NOVEMBER 2013 NEWSLETTER

CONTENTS

GOVERNMENT GOINGS-ON

Near the end of the ADD Water process, participants came to the realization that moving more water through the CAP canal would involve questions not just of extra capacity, but of how much had to be delivered when and to whom. Accordingly, Central Arizona Water Conservation

District, which operates the canal, began looking at what might happen under a wheeling agreement to allow additional water over and above the current CAP allotment of 1.6 million acre-feet to flow down the canal.

Wheeling of non-Project water is governed by the 1988 Master Repayment Contract between CAWCD and the Bureau of Reclamation, and two sections (8.17 and 8.18) are particularly relevant. Section 8.17 refers to Federal rights, and the Bureau of Reclamation actively protects these rights on behalf of Native Americans and others. Sub-contract holders like cities also want their existing deliveries protected.

The challenge to CAWCD is that deliveries are desired at different times and in different amounts across the length of the canal. Annual allocations are not spread evenly across the year. Upstream from Lake Pleasant, deliveries are maximized in the first few months; from Lake Pleasant to Picacho Peak deliveries spike from April through September; south of Picacho Peak deliveries have a more uneven pattern favoring the early part of the year. Allowance must be made for system maintenance and even breaks in the 27-year-old canal. In some months the canal is running full-bore, and in some months there is extra capacity.

CAWCD is focused on how to manage capacities while still protecting all customers by moving some deliveries to off-peak months. Increased recharge capacity could result from peak management techniques, and non-Project water for shorter-term industrial customers could be moved. The benefits of a successful negotiation of a wheeling agreement with the Bureau of Reclamation could be substantial for Arizona. It is a good thing that CAWCD is planning for the most efficient use of the canal.

Alan Dulaney

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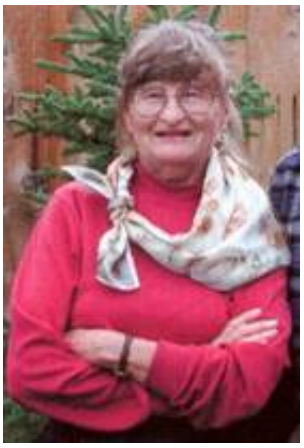
PHYLLIS LINDBERG MEMORIAL

Phyllis (Thiel) Lindberg, 1933-2013



On October 17, 2013 Phyllis Lindberg, a resident of Sedona since 1971, died in an untimely accident in West Fork Canyon of Oak Creek. The day was resplendent with fall colors and late-blooming flowers found within the canyon's unique ecosystem, a place of very special meaning to her over many years. Phyllis was hiking with four other women hiking friends and admiring the magnificentcanyon scenery. Quite unexpectedly a large tree uphill fell toward the group while they were enjoying lunch along the tranquil setting of West Fork Creek. It took the life of Phyllis in an instant, ending a very wonderful and long life of a remarkable woman 80 years young. Her event-filled life ended in one of Planet Earth's most beautiful settings.

Phyllis was born in Minneapolis, Minnesota and raised on a small farm in the western part of the state. Her early education was in a rural one-room schoolhouse before graduation from high school in Long Prairie, Minnesota. Later on she attended the University of Minnesota where she met and married her geologist husband in 1956. Later she received a degree in Geography from Hunter College in New York City. Over the years the couple lived in Utah, Montana, New York City, Ontario and British Columbia, Canada before moving to Sedona. She was a wonderful wife, mother, naturalist, librarian, tennis player and a passionate volunteer for many organizations in the Sedona community. At Red Rock State Park she led bird walks and

moonlight hikes. And over the past four decades she worked at Sedona's first library on Jordan Road in Uptown Sedona and when the new library when it was built in West Sedona she organized the transfer of books to the new facility and volunteered her time. Also, she collected and identified local spring wildflowers that were annually displayed at the Sedona library and U.S. Forest Service visitor center. Her knowledge of local flora and fauna was extraordinary. She had a wide circle of friends who loved and enjoyed the natural beauty of the Sedona Red Rock country. Now at rest, her legacy will long be remembered by family and friends.

