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*San Joaquin River looking north. Photo: Deanna Lynn Wulff*

## Public Trust Recommendations and the Delta — Water, Conflict and Conservation

by Deanna Lynn Wulff

California's Chinook salmon came back this fall, due in part to good ocean conditions and abundant water, but the Delta, the largest estuary on the West Coast, is in critical condition. "Thirty-three species are endangered, and likely to go extinct within the next 25 to 50 years, if not sooner," said Dr. Peter Moyle, Associate Director of the UC Davis Center for Watershed Sciences. "Many of these are salmon and trout species, and most of the species are found only in California, so they are part of our heritage. If they disappear, they are lost, not only to California, but to the world, forever."

California's Bay-Delta covers 1300

square miles, is home to 750 species of plants and animals, and is where the Sacramento and San Joaquin rivers meet and flow into the San Francisco Bay. It is also where the state gets two-thirds of its drinking water. California has more than 1400 dams, a complex interconnected network of canals, drainage ditches and reservoirs, which divert water from the Delta and move it once it's there.

Not surprisingly, the primary reasons for species decline are water diversions and excessive pumping in the estuary. The San Joaquin River has often run dry, and the Sacramento River, which once flowed out into the Bay, is used to convey water

to federal and state pumps, which send the water south to farms and cities.

To address some of these problems, the state government passed the Sacramento-San Joaquin Delta Reform Act in 2009. It required the State Water Resources Control Board (SWRCB) to develop, within nine months, flow criteria to protect public trust resources and a suite of native fish. The Doctrine of Public Trust suggests that streams, lakes, rivers, the Delta and coastal areas are jointly owned by the people and should be managed for reasonable and beneficial use for all. The board recommended the following Delta inflow and outflow amounts:

*(continued on page 4)*

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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



I hope RMS  
members like  
you feel pretty  
good about  
what we've  
accomplished  
this year. We  
have experi-  
mented with  
new media,

learned from our experiences and identi-  
fied opportunities to grow while execut-  
ing traditional programs. After hunkering  
down to finish a Strategic Plan, RMS  
conducted the Wild and Scenic Rivers  
Display Photo Contest and produced  
banner displays with welcome input from  
Scott Boyer (Logan, UT) and many a  
RMS member-photographer. We sup-  
ported the production of a first webinar for  
the Northeast Chapter and Northern Forest  
Canoe Trail, as well as a second that has  
kicked off a workgroup that will develop  
an aquatic invasives signage system for  
water trail users.

Our chapter trips and workshops  
have crisscrossed the nation! We sup-  
ported the River Management Workshop  
and 30th Annual International Submerged  
Lands Conference driven by the talent and  
enthusiasm of members from the U.S. Fish  
and Wildlife Service, State of Alaska and  
RMS Alaska Chapter. We also provided a

bit of coaching and organizational support  
for Andrew Maddox as he organized the  
2011 River Ranger Rendezvous. Trips in  
the Midwest, Northwest, Northeast and  
Southeast have offered fun and interesting  
professional education and training op-  
portunities throughout the year.

RMS has also awakened to a need to  
find new avenues through which we can  
pursue and sustain our strategic mandate  
to offer training, certification, and profes-  
sional networking opportunities for river  
managers. Guess what? They are out  
there! Look for announcements in future  
issues about the discoveries we are mak-  
ing with some regularity that may one day  
soon diversify our resources in support of  
RMS' mission.

New RMS Website — We will be  
transitioning soon to a new website that  
will allow us to provide more informa-  
tion in a more friendly way to members  
and visitors. When the new site is live,  
we'll send an announcement about the  
site's resources, ready to assist you in your  
role as a former, current or future river  
professional. We believe that the site will  
become a more frequent friend, and look  
forward to sharing it with you. ♦

*Risa Shimoda*  
Risa Shimoda  
Executive Director

*2011 RMS Board of Directors meeting. Audubon Center of the North Woods, near Sandstone, Minnesota.*





## From the President

Your board of directors in October completed work on the River Management Society's 2012 work plan—it's on the website, so won't be repeated here—and there are some great new things happening that I wanted to highlight for you.

The next round of FERC dam relicensing will be starting in the next year or so, and we want to help river managers be better informed about post-relicensing programs. Relicensing often requires utilities and other license-holders to perform certain studies, etc., and in the past some of that work was a lot sloppier than river managers might have liked. We're going to help you get better prepared for the next round.

Computers are powerful tools if the right tools are in the box, and what's missing from the toolbox right now is a really good, comprehensive rivers database that is the one go-to place for all things rivers. This will take some time to fund and assemble, but we plan to get a good start in the coming year.

No matter where you go in North America, you find yourself surrounded by exotic invasive species. Our rivers are

especially challenged by invasive plants and animals, and RMS is going to help you gear up to fight off zebra mussels, tamarisk, flying carp and whatever else you may find in or near your favorite river.

New initiatives take energy, and we want to assure our members that these efforts won't take away from the things you have come to expect from us. We're putting the finishing touches on plans for a great symposium April 24-26 in Asheville, N.C., and we're already working on plans for a river management workshop in 2013 and a huge symposium in 2014. You'll see a completely new and more useful website in coming months. The Journal gets better every issue and that increased excellence will continue in 2012. There will be another River Ranger Rendezvous in 2012, and those events continue to be the best field training events possible. It's going to be a great year. ♦

See you on the river -



Steve Johnson  
Board President

## Restructure the Board?

To most RMS members, what you see of the organization are its networking and educational opportunities—the listserve, website, symposia, workshops, training and an occasional contact with friendly staff.

Somewhere behind all that is the machinery that runs things, and that includes the work of a part-time executive director and a volunteer board of directors. The board has done some thinking about how it's organized, and would like to hear from you. There are two ways to provide your feedback—by email to Risa Shimoda at [executivedirector@river-management.org](mailto:executivedirector@river-management.org) or live and in person at the April symposium in Asheville, N.C. (free pizza for your thoughts!).

Currently, the board consists of four national officers elected by the membership, and eight chapter presidents elected in their respective regions.

*RMS Board of Directors - Back L to R: Charlie Sperry, Steve Johnson, Elaine Grace, Ken Ransford, Peter Hark, Mary Crockett, Dennis Willis, Linda Jalbert, Lee Larson. Front L to R: Gary Marsh, Bunny Sterin, Melissa Blair, Risa Shimoda, Jorjena Daly, Robyn Cuervorst.*



The first question for members concerns those four national officers—president, vice president, secretary and treasurer. Since RMS was created nearly 20 years ago, the officers have been elected on a nationwide vote of professional and life members (a little under 300 people). In the last couple of elections it's been hard to find folks willing to serve, and then if we do get enough candidates to actually have a race we often lose some of the energy of those who didn't win.

*(continued on p. 26)*

(Delta, from page 1)

- 75 percent of unimpaired Delta outflow from January through June;
- 75 percent of unimpaired Sacramento River inflow from November through June; and
- 60 percent of unimpaired San Joaquin River inflow from February through June.

These recommendations stirred controversy for their potential to affect the water supplies of 25 million people and a large portion of agriculture. “It has a number of well thought out conclusions, and it was approved and adopted by the board and transmitted to the Delta Stewardship Council (DSC),” said Les Grober, SWRCB Environmental Program Manager. “But the report looked at one metric – the flows to protect the public trust resources.” According to Mark Gowdy, SWRCB Water Resources Control Engineer, the flows would not necessarily require reducing consumption by an equivalent amount, because reservoirs and other system operations can be modified to shift flows to other times of the year.

Caveats aside, those numbers suggest the need to reduce use by 13.7 to 14.6 million acre-feet annually, which is about 22 percent of California’s annual average water supply.

Essentially, that’s equivalent to annual flow of six Sierra Nevada rivers, including the Tuolumne, the Merced, the Stanislaus, the Feather, the Yuba and the American.

The question is: Is it possible to restore the Delta and its tributaries while providing reliable water for cities and farms? Conservation measures indicate that the answer is *yes*.

In 2009, Senate Bill X7-7 passed, which required urban water suppliers to decrease water use by 20 percent per capita by 2020.

In just two years, several cities in Los Angeles have already met the 20 percent goal, including El Segundo, Inglewood, Lomita and Manhattan Beach. West Basin Municipal Water District (West Basin) has led the way. “In the early 1990s, we were relying on imported water from the

Metropolitan Water District and then we had a drought, and that’s when we built our water recycling facility,” said Gus Meza, West Basin Senior Water Use Efficiency Specialist. “Now, 65 percent of our water comes from the Met Water District, and our goal is to get down to 33 percent. We hope to do that by doubling conservation, doubling recycling and using desalination.”

However, the per capita requirement is a 20 percent reduction per person, so if the population increases so will water use, and cities don’t use much water when compared to agriculture, which consumes 80 percent of the state’s available supply. And there is no public policy that mandates agricultural conservation; there is only a requirement to measure consumption.

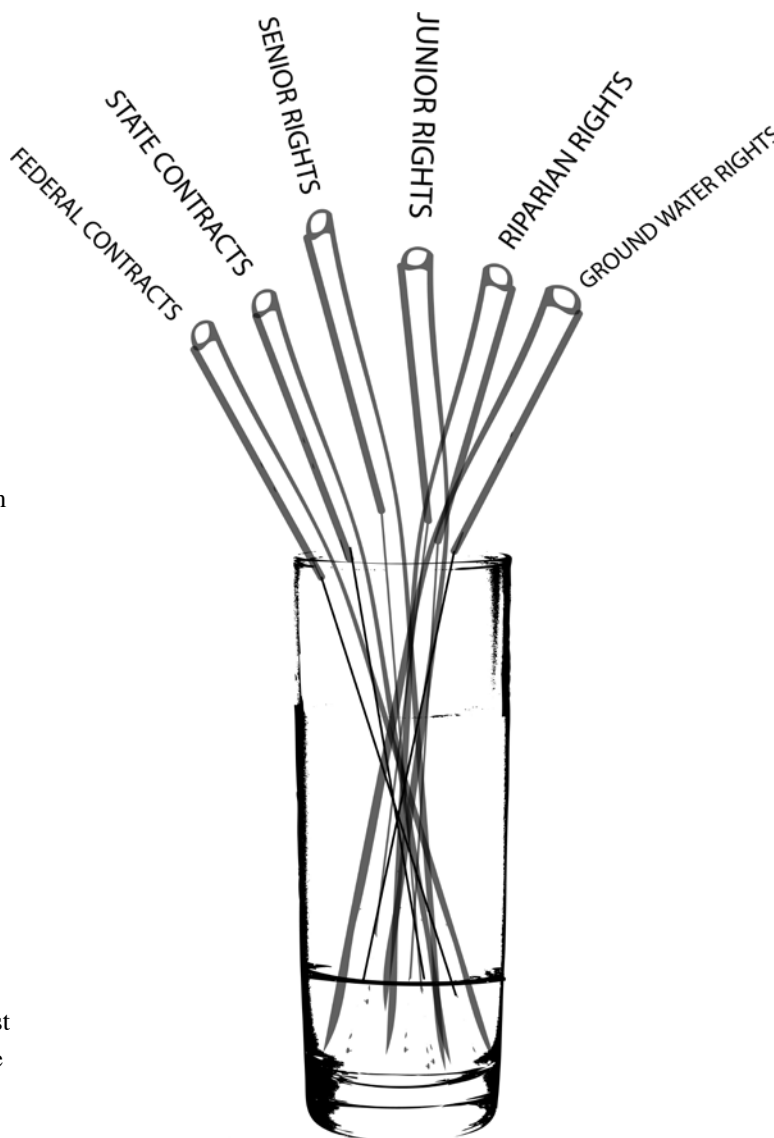
Yet existing technologies indicate that a 20-25 percent reduction in agricultural use is attainable while maintaining farm profits and possibly increasing them. According to the Department of Water Resources, from 1967 to 2007, the gross revenue for California agriculture increased 84 percent from \$19.9 billion to \$36.6 billion while total crop-applied water use fell by 15 percent.

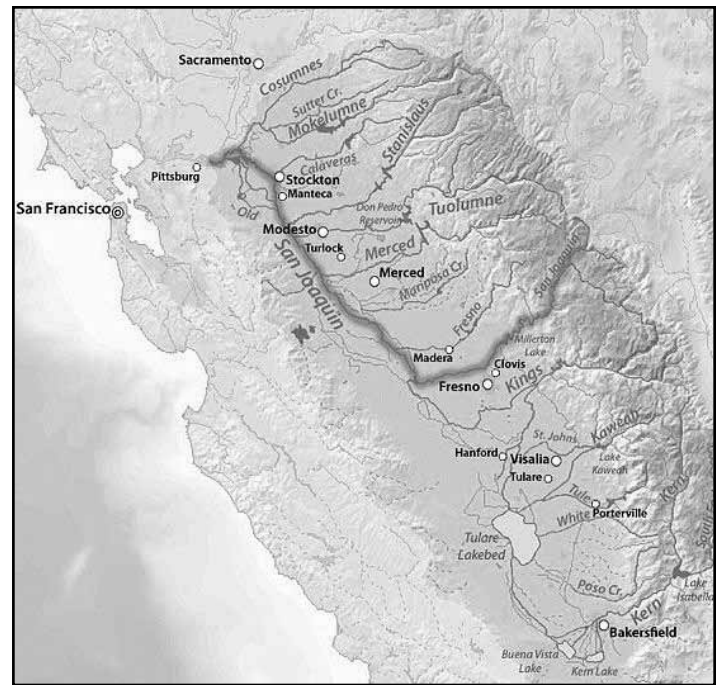
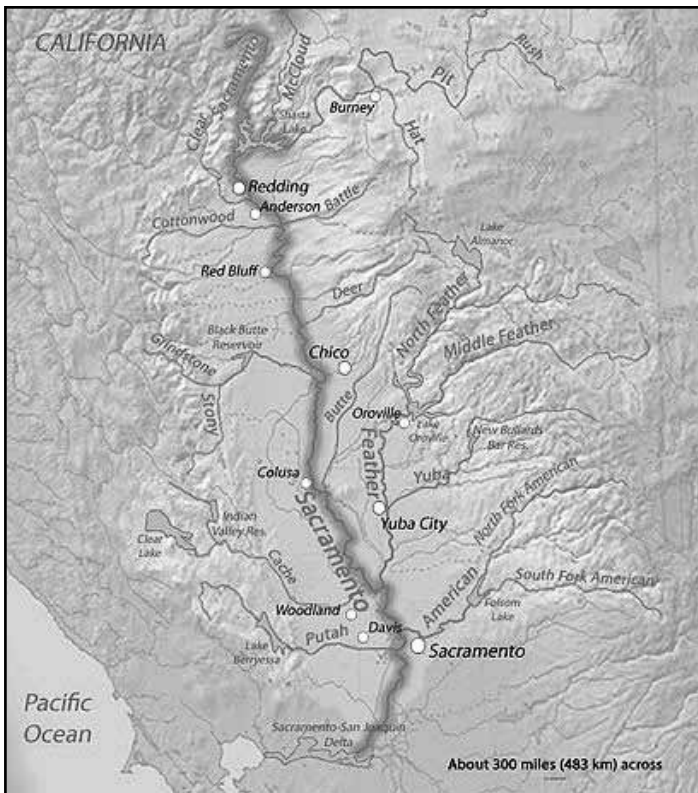
Craig McNamara, an organic walnut grower in Winters,

has adopted several efficient irrigation practices on his 450-acre farm. “We use drip irrigation, also sprinklers and furrow irrigation, and we have a small section using flood irrigation, just 10 acres,” he said. “At each step, going from flood to furrow to drip, you are cutting your water usage by about a quarter.”

