



November 2009 Newsletter

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Viewpoint: Moving On

A few changes have occurred within the Society. Mike Geddis, our Treasurer for the last six years, has resigned his position with both the Corporate Board and the AHS Foundation. Deeply involved in his current project mapping the recharge potential of Saudi Arabia, Mike found he just couldn't do Society and Foundation business with the degree of perfection that he wanted to maintain, given that he is halfway around the planet. In the end the distance factor was simply too difficult to overcome. We appreciate all the efforts Mike made over the years to put the Society on a sound financial basis, particularly the accounting system and codes that are now standard for all the Chapters and events. His volunteer efforts reflect his dedication to the Society and its goals of promoting education and research in hydrology and the water-related sciences. Thanks, Mike, for your years of service to AHS. Beth Proffitt will be taking over the duties of Treasurer for the Corporate Board.

Matt Beversdorf is also departing his office as Executive Director. Matt stepped up after Nick Melcher passed away last spring, and kept things going and improved what he could. The membership database and its vital e-mail list are about as current as possible, given the many shifts in employment amongst the membership over the last year or two. Note: if you have changed your e-mail address recently, please send Matt your new e-mail. Matt has been a stalwart worker for the Society for several years, and was instrumental in bringing back our AHS Website from near-death. Thanks, Matt, for everything you have done for AHS. Christie O'Day will assume Matt's role as Executive Director after the first of the year.

On both the Corporate and Chapter levels, changes in officers and board members are frequent. Jeff Gawad has indicated that he will be spending at least half of the year in Cairo, Egypt, in 2010, and thus will have limited availability to serve as the President of the Tucson Chapter. Jeff has also been a long-term volunteer for AHS, not to mention a recipient of the Halpenny Internship award in 2007. We will miss him. Ted Lehman is stepping down as President of the Phoenix Chapter, just to take a breather from his many years of running full-speed on behalf of AHS. Ted's efforts have strengthened the Phoenix Chapter, and his enthusiasm and energy will also be missed. Thanks, Jeff and Ted, for everything you have done for your respective Chapters.

It has been the Society's good fortune to have dedicated, innovative, hard-working volunteers such as Mike, Matt, Ted, and Jeff. Without the time and effort of such volunteers, our Society would not be in as healthy a state as it is. There will be many new officers and Board members beginning in January, and many new opportunities for volunteers to make a difference in AHS and thus in the profession of hydrology. Look around. I bet you can spot a good volunteer at your next Chapter meeting—maybe even in your mirror!

Alan Dulaney,

2009 Symposium Summary

By Keith Ross, Symposium Co-chair

Together with the planning staff from the American Institute of Hydrology, and the Planning Committee chairpersons, Keith Ross and Allen Gookin, the Phoenix chapter is pleased to announce the completion of another successful Symposium held in Scottsdale on August 30 to September 2. While the current economic situation affected the attendance, the event still attracted almost 270 geoscientists from all over the world. Technical sessions and luncheons were held at the Westin Kierland Resort and Spa. Symposium field trips included trips to the Grand Canyon, Rio Salado, and Central Arizona Project/Lake Pleasant. The Grand Canyon trip was reportedly the best trip some of the participants had EVER been on.

This year we had four plenary speakers. David Modeer General Manager of the CAP started things off with a discussion on the cost of change. David Salisbury from Resolution Copper Mining discussed the new deep mine being developed beneath the old Magma Mine in Superior, AZ. The other two speakers wrapped up the symposium on Wednesday the 2nd. Dr. Overpeck and Terry Fulp (Bureau of Reclamation) discussed climate change and water supply issues in the west and along the Colorado River. Dr. Miguel Medina, Duke University Professor and President of the AIH, provided an informative lunch-time talk on global resources. After dinner on Tuesday, Doug Wolfe provided a historical look at dinosaurs of the Zuni Basin and likely climatic conditions they lived in.

The Project WET teacher's workshop was conducted on Monday August 31. According to those taking part, it was a great workshop. During the luncheon on Monday, AHS scholarship and internship awards were presented. AHS Scholarship Award winners included Mr. Andrew Somor, University of Arizona, Mr. Kyle Brown, University of Arizona, and Mr. Nathan Dunkin, Arizona State University. The Leonard Halpenny Internship Scholar was awarded to Ms. Terra Michaels, and the Herman Bouwer Internship Award was presented to Mr. Brad Vance. In addition, David Modeer presented the 2009 Central Arizona Project scholarship awards to two students. This year for the first time the elementary, middle school and high school student winners of the Arizona Science and Engineering Fair were invited to the symposium and were introduced by David Modeer during the luncheon. Four of the AZSEF winners attended and brought their award winning posters for display and discussion on Monday. Two AIH awards were also presented during the Monday luncheon.

