

May 15, 2008



Welcome to the newsletter about all things water in Montana!

MONTANA WATER NEWS will come your way via email every month with fresh news about meetings and water topics that we hope is of interest to you. *If you do not want to receive this newsletter, please contact the Montana Water Center.*

Features

This month's feature article highlights the work of Mike Roberts, a surface water hydrologist for the past nine years with the Montana Department of Natural Resources and Conservation (DNRC). Mike is also President of the Montana Section of the AWRA. This article explores that work and also addresses the upcoming Montana AWRA Conference in Big Sky, Montana October 2 and 3, 2008. Mark the date!



*Mike Roberts - Surface Water Hydrologist, DNRC
Montana AWRA President*

Mike, with a bachelor's in geology and an M.S. in forest hydrology, has worked on water resources issues in Montana as a private consultant and a state employee since 1987. His special areas of interest include surface and groundwater interactions, the effects of irrigation management on basin hydrology, and all facets of water measurement. His work with DNRC has focused on hydrologic studies in the Bitterroot, Blackfoot, Upper Clark Fork, Smith and Yellowstone river watersheds. Mike's present duties include training water commissioners in Montana and technical hydrologic support to a multi-agency water and stream conservation effort in the upper Big Hole River watershed.

Q: You spend a lot of time working in the Big Hole on water management issues. What specifically are you addressing?

A: The Montana Department of Natural Resources and Conservation (DNRC) provides technical and water rights support to a multi-agency partnership that addresses streamflow and habitat issues associated with Arctic grayling recovery in the upper Big Hole River watershed. The project falls under the U.S. Fish and Wildlife Service program called Candidate Conservation Agreement with Assurances (CCAA). The CCAA provides landowners protections from regulatory recourse under the Endangered Species Act should the grayling get listed, as long as they comply with site-specific conservation plans developed with the agencies. As you might expect this requires an extensive monitoring program to track streamflows and water use throughout the upper

Big Hole Valley. Our goals are to improve flows during critically low flow periods as well as the duration and frequency of channel maintenance events. However, it is important to note that grayling recovery is not just about improving streamflows. Grayling recovery also requires habitat improvements that result from stream bank re-vegetation and stabilization.

Central to program implementation is the cooperation of landowners in the upper basin. Several years of streamflow and diversionary data collected by DNRC indicate that improvements to instream flow and habitat can be made without detrimentally impacting hay crops. In fact, they may improve the viability of their ranching operations.

Q: How have the last few years of drought and summer heat impacted your work?

A: Despite the effects of early snowmelt, warmer than normal spring and summer temperatures, and cumulative drought conditions, we've been able to show relative improvements to streamflows the past several years. From a less quantitative perspective, the cooperation and awareness of the irrigators to work with the agencies to satisfy the needs and requirements for instream flows and habitat improvements has been amazing.

Q: What are some of your (DNRC's) objectives for the upcoming year?

A: We will continue to monitor stream and ditch flows to provide long-term and baseline information. We are at the point now of formalizing the CCAA agreements with landowners. A big component of that is developing flow and irrigation management strategies. Until recently, contributions to instream flows in the upper Big Hole River have been voluntary and a function of the agencies asking landowners to cut back their diversions in times of need. Using flow and water rights data, DNRC will spend this upcoming irrigation season meeting with irrigators on the ground to work out signed diversion reduction agreements that will put water back into the river during times of instream shortage.

Q: What types of measurements do you use?

A: The development of the flow agreement component of the CCAA has to be quantitatively based. Irrigation system efficiency, crop demand, return flow dynamics and water availability are all part of the picture. We have been collecting basin inflows, as well as mainstem and diversionary data for the past nine years. In addition, synoptic flow measurement runs have revealed the timing and magnitude of in-channel gains and losses in key reaches and provide us with information where landowner flow contributions will be most beneficial. These data, combined with historic irrigation use and our own recent experiences with voluntary flow reductions, provide the basis for developing these plans. In addition, we also rely on data and conclusions from past and present return flow studies produced by the Montana Bureau of Mines and Geology (MBMG).

Q: What new challenges do you anticipate?

A: Working with so many landowners in a basin that is exclusively wild flood irrigation presents many water management challenges. Many of these operations have been

irrigating the same way for over 100 years. Understanding the spatial and temporal intricacies of multiple irrigation operations is certainly difficult and will require not only data but communication with the irrigators. The other obvious challenge is climate. When and how snowpack runs off and meeting irrigation and instream demands during record or near-record hot and dry summers seems to be a challenge every year.

Q: What surprises you most about this work?

A: Definitely the cooperation and buy-in we have received from the landowners in the upper Big Hole. At this time 31 landowners and over 200,000 acres have been enrolled in the program. While it is certainly to their advantage to enroll in the program, I've been encouraged by the level of engagement many of these folks have taken with the program and with taking care of the Big Hole River. It is clear to me that while maintaining their hay and cattle operations is paramount to their way of life, ranchers also have a deep appreciation and commitment for sustaining the integrity of the Big Hole River.