Nearly 60 percent of California’s irrigated acreage is still flood irrigated. According to the Pacific Institute, the combined potential savings from improved irrigation practices and technology is between 4.5 million acre-feet in a wet year and 6 million acre-feet in a dry year. Agriculture could reduce water use by 17 percent without changing total irrigated acreage or crops.

So what’s the problem? Inequity in water rights, over-allocation of resources, weak public policy





Wikipedia maps of Sacramento and San Joaquin rivers.

and general confusion. The California water rights system is complicated, and often, the Endangered Species Act (ESA) is blamed for creating a manmade drought. The ESA does affect water management, but it is one component of many. Primarily, California water is over-allocated and managed inefficiently.

There are junior rights, senior rights, riparian rights, ground water rights, and state and federal

**“Primarily, California water is over-allocated and managed inefficiently.”**

contract allocations. All total, water rights exist for 531 million acre-feet, which is nearly 10 times as much as is annually available (63 million acre-feet).

Conflicts arise in dry years when some farmers receive 100 percent of their water allocations while others receive a fraction of that. Westlands Water District, in particular, was hit hard by the recent drought. “We received only 10 percent (of the contracted amount) in 2009, and that’s because we were in the middle of the three-year drought,” said Gayle Holman, Westlands public affairs specialist. “That was extremely difficult for our farmers.” Westlands farmers met the challenge by fallowing land, putting in solar systems and shifting crops grown.

But Westlands farmers have rarely received their full contracted amount. State and federal contractors all together on average receive only 60 percent of their contracted amount, and under existing environmental regulations, they would still receive about 60 percent.

California could never meet 100 percent of its contract agreements over the long term, said Peter Vorster, Bay Institute Hydrologist. “But it is unfair and unrealistic to expect state and federal contractors to solve the Delta problems with their reductions alone,” Vorster said. “It’s a shared problem that all users who divert from the Delta watershed need to contribute to solving.”

And that’s where the Doctrine of Public Trust comes in. If applied, it could potentially make the system more equitable by distributing the burden of conservation throughout the state. A possible tool for applying the doctrine is the Delta Plan, which will contain legally enforceable regulatory policies and affect California water management through the year 2100.

Thus far, more than 200 environmental groups have criticized the current draft for failing to take the Doctrine of Public Trust into account. “The DSC is empowered to plan for public trust requirements, which should include a healthy fish population, clean drinkable water, and an aquatic environment that enables native plants and animals to thrive,” said David Nesmith, Environmental Water Caucus Facilitator. “The fifth draft does not do that.”

There are two more drafts of the Delta Plan left, with the final draft due out December 2011. ♦

*This article first appeared in Bilingual Weekly News (bilingualweekly.com). Graphic by Ra with Bilingual Weekly News. Deanna Lynn Wulff is a freelance writer. See page 6 for more information about the restoration program on the San Joaquin River.*

# San Joaquin River *Restoration* Program

by Margaret Gidding

## Project Summary:

The San Joaquin River Restoration Program is a comprehensive, long-term effort to restore flows to the San Joaquin River, from Friant Dam to the confluence with the Merced River, a distance of 153 miles (in central California). The program aims to restore a self-sustaining Chinook salmon fishery in the river while reducing or avoiding adverse water supply impacts from restoration flows. The program implements the Stipulation of Settlement in NRDC, et al., v. Rodgers, et al., and resolves more than 18 years of litigation related to Reclamation's operation of Friant Dam. Interim flow releases from Friant Dam started in October 2009 and the San Joaquin River was reconnected to the Sacramento-San Joaquin Delta in March 2010, a stretch of about 330 miles -- a circumstance that has not occurred in more than 60 years, with the exception of flood flow releases.

## Strategic Value:

The program seeks to achieve two primary goals: restoration and water management. The restoration goal is to restore and maintain fish populations in good condition in the main stem of the San Joaquin River below Friant Dam to the confluence of the Merced River, including naturally reproducing and self-sustaining populations of salmon and other fish. The water management goal is to reduce or avoid adverse water supply impacts to all of the Friant Division long-term contractors that may result from interim and restoration flows provided for in the Settlement. The San Joaquin River Restoration Settlement Act, part of the Omnibus Public Land Management Act of 2009, authorizes and directs the Secretary of the Interior to implement the Settlement.

## Benefits:

The program focuses on restoring flows and fish, including Chinook salmon, to the San Joaquin River. These efforts will have wide reaching benefits, including: restoring riparian habitat to more than 30 miles of the San Joaquin River; restoring ecosystem function and aquatic, riparian, and upland species habitats along the river; improving river channel capacities and flood control operations; and reconnecting the upper San Joaquin River to the Sacramento-San Joaquin Delta. Beyond the scope of the Settlement, a restored river will enhance recreational access and opportunities for many communities along the river. Many local organizations engage in activities with local schools to participate in learning opportunities for a restoration undertaking of this magnitude. Several non-profit conservation organizations working on the program formed a collaborative partnership to maximize the environmental, social, and economic benefits this restoration program brings to the people of California. ♦

*The San Joaquin River in July 2009.*



*BOR Hydrologist Stephen Lee watches the end of the river creep into the dry riverbed.*



*A few months after the experimental flows began, a river returns. November 2009.*





# Opportunity *Knocks* on the Tuolumne River

by Harry Williamson

Hydropower facilities at the Don Pedro Project (Project) in California are currently going through Federal Energy Regulatory Commission (FERC) relicensing. During this process, resource agencies, non-governmental organizations (NGOs), and recreation users have an opportunity to analyze current conditions within the project area and make recommendations for improvements. In this instance, an exciting opportunity for much-needed improvements at the whitewater boating take-out at the terminus of one of America's most fabled and popular river reaches, the "Main Tuolumne Run" (Class IV+). Designated Wild and Scenic (Wild), the reach flows from Meral's Pool to the Wards Ferry Bridge, which lies within the Don Pedro hydropower project boundary.

According to American Rivers Touring Association's (ARTA) Steve Welch, commercial outfitters guide over 3,000 whitewater boaters on Tuolumne River trips and take out at the Wards Ferry Bridge location annually, he estimates an equal number of private boaters use the Wards Ferry Bridge take-out site each year themselves. Most of this use occurs between April and September. In dry (or even normal) water years reservoir levels are very low, making the alternative to taking out at Wards Ferry a multi-hour paddle-out to marinas or other river access points. In its current condition, the river exit requires scrambling up the river bank with a kayak, much less a raft, an unsafe and arduous task. Boaters (private and commercial) have resorted to various make-shift mechanical devices and techniques to extricate craft from the river.

At the outset of the relicensing proceeding, the licensee of the Project maintained (in their Preliminary Application Document (PAD)) relative to recreation: "The Wards Ferry Bridge area at the upstream end of the reservoir is also the site of some non-Project-related recreation. Although this spot is undeveloped, recreational whitewater boaters who run the most-downstream whitewater reach of the Wild and Scenic Tuolumne River remove their boats from



*Wards Ferry, a steep and rocky take-out on the Tuolumne River. Photo: Steve Welch, ARTA.*

the water just upstream of this bridge. The Don Pedro Recreation Agency (DPRA) maintains a restroom at this location on the shoulder of Wards Ferry Road above the reservoir to avoid improper waste disposal at this area of the reservoir." This description seemed to under value this critical take-out and was silent on important issues like commercial use and parking. With a little research, it was learned maintenance of a bathroom (and periodic debris removal) was a previously specified FERC license amendment condition.

Given the licensee's precedent for paying for improvements in the area, and the PAD's insufficiency, a collaboration between the National Park Service (NPS), the Bureau of Land Management (BLM), commercial outfitting representatives, and private boaters users led to the development of a recreation study request. But first, in order to validate a study request a "nexus" needed to be demonstrated. This means showing that project operations have a direct, indirect or cumulative effect on an activity (whitewater boating in this instance).

Consider this: Full pool for the Don Pedro reservoir is 830' elevation. Reservoir/river level at Wards Ferry Bridge varies nominally between around 790' to 828' during the peak boating season (April – August), depending on how the reservoir is operated by the Licensee. Thus exists a clear nexus between project operations and whitewater boating within the project area, and its effect on the functionality of the established whitewater boater take-out site at Wards Ferry Bridge (and other potential downstream sites).

Resource agencies (NPS and BLM) and other relicensing participants agreed there was inadequate information contained in the licensee's PAD which described whitewater boating use generally and challenged the implication that it occurs "outside of the project area." The PAD did not quantify specific use of either commercial or private boaters and the adequacy of the established access at the boater take-out was not addressed. The take-out at Wards Ferry Bridge is generally regarded (by commercial outfitters and private boater alike) as

*(continued on p. 26)*

# The Deschutes River Basin Scale Opportunities Assessment:

A National Initiative to Help a Basin Increase Hydropower,  
Improve Environmental Sustainability While Considering Other Basin Values

by Simon Geerlofs, Bo Saulsbury, and Anna West

## Overview

In March 2010, the US Department of Energy (DOE), the Department of the Interior (DOI), and the Department of the Army (DOA) through the U.S. Army Corps of Engineers (USACE) signed a Memorandum of Understanding for Hydropower (MOU). The purpose of the MOU is to align the work of these three agencies to meet the need for reliable, affordable and environmentally sustainable hydropower. The MOU is intended to represent a new approach to hydropower development that will harmonize the production of clean, renewable power generation with avoidance or reduction of environmental impacts and maintenance or enhancement of the viability of ecosystems.

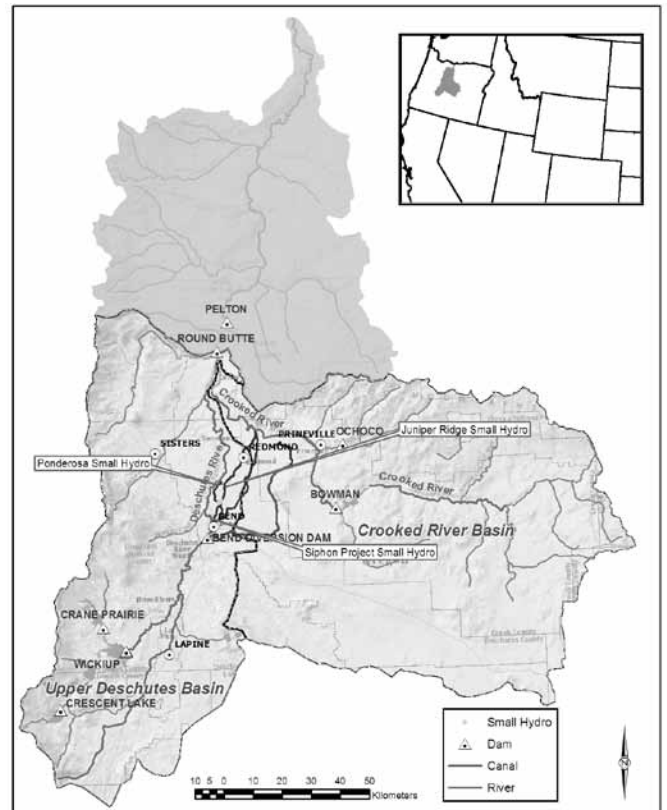
One of the action items in the MOU is Integrated Basin Scale Opportunity Assessments – a basin-scale approach that identifies ecosystems or river basins where hydropower generation could be increased while simultaneously improving biodiversity, and taking into account impacts on stream flows, water quality, fish and other aquatic resources. These basin scale studies are to evaluate whether there are opportunities in the basin to increase generation while improving environmental conditions. The intent is to achieve an increase in hydropower and related renewable generation and improve environmental sustainability, while also considering important other values in the basin.

DOE with its Laboratories, along with USACE and DOI, is leading the effort in partnership with hydropower industry and environmental non-governmental organization representatives. Initial activities included establishing a national committee with a cross section of appropriate agencies and stakeholders and conducting a national workshop. A strong recommendation through these efforts was to identify a river basin as a pilot. The Deschutes River Basin in Central Oregon was chosen in early 2011 as a pilot basin to test the concept of a Basin Scale Opportunities Assessment.

## Deschutes River Basin Assessment Process

The DOE team established a local logistics committee with a cross-section of interests to help guide the effort. The local committee includes the Bureau of Reclamation, Central Oregon Irrigation District, Portland General Electric, The Nature Conservancy, Trout Unlimited, the Deschutes River Conservancy, and Oregon Department of Water Resources. In the spring of 2011, the DOE team engaged Kearns & West, a neutral facilitation firm, to conduct stakeholder interviews and facilitate a local workshop.

The stakeholder interviews helped to identify interests in the Basin related to this effort. Also, the interviews helped identify important stakeholders to involve from all sectors, and, based on their experiences, they provided advice on the appropriate process for an effective workshop. In addition, the interview feedback gathered some initial thoughts on the additional research and analysis that could be helpful in achieving these basin scale opportunities.



The second step was the Deschutes River Basin Scale Opportunities Assessment Workshop held on July 25 and 26, 2011 in Bend, Oregon. The purpose of the workshop was to:

- Communicate the purpose of the Basin-Scale Opportunity Assessment Initiative, nationally and in the Deschutes River Basin.
- Identify opportunities for increasing hydropower generation, improving the environment, while also protecting water supply for agriculture and municipal purposes, recreation, flood management, and other values important to the Basin.
- Identify additional research and analysis needed to achieve these opportunities in the Deschutes River Basin that DOE and its laboratories could do in a one year effort.

The workshop participants included:

- Bureau of Land Management;
- Central Oregon Fly Fishers;
- Central Oregon Irrigation District;
- National Laboratories on behalf of DOE;
- Native Fish Society;
- NOAA Fisheries;
- North Unit Irrigation District;
- Ochoco Irrigation District;
- Oregon Department of Environmental Quality;
- Oregon Department of Fish & Wildlife;
- Oregon Water Resources Department;



- PacifiCorp/Pacific Power;
- Portland General Electric;
- City of Bend;
- City of Prineville;
- Deschutes River Conservancy;
- The Nature Conservancy;
- Three Sisters Irrigation District;
- Trout Unlimited;
- U. S. Army Corps of Engineers;
- U.S. Bureau of Reclamation;
- U.S. Fish & Wildlife Service;
- U.S. Forest Service; and
- WaterWatch.

