recreation Planner and that my career goal of becoming a river manager is still within reach. My experiences in mentoring have led to helping develop the RMS mentoring program, a program I wish had been around when I started guiding in Maine and for which I hope to honor.

The next step in mentoring is focusing the natural tendencies of our members to be passionate about watershed resources and river management into a mentoring program specifically designed to help in the development of future river managers. As RMS continues to develop the mentoring program and incorporates the program into our future website we will need input from our members, those who are new to RMS as well as those who now enjoy frequent boating. RMS is seeking information about what you would like to see in the mentoring program, what has worked for you as a mentor or mentee, and natural draw on your abilities to reach out with your paddles or oars to the nearest boater and guide them to a future in river management.

RMS members are the past, the present and the future of river management. Concepts, ideas, or suggestions about the mentoring program are welcome whether while I am on the river or in the office. Feel free to contact me about this exciting new program.

May your next river trip be filled with clear water, rippling music and warm sand between your toes. ♦

Visitors and locals observed the natural Pawtuxet Falls revealed for the first time on August 26, 2011. From upstream, looking through the Broad Street bridge and across Pawtuxet Cove at high tide, the connection between river and bay now appears seamless. Photo: Ruth Holahan



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Next RMS Journal Deadline (featuring the Pacific Chapter): Submissions are due November 1, 2011.

from intimate creeks *to the* infinite sea

April 24-26, 2012
Asheville, N. Carolina

11TH BIENNIAL RIVER MANAGEMENT SOCIETY SYMPOSIUM