Phyllis is survived by Paul Lindberg, her husband of 57 years, daughter Karen (and Ed) Cutler of Anchorage, Alaska, son Paul Lindberg Jr., granddaughter Sophia and grandson Isaac, all from Portland, Oregon. A memorial service will be held on November 3, 2013. In lieu of flowers, contributions to the Sedona Public Library or Red Rock State Park are appreciated.

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AHS FOUNDATION UPDATE

The Foundation thanks the many supporters who contributed donations during the symposium. From the 50/50 drawing and the GoldSim workshop, the Foundation received $1750 that will go toward Intern awards in 2014.

Also remember that the Foundation is matching any donation to a Chapter Endowment fund until the end of this year. This is a perfect time for a Chapter fundraiser. Over $1800 has been donated in honor of Dr. Herman Bouwer, those donations to the Bouwer Endowment will be matched by the Foundation. Thanks to all for your support and your remembrances of Herman.

PHOENIX CHAPTER NEWS

Phoenix Chapter November Dinner Meeting

The next Phoenix Chapter dinner meeting will be held on **Tuesday, November 12, 2013**, at Nello's in Tempe (northeast corner of McClintock & Southern, just north of U.S. Highway 60 (the Superstition Freeway). Please join us for a beverage, to share business cards, and to talk water!

Location:	Nello's 1860 E. Southern Avenue Tempe, AZ 85282
Event:	**Ecohydrology: Basic Concepts and Some Applications in Desert Systems** **Dr. Enrique R. Vivoni, Associate Professor, School of Earth and Space Exploration & School of Sustainable Engineering and Built Environment, Arizona State University**
Chapter Board Meeting:	5:00 PM – 5:30 PM

Happy Hour & Dinner:	5:30 PM – 7:00 PM
Program:	7:00 PM – 8:00 PM
Cost:	$15 member, $20 non-member, $5 student

RSVP to Michele Robertson at mirobertson3@gmail.com or 480-948-7747. Hope to see you there!

Abstract:

Ecohydrology is an emerging discipline that combines methods and tools from ecology and hydrology to study plant-water-landscape interactions in the natural and built environment. This framework and the knowledge stemming from it have design, management and policy-making applications. This talk will provide an introduction to ecohydrology and discuss some examples of ecohydrological studies in desert systems in Arizona, New Mexico and northern Mexico. Discussion time will be dedicated to brainstorming how ecohydrological concepts can be more broadly used in the public and private sectors.

Bio:

Enrique Vivoni is a hydrologist who is interested in the interactions of water in the lithosphere, biosphere and atmosphere, in particular for arid and semiarid regions of the southwestern US and northern Mexico. His research group at ASU integrates scientific, engineering and sustainability principles to study the natural and built environment and support decision making related to water resources. Research activities involve field observations, environmental sensor networks and novel sensing platforms, and numerical modeling of hydrologic systems. [Additional information can be found at http://hydrology.asu.edu]

Future Event Calendar (see also calendar on www.azhydrosoc.org)

Ø **December 10, 2013,** at SunUp Brewing Company; Greg Ghidotti and Heather Gluski, Resolution Copper, **Hydrologic Studies and Water Strategy: Preparing a Mega Project for NEPA**

Ø **January 14, 2014, Phoenix Chapter Annual Kickoff Meeting,** venue to be announced**.**

We're starting to plan for presentations at meetings starting in **February 2014**. Please contact Tom Walker, Phoenix Chapter Vice President, if you would like to give us a presentation or if you know anyone else who could use an audience.

PHOENIX CHAPTER OFFICER ELECTIONS

Here are the current candidates for the Phoenix Chapter 2013 board. Anyone who would like to run for a board position, please contact Summer Waters, Phoenix Chapter President, or Christie O'Day, AHS Executive Director. Please watch for the ballot coming in an email on November 15th. All ballots will be due by November 30th. Election results will be posted on the website and in the December newsletter.