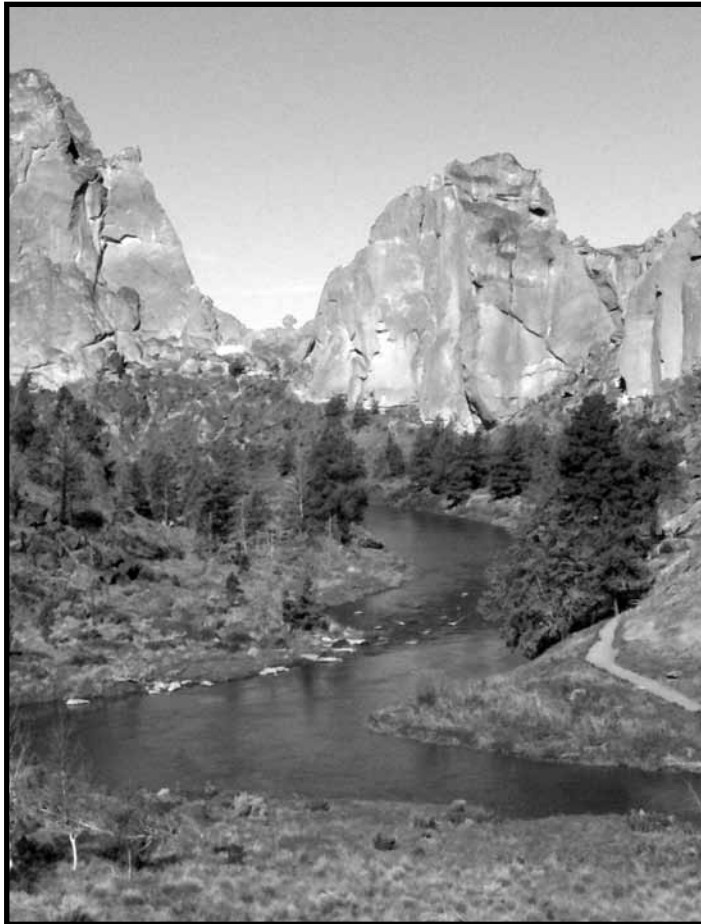
The DOE team hosted the workshop with Kearns & West facilitating. The team emphasized that the effort will tap into the local resources, expertise, studies/models, and other local resources combined with the resources of the national laboratories to conduct a research effort over 2012. After this effort it is hoped that the information developed will be useful to the Deschutes River Basin stakeholders moving forward.

### **Deschutes River Basin Opportunities**

The workshop participants identified the following opportunities for the Deschutes River Basin Opportunity Assessment as a starting point for further analysis and assessment in 2012.

#### 1. Increase Hydropower Generation and Value in a Way That Supports Other Values in the Basin—Powering Non Powered Dams and In-Canal/Conduit Hydropower

*Deschutes River. Photo: Simon Geerlofs, DOE*



- Increase hydropower generation, including potentially at Bowman Dam, Ochoco Dam, Wickiup Dam, Crane Prairie Dam, and Crescent Dam. Also, include small hydro (in conduit/in canal) in irrigator and BOR canals/conduits, as well as municipal in conduits. Also, potentially increase higher value generation at Pelton Round Butte Hydro project.
- Site potential new hydro projects in ways that do not establish incentives precluding opportunities for changing the flow regimes benefiting agriculture, fish, and other values in the Basin going forward.
- If there are associated releases for hydropower generation at Bowman Dam, connect these as associated municipal mitigation for groundwater.

#### 2. Improve Aquatic Biota, including Cold Water Fisheries

- Restore ecological processes in the both river basins.
- Improve flows and habitat for native species:
  - for salmon and steelhead downstream of Prineville Reservoir, in historic habitat in the Crooked River;
  - for all species downstream of Prineville Reservoir in the Crooked;
  - for native redband downstream of Wickiup Reservoir in the Deschutes;
  - in McKay Creek (Crooked Basin), achieve better consistency in the currently flashy system.
- Improve habitat restoration; bank stabilization.
- Increase connectivity for fish.
- Enhance tourism/other values with an enhanced cold water fishery.
- Improve riparian habitat for fish; address animal impacts to streams (cattle/horses).
- Improve water quality, including temperature, sediment, pH, dissolved O<sub>2</sub>, chlorophyll, and other dissolved gasses.

#### 3. Protect Water Supply

- Protect water supplies for agriculture, including considering increased water conservation.
- Protect water supply for municipal uses.
- Create certainty for water supply.
- Have adequate water supplies for all needs.

#### 4. Protect Recreation

- Protect tourism/recreation with retained flat water, warm water recreation, including retaining values on Prineville reservoir.
- Protect or enhance instream tourism/recreation benefits with an enhanced cold water fishery.
- Define ways to achieve natural flow regime for boating.
- Support broader recreation values in the Basin including scenic values, bird watching, fishing, boating, etc.
- Maintain and improve riparian habitat and wildlife.

#### 5. Flood Management

- Retain flood management objectives for the Basin; explore opportunities for greater flexibility in flows.

### **Deschutes River Basin Consensus Research Recommendation**

The Deschutes River Basin workshop participants discussed many options for the research effort over the next year, but they

*(continued on p. 27)*

# Frogs That Go With the *Flow*

by Amy Lind and Sarah Yarnell

Free-flowing rivers are dynamic in both space and time. Nevertheless, in some regions, seasonal changes in flow are broadly predictable and many aquatic species have evolved with and are adapted to these annual patterns. In Mediterranean-montane climates, like that of the Sierra Nevada of California, the transition from winter high flows to summer low flows, referred to in hydrological terms as the “snowmelt recession”, typically begins in mid-spring. When viewing a typical annual hydrograph plot, the snowmelt recession can be recognized as the period immediately following the last flow peak in the spring. From that peak, flows gradually drop off to “baseflow” by mid-late summer (see Figure 1, unregulated line). In contrast, rivers that are regulated by upstream dam operations often have hydrographs that drop sharply from the peak spring flow to low summer baseflows (see Figure 1, regulated line). These fast changes may harm the species that are adapted to predictable and gradual spring recession flows, such as the foothill yellow-legged frog (*Rana boylei*). Loss of an extended snowmelt recession also affects human recreational opportunities by reducing the time period when whitewater boating is optimal (see Bringing Spring Runoff Back to Rivers on page 11).

Much of the ecological work of rivers is done during the spring snowmelt recession. When flows are slowly receding,

rivers interact with their floodplains, delivering nutrients and providing habitat for aquatic bugs, fish, and amphibians. Recession rates may also influence the shape of river bars and how riparian shrubs and trees take root (see “Ecology and Management of the Spring Snowmelt Recession” published in *BioScience*, February 2010, available online at: [http://watershed.ucdavis.edu/pdf/Yarnell\\_etal\\_BioScience2010.pdf](http://watershed.ucdavis.edu/pdf/Yarnell_etal_BioScience2010.pdf))

University of California, Davis, Center for Watershed

Sciences hydrologists (Gerhard Epke and Sarah Yarnell) have recently developed a daily percent change in flow approach to modeling natural (unregulated) river flow patterns during the spring snowmelt recession. For unregulated rivers in the Sierra Nevada, they found that mid-late May is typically when the snowmelt recession begins, with minimal variation among water year types. Once the recession begins, it is possible to very accurately model natural recession rates using a decreasing percent change in flow from day to day (see Figure 1). The

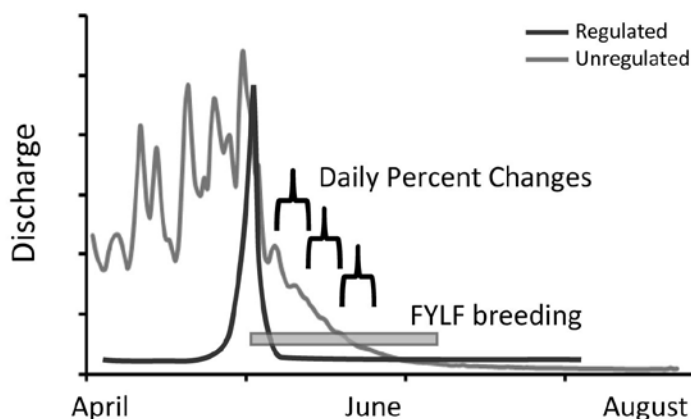
percent change per day is typically higher at the beginning of the recession period than at the end, as the relative contribution from snowmelt decreases and the contribution from groundwater increases. Looking at two example unregulated rivers (North Fork American and North Fork Yuba), the recession rate ranged from ~9% per day coming off the last flow peak, to ~3% per day by mid-late summer.

Foothill yellow-legged frogs, a USDA Forest Service Sensitive species and California Species of Special Concern, lay eggs in the spring, and tadpoles develop during the late spring and summer of each year in a variety of stream environments from small creeks to large rivers. This riverine frog historically occurred in the coast range and Sierra Nevada foothills of California, but it has disappeared from large portions of its geographic range (see [http://www.fs.fed.us/psw/topics/wildlife/herp/rana\\_boylei/](http://www.fs.fed.us/psw/topics/wildlife/herp/rana_boylei/) for more information). In the Sierra Nevada, foothill yellow-legged frogs are adapted to the predictability of the snowmelt recession and typically lay eggs, attaching them to rocky substrates in river margins, during the middle to the tail end of that period. Because of this adaptation, these frogs are considered to be an indicator species for other native riverine species that are less well-studied, like non-game fishes and aquatic bugs. The primary risks to foothill yellow-legged frogs during the snowmelt recession period are scouring and stranding



Foothill yellow-legged frog at the North Fork of the Middle Fork of the American River. Photo: A. Lind

Figure 1. Simplified hydrographs for regulated and unregulated rivers showing daily percent change intervals and the typical breeding/egg laying period for foothill yellow-legged frogs (FYLF).



(continued on p. 26)

# Bringing *Spring* Runoff Back to Rivers

by Megan Hooker

Whitewater enthusiasts are well aware of the differences between free flowing rivers and those regulated by dams. We understand how unnatural flow patterns change the places we love to play because we're down in it, seeing the differences. And with 70% of the flow in Western rivers coming from snowmelt, we also know that the best runs on free flowing rivers happen when the snow is melting in the spring and early summer.

Flows on rivers impacted by dams can be highly unpredictable. Flows can go from unrunably high to too-low-to-go in a matter of days - or even hours. These days, we're fortunate to have online flow information. It's given us a greater ability to know what's flowing and what isn't. And if flows don't change radically between the time you leave the house and when you get to the put-in, odds are you'll have a great run.

In the early days, boaters were less fortunate. They would have to wet their finger, put it in the air and hope their flow predictions were correct. When asked about how well this worked, California river explorer Richard Montgomery said, "We got skunked a lot." He said that they usually had a free flowing river with a predictable flow as a "back up plan."

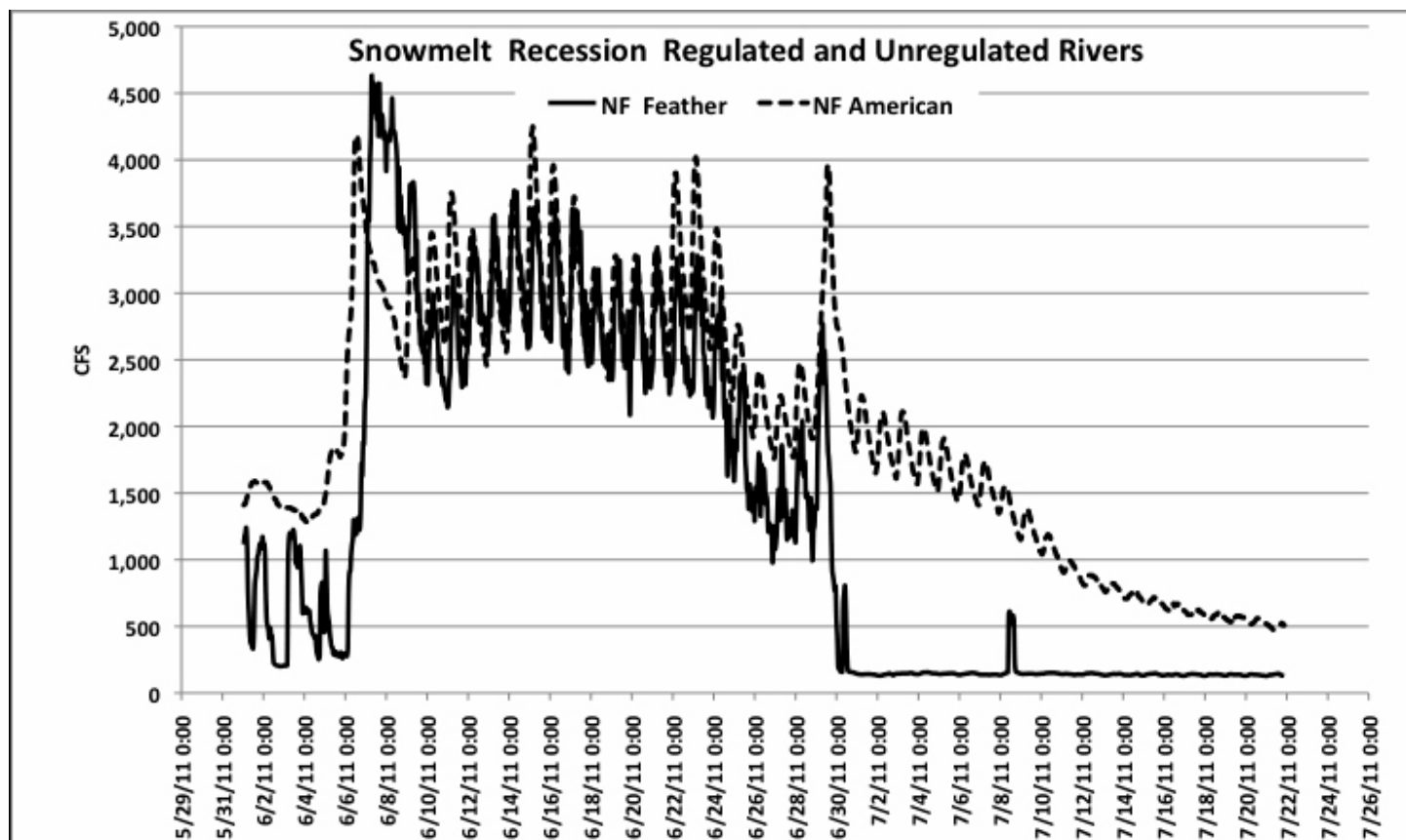
Unfortunately, the fish, frogs, bugs and other aquatic life that call these rivers home don't have the luxury of online flow information, and they certainly can't hop back in the car and find an undammed system. While unnatural and unpredictable flows are inconvenient and frustrating for whitewater enthusiasts, it can mean life or death for our fellow river dwelling species. (See *Frogs That Go With the Flow* on p. x for more information about modeling the snowmelt recession and the impacts to Foothill yellow legged frogs.)

Free flowing rivers are dynamic and always changing, but this change comes with a healthy dose of predictability – and many aquatic species have evolved and established life patterns based within this dynamically predictable structure. One of the most important changes comes as spring turns into summer, when spring snowmelt flows reach their peak and begin to gradually recede to summer base flows (see NF American hydrograph). This "snowmelt recession" is a critical occurrence that makes western rivers unique. By contrast, rivers that are regulated by dam operations typically have hydrographs that drop sharply from the peak spring flow to low summer base flows (see NF Feather hydrograph). This not only eliminates the best part of the boating season, but also harms the species that have evolved and adapted to the predictable and gradual recession of flows.