AHS also met with several hydrologists from Mexico who are interested in learning about the AHS and AHSF with thoughts to starting a similar society in Baja California. Placido De Santos was instrumental in bringing the Baja California hydrologists to the symposium where some of them also presented interesting talks on Baja California water issues.

Joining AIH for this event provided attendees the opportunity to mingle with geoscientists from all over the world. An event of this size required hard work and long hours for all on the planning committee and we wish to thank everyone for their dedication and tireless efforts which contributed to the overwhelming success of the 2009 symposium despite the economic situation.

Online photo albums:
Awards Luncheon
Exhibitor Hall
Plenaries
Technical Sessions
Misc.



We want to thank everyone who helped make this Symposium possible this year!

Phoenix Chapter

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November Dinner Meeting

Our next dinner meeting will be held Tuesday, November 10, at the SunUp Brewhouse (formerly Sonora Brewhouse) near 3rd Street east of Central Avenue on Camelback Road in Phoenix. Our speaker will be Tim Bray from Central Arizona Project who will be speaking on the Central Arizona Groundwater Replenishment District.

Location:	Sun Up Brewing Co. and Brewhouse (Formerly Sonora Brewhouse) 322 E Camelback Rd Phoenix, AZ 85012
Event:	Tim Bray, Central Arizona Project "Central Arizona Groundwater Replenishment District"
Chapter Board Meeting:	4:30 PM – 5:30 PM
Happy Hour & Dinner:	5:30 PM – 7:00 PM
Presentation:	7:00 PM – 8:00 PM
Cost:	\$15 member, \$20 non-member, \$5 student

Abstract:

Following considerable discussion, the 1993 Arizona State Legislature established the Central Arizona Groundwater Replenishment District as an agency within the Central Arizona Water Conservation District. The stated purpose of the CAGRDR is to replenishment groundwater previously pumped that has exceeded the amount allowed to be pumped pursuant to the 1980 Groundwater Management Code. The CAGRDR enabled those without Central Arizona Project water sub-contracts or direct access to renewable supplies to meet a key requirement of the Assured Water Supply rules - demonstrating consistency with the management goal of the AMA's in Central and southern Arizona. With the adoption of this legislation CAGRDR members were deemed to have met their Assured Water Supply Rules without directly utilizing renewal water resources. By becoming a member of the CAGRDR entire Cities as well as individual subdivisions could meet the test for demonstrating that they met the 100 year Assured Water Supply rules of the Arizona Department of Water Resources.

Today, CAGRDR is meeting its replenishment obligations within each AMA based upon groundwater pumped that is in excess of the amount allowed by the Rules of the Arizona Department of Water Resources. However the statute allows CAGRDR to replenish "recharge" pumped groundwater at any location within the AMA and that replenishment may take place in an area of the AMA that is not hydrologically connected to area from which the initial groundwater was pumped.

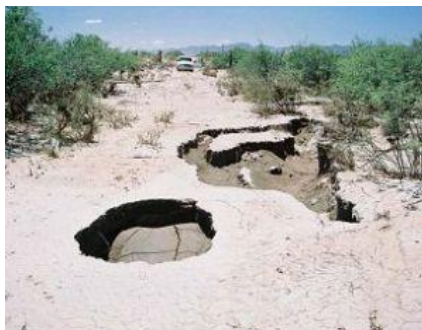
So, please come join us Tuesday, Nov. 10th at the Sun Up Brewhouse in Phoenix to have a beverage, share business cards, and hear about the CAGRDR. It's just a short walk from the light rail station too.

RSVP with Kirk Creswick at kcreswick@eecphx.com or 602-248-7702.

October Meeting Summary

InSAR Land Subsidence Monitoring Program, Brian Conway, ADWR

Last month, Brian provided an overview of the Arizona Department of Water Resources program which takes Interferometric Synthetic Aperture Radar (InSAR) satellite data to provide information needed for the water resource community.



Earth Fissure.

