

AUGUST 2013 NEWSLETTER

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GOVERNMENT GOINGS-ON

A few days ago I and other AHS members went to see the 2008 movie "FLOW" in Tempe. The usual suspects, like Peter Gleick, offered sound bites to the effect that fresh water supplies are dwindling and will soon run out. The movie focused on Third World villages, with cities generally portrayed as having inadequate and unsafe water supplies. The prevailing theme seemed to be that governments and corporations are taking the water in Third World countries, and that if they went away, everyone would have plenty of water.

But that simplistic view is not in accord with how water accessibility developed over time. Water kick-started the rise of civilization. Archaeologists such as Julian Steward and Robert McCormick Adams have long delineated the connection between control of water and the formation of states. For millennia after the end of the Pleistocene humans lived in bands and tribes, with no more complex social organization than a chiefdom. Populations grew, dryland agriculture appeared, and villages formed. As climatic shifts accelerated and aridity increased about 7,000 years ago, some villages in river valleys found that only intensified agriculture could support their expanding populations, and bringing water to their fields was the only way to intensify agriculture. But chiefdoms were not effective in organizing the needed changes. It took a higher and broader level of organization to mobilize the labor and allocate the water and adjudicate the disputes and enforce decisions. Some villages grew into cities, elites developed, new technologies and specialized professions appeared, and taxes were imposed. Rulers found that in periods of climatic stress (less water) it was advantageous to take resources from less developed neighbors by force, leading to more growth, more power, more stored wealth—we can all see where that would lead. Just look at the Romans.

The movie idealized village life as somehow giving everyone equal access to water, but in truth without regional governments like modern cities, states and nations, fighting over water would be endless. States negotiate agreements on rivers (Colorado River Compact), allocate water rights (Groundwater Management Act), move water (CAP and SRP), insure its cleanliness (Environmental Quality Act), and promote water conservation (Third Management Plan) and underground storage (recharge statutes). Nations conclude treaties over river flows (Minute 319). Government has acted to equitably distribute and address conflicts over water resources across the semi-arid Southwest, and continues to lead the response to changing climatic conditions. No village could have done this. Hydrologists and water resources professionals should be proud to stand at the foundation of civilization itself.

Alan Dulaney

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IN MEMORIAM: HERMAN BOUWER, 1927-2013



This week AHS lost one of our treasured founding members, Dr. Herman Bouwer. Herman and his lovely wife, Jessie, have been fixtures in the AHS community, regularly attending the Phoenix Chapter dinner meetings and symposiums for many years. Herman received the AHS Lifetime Achievement Award in 1997. He seeded the Intern-Scholarship that bears his name with the prize money won from the inaugural Prince Sultan Bin AbdulAziz International Prize for Water in the field of Artificial Groundwater Recharge.

Dr. Herman Bouwer dedicated his life to the advancement of water resources research, planning, and development on a global scale. He was a trusted friend and teacher to many of us that work in the field of water resource management in Arizona, throughout the United States, and in many countries around the world. Herman traveled the globe on repeated trips to 24 countries to volunteer his expertise to international aid organizations.

Herman distinguished himself as one of the world's foremost groundwater hydrologists and experts in the field of artificial groundwater recharge. He retired from the United States Water Conservation Laboratory in 2002. His pioneering work in groundwater recharge with particular emphasis on the reclamation and reuse of sewage effluent through Soil Aquifer Treatment (SAT) involved him in numerous consulting assignments and advisory positions at home in Arizona and California to aboard at the World Bank and World Health Organization in Jordan, Tunisia, Morocco, and the Palestinian Territories.

Herman gave his life to serving others making the world is a better place in return and we will all miss him.

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AHS 2013 SYMPOSIUM UPDATE



Marla Odom, Symposium Chair

Early Registration has been extended to August 16th, 5 PM! Space is limited and the event is

expected to sell out. Register now to guarantee your spot!