During the time of spring runoff on free flowing rivers, conditions are perfect for bugs, fish, frogs and boaters, and the

(continued on p. 26)

*Hydrographs comparing the flows of a river impacted by hydroelectricity (the NF Feather solid) with a free flowing river (the NF American dashes). Note how flows gradually drop between the peak spring snowmelt and the low summer base flows (i.e. "snowmelt recession between 6/30/2011 and 7/22/2011) on the NF American, vs. the free fall and relative flat line on the NF Feather.*



# Restoration Efforts on the Trinity River

by Robin Schrock

The Trinity River is a managed river facing many challenges as the vision for the river has changed with national, regional and local priorities. The river has been exploited for the gold and timber found in the watershed by private concerns that profited at the expense of natural river processes and native fisheries. The national effort to secure American agriculture by tapping seemingly limitless water saw the building of dams in Northern California to provide water for the Central Valley, and hydropower for growing western population centers. The Trinity River fisheries had persisted at reduced levels despite the earlier intrusions, however, with almost 90% of the rivers' flow exported to the Sacramento River after completion of Trinity and Lewiston Dams in the 1960's, severe declines in the Trinity River fisheries were seen in the 1970's.

*Lowden Restoration Site to Dark Gulch at 11,000 cfs.*

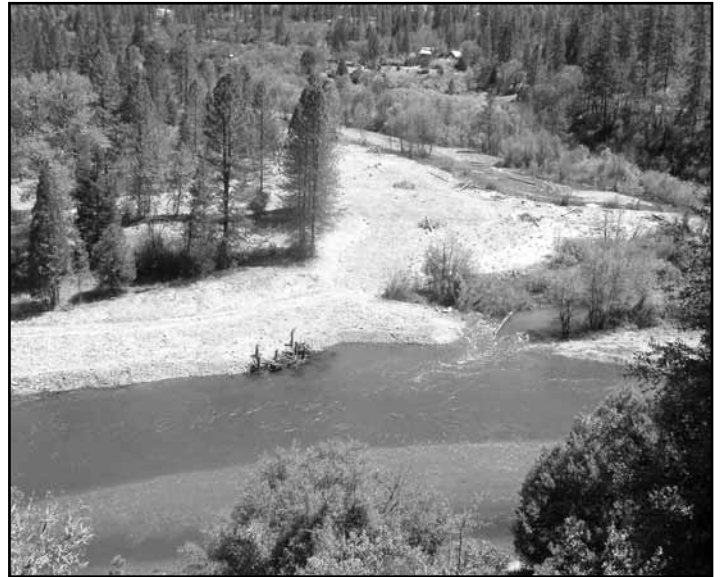


Critically low numbers of fish in the Trinity River were the basis for legislation and a landmark, long-term Trinity River Flow Evaluation conducted by the U. S. Fish and Wildlife Service and the Hoopa Valley Tribe in consultation with the U. S. Geological Survey, the National Marine Fisheries Service, the California Department of Fish and Game and the U. S. Bureau of Reclamation. The subsequent Trinity River Mainstem Fishery Restoration EIS/EIR provided the foundation for the United States Secretary of the Interior, Record of Decision (ROD) in 2000 that formally established the Trinity River Restoration Program (TRRP). Major goals of the program are to re-establish alluvial processes in the river and restore Trinity River fisheries. The prescriptions for the river as outlined in the EIS/EIR include variable flow management, mechanical channel rehabilitation, sediment management, watershed restoration, infrastructure improvements, and environmental compliance and mitigation in an adaptive environmental assessment and management approach to improve restoration through learning.

In the first years post-ROD, The TRRP was in litigation and concentrated on infrastructure improvements to allow higher river flows. The first channel rehabilitation project was constructed in 2005. Since then, under the guidance of expert teams of site designers, the TRRP has experienced an evolution in the concepts and approaches applied to channel rehabilitation, sediment management, and watershed restoration. Other activities that contribute to up to 3-4 year lead times for project implementation of approved designs are consultations with private and public landowners for access, with regulatory agencies to meet compliance guidelines, and for infrastructure improvements to mitigate for potential effects of projects. The TRRP is currently undergoing a review of all completed projects, overseen by the TRRP Scientific Advisory Board, to help guide future designs and successes.

Evaluation of the success of TRRP projects is limited by the short history of TRRP. Only six years have passed since the first TRRP channel rehabilitation project was completed, and flow releases based on water year type have been variable over that time. 2011 was the first year a release of 11,000 cfs occurred, the maximum allowable discharge established by potential effects on infrastructure. Timing of peaks and ramping schedule are designed to aid sediment management and fishery life stage requirements. Because release schedules are developed based on water year forecasts, rather than the actual water year observed, flow releases may be more or less than anticipated. This occurred in 2008 when a normal year was forecast, but the observed year was dry, and 2010 when a normal year was forecast but a wet year occurred. The permanent flow allocation as outlined by the Record of Decision five water year types provides for both intra-





*Restoration sites vary in their objectives, approaches and size. A 2009 restoration site at Sawmill on the Trinity River involved lowering topography to create a flood plain to increase fishery habitat during prescribed flows.*

and inter-annual flow variability to re-establish alluvial processes in the river.

The 2011 Wheel Gulch restoration site shown below is an example of how important landowner support is to TRRP success, and how coordination among program partners can lead to development of attractive, functional sites. Before, during and after images of the project site, entirely on private land, are a testament to the achievements of the TRRP in the context of the physical and social history of the river, legal authorizations, and

increasing demands on the river by public and private interests.

The project will be vegetated with desirable plants beginning in November of this year. This TRRP partnership effort included state, private, county and conservation district efforts. As with other TRRP efforts, the performance of the Wheel Gulch rehabilitation site will be evaluated in the context of the Program's mission to re-establish alluvial processes in the river and restore Trinity River fisheries. For more information about restoration efforts on the Trinity River go to [www.trrp.net](http://www.trrp.net). ♦



*Above: Pre-construction riverside habitat along the single channel of Trinity River at Wheel Gulch. Below: The Wheel Gulch site during construction of a split flow channel around an island that includes part of the original bank, a low flow side channel, an alcove, and a habitat enhancement channel to reconnect the existing Wheel Gulch drainage to the mainstem.*



# Signing River Hazards:

## Yes or no? When and where?

by Doug Whittaker and Bo Shelby

*“What does the sign for Big Falls look like?” It was a cold day at the Pine Flat put-in for the South Fork Payette Canyon in spring of 1983, and the question came from “Team Utah,” a group of kayakers from Salt Lake we saw each year in Idaho. Big Falls was terrifying, a mandatory portage on an otherwise class 3-4 run. Nobody ran Big Falls.*

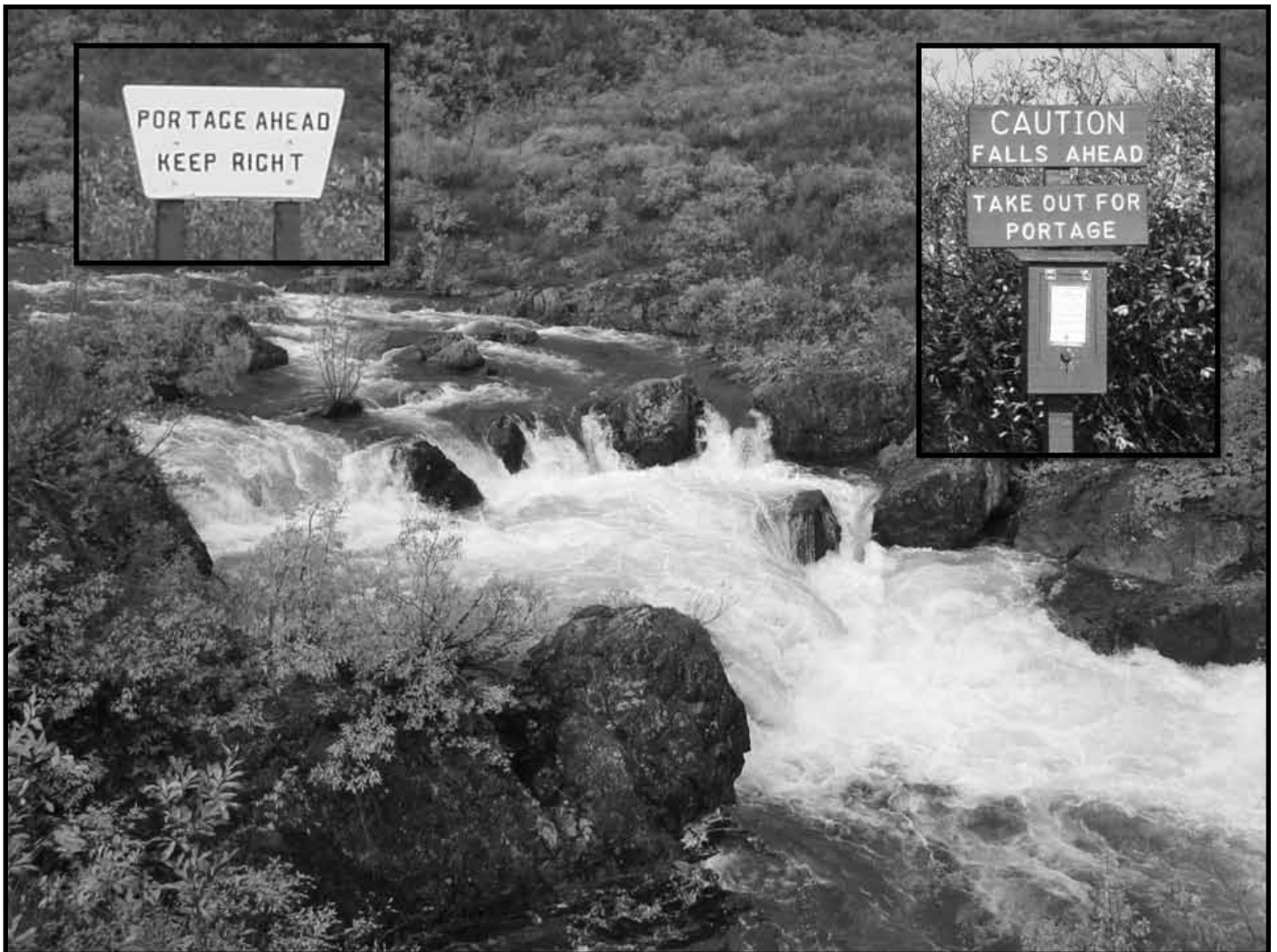
*A discussion ensued. The sign was on the right, the portage on the left, below a small eddy just above the falls. But the sign was new last summer, it was our first run this year, and it was high water. “Look for the falls, not the sign.” The hand-lettered sign had been placed close to the water at the bottom of a big rock slide, and seemed impermanent at best.*

*We went to warm up in the hot springs, and Team Utah took off down river. Larry Dunn was in the lead when he saw a scary horizon line with no eddy in sight – and of course no sign. He remembered thinking, “If this isn’t big falls, I don’t*

*want to be on this river.” His pals watched him disappear and scrambled for tiny eddies, clinging to branches and scratching their way up the canyon walls to start portaging.*

*Larry voluntarily exited his boat, plummeted over the falls, and was held under water a long time. Surprised to pop up near a big rock at the bottom, he dragged himself out and thanked his lucky stars as the river delivered his boat to the same rock. His paddle was gone, but the group had a spare and off they went. We later found the paddle in the same eddy and wondered what happened. Got the story the next day and Larry had the first descent of Big Falls, although the rules for such things say that “unintentional and out of your boat doesn’t count.”*

*Signs help boaters decide where to portage the gorge on the Delta National Wild and Scenic River in Alaska. Photos: Doug Whittaker*



Earlier this summer, a Deschutes River manager (Mollie Chaudet) asked a seemingly simple question on the RMS listserve about the advisability of hazard warning signs at rapids. Over a dozen thoughtful responses came back, and the listserve archives show this wasn't the first appearance of the topic (see list at the end of the article). With strong opinions on all sides, the topic seemed ripe for additional attention.

This article focuses on warning signs near hazards rather than more general warnings at access areas (the topic of yet another listserve discussion). "Hazards" include rapids, sweepers, log jams, engineered log jams, low head dams, or other structures that users may want to avoid when boating, tubing, swimming, or wading a river. The goal is to consider a range of issues, with examples of different choices and potential consequences.

### **Hazards and public safety**

"Public safety" in river management contexts is geared towards preventing injuries or Search and Rescue (SAR) incidents associated with interactions between people, water, and hazards. But what constitutes a hazard in moving water? It is beyond our scope to identify a comprehensive list, but river safety literature suggests that some factors are under control of the user, while others are a part of the environmental setting (see sidebar). It is challenging to assess the relative risk of any given situation, let alone predict the likelihood of a specific outcome.

### **Is the hazard unique for the setting?**

The hardest rapid on a river often receives outsized attention, but this issue focuses on the difference between the hardest or most hazardous rapid and others. Is there a falls that nearly everyone portages? Is it a flatwater trip with just one Class III-IV ledge drop? Several signed rapids in the listserve discussion fit the description of a "unique" hazard by this criterion. For example, Frog Rock Rapid on Colorado's Arkansas River is an undercut that becomes most problematic at low flows on an otherwise Class III segment; the rapid has claimed at least four lives (Blevins, 2010). Other examples include:

- Sherars Falls (Class VI) on Oregon's Lower Deschutes (Class III-IV segment).
- Delta Falls (IV-V) on Alaska's Delta River (I-II).
- Rocky Ford (III) and Norden Chute (V) on the Nebraska's Niobrara River (I-II).
- Husum Falls (V) on Washington's White Salmon River (III-IV).
- Deadline Falls (V-VI) on the North Umpqua, Oregon (III-IV).
- Royal Flush (V-VI) on the Lower Kern, California (IV).
- Dagger Falls (V) just before the Wild section of the Middle Fork Salmon, Idaho (III-IV).
- Rock Quarry Rapids (VI) on East Fork Russian River, California (I-II).
- Dimple Rock, an undercut with 9 boating deaths on the Lower Youghiogheny River, Pennsylvania (III-IV).

### **Is the hazard natural or human-generated?**

If your problem is a low head dam or a rapid created by a road blow-out, there might be more impetus to install warnings. There is a long tradition among dam-building or dam-permitting agencies to warn of dam-related hazards, and FERC, BOR, and USACE all have dam safety divisions dedicated to these issues.

Several low head dams on Virginia's James River have warning signs, while at least one other dam in that state had no sign and became part of a still-unresolved liability case that has reached the state Supreme Court (Meyer, 2011).

A similar issue is developing as more projects introduce large wood for habitat or flood management, sometimes in places where wood is less likely to accumulate naturally. It's one thing for a natural rapid or log jam to create hazards for boaters or anglers; it may be another if the hazard was specifically created by humans. Signs indicating downstream log hazards have been added in recent years on several Puget Sound rivers to warn tubers and boaters (King County, 2010).

### **Characteristics of river users**

Are river users highly skilled or beginners, whitewater boaters or tubers, repeat users or one-time visitors? Skill, experience, and adequacy of equipment are important variables that may help decide about signs. As several listserve comments noted, signs may not be needed among more specialized users who recognize the inherent dangers of river recreation and take responsibility for their decisions. But other contributors pointed out that some rivers attract less skilled users who may be less capable of assessing hazards. For example, Stuart Schneider (2011) notes that unskilled canoeists and tubers on Nebraska's largely Class I Niobrara River can have difficulty handling more difficult rapids (particularly Rocky Ford and Norden Chute). The Park Service has signed the rapids and developed portages to help users make good choices.