- President: **Dave Sampson**, ASU Global Institute of Sustainability

- Vice-President: **Summer Waters**, Maricopa County Extension Office
- Treasurer: **Michele Robertson**, APS
- Secretary: **Matt Minjares**, ASU Grad Student

Phoenix Chapter Board Member (2)

- **Rich Siegel**, Salt River Project
- **Kirk Creswick**, Engineering and Environmental Consultants, Inc.

Phoenix Chapter Corporate Board Member (1), two-year term

- **Mike Hulst**, Allwyn Environmental

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2013 DR. HERMAN BOUWER INTERN-SCHOLARSHIP SUMMARY

A Summer Well Spent
By Matthew Minjares

My summer was off to a slow start. After spending hours applying for summer internships with federal agencies through the cumbersome, faceless, USAJOBS website, and receiving no response, I began to think I was going to have a lot of free time this summer. I learned late of the Arizona Hydrological Society Herman Bouwer Intern Scholarship and was fortunate that the deadline had been extended. I wasted no time in filling out the application and getting my essay in with no expectations and really no idea what to expect. When I received a call from AHS member Stephen Acquafredda, and an invitation to come in for an interview, I was just excited to meet with someone face to face and have the opportunity to talk to a real, live person. Although the idea of having a summer off was appealing, I really hoped to meet my internship hours required as a part of the Hydrologic Studies Program at GateWay Community College, stay on track for completion next spring, and get some valuable work experience over the summer. Much to my surprise, I was in luck, and the next day I received a call from Stephen to let me know I had been selected to receive the 2013 AHS Herman Bouwer Intern Scholarship.

My first experience of the internship was spending one long, productive day with some kind folks from J.E. Fuller Hydrology and Geomorphology. I traveled with Ethan Rode from Tempe up to Watson Lake in Prescott where we would be installing an ALERT station on the dam to replace one that had been damaged. Onsite we met with Cory and Jeff from J.E. Fuller and began to load gear up in a pair of canoes for the first of several trips across the lake to the dam. A team of divers met us at the dam to assist in the installation, and by midday we were well on the way to completion. I got to assist Jeff in using a GPS base station and rover to take a cross section of the top of the dam. At the same time, Ethan and Cory were busy calibrating the transducer and transmitter and ensuring everything was functioning properly. Although there were a few hiccups along the way, it was nothing the J.E. Fuller team could not handle, and I was impressed with their hard work, ability and determination to stay on task until the job was done right.

The next two weeks of my internship were spent working at the USGS Tempe Field Office. Bert Duet was kind enough to take time out of his busy schedule to get me signed up, and coordinated scheduling with the Hydrologic Technicians to get me out in the field. We had just received a fair amount of monsoon rains the previous weekend and the staff at USGS was busy planning out visits to gage sites. My first trip out was with technician Will Hershey to Santa Cruz Wash near Maricopa. The normally dry wash was flowing with over two feet of chocolate milk colored water. The water was receding fast but we were able to get a discharge measurement using a FlowTracker before it dropped too much. I traveled out to the Sycamore Creek gage site with technician Mike Sanders where we had to dig out quite a bit of mud that had buried the bubbler orifice and disrupted the transmission of stream levels. I made several trips with technician Frank Schaffner to some sites along the Verde River to take discharge measurements and made visits to Horseshoe and Bartlett dams. A couple of days were also spent with Bert making to rounds to check crest staff gages for high water marks after the storms.

After a busy two weeks with the USGS, I headed over to the Arizona Department of Water Resources where my host Dave Christiana had me set up with a full schedule in a variety of departments. I traveled with Brian Conway and Paul Ivanich to Central Arizona Project headquarters and sat in on the presentation of their study on earth fissures that could pose a threat to the canal. Brian also took me out to the east valley to see the fissures and do some surveying. I met with the Floodplain Management team and learned more about the Arizona Flood Warning System and how the ALERT station I helped install tied into it. I had an interesting and informative talk with Keith Nelson in the Modeling Department and met with Dianne Yunker to learn about GIS work at the Department. I had the opportunity to meet Deputy Director Mike Lacey as well as Jesse Sandoval from the Community Water Program and Ruth Greenhouse from the Drought/Conservation Program. My last day at ADWR was spent out in the field with Nick Valverde learning how to take levels at index wells around the valley.