The 2013 AHS Symposium, "Shifting Boundaries: Recalibrating the Hydrologic Approach" will be held at the Doubletree Reid Park Hotel by Hilton in Tucson from September 18-21, 2013. The planning committee has been busily putting together technical sessions, workshops, field trips, product exhibition, fun entertainment, and an icebreaker welcome event.

Check our website regularly for the most up-to-date information on events.

http://ahssymposium.org/2013/

Sponsors and Exhibitors- We have 5 standard exhibitor booths remaining for sale. Standard exhibitor booths come with a full complimentary registration. We also have an outdoor exhibitor space and icebreaker sponsorship opportunity available. Please see <u>website</u> for details.

<u>Technical Sessions</u>- We received an incredible response to our Call for Abstracts and have a full technical session slate of over 65 talks, one panel discussion, and 10 poster presentations scheduled. Sessions are being finalized and confirmed with presenters and will be available online in early August.

<u>Plenary Sessions</u>- A 2-hour plenary session is planned for both the Thursday and Friday Session dates.

- Thursday (September 19)- Grady Gammage Jr. and Gary Woodard will be delivering a joint presentation titled "Assumptions, Extrapolations, and Outliers: Our Dysfunctional Dialogue Over Water, Environment, and the Future", which explores the question "How do we recalibrate our baseline assumptions and change the way we think about the future?"
- Friday (September 20) Kathy Jacobs, the Assistant Director for the Climate Adaptation and Assessment at the White House Office of Science and Technology Policy will present a talk titled "The National Climate Assessment: Preparing the Nation for Change". Her talk will focus on taking the effects of changes in the hydrologic cycle into consideration in the context of cascading effects of decisions.
 Tim Thomure, the Water Reuse Practice Lead for HDR Engineering, will present a talk titled "Potable Reuse A Changing Conversation". His talk will focus on changes in the way potable reuse is discussed in the water industry and in public settings as a result of the migrating use of recycled water from outdoors, to indoors, to potable use.

<u>Thursday Lunch Presentation (September 19)</u> - Peter Smith, professor of planetary science at the Lunar and Planetary Laboratory in the University of Arizona Department of Planetary Science, will speak on the origins and fate of water on Venus, Earth, and Mars.

Thursday Dinner Event (September 19)- The entertainment for the evening will be local Tucson band The Tryst. The Tryst has an energetic, eclectic, sultry sound rooted in jazz and funk. They have written and produced several studio albums and won multiple awards 4 years in a row at the Tucson Area Music Award (TAMMIES). The Tryst took home a record seven best-in-category TAMMIE awards in 2011, including best new album release, best jazz band, best funk/soul band, best female vocalist, best songwriter, best bassist, and best drummer. In 2012, they took home the TAMMIE for best Jazz band.

Workshops (September 18)- A total of six workshops are currently planned. The workshops listed below are finalized and are up on the website for registration:

- MODFLOW-USG A New Direction in MODFLOW Groundwater Modeling. Taught by James Rumbaugh, 8:00 a.m. – 5:00 p.m. \$350 (includes meals and course materials). More info...
- Intro to Water-Management Modeling with GoldSim Dynamic Simulation Software. Taught by Jason Lilywhite, 8:00 a.m. 12:00 p.m. \$50 (first-come, first-served registration). More info...
- Hands-on Training for Water Management Modeling with GoldSim Software. Taught by Jason Lilywhite,
 1:00–5:00 p.m. \$100 (first-come, first-served registration). More info...
- Programming for Campbell Scientific Data Acquisition & Remote Data-Collection Systems. Taught
 by Josh Hanks, 10:00 a.m. 12:00 p.m. Free (first-come, first-served registration). More info...

- Characterizing, Designing, & Operating Surface-Spreading Groundwater Recharge Projects. Taught
 by Wally Wilson and Mike Milczarek, 8:00 a.m. 6:00 p.m. \$75. More info...
- Writing Strategies for Earth Science & Water Resource Professionals. Taught by Nancy Riccio, 8:00
 a.m. 4:00 p.m. \$120 (includes meals and course materials). More info...

