



## JUNE 2013 NEWSLETTER

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### GOVERNMENT GOINGS-ON

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Last month two landowners in Cochise County filed a lawsuit in Superior Court seeking to reverse a decision by ADWR to issue a Water Adequacy Report on a large subdivision near Sierra Vista that acknowledges groundwater supplies to be physically, legally, and continuously available for 100 years. One of the landowners is Robin Silver, co-founder of the Southwestern Center for Biodiversity and master of legal maneuvers. His position is that the San Pedro River base flow would be adversely impacted by the additional 4,900 acre-feet per year of groundwater pumping, resulting in loss of perennial flow along major reaches of the river. The Bureau of Land Management recently joined in the lawsuit, taking the position that Federal reserved rights to surface water associated with the San Pedro Riparian Natural Conservation Area would be threatened. And with that, the lawsuit took on a whole new aspect.

If it was just two landowners complaining about over-pumping, the lawsuit would be inconsequential. Cochise County is not in an Active Management Area, no well impact rules or other protections for surrounding wells exist, and surface water subflow is not the major issue. Arizona's bifurcated legal system does not permit potential surface water impacts to be considered in the Adequate Water Supply program when groundwater is the sole source. ADWR had no legal authority to make an inadequate determination based on the possibility of the San Pedro River drying up, regardless of whatever hydrologic models might suggest.

The assertion of a Federal claim introduces a brand new element to the dynamic. It is conceivable (intended?) that valid Federal reserved rights might trump the long-standing division between groundwater and surface water law in Arizona, forcing a melding of both and resulting in changes in how State law is administered. State law has historically dominated water rights with little intervention by the Federal government; this could be a real test of who is predominant in water law, Federal or State. If—and it is a big if—the ultimate ruling is that Federal concerns for surface water have to be accounted for in State statute and rule, much would have to be re-written. It is interesting that the selected target is the Adequate Water Supply program, largely parallel to the Assured Water Supply program, one of the most important at ADWR and critical to the renascent real estate industry.

Little room exists in current State law for preservation of riparian environments. Yet the hydrology of any basin is one system, albeit with many moving parts. More hydrological studies may be necessary to clearly delineate the impacts of pumping on flows of the San Pedro River. Environmentalists have long sought legal protections for Arizona's rivers that take into account the unified nature of surface and groundwater interactions. This lawsuit could prove a pivotal point in achieving that goal. We should watch its progress.

**Alan Delaney**  
City of Peoria

## **ARIZONA HOUSE OF REPRESENTATIVES JOINT PRESS RELEASE**

Arizona House of Representatives  
1700 W. Washington St., Phoenix, AZ 85007

**Arizona House Republican Caucus &  
Arizona House Democratic Caucus**

**May 28, 2013**

### **Bipartisan Group of Lawmakers Submit Comments to U.S. Environmental Protection Agency Regarding Proposed Rule for Navajo Generating Station**

*Letter Urges EPA to Convene Public Hearings Throughout Arizona Given Dramatic Adverse Impacts of the Proposed Rule*

STATE CAPITOL, PHOENIX (May 28, 2013) – Today, a bipartisan majority of the Arizona House of Representatives will file the attached letter with U.S. Environmental Protection Agency (EPA) Regional Administrator Jared Blumenfeld. The document urges the agency to conduct broad public hearings throughout the Phoenix metropolitan area and rural areas during the EPA's public comment period for its proposed regional haze rule for the Navajo Generating Station (NGS) in Page, Ariz..

21 Republicans and Sixteen Democrat Members of the Arizona House of Representatives signed the letter signaling a strong, bipartisan opposition to the proposed rule. The sweeping nature of the EPA's proposed rule, the legislators argue, would have significant adverse impacts on Arizona families, tribes, businesses, agricultural interests and other key industries in the state through increased energy and water rates. There also is enormous risk to the Arizona's economy as thousands of jobs and billions of dollars in lost economic activity will impact the state every year. Public hearings are needed throughout the entire state to ensure a transparent process that reflects broad stakeholder engagement and input on the rule.