The final stop in my internship experience was at the Arizona Department of Environmental Quality, where I was welcomed by Jason Sutter, supervisor of the TMDL Program. Jason taught me the ins and outs of the program and I learned about the large area of responsibility his small but effective team must cover in order to help protect and improve surface water quality in the state. I learned about the states obligations in meeting Clean Water Act requirements and the efforts that go into that. I also got to meet with several people from the Ambient Monitoring unit and learned about procedures for stream assessment and the identification of water quality impairments. One of my final stops was at Jake Breedlove's office, where he explained the process and goals of the Water Quality Improvement Grant program. I really enjoyed learning about the work done by the TMDL and Ambient Monitoring groups and feel that I gained valuable insight that will help guide my educational path.

So as it turned out, my summer was anything but slow. The internship experience kept my schedule full, and my head racing to keep up and process everything I was learning. The AHS internship gave me the chance to see firsthand the application of knowledge and concepts covered in my studies and to discover new areas of interest. The AHS has been very generous in providing this internship opportunity for students and I am grateful to have been selected as this year's recipient. Thanks to Ethan Rode at J.E. Fuller, Bert Duet at the USGS, Dave Christiana at ADWR, Jason Sutter at ADEQ and the helpful staff at each agency that took the time to show me around and share their knowledge with me. Thank you to Summer Waters at the U of A Maricopa Extension for introducing me to the AHS through the Master Watershed Steward Program and encouraging me to get involved. Thanks to Stephen Acquafredda for taking the time to mentor me and previous interns, and helping to guide and coordinate our internship experience. I'd also like to thank the late Dr. Herman Bouwer for his contributions to the field and his generosity and support for the AHS Intern Scholarship. I am looking forward to a rewarding career in hydrology and to future participation in the Arizona Hydrological Society!

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TUCSON CHAPTER NEWS

For the Tucson chapter meeting on Tuesday, November 12, Claire Zugmeyer will present "**A Living River: Charting Wetland Health of the Lower Santa Cruz River**."

Location:	**Montgomery and Associates** **1550 East Prince Road** **Tucson, AZ**
Social half hour:	**6:00 PM**
Program:	**6:30 PM**

A Living River: Charting Wetland Health of the Lower Santa Cruz River

CLAIRE ZUGMEYER[1]

Emily Brott[1], Evan Canfield[2], Akitsu Kimoto[2], James Dubois[3], Ed Curley[3], Julia Fonseca[4], Brian Powell[4]

The Lower Santa Cruz River (LSCR) in northeastern Pima County is Arizona's longest effluent-dependent river and provides the County's principal wetland habitat. Significant steps are underway to improve wetland health along the river, most notably Pima County's $660 million wastewater treatment plant upgrade (Regional Optimization Master Plan, ROMP) to improve the quality of municipal effluent discharged into the river. Currently, no comprehensive monitoring strategy and reporting tool exists to track changes of wetland conditions. This EPA-funded project, a Living River: Charting Wetland Health of the LSCR, will develop a monitoring strategy and reporting tool using the successful *Living River* series created for the Upper Santa Cruz River as a model. With the assistance of a Technical Committee of experts and stakeholders, this project will develop a monitoring strategy, select indicators, determine baseline conditions, and assess the effect of effluent upgrades on wetland health. The expected outputs of the project include, 1) a historical conditions report that summarizes past conditions of the LSCR, 2) a monitoring strategy with quantifiable indicators that track changes of wetland health, 3) a selection process report that summarizes the process of selecting monitoring indicators, 4) three annual *Living River* reports that summarize wetland conditions for the selected indicators, and 5) numerous outreach efforts including a project website and public presentations. To date, the historical conditions report has been prepared and will be available on the Pima County Regional Flood Control District website. The report summarizes the historical stream discharges and loss, channel geomorphology, vegetation, water quality, macro invertebrate, and anticipated changes due to the ROMP upgrades. When completed, this project will provide numerous environmental outcomes including improved wetland protection, increased understanding of wetland conditions, and improved public understanding of wetland values.