<u>Field Trips (September 21)</u> - A total of three field trips are currently planned. The field trips listed below are finalized and are up on the website for sale:

Birds of the Sweetwater Recharge Facility

Leaders: Kendall Kroese, Habitats Program Manager for the Tucson Audubon Society and Bruce Prior, a Lead Hydrologist with Tucson Water

From Water to Wine: The Hydrogeology of the Elgin Wine District

Leaders: Dale Armstrong (Golder Associates) and Marla Odom (Montgomery & Associates)

 Additionally, a field trip to Biosphere II to tour the Landscape Evolution Observatory (world's largest artificial watershed) is still in the planning stage and is being evaluated for feasibility.

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RECENT CHANGES TO THE AHS FOUNDATION ENDOWMENT FUNDS

In 2006, the AHS Foundation was formed as a 501(c)(3) non-profit charity. At the same time, at the instigation of Herman Bouwer, a long-term endowment fund was established to build a future investment nest-egg. Over the last two years, at the urging of both AHS and the Flagstaff chapter, three new "Chapter Endowment" funds were also established. Therefore, all foundation endowment long-term investments are now allocated to one of <u>four</u> endowment funds: the original general endowment or one of the three chapter endowment accounts.

In order to encourage donations, provide parity among the chapters' accounts, and inspire participation by chapter members, the AHSF Directors have recently made two significant changes to the endowment structure.

"Through the end of 2013, any donation to one of the three chapter endowments will be matched by an additional transfer from the general endowment into the chapter endowment."

- 1. \$30,000 from the original 2006 general endowment was reallocated into the three chapter endowments. The Directors voted to transfer \$10,000 out of the general endowment into each chapter endowment. This action was taken to encourage greater future ownership and participation of each chapter for fundraising and possible charitable programs.
- 2. The Directors also voted to encourage additional chapter endowment donations through a donation-matching program. Through the end of 2013, any donation to one of the three chapter endowments will be matched by an additional transfer from the general endowment into the chapter endowment. From a chapter standpoint, this is a great opportunity to double your own donation to your chapter endowment and help it grow.

The chapter endowments and their current (6/30/13) post-reallocation balances are:

- Herman Bouwer Intern Account (Phoenix): \$17,782. 85
- Leonard Halpenny Intern Account (Tucson): \$25,373.01
- Charles Avery Intern Account (Flagstaff): \$11,585.60

A financial report is issued every quarter by the Foundation showing all earnings, donations, redistributions, and balances of the four endowment accounts. That report is available on request and we hope to have it on the AHSF page of the AHS website soon. The four endowment funds are managed as a single investment, and recently passed the \$100,000 mark, as a result of your continuing donations and also good investment earnings during the market recovery of the past two years.

The directors understand that this dizzying array of finances—created in response to AHS member requests—can be confusing. We intend to post more newsletter information articles and we will also have a booth at the symposium, so we encourage your questions and feedback. Send them to Gail Cordy, President,

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PHOENIX CHAPTER NEWS

Phoenix Chapter Dinner Meeting

There will be no regular chapter dinner meetings in August and September. Instead we invite you to join us at Terrior's Wine Pub on Tuesday, August 13, for our third annual Wine Tasting fund raiser.

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

- Ø No Phoenix Chapter meeting in September! Please join us at the 2013 AHS Symposium in Tucson, September 18-21, 2013
- Ø Tuesday October 8, 2013, at the SunUp Brewing Company in Phoenix:

Kelly Mott Lacroix, Water Resources Research Center, College of Agriculture and Life Sciences, University of Arizona will speak to us about **Understanding Environmental Flows: The Arizona Environmental Water Needs Assessment.**

- Ø November 12, 2013, at Nello's in Tempe; Enrique Vivoni, ASU
- Ø December 10, 2013, at SunUp Brewing Company; Greg Ghidotti and Heather Gluski, Resolution Copper
- Ø January 13, 2014, Annual Planning Meeting

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

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3RD ANNUAL AHS WINE TASTING FUNDRAISER RESCHEDULED!