The goal of this program is to survey and record each known earth fissure around the State and provide this data to the public. Several uses of the information include:

- Land subsidence monitoring.
- Monitoring seasonal deformation (subsidence and uplift).
- Monitoring natural and artificial recharge events.
- Geological mapping and investigations.
- Locating earth fissures and identifying areas where conditions may exist for earth fissure formation.
- Dam mitigation and land subsidence modeling.



Displaced well pad.

The information is gathered using SAR satellites, which download to various SAR platforms used by ADWR including ESA-ERA-1, ESA-ERA-2, ESA Envisat, CSA Radarsat-1, JAXA ALOS, and GAC TerraSAR-X. The data is used to prepare maps for use by other INSAR coordinators and the water resource community.

There are many consequences of land subsidence and earth fissures: Elevation and slope change affecting the natural flood plain drainage, flow within canals and drains, damaging intermodal infrastructure (roads, bridges, railways, etc), damaging water retention and retarding structures (dams, levees, floodways, etc), and damaging private property(homes, driveways, fences, etc).



Queen Creek Y Fissure.

InSAR is very cost effective due to its resolution and the large area covered by each satellite frame. Engineers, hydrologists, geologists, and scientists greatly benefit from the InSAR data to identify and evaluate areas of deformation, faults, and many other geological attributes. InSAR data is used by those involved in the fields of: water resources, structural engineering, geological engineering, hydrological engineering, land planning, and surveying.

Funding cuts to the program may impact ADWR's ability to provide this type of information to the public in the future.

For more information, about the ADWR InSAR program, you can visit their website www.azwater.gov .

It's that time of year again. Current members will be receiving an email with information about voting. This year we will be providing you the option of voting online or by the traditional faxing/mailling/emailing a PDF ballot. If you need to update your email address with AHS, please send your current email to Matt Beversdorf (azhydrosoc.web@gmail.com). Ballots will be due by the end of November.

We have an excellent slate of new board nominees (see below). We'd like to thank all the new board nominees for stepping forward to help out with the chapter next year. Thank you!

2010 Phoenix Chapter board nominees

President – Mike Hulst, EEC
Vice President – Keith Ross, HydroGeo Chem
Treasurer – Kirk Creswick, EEC
Secretary – Jolene Tallsalt Robertson

Chapter Board – Tom Walker, Fleet-Fisher Engineering
Chapter Board – Angela Bond, Salt River Project

Corporate Board – Alan Dulaney, City of Peoria

Corporate Board – Beth Proffitt

(Also continuing for 2nd year of 2-year term Corporate member – Lee-Anna Walker, Arcadis)

Brown Bag Water Speaker Series

Date: November 18, 2009
Noon - 1:30 PM

Speaker : Grant McCormick, Campus Planner, Department of Planning, Design & Construction, The University of Arizona.

Presentation: "Water in the Sustainable Landscape"

Location: The University of Arizona Cooperative Extension, Maricopa County, Palo Verde Room at 4341 E. Broadway, Phoenix.

Free and open to the public. Bring your lunch. There will be time for questions and answers. Please RSVP to Nancy Crocker at 602-827-8200 ext. 335 or NCrocker@cals.arizona.edu.

Future Brown Bag WSS Events can be found on this [Calendar](#).

Event Calendar (you may also see AHS calendar events at <http://www.azhydrosoc.org>)

- November 10th – Tim Bray, Central Arizona Project, "Central Arizona Groundwater Replenishment District"
 - December 8th – maybe you?
 - January – 2010 chapter kickoff meeting, TBD
 - April 6th - AHS/AEG Student Night - ASU Memorial Union
-
-

Tucson Chapter

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November Meeting Announcement

The next chapter meeting will be held on Tuesday November 10th, 2009.

Location: Offices of Montgomery and Associates, Inc
1550 E Prince Rd
Tucson, AZ 85719

Event: To Be Announced

Social half-hour : 6:00 PM

Presentation: 6:30 PM

Speaker: Warren Tenney, elected member CAWCD Board of Directors

Abstract: **Water – Is it Wet Enough? Challenges facing the CAP.**

As the steward of Arizona's largest source of renewable water supplies, Central Arizona Project plays a critical role in supporting the current and future water needs of Central and Southern Arizona. CAP is working collaboratively with local, regional and national partners to evaluate and find solutions to a number of water-related challenges facing Arizona and the southwest. Among these are the impacts of climate change on the Colorado River watershed; meeting CAP's energy needs in the face of increasing regulation of carbon-based power generation; identifying, acquiring, developing and delivering new water supplies and distributing the associated costs in an equitable manner; [AND HOW TO DEAL WITH AN ELEPHANT IN THE ROOM OF WATER MANAGEMENT](#). This presentation offers an overview of these challenges and CAP's responses.