Affiliations:

1 – Sonoran Institute

2 - Pima County Regional Flood Control District

3 – Pima County Regional Wastewater Reclamation Department

4 – Pima County Office of Sustainability and Conservation

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TUCSON CHAPTER OFFICER ELECTIONS

Here are the current candidates for the 2012 Tucson Chapter board. Anyone who would like to run for a board position, please contact Damien Gosch, Tucson Chapter President, or Christie O'Day, AHS Executive Director. Please watch for the ballot coming via email on November 15th. All ballots will be due by November 30th. Election results will be posted on the website and in the December newsletter.

President: **Damien Gosch,** Masters Student, Department of Hydrology

Vice-President: **Greg Hess,** Clear Creek Associates

Treasurer: **Dan Guido**, Montgomery & Associates

Secretary: **Brittany Bates**, Montgomery & Associates

Tucson Chapter Board Member (1): **Vacant**

Tucson Chapter Corporate Board Member (1 two-year term): **Marla Odom**, Montgomery & Associates

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UPCOMING WRRC SPONSORED EVENTS

Brown Bag Seminar - Downspout Politics, Upstream Conflict: Contested Legal Geographies of Rainwater Harvesting in the U.S.

Date: Wednesday, November 6, 2013
Special Time: 3:30 pm - 5:00 pm
Location: WRRC Sol Resnick Conference Room (350 N. Campbell Ave., Tucson, Ariz.)

Speaker: Dr. Katie Meehan, Assistant Professor, Department of Geography, University of Oregon

Presentation: Downspout Politics, Upstream Conflict: Contested Legal Geographies of Rainwater Harvesting in the U.S.

Who owns the rain? As 'green infrastructure' like rainwater harvesting (RWH) gains popularity in the United States, surprisingly little is understood about how formal institutions render small scale practices 'official', and why formalization succeeds in some areas and fails in others. Drawing on an analysis of 95 policies across U.S. states and territories, this research examines the legal geographies of rainwater harvesting, its chief institutional mechanisms, and the implications of new RWH policies for broader developments in water governance. Our analysis indicates three major trends: 1) the 'codification' of water sustainability, in which rainwater is regulated through plumbing codes in contrast to property rights; 2) the 'marketization' of RWH governance, through mechanisms such as rebates and financial incentives; and 3) the scalar friction and contradictions that arise between different and sometimes competing levels of regulation. We argue that such trends mark a radical departure in U.S. traditions of water governance--from state to splintered modes of regulation--and, furthermore, that states with diverse legal traditions of water, such as Texas (in contrast to Colorado), provide more successful regulatory environments for downspout alternatives.

Dr. Meehan investigates the governance and politics of water supply alternatives, particularly in the global South. Her work has been published in Water Alternatives, Environment and Planning D*,* Political Geography, Geoforum*, and* The Right to Water*. She is currently writing a book manuscript based on nearly ten years of research in Mexico,* When the Rain Fall: Water Supply Alternatives in the Neoliberal Era*.*

Note: This presentation will also be available for remote attendance via Blackboard Collaborate.

Brown Bag Seminar - SRP & GRIC: Gila River Water Storage and Water Planning for the Community and Arizona

Date: Friday, November 8, 2013
Time: 12:00 pm - 1:30 pm
Location: WRRC Sol Resnick Conference Room (350 N. Campbell Ave.)