### **Do users expect signs?**

Have the signs been there in the past, and have people come to depend on them? This may be a form of "self-perpetuating management," but there may be more impetus for signs if the agency has been warning about a hazard for years. The sign for the falls on the Delta River in Alaska remains, in part because BLM is reluctant to remove a warning that has been present for over two decades (Emmons, 2011). However, the Big Falls story that opened this article raises questions about signs that may be difficult to maintain.

### **Is "off-river" information available and easy to provide?**

If there is hazard information available before people get to the river, there may be less need for on-river signs. Good guidebooks or web pages may help warn of hazards, assuming the user population is sophisticated enough to make use of them. Information in maps, brochures, or at visitor centers can also help, especially for users required to contact agencies before taking their trips (e.g., the classic permitted multiday trips on rivers such as the Middle Fork Salmon and Colorado River in Grand Canyon). Several listserve comments suggest that it is less necessary to sign hazards on such rivers, and this helps explain why several agencies may have moved away from the practice (e.g., rapids on the Yampa and Green and in Cataract Canyon on the Colorado River as described by Hoops; Huffman, 2011).

Similarly, information at access points are an alternative to (or supplement for) on-site warning signs, particularly if the number of access points is small. As a contrasting example, on the multiple-access Potomac River above Great Falls, agencies have installed over 25 signs to warn boaters and anglers (Robertson

*(continued on p. 16)*

## Is this safe?

### Factors that influence risk

Assessing risk is always complicated. For an individual, the risk of a particular hazard comes down to a calculus of 1) the probability that a situation will create a problem, and 2) the severity of consequences if that problem occurs. When assessing either part, here's a partial list of factors one might consider before answering the question, "Is this safe?" This list is compiled from suggestions in several sources, including Walbridge and Sundmacher (1995), Bennett (1996), Bechdel and Ray (1997), Ferrero (2009), and American Whitewater (2011).

#### User variables:

- Level of boating/wading/swimming skill
- Experience on rivers in general
- Craft capability and durability (if boating)
- Propulsion capability (e.g., number of paddles, size of motor)
- Attire / equipment
- Information about trip conditions
- Attention to conditions and route-finding
- (Lack of) alcohol or drug use
- Leadership capability within group
- PFD use
- Swimming ability and experience
- Rescue knowledge and experience
- Group size and cohesion
- Challenge/risk orientation of user
- Age and gender

#### Environmental variables:

- Availability of a "boatable line"
- Visibility of potential obstacles
- Flow (depths, velocities, power of hydraulics, etc.)
- Gradient of reach (or water just upstream)
- Juxtaposition of rocks or wood
- Hydraulics created around rocks or wood
- Pinning/wrapping potential of rocks or wood
- Substrate size, shape, surface, and "slipperiness"
- Type and amount of riparian vegetation
- Water temperature
- Water clarity
- Air temperature
- Weather (past, present, or anticipated)

While the number of factors is high, the "equation" may be simplified by specifying "critical" or "criterion" variables. In some cases, the focus may be on the "most vulnerable" users (e.g., young, unskilled tubers, without a PFD or paddle) in "typical" environmental conditions (e.g., at mid-summer flows, on a Class I reach, in typical summer weather). In other cases, the focus might shift to higher skilled users with higher performance equipment in more demanding conditions. It is particularly difficult to make judgments about safety without first specifying "for whom," "doing what," and "under what conditions." ♦

and Jansen, 2005). In some cases, access-based signs can be a formidable on-the-ground project.

#### **Public support for signs?**

Do users want signs? Signs may have surprising public support even in primitive or wilderness-like settings. A survey of Delta River users showed that 86% wanted to keep an existing sign at the falls, with only 6% opposed and 8% neutral (Whittaker and Shelby, 2004). It's possible that these mostly Alaskan boaters have a different idea of what's appropriate on a National Wild River, but it appears that safety considerations may override their "purist" ethic. It would be interesting to learn more about the factors that contribute to these evaluations. We speculate that the long history of the sign on the Delta is the best explanation for public support, and it is probably more difficult to remove a sign than to consider one for the first time.

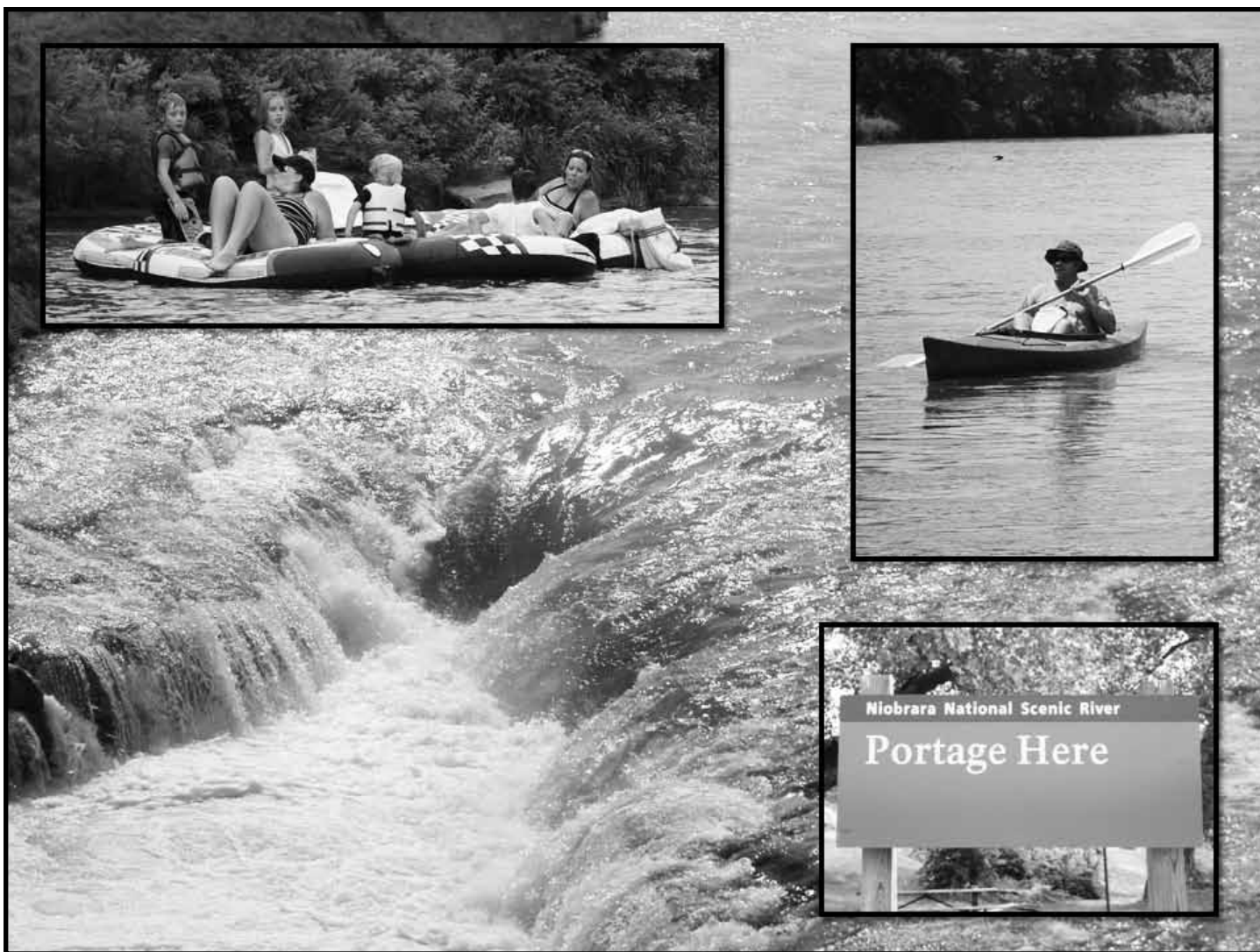
#### **Are there other "improvements" in the area?**

If a river is more "primitive" on the recreation opportunity spectrum, agencies may manage for greater challenge and self-reliance and signs may be less appropriate. But if there is a concrete and steel fish ladder nearby (Dagger Falls on the Middle Fork Salmon), a major portage trail (Delta Falls, Royal Flush on the Lower Kern), a road adjacent to the river (Sherars Falls on the Deschutes), or a store and put-in/take-out at the rapid (Rocky Ford on the Niobrara) it becomes harder to argue that a warning sign represents a major change in "development level." The size and style of the sign may also play a role in whether the public considers it a helpful warning or an intrusion.

#### **Is there potential for resource impacts?**

Sometimes signs are important for "directing" users as well as warning about a hazard. The signs on Alaska's Delta and Gulkana identify specific eddies at the start of portage trails, preventing a "spider web" of trails that might develop if users chose their own locations to scout or portage. The signs lead to constructed trails that concentrate activities where they will have less impact, in much the same way that agencies lead land-based users to defined trails, bridges, and camps. Royal Flush on the Lower Kern provides another example.





*The generally Class I-II Niobrara National Scenic River has a few more challenging rapids, including Class V Norden Chute. The National Park Service has signs warning boaters of the rapids and places to portage. Photo: Elaine Grace. Inset photos: Doug Whittaker.*

### **Likelihood of injury, death, or search and rescue incidents**

Other issues aside, sometimes it comes down to the probability of a tragic event, or a history of recent incidents. Some rapids appear to have been signed in response to a tragedy, while others rely on a “prevention of tragedy” rationale. And if a rapid consistently requires SAR responses, it becomes harder to challenge an agency’s attempt to reduce incidents through signing. For example, Yosemite National Park has closed wading or swimming access to Emerald Pool above Vernal Falls on the Merced; even with the signs and steel railings, tragedies seem to occur every few years (Ghiglieri and Farabee, 2007; Wozniacka and Cone, 2011).

Another example comes from Campground Rapids on Eagle River near Anchorage. This Class III drop at the end of an otherwise Class I-II segment commonly boated by open canoeists some-

times produced several SAR incidents a year. By developing a signed portage trail for canoes, State Parks reduced rescues and related resource impacts.

### **Legal or administrative designation**

Overlaid across these practical considerations are the legal or administrative mandates for the river in question. The Wilderness Act, for example, specifies “primitive and unconfined” conditions, where development is minimal. That doesn’t necessarily prohibit hazard warning signs on rivers running through Wilderness, but it might argue against them. Similarly, Wild and Scenic rivers are classified based primarily on access and development, so one might argue that signs are less easily justified in Wild or Scenic segments compared to Recreational ones. But neither the legislation nor inter-agency guidelines provide unambiguous rules, and there are a few Wild rivers with

signs (Delta, Gulkana) and many reaches of all classifications without. Other state or federal designations may also apply, but we are unaware of designations that specify management at the “sign” or “don’t sign” level of detail.

### **Agency policy and traditions**

It appears likely that broad agency mandates and land management traditions have been brought to bear on this topic. Some of those traditions relate to the “primitive vs. developed” issues discussed above, but it isn’t always clear cut. The Park Service, for example, has a preservation mandate and manages some of our most pristine resources, but many national parks also include highways, tourist villages, and areas where recreation use is intensively managed (e.g., boardwalks around geyser basins, railings overlooking falls). Agencies also differ in their tradi-

*(continued on p. 28)*

# 2012 RMS Symposium in Asheville, NC

## Offers “lab sessions” for learning!

Jason Benton paddling over Second Ledge on Sec. III of the Chattooga. Photo: American Whitewater

Workshop and field trips at the 2012 National River Management Symposium will offer participants a more informal and experiential learning setting to understand a variety of river management issues and practices. For more information about the symposium, visit: [www.river-management.org](http://www.river-management.org).

### 2012 RMS Symposium Field Trips – Wednesday, April 25

#### Urban river restoration, revitalization, and recreation

*Topics: waterfront developments, river-based infrastructure, emerging river uses, technology, linking communities*

In the morning, experience Asheville area restoration projects, development history, and the revitalization of the River-Arts district of Asheville on the RiverLink Bus Tour. In the afternoon, explore the French Broad River as it floats through downtown Asheville. Experience firsthand the urban river development, as well as a variety of traditional and innovative river craft. Available crafts include stand-up paddle boards, pack-rafts, kayaks, canoes, rafts (heck, we may even throw in an inner tube). This flat stretch of river offers enjoyment to all, regardless of experience level. There is no better way to learn about a form of recreation than to try it!

*Compatible conference sessions:*

- *A river runs through it*
- *Loving the river without loving it to death*

#### Restoring dammed rivers in western North Carolina

*Topics: dam relicensing, management tradeoffs, river-based infrastructure, protecting river experience and ecosystem integrity, user capacity decisions, managing river visitors*

Learn about two dam relicensing processes on two classic rivers: the Nantahala and Tuckasegee. Visit high use access areas, million dollar toilets, bustling outfitters, and the powerhouse providing water on the Nantahala. On a raft trip, you will be one of the 200,000+ people that will take a raft, ducky, or kayak down

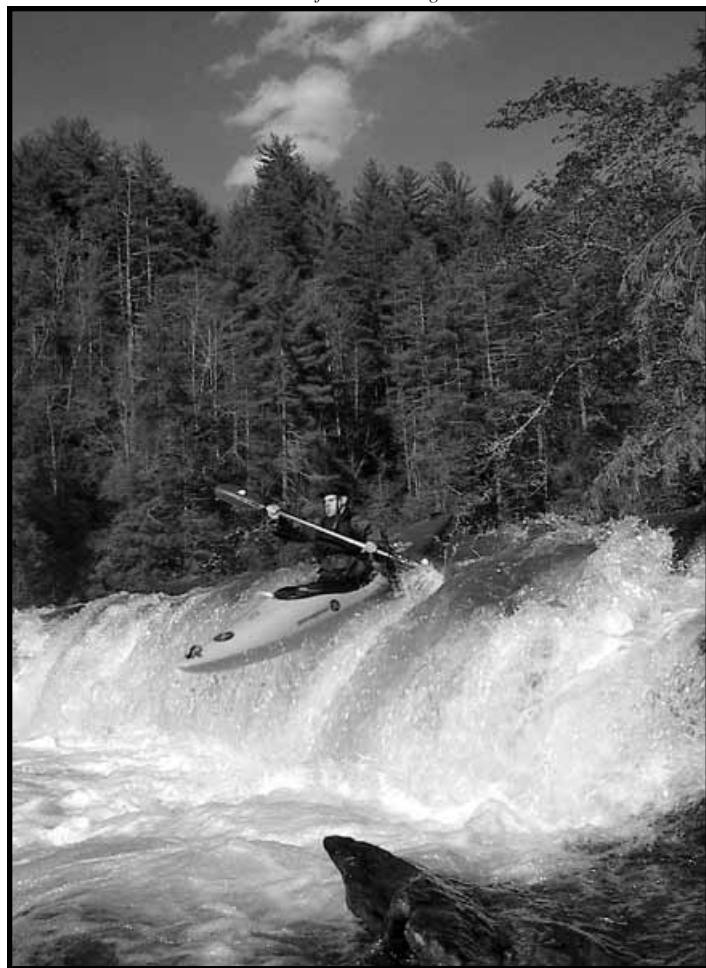
Nantahala River. Photo: American Whitewater



the dam-release lower Nantahala in 2012. On the water, you will be treated to lush temperate rainforest scenery and sparkling cold rapids, guaranteed through the dam relicensing process. The trip will conclude with a site visit to the recently removed Dillsboro Dam on the Tuckasegee River.