Biography: Warren Tenney is the Assistant General Manager of Metro Water District. Last year, he was elected by Pima County voters to the Board of Directors of the Central Arizona Water Conservation District – the policy makers for the Central Arizona Project. He is also chair of the Water Conservation Alliance of Southern Arizona and a member of the Southern Arizona Water Users Association. He has been working in water for over 16 years.

October Meeting Summary

- Marla Odom, Tucson Chapter Secretary, Montgomery & Associates

On October 13th, the Tucson Chapter hosted a meeting at the offices of Montgomery and Associates. The meeting presenters were Wally Wilson and Dick Thompson of Tucson water, who talked to the group about the Southern Avra Valley Storage and Recovery Project (SAVSARP).

In 2003, Tucson Water began feasibility investigations to the south of the Central Avra Valley Storage and

Recovery Project (CAVSARP), which included 8 HHR geophysical lines, review of 10 existing production wells, 8 confirmation borings, installation and evaluation of 10 infiltration basins, 80 Geoprobe borings, and 10 additional borings by Montgomery & Associates. The site was determined to be adequate for recharge, and initial goals were established for the project such as preserving habitat. The project foresaw the need to create future utility corridors and provide flexibility in the raw water system by installing an oversized pipeline. Recharge basins were sited and have been undergoing construction.

Currently there are 9 constructed basins encompassing approximately 220 acres and 12 existing recovery wells which are being systematically replaced with new recovery wells. The new recovery wells, reservoir, booster station, and transmission main are all expected to be completed in the first 5 years.

The current recharge plan for SAVSARP is as follows: 10,000 acre-feet (AF) in 2009; 30,000 AF by 2012; 50,000 AF by 2015; and 60,000 AF by 2020.

Infiltration rates vary by basin, but have generally been between 0.5 and 2 feet per day, depending on the basin. Dick Thompson broke down infiltration rates by individual basin for the audience.

Groundwater quality signatures in monitor wells show when the CAP pulse of water has arrived. Concentrations of some constituents peak as water flushes through the system, and the constituent peak is measured in wells prior to the arrival of CAP water. Often nitrates are the constituent showing the most significant peak prior to the flush of CAP water arriving at the well. The nitrate flush is being well mapped in an effort to ensure that neighbors are not being affected adversely.

As of October 1st, about 54,000 AF of water has been recharged at the existing basins. Tucson Water has found no evidence of significant vadose zone perching in the initial recharge phase. Piezometers which have registered the recharge pulse are indicating downward movement of the water. The fact that some piezometers do not have water in them to sample is another indicator of downward movement, rather than perching conditions.

SAVSARP is currently permitted to recharge 60,000 AF/yr of water. The residence time of the recharge water in the aquifer is unknown at this time. Increases to recharge will likely occur at SAVSARP to keep the water closer to the city for delivery, since water is mounding to the south in current models.

The AHS Tucson Chapter extends a very warm thanks to Mr. Wilson and Mr. Thompson for their informative presentation of and subsequent field trip to the SAVSARP facility.

SAVSARP Field Trip Summary

ARIZONA HYDROLOGICAL SOCIETY, TUCSON CHAPTER, Southern Avra Valley Storage & Recovery Program (SAVSARP) Tour

-Reported by Shane Clark, University of Arizona Student

On Saturday October 24th, Tucson Water hosted a field trip for the Tucson Chapter of AHS. We gathered at the northeast corner of the state parking garage on Congress and I-10 at 8:30 am and commuted to SAVSARP via transportation provide by Tucson Water. There were 14 AHS members in attendance plus Wally Wilson and Dick Thompson.

The first stop was at site RB-203, which is an infiltration basin that was in full production at the time of our visit. Dick and Wally presented a poster that gave an overview of the SAVSARP project and showed where we were in relation to the delivery and distribution network of wells and pipelines. We looked at the equipment that serves each site, and discussed the methodology used to calculate the recharge rates. Essentially, inflows to each basin are recorded using a flow meter, and 1 to 2 percent of the amount of water that passes through the flow meter is assumed to evaporate. Recent SAVSARP design adaptations in response to budget cuts were also discussed.