Speakers: Christa McJunkin (SRP Senior Water Resource Analyst), Dave Roberts (SRP Sr. Director of Water Resource Management), Linus Everling (GRIC General Counsel), Jason Hauter (Akin, Gump, Strauss, Hauer & Feld LLP)

Presentation: SRP & GRIC: Gila River Water Storage and Water Planning for the Community and Arizona

After nearly 80 years, the Gila River Indian Community's (GRIC) struggle to restore its water

rights ended in 2004 when Congress passed the Arizona Water Settlements Act. This legislation approved a number of compromises that provided a means for the Community to restore its self-sufficient agricultural economy, but failed to achieve one of its major goals: to restore the natural flow of the Gila River on the Reservation. One of the compromises the Community made was to forego immediate funding of its on Reservation irrigation infrastructure and accept funding over a period of years. Community members still wanted a return of the riparian habitat that is so important to the Akimel O'otham and Pee Posh, but irrigation infrastructure will not be fully built out until 2029. In the interim, the Community is not physically able to use its full CAP entitlement but still wishes to do so.

In order to achieve its goals the Community turned to SRP for its expertise in utilization of water resources, in particular, expertise in riparian recharge and water storage. The Community wishes to recreate at least a part of the river, while at the same time creating Long Term Storage Credits (LTSC) that the Community can use and sell, if appropriate, in order to help finance its riparian recharge activities.

In response to the growing need for renewable water supplies in central Arizona, the Community and SRP intend to make the LTSCs available to a variety of current and prospective water users to provide those users access to renewable water supplies. Under this agreement, the Community also intends to explore using its unique situation of being in both the Phoenix and Pinal AMAs to create opportunities for water providers and other water users to more effectively manage the region's water resources.

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FLAGSTAFF CHAPTER NEWS

AHS and the Flagstaff Chapter were all saddened by the sudden and untimely passing of Phyllis Lindberg, wife of Paul Lindberg and active supporter of and participant in many of AHS-Flagstaff field trips. For those of us that had the good fortune to know Phyllis, even if only for a short time, we feel a great loss. Truly, a light among us has gone out but she will be remembered. There will be a celebration of Phyllis' life at **2:00 pm on Sunday (03-Nov-2013)** to be held at:

Poco Diablo Resort Sedona
1752 State Route 179
Sedona, AZ 86336
Telephone: (928) 282-7333

In lieu of flowers, contributions to the Red Rock State Park or Sedona Public Library are appreciated. The AHS Corporate Board has generously elected to contribute $250 to Red Rock State Park. For those of you that might want to make a personal donation, checks can be mailed to the following addresses:

Benefactors of Red Rock Park
PO Box 525
Sedona, AZ 86339

Or

Sedona Library
3250 White Bear Road

Sedona, AZ 86336

There will be no AHS-Flagstaff meeting in November; however, plans are being made to hold our end of the year meeting/dinner tentatively scheduled for some time during the first 2 weeks of December, probably at Salsa Brava in Flagstaff. An e-mail will be sent to all members as soon as the details are known.

Finally, the NAU SESES 2013 Darcy Lecture, originally scheduled for Tuesday (12-Nov-2013), titled *Managing Groundwater beneath the Agricultural Landscape* by David L. Rudolph, Ph.D., PE, and hosted, in part by AHS-Flagstaff has been postponed. It is possible that this lecture will be held in January or February of next year. We will send out an announcement once the revised date has been set.

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FLAGSTAFF CHAPTER 2014 OFFICER ELECTIONS

The following officers of the Flagstaff Chapter have indicated their willingness to continue serving in 2014:

Chapter President – Michael Tomlinson
Chapter Vice President – Paul Whitefield
Chapter Secretary – John Cochran
Chapter Treasurer – Dana Downs-Heimes

Two positions remain open:

Chapter Board Member-at-Large
Corporate Board Member

If you wish to be considered for any position or would like to nominate someone for any of these positions, please notify Christie O'Day directly so she can add you or your nominee to the list.