*Compatible sessions:*

- *A river runs through it*
- *Loving the river without loving it to death*
- *Got water? Is it clean? What about the fish?*



#### Wild and Scenic River management: conflict and cooperation

*Topics: management plans, management tradeoffs, protecting river experience and ecosystem integrity, user capacity decisions, managing river visitors*

Raft the famous Section III of the Wild and Scenic Chattooga River, which offers paddlers exciting Class III rapids in a remote and scenic gorge. Afterwards, travel upstream for a stop at the controversial Upper Chattooga for a short walk near Ellicott Rock, and a discussion of the unusual and controversial paddling ban. Discussion will focus on capacity analyses and Wild and Scenic River Management Plan development.

*Compatible conference sessions:*

- *Loving the river without loving it to death*
- *Got water? Is it Clean? What about the fish?*

#### Wild and Scenic River Suitability Status

*Topics: management plans, management tradeoffs, protecting river experience and ecosystem integrity, user capacity decisions, managing river visitors, future river advocates*

Take a raft trip down the free-flowing Class III+ Nolichucky River, a remote and scenic river flowing from North Carolina into Tennessee. The Nolichucky has been found suitable for Wild and

Scenic Designation and awaits champions for designation. Discussion will focus on the management of rivers that are eligible and suitable for Wild and Scenic designation.

*Compatible conference sessions:*

- *Ensuring Future Generations of River Rats*
- *A river runs through it*
- *Loving the river without loving it to death*
- *Got water? Is it clean? What about the fish?*

### **Legacy of the Biltmore Estate's Landscape**

*Topics: land management, built environment, linking communities with nature*

Tour the Biltmore House, a decadent 250-room Chateau built in 1895, and the grounds designed by Frederick Law Olmsted, widely recognized for his early influential contributions to landscape architecture and land management. Participants will enjoy a 1.5 hour bus tour of the estate customized to focus on river, water, and landscape management, featuring a historic lock system and river frontage on both the French Broad and Swannanoa rivers. Following the estate tour participants can enjoy the remainder of the afternoon to explore the house, gardens, and winery.

*Compatible conference sessions:*

- *A river runs through it*
- *Loving the river without loving it to death*
- *Got water? Is it clean? What about the fish?*

### **Fisheries Management in Great Smoky Mountains National Park**

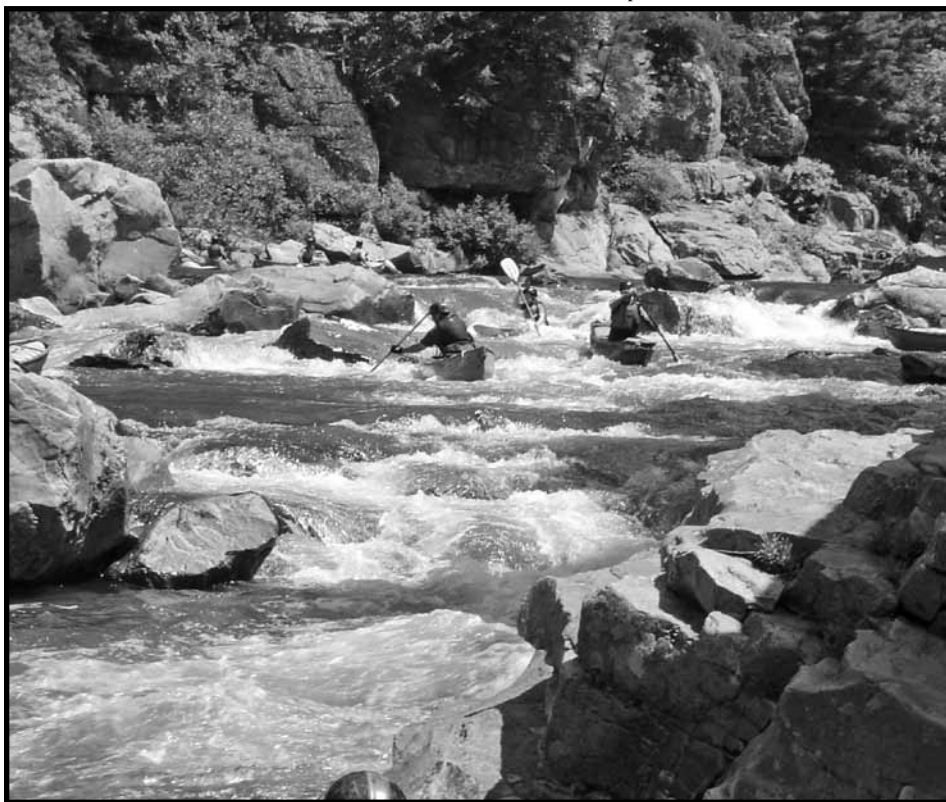
*Topics: management plans, management tradeoffs, protecting river experience and ecosystem integrity, user capacity decisions, managing river visitors*

Join a fishing guide for some native brook trout fishing on small southern Appalachian streams flowing through Great Smoky Mountains National Park, one of the most visited parks in the country. Learn about fisheries management, research, and decision-making that is aimed at protecting and restoring the astounding aquatic biodiversity of the Southern Appalachians.

*Compatible conference sessions:*

- *A river runs through it*
- *Loving the river without loving it to death*
- *Got water? Is it clean? What about the fish?*

*Carolina canoe club on the Nolichucky River, "On the rocks" rapid. Photo: American Whitewater*



### **Preconference workshop – Monday, April 23**

#### **So, what's the deal with Section 7? Lots.**

*Hosted by the Interagency Wild and Scenic Rivers Coordinating Council*

Wild and Scenic protection for our nation's rivers is powerful, and implementing a management plan is both complex and far-reaching. This preconference workshop will educate those whose responsibilities include ensuring that proposed projects in the bed or bank of the river, upstream and downstream of the designated area, are consistent with Section 7 of the Wild and Scenic Rivers Act. Section 7 restricts hydro and water resource development projects on designated and Congressionally-authorized study rivers. Projects covered by Section 7 include, but are not limited to dams, bridges, recreational facilities, and restoration activities. This workshop will include presentations and audience exercises. If you'd like to learn what the noise is about during a Section 7 debate, you don't want to miss this day-long introduction to this section of 'The Act!'

**Bonus:** A one-hour additional session will offer open discussion of Wild and Scenic Rivers and updates on the Interagency WSR Coordinating Council's training and development program! Tour the Council website and preview activities co-sponsored with RMS to develop online training and education opportunities. ♦

## Southeast by Mary Crockett

Appalachia in spring time! Come and witness the dogwood trees blooming, along with a show of wildflowers along the roadways which give these eastern mountains a white and sprig green look. Jeff Duncan and others have put together a great program, while Kevin Colburn and his committee have some great hands-on learning opportunities. The mountains and rivers of the Blue Ridge and Great Smokey Mountains will allow for some wonderful educational and networking experiences. Gary Marsh and Randy Welsh have put together a pre-conference golf and tennis opportunity to show off your recreational skills while helping to raise funds to support the symposium. We will also offer a full day workshop for those interested in involved in Wild and Scenic Rivers designation and management, before the conference starts. Karen Cragnolin of RiverLink has put together a service project for the Friday after the conference to help all of us give back to the river community. Our "mountain top southern experience" to be held the final evening has been planned by a committee led by Zelime Lentz of RiverLink and will be something you will definitely want to attend. There will be opportunities for purchasing the best river vacation destination and other river-related items from Steve and Debbie Johnson as you vie for an auction or merchandise item. For more program information, see the article on Field Trips (page 18) and visit the RMS website. By registering today you can assure that Bill Marshall, Bunny Clark, and Lee Larson keep us on budget. Steve Hendricks, Karen Cragnolin, Risa Shimoda and I extend to you an enthusiastic invitation to join us in Asheville, NC, for the 2012 North American River Management Symposium "from intimate creeks to the infinite sea" April 24-26th.



Plan to stay the weekends on either side of the symposium. There are plenty activities you will want to do in the area, from driving the Blue Ridge Parkway to see the mountains come alive with spring. Or drive to Charlotte to experience the US National Whitewater Center then travel a short distance south of Charlotte to Landsford Canal State Historic and Natural Site to see the rare Rocky shoals Spider Lilies just starting to bloom on the Scenic Catawba River. There are many other travel destinations nearby in Georgia and Tennessee, but you might just want to hang around Asheville and experience the city by foot to visit the many art galleries, workshops, and microbrews. Yes, the city is known for its choices of great craft beers. The 10 craft breweries are Highland, Green Man, Asheville, French Broad, Wedge, Oyster House, Pisgah, Craggie, Thirsty Monk, and Lexington Avenue, which all have some great tasting brews. Great breweries happen because there are great river and water managers making sure the water quality and quantity is above average.

You can help RMS, RiverLink and the 2012 Symposium by approaching a local business to be a sponsor or scour your local river haunts and establishments for items for the silent auction. The silent auction items should be at least a \$50 dollar value. If you have questions about sponsorships please give Risa or me a call. Once you retrieve auction items you can either bring these items with you to the conference or ship them to the RiverLink office 170 Lyman Street Asheville, NC 28801(828) 252-8474.

The Southeast Chapter of RMS and staff at RiverLink look forward to seeing you in Asheville for the best ever 2012 Symposium "from intimate creeks to the infinite sea."♦



# RMS Chapters

## Pacific by Elaine Grace

You may have noticed that the Pacific Chapter President position has been vacant for the last year. Kristina Rylands did an excellent job at the helm for five years, but had to step down at the end of 2010 due to policies in her government agency that didn't allow her to serve. Since nature abhors a vacuum, I felt myself being pulled into the Pacific Chapter President "hole" during what was to be my "last" RMS Board Meeting. Since I recently moved from Panama to the Big Island of Hawaii, I am officially in the Pacific Chapter..... so why not? I made an announcement at the Board Meeting that I would take on the Pacific Chapter Presidency on an interim basis. My goal is to find someone who aspires to serve their fellow Pacific Chapter members as President. And I have a deadline... before the next Board Meeting in October, 2012.

### My background:

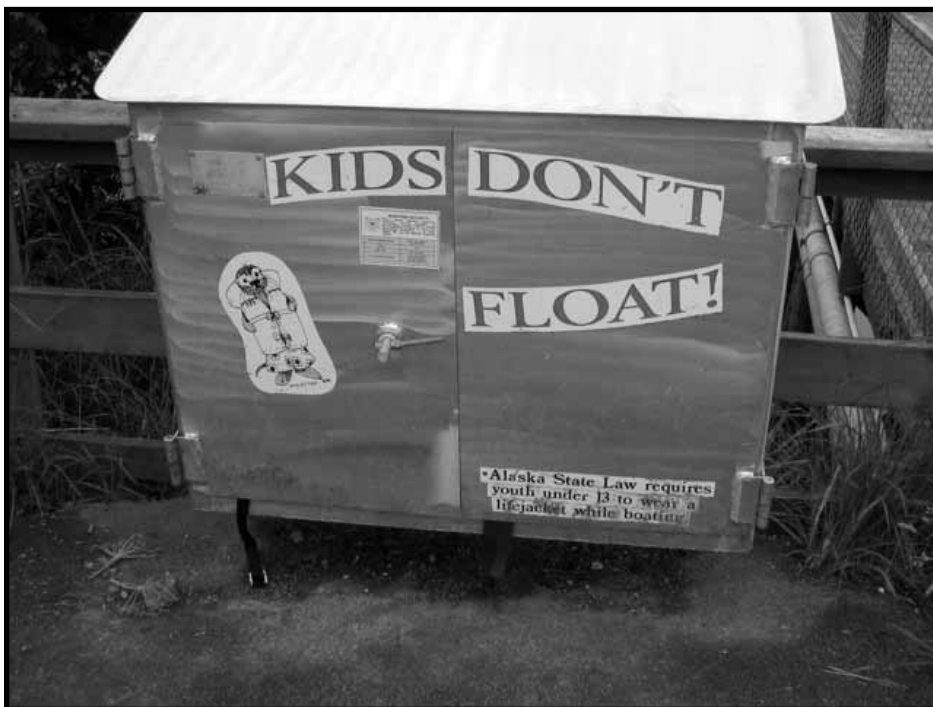
1974 Graduated from University of California, Santa Cruz with a degree in Biology  
1973-87 National Park Service in Grand Teton, Yosemite, Zion, Crater Lake, and Lassen  
1988-99 Forest Service on the Chugach National Forest, Alaska  
2000-08 Habitat Restoration Biologist, Fish and Wildlife Service, Fairbanks, Alaska  
2003 Became a Lifetime Member of RMS  
2004 Attended my first RMS Symposium in CA  
2006-08 RMS Alaska Chapter President  
2009-11 RMS National Secretary



*Elaine Grace (Mayer), outgoing National Secretary, and Bunny Sterin, outgoing Southwest Chapter President, are recognized for their longstanding contribution to the RMS Board of Directors.*

Just to add more confusion, I recently changed my name from Elaine Mayer to Elaine Grace. There aren't many rivers on the Big Island of Hawaii, but there are several rivers on Kauai. Maybe I'll host an event on the Hanalei River!

Special thanks to Executive Director Risa Shimoda, Pacific Vice President Keith Brown, and Pacific Treasurer Larry Freilich who spent several hours on the phone and internet getting articles for this issue of the RMS Journal – Pacific Focus. ♦



## Visitor Education and Safety

Here's an interesting sign, at least a different twist, that advises boaters about the Alaskan State regulation requiring PFDs for children. It is located at the marina in Sitka, Alaska.

*Submitted by RMS member,  
Denny Huffman*

# RMS Chapters

## Midwest by Peter Hark

Early this summer, the Mississippi Youth Waters (MYW) project launched its floating classroom into the Mississippi River. The boat is a 43-foot uniquely crafted wooden trawler that was donated for the purpose of getting young people on the river at Red Wing, Minnesota. Youth from ARTech Charter School in Northfield, Minnesota and the statewide Conservation Corps Minnesota summer youth program, along with many adult volunteers spent close to two years rehabbing this vessel to be used as a floating classroom. This past May, fifteen middle and high school students spent three weeks exploring many aspects of the Mississippi River through its May term "Rivers and Science Program." The Conservation Corps has plans for next summer to utilize the floating classroom as a base camp for its youth crews to complete critical conservation projects along the St. Croix and Mississippi rivers. Other groups are also eager to engage youth in conservation education and service projects through the use of this amazing boat.

The focus of the MYW project, a non-profit organization, is to engage and connect young people in restoring, protecting, and improving the ecology of the Mississippi River and its tributaries through educational and hands-on outdoor activities. Conservation education, outdoor engagement, scientific study and research, work skills and team building are all important elements of this project, while engaging people in critical issues and experiencing them first-hand on one of the most significant rivers in the world. MYW plans on engaging hundreds of people through use

## Trawler + River Education + Young People = Mississippi Youth Waters Floating Classroom



*Floating classroom with participants at a temporary marina slip in Redwing, Minnesota.*

of this vessel and is focused on education and developing long-term stewards of our rivers and lands.