Recharge rates at the basins that have been constructed and tested range from 0.5 – 2 feet per day. The rate depends on the depth to fine grain sediments and caliche, which is variable throughout the recharge area. In some of the basins, the depth to the caliche layer was relatively shallow (less than 15 feet), so

these basins were dug a bit deeper than originally planned so the caliche could be removed. In other basins, where the depth to the caliche layer was relatively deep, removal of the caliche was cost prohibitive, and the layer was left intact. Thus, not all of the basins in SAVSARP were dug to the same depth.

After viewing the recharge basin, we went well site WR-510A. The driller had just finished drilling to a total depth of 1000 feet, and a geotechnical evaluation of the uncased hole was taking place. We discussed well construction procedures, well deviation surveys, reaming the well if it has deviated, and well video logs. Near well WR-510A, we saw the weather station set up for SAVSARP, as well as a suite of nested piezometers that were cased in a manner that allows for the monitoring of perched water zones. In response to initial recharge in the basin adjacent to the nested piezometers, all 3 piezometers indicated perching. After recharge to the basin was ceased, all 3 piezometers dried out. As of the time of our field trip, the shallowest piezometer had not shown any response to the infiltration, which indicates that water is no longer ponding at shallow depths in the area.

Dick Thompson then showed us the monitoring network at SAVSARP. All of the wells are equipped with vibrating wire piezometers. The instrumentation that monitors the water levels in the wells and the flow rates into the basin are all remotely connected to one central hub, and that hub is connected via satellite to the internet. As a result, Dick now has the opportunity to check on how SAVSARP is being managed everyday from his home, at 6:00 am, before he has his coffee. How lucky...

At approximately noon, we loaded up the vans and headed back to Tucson. We were back at the meeting location by 1:00 pm. Both Wally Wilson and Dick Thompson indicated that they are willing to provide a tour of the CAVSARP facility for AHS if there is enough interest. Please let your officers know if you would like this tour to become available!



Special Thanks to Wally Wilson and Dick Thompson for facilitating this tour and providing AHS the opportunity to visit, learn, and explore.

Additional Thanks to Brian Bennon for taking these quality pictures and providing those images to all of us!

Call for Officer/Corporate Board Nominees

It's that time of year again. Chapter election ballots will be sent out by email in November. Ballots will be due by the end of November. We have an excellent slate of new board nominees (see below), but are still

seeking a nomination for chapter for the second Corporate Board position, and would love to receive a nomination for President. If you are interested, or know someone who is, please contact Jeff Gawad (jgawad@elmontgomery.com or 520-881-4912), or mount a write-in campaign! We'd like to thank all the new board nominees for stepping forward to help out with the chapter next year. Thank you!

President	Jeff Gawad – M&A – Unless you want this to be you!
Vice President	Greg Hess – Clear Creek Associates
Treasurer	Damien Gosch – Masters Student, Department of Hydrology
Secretary	Shane Clark – Student, Watershed Hydrology and Management
Chapter Director	Dan Guido – M&A
Corporate Board	Marla Odom – M&A
Corporate Board	You???

2010 Symposium Planning Committee

The first meeting of the planning committee for the Tucson AHS 2010 Symposium was held on Monday October 19th at the offices of Montgomery & Associates. There was great turnout and a lot of energy and enthusiasm amongst participants. Come and join us for the next meeting on **Tuesday November 17th at 5:30 pm** at the offices of Haley & Aldrich, 600 South Meyer Avenue, Suite 100. PIZZA AND REFRESHMENTS WILL BE SERVED.

WRRC Brown Bag Seminars

Regional Groundwater Conditions in the Southwestern United States: Assessment Tools

Speaker: Fred Tillman, Arizona Water Science Center, United States Geological Survey
Date: Friday, November 13
Time: Noon to 1:30

Sustainable management of water resources requires that scientists, planners, and water managers be aware of the status and trends in the availability of groundwater supplies. The general public also has a stake in understanding the changing conditions of groundwater availability, especially in the semi-arid southwestern United States where groundwater is such an important component of supplies. Groundwater conditions can be more difficult than surface water to assess and visualize. Individual well observations represent aquifer conditions only in a limited area. Wells may be screened over single or multiple aquifers, further complicating single-well interpretations. Additionally, changes in groundwater conditions may involve time scales ranging from days to many decades depending on the timing of recharge, soil and aquifer properties, and depth to the water table. These factors make presenting assessments of groundwater conditions a complex task, particularly on a regional basis. One approach is to present spatially several indicators of groundwater conditions that address different time scales and attributes of aquifer systems.