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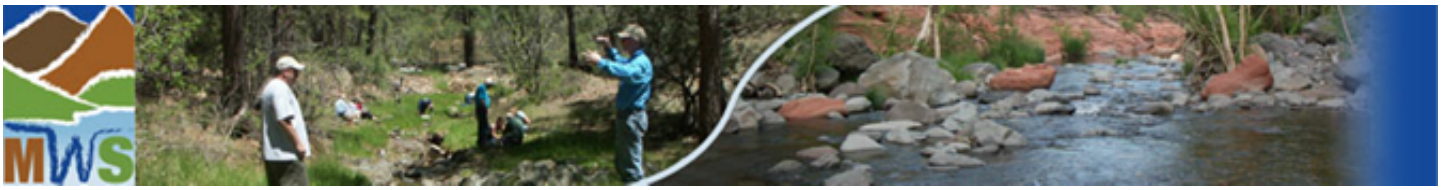
HYDRO-NEWS

ARIZONA RIPARIAN COUNCIL DINNER



With guest speaker, Summer Waters, Maricopa County Master Watershed Steward program

Date: Wednesday, November 13, 2013
Time: 6 –8 p.m.
Place: Grimaldi's Pizzeria
Address: 4000 N Scottsdale Rd, Ste 203, Scottsdale
Cost: $15, payable at the dinner, cash or check please
RSVP: By Noon November 11 to Cindy Zisner at cindy.zisner@asu.edu

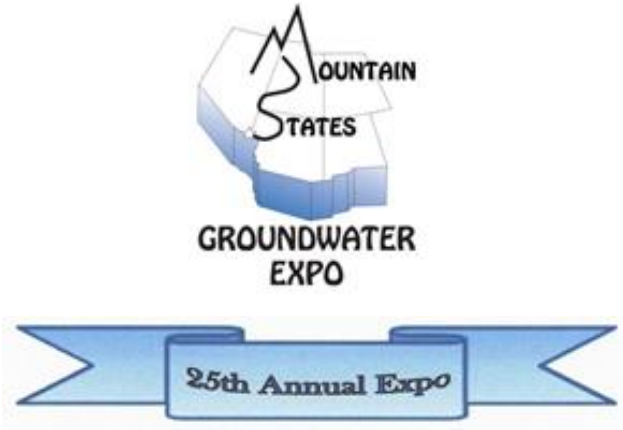
The Arizona Riparian Council is a group dedicated to the exchange of information regarding the status, protection, and management of riparian systems in Arizona.

For more information:
MWS: http://cals.arizona.edu/watershedsteward/
ARC: http://azriparian.org/

Who Should Attend:
People interested in the management, protection, or scientific study of riparian systems
People wanting to learn about the Arizona Riparian Council
People wanting to learn about the Master Watershed Steward program

Why Should You Attend?
Learn about volunteer opportunities
Hear about watershed and riparian protection projects