Q: In addition to your water resources work with DNRC and others around the state, you have also taken up the mantle of President of the Montana Section of the American Water Resources Association (MT AWRA). What do you plan this year?

A: The Montana AWRA is gearing up for this year's 25th Anniversary conference. It will be held at Big Sky Resort October 2 and 3. This year's conference, aptly titled, "Water Sustainability: Challenges for Montana" is likely to attract the usual stellar presenters pulled from the ranks of our esteemed membership, as well as a few special guests. Big Sky provides spectacular local hydrology and geology, but also is grappling with many of the sustainability issues Montana water resources face in 2008. Needless to say, we are excited for this year's event.

When organizing these conferences, we the officers strive to maintain some consistency with past conferences, but also attempt to offer new ideas and concepts to improve the conference for the membership. Recent examples include the free pre-conference workshops on wetlands and irrigation management at the last two conferences. While there will be no pre-conference workshop before this year's conference, we will continue an exciting component started last year for our student presenters. The top student presenter will be offered an expense-paid trip to the National AWRA conference in New Orleans November 17 – 20. We hope this will encourage our great student base to participate at Big Sky.

Q: Will there be other changes?

A: As we - the officers and Water Center staff - begin to promote the conference, members may notice that Montana AWRA has raised the conference registration fee this year for the first time in several years. Part of the reason for this is due to higher costs for conference services. In addition, MT AWRA is also contracting for print and web publications associated with the conference. The Montana Water Center continues to be a vital partner with Montana AWRA, but due to recent budget shortfalls, the Center cannot cover these costs this year, as it has in the past.

We are committed to providing the membership with quality conferences in locations that show off the great State of Montana. Consequently, we feel your investment will be worth it as Big Sky promises to be an excellent venue. In addition, our 25th Anniversary program, excellent presenters, good food and the high quality information exchange we all enjoy will combine to make this a rewarding professional and social experience.

Announcements



**25th Annual Meeting of the
Montana Section of the American Water Resources Association
Call for Abstracts!**

The Montana AWRA is requesting abstracts for oral and poster presentations for its 25th annual conference in Big Sky, Montana, October 2–3, 2008. Abstract submission deadline is Monday, June 30th. Please submit your abstract electronically at:
<http://water.montana.edu/awra/abstracts/default.asp>

Oral presentations are limited to 20 minutes, including questions and answers. Or, you may present a poster at the Thursday evening poster session. Please indicate your preference of either an oral presentation or a poster on the abstract submission site. Questions? Call 994-1772 or e-mail water@montana.edu.

(Please note – The abstract submission page still refers to the 2007 conference. This will be changed as soon as possible, but it will not impact your submission.)

MWCC's Spring Watershed Coordinator's Training

MWCC's Spring Watershed Coordinator's Training will be held May 21-23, 2008 at Fairmont Hot Springs. The training is open to all interested coordinators and administrators who work at a local level. Make your own room reservations at Fairmont Hot Springs. Send the \$25 registration fee, Payable to Montana Watercourse, to: Debbie Zarnt / PO Box 170575 / Bozeman, MT 59717. Send registration and scholarship forms electronically to JMCBROOM@co.lewis-clark.mt.us Contact Andrew Jakes at 444-7425 or Debbie Zarnt at 994-1910 for any questions.

12th Annual Water & Wastewater Summer School

The Montana DEQ will again offer its annual water and waste water summer school and certification. It will be held May 21 – 22 at the Helena College of Technology Donaldson Campus, 1115 N. Roberts Street. The school is designed for both entry level and experienced operators and managers. It will feature an array of water and wastewater related topics and presentations, including wells and lagoons to chlorination/disinfection of water treatment facilities.

Although the school is not designed to prepare operators for the certification exam, exam prep sessions are scheduled concurrently for the summer school, and put on by Montana Rural Water System at no charge. Participants can register at www.msun.edu/grants/metc then click on “Quarterly Training.”

AWRA Sponsorship Opportunity

The 25th Annual Conference of the Montana Section of the American Water Resources Association will be October 2 & 3, 2008 in Big Sky, Montana at the Huntley Lodge. Nearly 200 scientists, natural resource managers, students and guests will be in attendance. Collectively, this group contributes greatly to the scientific and public knowledge necessary to sustainably manage water resources and water delivery systems throughout the state of Montana. If your company or organization wants to help sponsor the conference, there are refreshments, meals, student sponsorships and a field trip you can help support. Sponsorships range from \$250 to \$1,000. Your company or organization will receive multiple types of recognition at the conference, in attendee registration packets, as well as in our publications and on the conference website. For more information, contact Steve at sguettermann@montana.edu or 994-1772.

MWC 2008 Calendars

The Montana Water Center has limited extra copies of their 2008 calendar available on a first come, first serve basis. To receive a copy, email nancy.hystad@montana.edu with your mailing address.