Several methods and indicators for demonstrating aspects of groundwater conditions using water-level observations from existing datasets were developed as part of the USGS Southwest Alluvial Basins Groundwater Availability Pilot Project. The indicators of groundwater conditions developed in this study include locations of wells experiencing water-level decline or rise for both historic and recent time periods, recent trends in ground-water levels, and current depth to groundwater. Computer programs were written to create these indicators of groundwater conditions and display them in an interactive geographic information systems (GIS) format. Results are illustrated through analyses of groundwater conditions for selected alluvial basins in the Lower Colorado River Basin in Arizona, available in an on-line interactive map (<http://montezuma.wr.usgs.gov/website/azgwconditions>).

Damming Grand Canyon: The 1923 USGS Colorado River Expedition

Speakers: Dianne E. Boyer and Robert H. Webb, United States Geological Survey

Date: Wednesday, November 18th, 2009
Time: Noon to 1:30

During the first few decades of the 20th century, attention was keenly focused on development of water resources of the Colorado River. Two competing federal agencies sought to promulgate their plans. One, the U.S. Reclamation Service (which became Bureau of Reclamation), proposed a single large dam at Boulder Canyon, and the other, the U.S. Geological Survey, proposed a comprehensive water-development plan featuring numerous dams that would have minimized evaporation. The story of this competition, particularly the USGS attempts to study the river corridor and promote its water-development plan, leads into the current state of affairs where water allocation and availability appear to be diverging.

All seminars and events are held at the Sol Resnick Conference Room, Water Resources Research Center, 350 N. Campbell Ave.

Information for additional seminars can be found on the WRRC web site:

www.cals.arizona.edu/azwater

All seminars and events are held at the Sol Resnick Conference Room, Water Resources Research Center, 350 N. Campbell Ave., Tucson, AZ

Tucson HydroNews

AZ's CAP fund raid is illegal, suit says

Lawyer: Legislature's action could cut needed water later

By Howard Fischer
Capitol Media Services

Tucson, Arizona | Published: 10.14.2009

PHOENIX — A legislative raid on Central Arizona Project funds is not only illegal, but it also could leave state residents literally high and dry, the lawyer for the CAP is charging.

In legal papers filed with the state Supreme Court, attorney Robert Lynch said the \$13.9 million taken to balance prior and current state budgets comes not from Arizona taxpayers but is part of a \$100 million payment from the state of Nevada in exchange for Arizona letting that state have some of its Colorado River water allocation.

The money is supposed to be used by Arizona to "bank" some of the water this state does not need now but will require in future years.

Lynch said lawmakers do have the power to "sweep" certain special funds to balance the budget. But he said that power is limited to those accounts where the money was raised through legislation and comes from Arizona taxpayers.

<http://www.azstarnet.com/allheadlines/313170.php>

Scanty rain imperils key natural sites

Dry summer, coupled with long drought, weighing on Pima environmental features

By Andrea Kelly
Arizona Daily Star

Tucson, Arizona | Published: 10.09.2009

Several of Pima County's most significant environmental features are in big trouble because of the well-below-normal rain this past summer.

Visitors to the Roy P. Drachman Agua Caliente Regional Park on the northeast side have called the county, asking about the low water levels in the ponds. Right now the county is pumping groundwater into the park, which is the only way to keep it wet, now that the natural spring there has slowed to a trickle.

The spring has historically flowed at 100 gallons per minute but has dipped to 5 gallons per minute this month, said Suzanne Shields, director of the Pima County Regional Flood Control District.

The Cienega Creek Natural Preserve near Vail has seen a 90 percent reduction in water flow, compared with pre-drought years. The creek is running a shorter distance and the ground-water level has dropped, potentially threatening the species that depend on the water.

The county's Kino Environmental Restoration Project near Ajo Way and Country Club Road doesn't have enough runoff to keep it wet and to water the Tucson Electric Park fields with harvested water, as it normally does. Reclaimed water is helping the natural flood basin retain its marshes and water the fields in the absence of harvested runoff.