THE MOUNTAIN STATES GROUND WATER EXPO



The Mountain States Ground Water Expo

February 6 – February 7, 2014

Aquarius Casino Resort

Laughlin, Nevada

For information, call (480) 609-3999; Fax (480) 609-3939

or email info@mountainstatesgroundwater.com

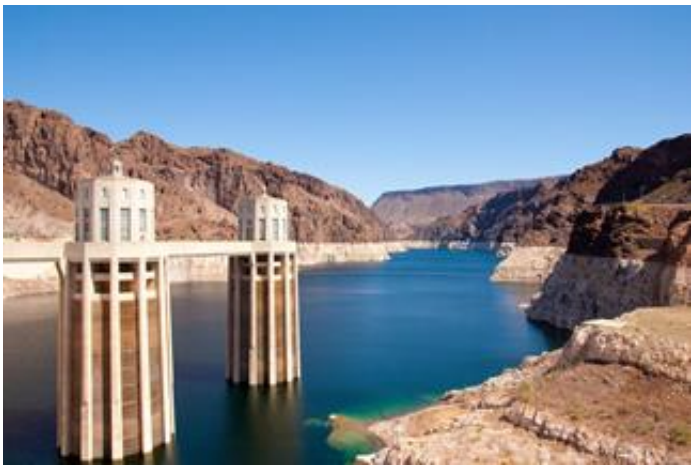
www.mountainstatesgroundwater.com

ARIZONA COMMUNITY FOUNDATION PRESENTS: LET'S TALK WATER: FOCUS ON THE FUTURE

ASU Morrison Institute for Public Policy
ARIZONA STATE UNIVERSITY

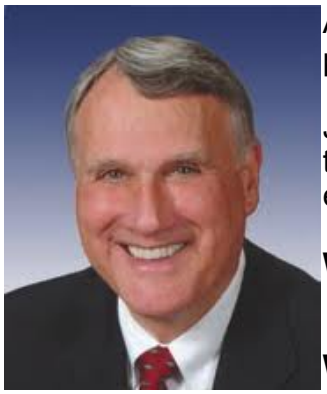
SAVE THE DATE: NOV. 19, 2013

SPECIAL LUNCHEON



Arizona Community Foundation presents

Let's Talk Water: Focus on the Future



A frank discussion with former U.S. Sen. Jon Kyl about Arizona's most precious resource.

Join former **U.S. Sen. Jon Kyl** at a special lunchtime forum on Nov. 19 to discuss Arizona's water future. Other panelists include water experts **Grady Gammage Jr.** and **Richard Morrison**.

When: **Tuesday, November 19**
Noon to 1:30 p.m. (registration/buffet at 11:30 a.m.)

Where: **Phoenix Airport Marriott**, 1101 N 44th St., Phoenix

STATE OF OUR STATE
PUBLIC POLICY CHOICES FOR ARIZONA

Online registration:$50 general public / Elected officials please register online as our guest

The "Let's Talk Water" luncheon, hosted by Morrison Institute for Public Policy and supported by Arizona Community Foundation, will be held immediately after the State of Our State Conference in the Phoenix Airport Marriott.

Click here for details and special discount to attend both events.

LOSS RATES FROM LAKE POWELL AND THEIR IMPACT ON MANAGEMENT OF THE COLORADO RIVER

Tom Myers

ABSTRACT: As demand for water in the southwestern United States increases and climate change potentially decreases the natural flows in the Colorado River system, there will be increased need to optimize the water supply. Lake Powell is a large reservoir with potentially high loss rates to bank storage and evaporation. Bank storage is estimated as a residual in the reservoir water balance. Estimates of local inflow contribute uncertainty to estimates of bank storage. Regression analyses of local inflow with gaged tributaries have improved the estimate of local inflow. Using a stochastic estimate of local inflow based on the standard error of the regression estimator and of gross evaporation based on observed variability at Lake Mead, a reservoir water balance was used to estimate that more than

14.8 billion cubic meters has been stored in the banks, with a 90 percent probability that the value is actually between 11.8 and 18.5 billion cubic meters. Groundwater models developed by others, observed groundwater levels, and simple transmissivity calculations confirm these bank storage estimates. Assuming a constant bank storage fraction for simulations of the future may cause managers to underestimate the actual losses from the reservoir. Updated management regimes which account more accurately for bank storage and evaporation could save water that will otherwise be lost to the banks or evaporation.

Click here for full report…

GRAND CANYON GEOLOGY RAFT TRIP, JULY 6-13, 2014

Long-time AHS member, Alison Jones is planning a Grand Canyon Geology Raft trip scheduled for July 6-13, 2014. This will be her 6th trip and you are invited! The outfitter will be Hatch River Expeditions.

Arizona Geological Society and Maine Geological Society are also announcing the trip, so we will have an interesting contingent of geologists and hydrogeologists.

Please contact Alison at ajones@clearcreekassociates.com if you are interested. Click here for the flyer that describes the trip!

JOB POSTINGS

Advertise your company's open positions here and on the AHS web page! Contact Christie O'Day at azhydrosoc.dir@gmail.com. Click on the position below for additional details.

- Planning Analyst - Central Arizona Project

ADDITIONAL INFORMATION

For more information about the Arizona Hydrological Society, please visit our regularly updated web site at:

http://www.azhydrosoc.org/

Membership may be renewed by credit or debit card through the AHS website or by mailing a check to the Arizona Hydrological Society, P.O. Box 1882, Higley, AZ 85236. Dues remain at $45.00 a calendar year for regular membership and $15.00 for students. And remember that your 2014 membership will be included in the 2013 Symposium registration fee!