When: Tuesday, August 13, 2013

6:00 pm to 8:30 pm

Where: Terroir Wine Pub

7001 N. Scottsdale Rd. #157

Scottsdale, AZ 85253

Tasting five fine wines selected by the co-owner of Terroir Wine Pub (Rich Petrus, a long-time AHS member) and accompanying appetizers to help fund the **Herman**

Bouwer Scholarship/Internship program.

Who: AHS Members, Students (must be 21 years of age) and Non-members

Cost: \$30 per person donation (additional donations will be accepted)

RSVP to Michele Robertson: MIRobertson3@GMail.com

The event is limited to the first 30 people who sign up!

Raffle: As a bonus we are having a canned food drive to help the food banks in the Metro Area. Anybody who brings nonperishable food items (cans, pasta, peanut butter etc) will receive a raffle ticket for some gifts (one ticket per item).



We would like to thank the Event Sponsors:









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TUCSON CHAPTER NEWS

Please join us for the next Tucson Chapter meeting, **Tuesday**, **August 13**. At the August meeting, Evan Canfield from the Pima County Regional Flood Control District will present **Anticipated Change in the Effluent-Dependent Lower Santa Cruz River**.

Pima County is in the midst of a \$670-millon project that will significantly improve water quality discharged to the effluent-dependent Lower Santa Cruz River, which is expected to also improve habitat. The County recently was awarded an EPA Grant to monitor changes in the river and report these to the public in a series of Living River annual reports. In support of this effort, Pima County prepared the Historical Conditions of the Effluent-Dependent Lower Santa Cruz River. This report compiles and interprets existing data on water quantity, flow regime and geomorphology, vegetation, water quality, and macroinvertebrates; as well as describing changes expected from improvement in water quality of the discharge. The most dramatic impacts are likely to result from decreased nutrient load. The Historical Conditions of the Effluent-Dependent Lower Santa Cruz River provides a better understanding of current river dynamics, and describes possible changes in river functions in response to imminent water quality improvement. This presentation will summarize some of the findings from the report and describe the anticipated changes following the treatment plant upgrades.

Montgomery and Associates

1550 East Prince Road

Tucson, AZ

Social half hour: 6:00 PM

Program: 6:30 PM

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Up-coming Meetings

Location:

• September: No meeting - Members are encouraged to attend the annual symposium!

- October 8: Chris Eastoe will present stable isotope data that provide insights into the sources of aquifer recharge in southern Arizona
- November 12: Claire Zugmeyer will present the status of the Sonoran Institute's Santa Cruz Living River Project
- December 10: Kerry Schwartz will present on Project Wet

UPCOMING WRRC SPONSORED EVENTS

Brown Bag Seminar: Scarce Water Resources and Development of Appropriate Decentralized Technologies for Sustainable Water Supply in the Negev Desert

Friday, August 9, 2 - 3:30 p.m.

Location: WRRC Sol Resnick Conference Room

Speaker: Amit Gross (Assoc. Professor) Environmental Hydrochemist, Dept. of Environmental Hydrology & Microbiology, Zuckerberg Institute for Water Research (ZIWR), Blaustein Institutes for Desert Research (BIDR), Ben Gurion University wrrc.arizona.edu/brownbag

The use of marginal water has grown significantly in Israel over the past 20 years. Currently, Israel averages more than 80 percent reuse of wastewater nationally. Uses of geothermal water, recycled wastewater and graywater in the Negev Desert Region include crop irrigation, brackish-water aquaculture, and landscape and parkland irrigation. Although marginal waters are a promising resource, potential negative environmental effects include possible contamination of groundwater and human health risks. Continuous research efforts are currently conducted to utilize marginal waters and sludge efficiently in a way that will maximize the outcome of its use with minimal negative environmental effects. Dr. Amit Gross will present an overview of several such studies with respect to the status of Israeli water resources.