The Midwest chapter of River Management Society (RMS) saw this project as an opportunity to engage youth on important river topics and meets one of our board's organizational goals of engaging and supporting young people in our river work. As president of Midwest RMS chapter, I had the pleasure of meeting up with this group of students, spending four days of their three week experience, working with them on research projects, and seeing them engaged with a variety of river professionals. MYW understands the

value of partnerships, which enhance its ability to provide education and to engage people in hands-on experiences that have life-long impacts. Along with RMS, some of the project partners include the Cannon River Watershed Partnership, U.S. Fish & Wildlife Service, University of Minnesota, Carleton College, National Park Service - Rivers, Trails and Conservation Program, Living Lands and Waters, Conservation Corps Minnesota, Northfield School of Arts and Technology (ARTech), City of Red Wing Minnesota, Rolf Hagberg Photography, Minnesota Rivers Revitalization, Inc., Friends of the Cannon and Straight Rivers (Faribault) and other businesses and individuals who all have been a part



*Students from ARTech Charter School learning survey sampling techniques.*

of fundraising efforts and who have donated materials or time to this project.

What we do to engage young people in our work with rivers and focusing on meaningful experiences for growing our next generation of conservationists is challenging and so very critical. This project has brought these elements together in a way that will have a lasting impact. Thanks to the partnerships and dedicated youth and adults of MYW. I look forward to seeing the floating classroom somewhere along the Mississippi River next open water season! ♦

*For more information, visit: [www.mnyouthwaters.org](http://www.mnyouthwaters.org)*



## Welcome New RMS Members

### Professional

Brent Stroud, River Ranger – Outfitters/Guides,  
US Forest Service / Hells Canyon NRA, Clarkston, WA

Wease Bollman, President, Rhithron Associates, Inc.,  
Missoula, MT

Jenny Gieseke, Watershed Specialist, CROW JPB,  
New Ulm, MN

Jason Wilmot, Executive Director, Northern Northern  
Rockies Conservation Cooperative, Jackson, WY

### Organizational

Marley Vaughn, Executive Director, Snake River  
Funds, Jackson, WY

Kelly Kager, River Office Management Specialist,  
Dinosaur National Monument, Dinosaur, CO

### Student

Christine Bonthius, University of Texas, Austin, TX

Anna Rose Sullivan, University of Montana,  
Missoula, MT



*ARTech Charter School students learning about boating on the Mississippi River by three leading recreational boating experts.*

*Members of the Conservation Corps summer youth program work on the boat.*



# RMS Chapters

## Northeast

by Fred Akers and Judi Zuckert

With beautiful fall weather and high seasonal flows, the Great Egg Harbor River in New Jersey's coastal plain provided an ideal setting for two days of paddling on October 15 and 16, for 15 RMS members, family, and friends. This was a two day trip featuring an exploration of different segments of the Great Egg each day. Overnight, the group camped at Atlantic County's special group site, Camp Acagisca.

The first day's trip was an exploration of the reach of the Great Egg just upstream of Lake Lenape, and a tour of the lake itself. The river leading into Lake Lenape has a mix of forested high banks on one side and forested wetlands and bays on the other. The upper end of the lake has many small islands and bays, and the middle and lower lake has forested county park land on one side and a few private houses and a county park on the other.

There was a festival going on at the county park. The group stopped in for a close up look at the life-size lighthouse replica on the shore, some music, and a couple of big bags of kettle corn. After a brief brisk paddle against the wind and across the lake, the group shuttled back to Camp Acagisca. After setting up camp, everybody enjoyed a fine barbecue and great evening of making acquaintances, networking, and sharing river tales.

The second paddle trip started Sunday morning after a quick breakfast. The group launched at Weymouth Furnace Park, an old historical site upstream of Saturday's float. Everybody enjoyed a leisurely paddle down some of the winding and remote reaches of the Great Egg Harbor River that have attracted recreational paddlers for over a hundred years.

The fall colors were beginning to show. The river was beautiful, with a canopy of yellow, orange and red hardwoods over the river. The paddlers fully appreciated the scenic, natural, and recreational values that lead to the federal designation of 129 miles of the Great Egg Harbor River into the Wild and Scenic River System in 1992. The Great Egg is a designated river very different from most rivers in the national system, because there is no federally-administered land along the entire river corridor. ♦

*Note from RMS Staff: A tremendous chorus of thanks goes to Judi Zuckert for initiating and coordinating this great trip, and to Fred Akers for his generosity and expertise as host and planner!*



*Northeast Chapter Float — ready to launch on the banks of the Great Egg Harbor River. From L to R: Jenn McKinney, Paul Kenney, Rick Harris, Judi Zuckert, Frank Jenks, Chuck Barszcz, Lynn Maun, Jeff Harn, Joan Harn, Fred Akers. Photo: Steve Eisenhauer*



*Joan Harn and other chapter members make a stop at "The Lighthouse" on Lake Lenape. Photo: Judi Zuckert*

*An interesting history of this very old structure can be found on Lighthouse Digest: <http://www.lhdigest.com/Digest/StoryPage.cfm?StoryKey=470>*



## Northwest by Charlie Sperry

Even if you don't manage a river that requires a permit, every river professional should read "Allocating River Use" by Doug Whittaker and Bo Shelby (2008). Their work provides a comprehensive look at the different systems used to allocate river use when opportunities are limited. I have, however, thought of a few allocation systems that Doug and Bo failed to mention in their text that might be worth considering.

### First Through the Rapid

Under this allocation system, everyone interested in floating on a particular day would show up ahead of time at a designated location along the river and rig their boats. Oh, and the designated location would be situated just upstream from a Class VI rapid called the Flowing Fang of Molten Lava! At the allotted time, floaters would launch their boats and head downstream. The first three boats to emerge on the downstream side of the rapid, upright, with all gear and boaters on board, would be allowed to continue on their way. The rest of the folks, including those who capsized, flipped, or emerged downstream minus some of their occupants, would have to eddy out and go home.

### Ultimate Cage Fighting

I know this is a bit of a stretch but do all of the permits have to be allocated fairly? How many of you guys would like to erect a 12-foot high cage at the put-in and require boaters to engage in mortal combat to determine who gets a permit? If you are opposed to the idea of such violence, you could require all of the interested float parties to put all of their gear in the cage, lock the entrance, and see which party is the first to rig their boat and get on the water. Of course there might be some scrapping between competitors as they attempt to hoist, drag or throw their gear over the sides of the cage, but all in the spirit of good clean fun!

### Essay Contest

This allocation system is sure to be a real time-suck for managers but it could be a little more politically correct than ultimate cage fighting! Applicants would be required to submit an essay (maximum 10 pages, 9-font, single-spaced) explaining why they are most deserving of a permit. Managers could make up their own criteria for selecting the 'winners', e.g. the essay that made them cry the most, the essay that made them pee their pants, the one that made the most aerodynamic paper airplane, etc.

### On-Site Queuing

Do you remember when you were a teenager and camped out for tickets to see your favorite rock band? The on-site queuing system I am thinking about would require interested floaters to get in line at the put-in site; permits would be issued the day of the float on a first-come, first serve basis. The catch is that they would not be allowed to leave the line for any reason. I believe this is actually used on some popular day-use rivers but can you imagine

## Ultimate Cage Fighting and Other Means of Allocating Permits — A Parody

a mob of boaters camping at Lee's Ferry for months in advance to float the Colorado? Talk about a human waste management debacle. There could be people camping in the dead of winter for the chance to float in May!

### Occupy Camp Baker and the 10,000 Boater Float

With all of the people protesting Wall Street lately and assembling "Occupy Camps" in the major cities around the country, why not do the same thing for the popular rivers? Why should The Man be able to dictate who gets to float the rivers anyway? Power to the People, I say. Let's all assemble at Camp Baker on the Smith River and protest against permit systems. After a week or two of occupying the put-in, all 10,000 of us will launch on the same day! *See previous section about on-site queuing, which may be needed at the boat camps and latrines.*

### Talent Contest

I assume that most boaters have other talents besides rowing a boat. The river manager could conduct a talent contest at the put-in to decide who gets a permit. I assume there would be plenty of musical performances and song and dance routines. But with all the hard-core boaters out there I suspect there might be a few unique acts worth watching. Picture a guy juggling a dozen full Wag bags in the air while balancing a dry bag on his head. Picture an air guitar band using paddles for guitars and bail-buckets for drums. Surely someone out there can pull off a perfect Elvis impersonation while gyrating around in a neoprene wetsuit!

### The Mega-Permit

I am particularly fond of this idea. Every permitted river in the world would be subject to the Mega-Permit System. Only one permit would be issued each year creating astronomical odds of ever receiving it. The recipient of the permit, though, would be allowed to float all of the permitted rivers that year. To sweeten the pot, they would also be allowed to invite five friends to join them on this incredible odyssey. This idea is so ridiculous (like the others aren't!) that we might as well make it so the winner of the Mega-Permit would have all of their expenses paid, receive a year-long sabbatical from their job, and be relieved of all obligations on the home front.

Good Luck trying out these new allocation systems!

*Postscript: Soon after submitting this story, Northwest Chapter President Charlie Sperry received a Mega-Permit in the mail. He immediately left his job in snowy Montana and is now floating on a permitted river somewhere in Patagonia with five of his friends. He is unaware that the officials there use ultimate cage fighting at the take-out to determine who has to pay a \$10,000 float fee. He is also unaware that his agency failed to sign the Mega-Permit Treaty and is now in the process of refilling his position.♦*

*(Board, from page 3)*

It's unusual for a small nonprofit to elect its officers by a national vote. Usually, the board itself selects its own leadership from among its members. But as members, is that national election important to you? Voter turnout in the last two national elections has run around 25 percent, which would suggest most of you aren't that concerned about who's running the store.

The current 12-member board of directors seems to be a pretty good size—not so large it needs subcommittees to get things done, but large enough to produce diverse opinions and good ideas. If the board selected its own leadership (annually, for example), we'd need to find a way to expand the board beyond the current eight chapter presidents. Creating more chapters would do that, but that would require splitting North America up into even smaller pieces than we do now. And to be honest, some chapters have struggled over the years to find people willing to lead. The Midwest Chapter struggled in the late 1990s, the Pacific Chapter had leadership issues more recently, and the Northeast Chapter has been without a president for over a year. Would creating some at-large positions be a good idea? We've had recent experience with individuals very willing to serve on the board, but they live in chapters that already have very active leadership—creating at-large positions would help foster that leadership.

There are other ideas. We could establish a chair at the table for a student representative, enabling us to bring a graduate student onto the board.

We're not going to do anything quickly, and we'd very much like to hear what the members think. Email comments will be welcome through April 25, when we'll meet with symposium attendees and see what everyone there has to say. ♦



*(Wards Ferry, from page 7)*

inadequate relative to vehicular access, logistics of transporting boats from the river to the upper bench, secure private-boater vehicle parking, and navigation of outfitter shuttle buses. Neither boater satisfaction and preferences relative to these needs, nor sanitation facilities, were clearly addressed in the licensee's PAD.

A study request was designed to assess the feasibility of improving the existing take-out location for use by whitewater boaters at the upstream end of the Project. The licensee would evaluate the feasibility of physical improvements at the Wards Ferry Bridge location and also assess the feasibility of alternative take-out locations. Site characteristics were to be examined at the existing take-out and alternative locations, and would analyze: proximity to the terminus of the whitewater run, proximity to improved roads, site topography and bank slope, and the presence of sensitive resources. Site conditions would be detailed qualitatively, described narratively, and photographed.

Another element of the study request involved the use of focus groups and interviews and/or questionnaires with guides and boaters familiar with the Tuolumne River and the Wards Ferry Bridge take-out. This information would be used to learn about use of the existing site, potential improvements, and alternative sites. Volunteers for the study team would be identified through information provided by relicensing participants knowledgeable about Tuolumne River whitewater boating, agencies responsible for managing the river, professional guides, and other outfitter employees. The request directed the licensee to include both professional outfitters and recreational whitewater boaters on the study team. Focus group meetings and interviews would be scheduled for a time of year when rafting professionals will most likely be available (i.e., not during rafting season).

After continued negotiation and study plan tweaking, the licensee agreed to conduct a specific study, Whitewater Boating Take-out Improvement Feasibility Study in 2012. Information from the site assessment(s) and guides and boaters will be used to inform proposed alternative take-out locations and potential improvements. ♦

*Harry Williamson is the owner of Wilco Consulting, based in northern California.*

*(Frogs, from page 10)*

of eggs. Scouring can occur if water flows increase substantially after eggs have been laid. Stranding can occur if the flow recession rate is too fast relative to the time it takes for eggs to develop and the water depth at which the eggs were laid. Egg development time is dependent on water temperature, but typically ranges from 2-3 weeks in mid-elevation Sierran rivers. At river cross-sections where frogs breed, gradual (9% to 3%) daily percent changes in flow translate to gradual changes in water depths that protect frog eggs from stranding and allow tadpoles to successfully develop through the summer.

When viewed in terms of daily percent change, down-ramp rates in regulated rivers are typically very high (~60%-85%). This often results in abrupt changes in water depth over very short time-frames, as high flows are quickly reduced to static summer baseflows. These changes can strand frog egg masses and leave other aquatic species (e.g., aquatic bugs and algae) high and dry. Implementing down-ramp rates in regulated rivers that mimic natural flow patterns using a daily percent change approach (i.e., daily flow decreases of <10%) has the advantage of being readily understood by dam operators and being protective of foothill yellow-legged frogs and other native riverine species. ♦

*Amy Lind works at the Pacific Southwest Research Station, of the USDA Forest Service. Sarah Yarnell is at the Center for Watershed Sciences, University of California, Davis.*

*(Spring Runoff, from page 11)*

system is teeming with life. It's free of the stresses that come during the erratic flows of the winter and low flows of the summer, giving the river a chance to come alive. Bringing this time back to rivers regulated by dams can provide a key restoration opportunity for all species that call the river home – including humans. It's a clear example of how what's good for the river is good for recreation, and American Whitewater is proud to be a part of the effort to restore natural flow regimes on rivers impacted by dams throughout California and the west. ♦ (see adjacent photos)

*Megan Hooker is part of the American Whitewater Stewardship Staff.*

(Deschutes, from page 9)

developed a full consensus by all participants for the following:

1. Conduct a Systemic, Basin-Wide Water Balance Model

- Basin-wide weekly time step.
- Include all reservoirs in the Crooked River (Ochoco, Bowman), and the Deschutes River (Crescent, Crane Prairie, Wickiup).
- Use existing gauging stations (which have historic flow data) as model nodes.
- Build in installing hydropower at existing dams where it's economic/feasible (Wickiup, Bowman, maybe others).
- Incorporate the major diversions on both rivers.
- Use the model with flows information to feed into the ODEQ water quality model.
- Create a visual, user friendly interface, web-based tool to present results, and analyses of the model.
- Show how the flow scenarios impacts or achieves the outcomes for the Opportunities Assessment goals, including increasing hydropower, improving the environment and protecting existing basin uses.
- The model results allow stakeholders to evaluate policy and other choices.

- *Note: Stakeholders agreed that his needs to be a basin-wide, systematic effort. If research resources are limited then it may result in a "skinier" research effort, but it needs to be systemic/basin-wide.*

2. Small Hydro (In Canal/In Conduit) Case Study

3. Conduct a Basin-Wide Analysis of In Conduit / In Canal Hydro Opportunities

- Highlight projects done to date noting the creative approaches to achieve in canal hydro along with improved water conservation with combined funding approaches. Not the issues of significance (e.g., interconnection costs, other).
- Catalog specific small hydro (in canal/conduit) opportunities across the basin, including information from the Bureau of Reclamation's assessment underway, the Oregon Energy Trust report, and Irrigation District information, municipality information, and others.
- Include how these projects can both add hydropower and improve the environment, such as increasing water conservation by adding relatively short penstocks, or other means.