<http://www.azstarnet.com/allheadlines/312469.php>

Record drought takes its toll on Arizona

By Anna Fifield in Williams, Arizona

Published: October 13 2009 19:23 | Last updated: October 13 2009 19:23

The creek, dam and lake in Sabino Canyon — prized watery playgrounds for generations of Tucson residents — have dried up this fall except for a few small pools along the creek.

To blame: a fizzled monsoon and lack of autumn rains.

"It's just so dry in Sabino — wherever you look out there," lamented Claudia Weaver, a guide with the Southern Arizona Hiking Club. "What's normally so good about Sabino is that you have the desert and you also have the creek. But right now we have a creek without water.

<http://www.azstarnet.com/allheadlines/315661.php>

Despite growth, per-person water use is lowest since 1950s

THE ASSOCIATED PRESS

Tucson, Arizona | Published: 10.30.2009

FRESNO, Calif. — Americans are using less water per person now than they have since the mid-1950s, thanks to water-saving technologies and a nationwide push to safeguard dwindling supplies.

A report released Thursday by the U.S. Geological Survey also shows that industries as well as the general population are sucking up less water overall than in 1980, when the nation's thirst for water peaked.

Experts said it was particularly welcome news in the burgeoning West, where cities built in dry regions are grappling with intense disputes and ecosystem collapse tied to dwindling supplies.

<http://www.azstarnet.com/allheadlines/315449.php>

Water needs grow beyond farms vs. cities

The Associated Press

Tucson, Arizona | Published: 10.26.2009

YUMA — The water in the Colorado River could fill the needs of all the homes and offices in Phoenix, Tucson, Las Vegas and much of Southern California, but much of it irrigates vast fields of wheat, alfalfa,

cotton and vegetables.

That has painted a target on farms as urban water managers search for sources to meet future demands.

However, water experts say the issue has grown more complicated than transferring water from one user to another. The conflicts have evolved from cities versus farmers to more nuanced sustainability issues, such as trading future urban water supplies for locally grown food.

"We don't want to get into a situation of saying 'My use is better than yours,' " said Tom Davis, general manager of the Yuma County Water Users Association. "But there needs to be a better way than just whoever has the most money gets the most water."

<http://www.azstarnet.com/allheadlines/314778.php>

Cleaning dirty air risks costlier Arizona water

by **Shaun McKinnon** - Nov. 1, 2009 12:00 AM
The Arizona Republic

The Navajo Generating Station, the huge coal-fired power plant outside Page, supplies a fraction of Arizona's electricity demand, but its role in moving water to the state's largest cities has thrust it into a growing battle over the cost of cleaning up air pollution.

In the two months since the U.S. Environmental Protection Agency proposed rules that would require costly new air-scrubbing equipment at the plant, the debate has escalated into a war of increasingly dire predictions: Tribal economies could collapse. The plant itself could close. The price of water sold to Phoenix and Tucson could quadruple.

Environmental groups have targeted Navajo and the nearby Four Corners Power Plant for years because of the emissions-related haze that builds up over the Grand Canyon and other fragile landscapes. The EPA ranks Navajo as the nation's third-largest emitter of nitrogen oxides, pollutants created when coal is burned. Four Corners is the second-largest.

The new EPA rules, if adopted by the agency, would force owners of the two plants to install complex new air scrubbers that use ammonia to break down the pollutants. Navajo's owners say the systems cost too much money and could push power rates out of reach for the plant's users. They also argue that the added scrubbers would produce visibility improvements imperceptible to human eyes.

<http://www.azcentral.com/news/articles/2009/11/01/20091101water-ngs1101.html>

State water agency: Cut would hurt rural areas

by **Shaun McKinnon** - Oct. 31, 2009 12:00 AM
The Arizona Republic

Projected state budget cuts would all but end Arizona's efforts to secure long-term water supplies, water officials say, a loss that would devastate rural communities already struggling to meet demands.

In a budget scenario requested by the governor, the Department of Water Resources says it would also eliminate its statewide drought and water-conservation programs, cutting off aid to towns and cities at a time when dry conditions have deepened again.

In all, the water agency would be forced to lay off nearly half of its workforce and cut most programs not required by state law.

<http://www.azcentral.com/12news/news/articles/2009/10/31/20091031water-budget1031-CP.html>

Flagstaff Chapter

Next Regular Chapter Meeting

The next Flagstaff Chapter meeting will be on Tuesday, November 17th, at 6pm at Casa Bonita.