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FLAGSTAFF CHAPTER NEWS

There is no August meeting currently planned; however, we are actively soliciting suggestions from AHS members for plenary or keynote speakers for the 2014 Symposium. If you have any suggestions, please send them to Margo Truini (mtruini@usgs.gov).

Please contact Mike Tomlinson (<u>tomlinson86@q.com</u>) for addition information regarding upcoming Flagstaff events.

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HYDRO-NEWS

OFFICIALS TACKLE TAP-WATER PERCEPTION

Cronkite News Service Wed Jul 24, 2013 8:59 PM

WASHINGTON — Valley health officials insist that it's safe to drink the water, but area residents don't appear to be so certain.

A recent Census Bureau survey said that 17 percent of residents in the Phoenix-Mesa-Scottsdale region believed the primary water source in their home was unsafe in 2011. While that's down from the 27 percent of Valley residents who thought the water was unsafe in 2002, the last time the Census Bureau asked the question, it was still more than twice the national average of 8.1 percent in 2011.

Health and environmental officials believe it's a perception problem: The water is as safe in the Valley as anywhere else, they say.

"There are more than 5 million tests and measurements performed every year to make sure the drinking water meets those EPA (Environmental Protection Agency) requirements," said Ken Kroski, a spokesman for the Phoenix Water Services Department. And those are tests in Phoenix alone, he said.

Mark Shaffer, a spokesman for the Arizona Department of Environmental Quality, said the <u>data</u> from his department "does not support that 17 percent of housing units in those cities received 'unsafe' drinking water."

"There were no violations of maximum contaminant levels in public water systems serving more than 2.2 million people in Phoenix, Mesa and Scottsdale in 2011, 2012 or thus far in 2013," Shaffer wrote in an e-mail.

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PROPOSAL ADDRESSES POLLUTION AT NAVAJO COAL PLANT

By Felicia Fonesca Associated Press Fri Jul 26, 2013 4:57 PM

FLAGSTAFF, Ariz. — The U.S. <u>Environmental</u> Protection Agency wants haze-causing nitrogen oxide emissions reduced by 84 percent at a coal-fired power plant on the Navajo Nation, but a group that includes the plant's operator says it can do better.

An alternative plan submitted Friday to the EPA would shut down one of three 750-megawatt units at the Navajo Generating Station near Page by 2020, cutting pollution beyond what the EPA has proposed. The plant's operator, Salt River Project, said the plan takes into account potential ownership changes and pushes back the implementation of expensive pollution controls.

It also sets a firm deadline for shutting down the largest coal-fired power plant in the West by 2044, unless the Navajo Nation opts to run it itself.

"We believe as the owners that operating two units in the future is a good outcome," said Mike Hummel of SRP. "We believe that's a better outcome than putting us in a position where we may not have any units running."

Should the plan fall through, the group has a backup plan to reduce emissions that would be equivalent to shuttering one unit.

SRP officials said that under an alternative plan with one unit shutting down in 2020 and selective catalytic reduction technology installed on the other two units, nitrogen oxide emissions would be reduced by approximately 87 percent from precontrolled levels.

The EPA's proposal gives the power plant's owners 10 years to install technology that would improve visibility at places like the Grand Canyon. The alternative proposal brought forth by SRP, tribal and federal officials, environmental groups, and the Central Arizona Water Conservation District, would give the power plant's owners an additional five years to make decisions on major investments in pollution controls.

Read more at http://www.azcentral.com/news/politics/free/20130726epa-addresses-navajo-coal-plant-pollution.html

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AGREEMENT QUANTIFIES ARIZONA TRIBE'S WATER RIGHTS

Associated Press

Wed Jul 31, 2013 1:25 AM

FLAGSTAFF — The White Mountain Apache Tribe is moving closer to securing a water delivery system on its eastern Arizona reservation after the Interior Department signed off on an agreement that quantifies the tribe's water rights.