- Identify potential funding sources, including other DOE initiatives.

**Next Steps**

Moving forward, the Project Team, including DOE national laboratories and local stakeholder representatives, will finalize a Preliminary Draft Opportunity Assessment Report, including the research plan. The draft report can be accessed at <http://basin.pnnl.gov/>. Then the DOE team will work with the local committee and workshop participants to collaborate on the research effort through 2012.

**Conclusion**

The Deschutes River Basin Opportunity Assessment offers a new model for potentially enhancing low impact hydropower while enhancing the environment and addressing other values important to the Basin. It's an opportunity to potentially identify win-win-wins. Collaboration with experts and diverse local stakeholders is essential for success. It's an important initiative to monitor to see if thinking more broadly in a basin and with multiple objectives can create greater outcomes for all. ♦

*Simon Geerlofs, Pacific Northwest National Laboratories, and Bo Saulsbury, Oak Ridge National Laboratory, submitted this article on behalf of the Department of Energy. Anna West is a Principal with Kearns & West, a collaboration and strategic communications firm in California.*



**Spring Runoff:** Vegetation takes hold on California's North Fork Feather River, where the gradual recession of annual spring flows to summer base flows is absent. In a healthy river system, the trees in the picture on the right would be further up the bank. It takes only a short amount of time for the vegetation to take hold. The picture above was taken in 2002, while the picture on the right is from 2009.



tions of providing for recreation use, but regardless of this, many agencies provide a wide variety of recreation opportunities in diverse settings.

### Liability issues

Liability is perhaps the most challenging issue, one we all think about but only a few (lawyers) are trained to sort out. It seems obvious that one cannot sign every hazard on a river, and yet there are cases where agencies have been sued for not having signs (e.g., the Virginia low head dam case). However, more hazard signs on more rivers probably increase the odds that someone will point to them and argue that “signs should have been in place” when an incident occurs.

### Conclusion

As with many outdoor activities, elements of risk and challenge may be part of the attraction of river recreation, and agencies attempt to balance safety concerns with providing opportunities for users to test their skills. There are inherent risks to boating, swimming, wading, or fishing, and many argue that users assume those risks when they enter a river corridor. There is a considerable literature about safety and risk in river recreation and a “code of safety” about actions that individuals can take to be responsible for their safety (American Whitewater, 2011). But some land managing agencies still assume responsibilities for hazards in their areas. It may make sense to develop decision processes that consider actions (including hazard signs) to help users make informed decisions about their activities. This article is only a starting point for “things to consider.”

To take the conversation further, a database describing hazard signs on rivers also could be helpful. We are willing to develop one “for the good of the order” if people want to send us information about the hazard, the sign, and the decision that was made to place the sign (email to [dougwhit@alaska.net](mailto:dougwhit@alaska.net)). It’s okay if you can’t provide everything, but the database would be most useful if you could include descriptions of the following:

- Text and picture of the sign
- Managing agency
- Designation of the river
- Type of hazard (e.g., log, engineered log structure, low head dam, natural rapid)
- Class of rapid and next most difficult rapid on segment
- Level of development (ROS setting, if applicable)
- Remoteness of setting
- Types of use
- General skill level of users

### Post Script

*The saga of Big Falls continued. In 1988 twelve people in two rafts made a second inadvertent run, and another boater fell into the last drop while portaging; they all flushed out at the bottom (Amaral 1998). Shortly after, Grant Amaral observed the successful line of an unmanned cataraft that had gotten loose from the portage eddy, and he soon made the first “intentional and in your boat” run. A low-water Big Falls Festival followed, and the drop is now run regularly by the highly skilled. The original sign (which was probably user-created) has not reappeared as far as we know. But Big Falls is still a Class V-VI rapid in an otherwise Class III-IV run, presenting challenges to boaters and those who might consider a sign to warn them.◆*

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- Wozniacka, G. and T. Cone. 2011. Yosemite deaths a reminder of rivers’ risks. Associated Press article reported in Seattle PI. July 24, 2011.
- ### Listserve contributions
- The following is a list of people who have contributed ideas on this topic via the RMS list serve, with a few notes on the issues they addressed. They deserve credit when we have cited them, but they are not responsible for how we characterized their ideas. We encourage you to read their specific comments via the listserve archives (2011 comments are not yet in the archives).
- Sue Baker. 2011. Information on Husum Falls sign on White Salmon River, WA.
  - Mollie Chaudet. 2011. Started the topic thread in 2011 in reference to Deschutes River, OR.
  - Charlene Coleman. 2005. General opposition to signing.
  - Lori Crystal. 2005. Liability issues and education. Grand Canyon.
  - Heath Emmons. 2011. Signs on Delta and Gulkana Rivers in Alaska.
  - Robertson, Jason . 2005. Considerable history on signing and safety on Great Falls on Potomac River.



- Linda Hagedorn. 2011. General opposition to signing on multiple western rivers.
- Patrick Hattaway. 2005. Support for signs instead of modifying a rapid. Grand Teton National Park.
- Kevin Hendricks. 2005. Started thread on topic, especially related to logs/strainers. Olympic National Park.
- Herm Hoops. 2011. Some history on signs at rapids on Green and Yampa rivers through Dinosaur National Park, CO (general opposition).
- Rachel Howard. 2005. Opened thread on education / outreach related to hazards on Potomac River.
- Denny Huffman. 2005. History on Green, Yampa, and Cataract signs.
- Sara Jansen. 2005. Need for education and personal responsibility related to Potomac River hazards.
- Stew Pappenfort. 2004. Signs at Frog Rock Rapid on Arkansas, CO and need for case by case assessment.
- Jen Reed. 2011. No signs on Arctic Refuge rivers, AK.
- Stuart Schneider. 2005 and 2011. Signs on Niobrara River, NE.
- Jim Sergerstrom. 2005. Information outreach can be helpful.
- Dan Todd. 2004. Opened thread on advisability of modifying or signing Rock Quarry Rapids on East Fork Russian River, CA.
- Charlie Walbridge. 2004. Importance of case by case assessments; specific information about sign on Dimple Rock Rapid on Youghiogheny River, PA.
- Rick Waldrup. 2011. Signs at access areas only on rivers near Dillon, MT.
- Paul Willard. 2005. Need for case by case consideration on rivers near Lowman, ID.

## RMS Enters Brief before the US Supreme Court

Dennis Willis, RMS Vice President

The River Management Society has joined with The Nature Conservancy, National Wildlife Federation, Trout Unlimited and 25 other groups in filing a brief for the Supreme Court of the United States in the case of PPL v. Montana. Our brief is an Amicus, or friend of the court, RMS and the other organizations are not direct parties in the case.

PPL is a corporation licensed to do business in Montana generating commercial power. It owns ten hydroelectric dams on the Missouri, Clarks Fork and Madison rivers. In 2003, Parents of Montana School Children brought suit against PPL, PacifiCorp and Avista for unpaid rental on the land occupied by hydropower facilities. PacifiCorp and Avista settled the case and agreed to pay rent. PPL has continued to litigate.

Eventually, the Montana Supreme Court ruled the rivers were navigable and thus held in trust by the State of Montana and upheld the required payment of back rent in the amount of nearly \$41 million. PPL has appealed the ruling and it will be decided in this current term by the US Supreme Court. Briefs from all parties, including Amicus briefs were filed the first week of November. Oral arguments may be this winter and a decision is expected this summer.

This is the first time RMS has become actively involved in litigation. The reason we engaged in this case is the river management issues and implications are crucial to the future of our nation's rivers. RMS believes rivers are best managed in a holistic fashion for the benefit of the public trust. Management of rivers is complex and difficult enough without each riparian land owner exercising individual sovereignty over the river bed and banks. The crux issue of this case is whether or not the Montana Supreme Court correctly declared these rivers navigable and held in trust for the people. PPL is arguing the Montana court erred, and should have determined navigability on a section by section basis and that an obstacle that requires portage is in fact a non-navigable section. This approach could allow any riparian land owner to argue the rapid, fall, rock or gravel bar, adjacent to their property renders the stream non-navigable through their property.

A copy of the Amicus Brief may be read in full on the RMS website. The RMS executive board is pleased to support this action and appreciates the efforts of all the organizations involved in the brief. We also appreciate the advice and counsel of our legal advisor, Dave Ryan and financial advisor Ken Ransford. Alaska chapter member, Dave Schade, is a subject matter expert on the topic of submerged lands. Dave was very generous and helpful in reviewing and commenting on the brief.

This is not the last thing RMS will have to say on the topic of holistic management and public trust doctrine as it relates to rivers. A policy committee, lead by Dave Schade, will be preparing a policy statement for the organization. ♦

## News from the Canadian River Management Society

by Michael Greco

The CRMS made great progress in our work and presentations at a newly-created public fora launched in Ottawa, September 27, 2011, and to run across Canada. These “Capital Conversations,” sponsored by the Ottawa-Gatineau National Capital Commission and The Royal Canadian Geographic Society, are dedicated to ‘identifying’ the best 4 or 5 major projects for the nation’s capital over the next 10 to 50 years (in celebration of the 150th and 200th Anniversaries of Canada as a nation, 2017 and 2067 respectively ... the “Confederation” of our very first provinces was formed in 1867). If I can gauge it properly, the Ottawa River will be the prime focus for major environmental clean-up efforts, river walks, and other local, community-based arts, entertainment and tourism-focused activities to bring people into much greater personal contact with the Ottawa River and the Rideau Canal, in Ottawa.

The major ‘building project’ identified was the creation and development of the Victoria Island Aboriginal Healing Centre and Museum (\$140 million plus \$40 million for the environmental clean-up required, in any case, for the site), something which I am now convinced, after working on this for the past 15 years, will see the ground turning in 2013, a very significant year for the First Nations of North America ... and the ribbon cutting for the completed facility on July 1, 2017. To put it in perspective, we (5 to 25 of us) have written to and met in person with five Prime Ministers and four Governors General of Canada over the past 20 years to get this thing done. The project is the Vision of North American ‘Ojibway’ Hereditary Chief, Grandfather William Commanda and his best friends -- Canadian Canoe Museum and Canadian Recreational Canoeing Association (CRCA - now Paddle Canada) founder Kirk Wipper, and world-renowned architect, Douglas Cardinal (e.g., the Museum of the American Indian in Washington DC and the Canadian Museum of Civilization in Ottawa ([www.douglascardinalarchitect.ca](http://www.douglascardinalarchitect.ca))).

In the grander scheme of things, think of this project as embodying: 1. The International Museum of the World’s Indigenous Peoples; 2. The World Centre for Native Studies; 3. The International Institute for the Study and Preservation of Native Languages; 4. The International Centre for Truth and Reconciliation of Native Peoples in the Circle of All Nations (Elder Commanda’s vision quest ... [www.circleofallnations.ca](http://www.circleofallnations.ca)); and, 5. The International Centre for Aboriginal Performing Arts. Think of it as the Smithsonian’s Institute of the World’s Native Peoples. As I was in line to give my presentation at the specially set-aside ‘Aboriginal’ Session of the Ottawa forum on Sept. 27, I noticed that most of the presenters were identifying themselves by their names and the ‘First Nation’ they represented.

So I identified myself as: Michael Greco representing the Italian First Nation of Sault Ste. Marie, Ontario. I was a bit nervous, so I don’t really know how well that went over.

On some other notes of interest. we are hopeful that ‘Canada the Movie’, a two-hour, made-for-TV feature film, concentrating on the early history of the native peoples of Canada, will be released in Canada this fall. And, there is now a terrific “Blue Water Project,” sponsored by The Royal Bank of Canada, RBC. The project consists of a map of all the watersheds of Canada in particular, with a tremendous amount of information on each as you dive deeper and deeper into them (Google “National Geographic -RBC Blue Water Project”). It is described as follows: “RBC, one of North America’s largest financial institutions, has a history of philanthropy and community involvement dating back to the 1890s. In late 2007, water became a priority for RBC’s community and environmental programs, with the launch of the RBC Blue Water Project. RBC is recognized among the world’s financial, social and environmental leaders and contributed \$99 million to community causes worldwide in 2008 through donations and sponsorships.”♦



*Michael Greco, William Commanda, and Kirk Wipper—  
Peterborough Petroglyphs trailhead, 2005.*

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Fax \_\_\_\_\_

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Duties/interests \_\_\_\_\_

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Membership Category (please check one)

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

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## Dear RMS Members:

Please keep current at [www.river-management.org](http://www.river-management.org) by logging into the Members section. Click "To view or change your account information." Thanks!



Next RMS Journal Deadline (featuring the Alaska Chapter): Submissions are due Feb 1, 2012.

## 2012 RMS Awards

It is time again to nominate individuals who have made significant contributions to river management, or who best exemplify the spirit of RMS.

Recipients will be honored in April 2012 at the North American River Management Symposium in Asheville, North Carolina.

We invite you to nominate individuals who deserve recognition in these award categories.

**Deadline:**  
**Nominations due**

**March 1, 2012**

**Submit online:**

**[www.river-management.org](http://www.river-management.org)**



### **Outstanding Contribution to the Field of River Management**

- Advanced the field through contributions in science, education, interpretation, research, and/or law enforcement;
- Developed innovative (or creatively adapted) river management techniques;
- Organized major conferences, meetings, etc., that advanced river management as a science and as a profession;
- Developed or implemented new communication techniques to coordinate and connect river managers;
- Increased awareness by citizens and river visitors of their role in caring for rivers and watersheds; and/or
- Was an outstanding advocate for and promoted professional river management and outdoor ethics.

### **Outstanding Contribution to the River Management Society (RMS only)**

- Donated considerable time, money, or effort in advancing RMS;
- Brought new and positive private and public awareness of RMS;
- Increased membership through new channels or hard work;
- Developed or located new sources of funding or resources for RMS;
- Provided exemplary service to RMS through an elected office; and/or
- Provided an outstanding example of the RMS spirit, mission and goals.

### **Frank Church Wild and Scenic Rivers (sponsored by the IWSRCC)**

- Advanced awareness of WSRs through public contact, technology, training, interpretation, education, research, law enforcement;
- Worked effectively and cooperatively with user groups, private landowners, and/or the general public;
- Demonstrated, developed, or adapted innovative WSR management techniques;
- Organized conferences, training, etc., which involved and advanced WSRs;
- Established and/or encouraged partnerships to protect and manage WSRs;
- Developed or used communication techniques fostering coordination among WSR constituencies;
- Provided opportunities for new or positive awareness for WSRs; and/or
- Exhibited leadership in promoting and protecting WSRs.

### **River Manager of the Year (RMS only)**

- Provides leadership in promoting and protecting natural, cultural and recreational resources;
- Works effectively and cooperatively with user groups, private landowners, and/or the general public;
- Establishes long-term partnerships to protect and manage the river corridor;
- Creates an effective, professional and enjoyable working environment; and/or
- Works to protect the river within the context of the watershed and beyond designated lines on a map.