Rivers Awareness Partnership News

Tom’s of Maine Rivers Awareness Partnership is sponsoring a “message in inspiring others to make a difference for rivers” video contest through YouTube between May 1 and October 31, 2008. The grand prize is a Toyota Prius. Entry forms and rules will be posted at www.tomsofmaine.com/savingrivers beginning May 1. All entries must follow YouTube’s terms (no more than 10 min, 100MB, etc.) and final entries will be judged on content, creativity and persuasiveness of subject matter.

Spring Wetlands and Habitat Tour

The biennial Spring Wetlands and Habitat Tour sponsored by the Montana Wetland Council and the Montana Wetlands Legacy Partnership will be held in Southwest Montana, June 10-12, 2008. For more information or to register contact Carol Gilmore at cgilmore@mt.gov no later than May 20.

Channel Migration Zone (CMZ) Delineation Workshop

The Northwest Environmental Training Center presents the Channel Migration Zone (CMZ) Delineation Workshop from June 18-20, 2008 at the Silver Lake Winery in Yakima Valley. This workshop will provide participants with a basic understanding of channel migration zones (CMZs), including the principal factors influencing channel migration, appropriate methods for mapping historic migration zones, erosion and avulsion hazard areas, and identifying future migration areas. For more info visit: http://www.nwetc.org/hyd-404_06-08_spokane.htm

Salmonid Conservation Series 2008

The Northwest Environmental Training Center (NWETC) presents The Salmonid Conservation Series 2008, held in Anchorage, Seattle and Portland this year. The conferences include “The Ecology of Pacific Salmonids” and “Pacific Salmonid Spawning Habitat Restoration”. For a calendar of events for the series, visit NWETC’s website, <http://www.nwetc.org/training.htm>

NESC offers new drinking water products

The National Environmental Services Center (NESC) helps small communities by providing wastewater, drinking water and solid waste information, and referral services and they are now offering new drinking water products. To learn more about these products, visit the “New Products” page on NESC's Web site: www.nesc.wvu.edu/nsfc/nsfc_resources.htm

Books & Resources

In the midst of the wet spring weather, why not tend to some quality water-related reading? Here is a compilation of comprehensive and up-to-date water publications:

A Guide to Montana Water Quality Regulation has been revised again this year by Joe Kolman. The manual addresses water regulation, the water quality act and its permit process, water enforcement and compliance, water quality assessment, public and community water involvement and much more. Copies are available from the Water Center.

A Guidebook to Montana Ponds – What You Need to Know about Ponds and Alternatives is designed to help with restoration questions, gain technical assistance and learn how to meet legal permitting requirements. The Montana Watercourse provides this resource for

free. Call 406-994-6671 or email mtwatercourse@montana.edu . The Guidebook can also be downloaded from the Montana Watercourse website: <http://www.mtwatercourse.org/Publications/Publications.htm>

Water War in the Klamath Basin: Macho Law, Combat Biology, and Dirty Politics (2008) by Holly D. Doremus and A. Dan Tarlock. This book explores the drought summer of 2001 upon which a simmering conflict between agricultural and environmental interests in southern Oregon's Upper Klamath Basin turned to chaos when the federal Bureau of Reclamation shut down the headgates of the Klamath Project to conserve water needed by endangered species. This was the first time in U.S. history that the headgates of a federal irrigation project were closed.

Water Reuse: Issues, Technologies and Applications (2007) was co-written by several water reuse experts and researchers. It provides in-depth coverage of water reclamation and reuse applications, current issues and developments in public health and environmental protection criteria, review of current advanced treatment technologies, and practices and consideration of planning and public participation of water reuse.

The Toxicology of Fishes (2008), edited by Richard T Di Giulio and David E Hinton, analyzes interactions of chemical contaminants with freshwater and marine fishes. It includes discussions of bioaccumulation, toxicokinetics, biotransformations, mechanisms of toxic action and adaptations to chemical stress. It also discusses how specific biological systems in fishes can be impacted.

The *Hydrogeology Field Manual (Second Edition)* (2008), by Willis D. Weight, head of the Hydrology Program at the Department of Geological Engineering at Montana Tech. This book provides the latest information on applied applications in groundwater sampling and water-quality assessment, aquifer characterization, contamination issues, karst applications and more. It is filled with tips, tricks-of-the-trade and anecdotes from seasoned field hydrogeologists.

Water Implications of Biofuels Production in the United States (2008), written by the Committee on Water Implications of Biofuels Production in the United States, National Research Council. This study reports that if projected increases in the use of corn for ethanol production occur, the harm to water quality could be considerable, and water supply problems at the regional and local levels could also arise. The council examines policy options and identifies opportunities for new agricultural techniques and technologies to help minimize effects of biofuel production on water resources.

Dry Spring: Coming Water Crisis of North America (2008), by Chris Wood, was written in the tradition of Jared Diamond's *Collapse* and Tim Flannery's *The Weather Makers*. *Dry Spring* is an explosive book on the coming water crisis and what we need to do to prevent it.