Interior Secretary Sally Jewell said Tuesday that her department will work with the tribe to ensure that a dam to capture water from the White River is built and that pipelines send clean water to people's homes.

"We do not want any child to have black water when they turn on the faucet," she said. "We also know that water is essential to life for all people that share these resources."

The agreement is the last of four American Indian water rights settlements signed by President Barack Obama in 2010 to be executed. The legislation includes more than \$200 million for the water delivery system. Another \$79 million will go to projects that include a fish hatchery and rehabilitating recreational lakes.

The agreement resolves the tribe's longstanding claims to water from the Gila and Little Colorado rivers and allows communities off the reservation to lease water that the tribe cannot immediately use. It still must be approved by a judge overseeing some 80,000 claims to water from both of the rivers, which could come in early 2015.

Read more at http://www.azcentral.com/news/arizona/free/20130730agreement-quantifies-arizona-tribes-water-rights.html

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OIL COMPANIES FRACK IN COASTAL WATERS OFF CALIF.

By Jason Dearen and Alicia Chang

Associated Press

Sat Aug 3, 2013 12:55 PM

SAN FRANCISCO — Companies prospecting for oil off California's coast have used hydraulic fracturing on at least a dozen occasions to force open cracks beneath the seabed, and now regulators are investigating whether the practice should require a separate permit and be subject to stricter environmental review.

While debate has raged over fracking on land, prompting efforts to ban or severely restrict it, offshore fracking has occurred with little attention in sensitive coastal waters where for decades new oil leases have been prohibited.

Hundreds of pages of federal documents released by the government to The Associated Press and advocacy groups through the Freedom of Information Act show regulators have permitted fracking in the Pacific Ocean at least 12 times since the late 1990s, and have recently approved a new project.

The targets are the vast oil fields in the Santa Barbara Channel, site of a 1969 spill that spewed more than 3 million gallons of crude oil into the ocean, spoiled miles of beaches and killed thousands of birds and other wildlife. The disaster prompted a moratorium on new drill leases and inspired federal clean water laws and the modern environmental movement.

Read more at http://www.azcentral.com/news/free/20130803california-fracking-coast-oil-companies.html

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HAVASUPAI WATER TESTED AFTER FLOOD

St. Mary's Food Bank provides 30,000 bottles of water for reservation

By Cecilia Chan

Wed Jul 31, 2013 10:00 PM

Officials on Wednesday were testing the water on the Havasupai Reservation in northern Arizona to ensure it is suitable for drinking following a flash flood last week.

Between 400 and 600 people who live in Supai on the reservation have been without water or sewer service since Saturday, when a deluge hit the remote area of the western Grand Canyon.

A severe rainstorm on the plateau caused Havasu Creek to rise more than 15 feet above the normal flow and to flood Supai and the downstream campground areas, a state official said.

The Tribal Council declared a temporary state of emergency Wednesday, said Wendy Smith-Reeve, director of the Arizona Division of Emergency Management.

"This affords them the resources they need to address the problem," she said. "At this time, I am unaware of additional resource needs that are not being met."

Besides testing the water, crews also are clearing the sewer system in Supai "to make sure it doesn't flood again when we turn the water on," said Nedra Darling, a spokeswoman for the Bureau of Indian Affairs.

Darling was unsure how long it would take to determine if the water was safe to drink.

"We are trying to help the Havasupai Tribe and get them back to their way of life as soon as possible," Darling said.

Read more at http://www.azcentral.com/community/articles/20130730havasupai-water-tested-after-flood.html

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JOB POSTINGS

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

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ADDITIONAL INFORMATION

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

Membership may be renewed by credit 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 year for regular membership and \$15.00 for students. And remember that your 2014 membership will be included in the 2013 Symposium registration fee!