SPECIAL SPEAKER

AHS is co-sponsoring a talk by Stewart Rood of University of Lethbridge Alberta on Friday, **November 6th**, at 12:30 in the Physical Sciences building, room 103, at NAU.

A tail of two rivers:

Hells Canyon of the Snake and the Salmon River Gorge
(How river regulation impacts riparian ecosystems)

Speaker: Stewart Rood,
Professor and Killam Research Fellow
University of Lethbridge, Alberta, Canada

River damming dramatically alters river valleys, with abrupt change in the flooded reservoir zone and more gradual changes downstream for tens or hundreds of kilometers. River damming and the alteration of water and sediment flows provide deliberate manipulations that can reveal the underlying processes of riverine and riparian, or streamside, ecosystems.

This seminar will describe a decade-long study of the riparian ecosystems along Idaho's Snake River, upstream and through a sequence of 3 large hydroelectric dams, and downstream along Hells Canyon, one of the world's most renowned riverscapes. As a reference comparison, conditions are also analyzed along the Salmon River, one of the last major free-flowing rivers in the contiguous United States. These analyses provide insight into the interactions between water, sediment and landscape, as factors that underlie the development of riparian vegetation communities, which provide the region's richest wildlife habitats.

2010 Flagstaff Chapter board nominees

It's that time of year again. Current members will be receiving an email with information about voting. This year we will be providing you the option of voting online or by the traditional faxing/mailling/emailing a PDF ballot. If you need to update your email address with AHS, please send your current email to Matt Beversdorf (azhydrosoc.web@gmail.com). Ballots will be due by the end of November.

We have an excellent slate of board nominees (see below). We'd like to thank all the board nominees for stepping forward to help out with the chapter next year. Thank you!

President	Brad Hill
Vice President	Paul Whitefield
Treasurer	Dana Downs-Heimes
Secretary	Erin Young
Corporate Board Member At Large	Erin Young

AHS Foundation Needs Your Support

Many of us make donations to our favorite charities in November and December before the beginning of the new tax year. This year, please consider making a donation to support the Arizona Hydrological Society Foundation.

The AHS Foundation was established at the urging of the Society to provide long-term assured funding for annual scholarships including the Bouwer and Halpenny Internships, three university scholarships, an intern at Northern Arizona University, and other programs intended to assist outstanding and deserving students.

Given the current economic situation, now, more than ever, we must aid those bright students who will become the young professionals motivated to solve the critical water problems facing Arizona, the United States, and the world at large. The AHS Foundation manages its endowment funds very conservatively, preserving capital and allocating only earnings to support the scholarships. In the present financial climate, it is difficult to maintain, much less expand, these highly successful educational programs. For this reason, your charitable contribution will provide vital dollars to sustain and enhance the Foundation's efforts to provide these unique educational opportunities to our future leaders in the hydrological sciences.

The Arizona Hydrological Society Foundation is a 501(c)(3) organization. All donations qualify for a 100% charitable deduction on personal or business income tax returns. Foundation Directors are all volunteers and are not paid for their time, support or work for the Foundation.

To Donate:

Go to the AHS Foundation, [Secure Online Payment Form](#)

or

Download this [PDF Form](#) and Mail to:

AHS Foundation
PO Box 65690
Tucson, AZ 85718

Arizona News - Field Trip and Events

The *Rural Water Association of Arizona* and the *American Institute of Professional Geologists (AIPG), Arizona Section*, have invited our members to join them in upcoming field trips and events.

Details can be found on our AHS [Announcements page](#).

Also, the *Arizona Geological Society* is planning a Winter 2009 Field Trip to Pinacate Volcanic Field - NW Sonora.

You can find details on their website: ([Details](#))

For more information about the Arizona Hydrological Society, or to view current job listings and announcements, please visit our web site at:

<http://www.azhydrosoc.org/>

Your membership may be renewed for 2009 by credit card through the AHS website or by mailing a check to the Arizona Hydrological Society, c/o Matthew Beversdorf, 3317 S. Higley Road, Suite #114, Box 120, Gilbert, Arizona 85297. Dues remain at \$45.00 year for regular membership and \$15.00 for students. Thank you all for a great 2009 and for your continuing support in 2010. For those who attended the 2009 Water Symposium, be reminded that membership dues for 2010 were included in the registration fee.