“The Navajo Generating Station provides affordable energy and water to Arizona. It's disconcerting that its operation might be undermined—or worse, shut down altogether,” said House Speaker Andy Tobin. “If implemented, EPA's rule would drive up water rates, jeopardize jobs, and severely damage Arizona's economy.”

The EPA's proposed rule rejects the detailed Best Available Retrofit Technology (BART) proposal submitted by NGS's operator, Salt River Project, and would instead impose the installation of additional technology controls that could cost as much as \$1.1 billion. Incredibly, the rule would yield no perceptible visibility improvement at the Grand Canyon, according to the government's own study. The U.S. Department of Energy's National Renewable Energy Laboratory (NREL) concluded “the body of research to date...

is inconclusive as to whether [installing additional controls] would lead to any perceptible improvement in visibility.”

NGS provides energy to the Central Arizona Project (CAP), which makes renewable, affordable water available to 80 percent of Arizona’s residents—45 percent in Phoenix alone. If NGS shuts down, or has to install these costly controls, it would result in a potential doubling or tripling of water rates throughout the state. Likewise, 3,400 skilled jobs and an estimated \$20 billion in economic activity over the next three decades could be in jeopardy if NGS is forced to shut down due to the rule.

“The EPA must convene multiple public hearings in geographically diverse areas of the state so the agency can begin to understand firsthand how its proposed rule will harm the livelihood of Arizona families, businesses, and communities,” said House Minority Leader Chad Campbell. “All of us have a stake in this debate, and my colleagues from both sides of the aisle urge EPA to expand its study of the issue and ensure Arizonans’ voices are heard.”

The full letter is attached ([click here for full letter](#)). Signers of the letter include:

### **Republicans**

Andy Tobin, Speaker of the House

David Gowan, Majority Leader

Rick Gray, Majority Whip

J.D. Mesnard, Speaker Pro Tempore

Brenda Barton, LD 6

Paul Boyer, LD 20

Heather Carter, LD 15

Doug Coleman, LD 16

Jeff Dial, LD 18

Karen Fann, LD 1

Doris Goodale, LD 5

Debbie Lesko, LD 21

David Livingston, LD 22

Kate Brophy McGee, LD 28

Justin Pierce, LD 25

Ethan Orr, LD 9

T.J. Shope, LD 8

Steve Smith, LD 11

Bob Robson, LD 18

Bob Thorpe, LD 6

Kelly Townsend, LD 16

### **Democrats**

Chad Campbell, Minority Leader

Bruce Wheeler, Minority Whip

Albert “Ahbihay” Hale, LD 7

Lela Alston, LD 24

Mark Cardenas, LD 19

Andrea Dalessandro, LD 2

Juan Carlos Escamilla, LD 4

Rosanna Gabaldon, LD 2

Lydia Hernandez, LD 29

Jonathan Larkin, LD 30

Stefanie Mach, LD 10

Juan Mendez, LD 26  
Martin Quezada, LD 29  
Andrew Sherwood, LD 26  
Victoria Steele, LD 9  
Macario Saldate, IV, LD 3

**For more information, contact:**

Rey Torres, Communications Director, Arizona House Republican Caucus  
Office: (602) 926-3233; email: [rtorres@azleg.gov](mailto:rtorres@azleg.gov)

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Office: (602) 926-5848 ; email: [cmhebert@azleg.gov](mailto:cmhebert@azleg.gov)

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## AHS 2013 SYMPOSIUM UPDATE



by Marla Odom, Symposium Chair

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.

As a result of the economic downturn and its effects on our membership, AHS has decided in recent years to have a "back to basics" approach to our annual symposia. Our goal is to deliver a quality event and networking opportunity at a reasonably reduced price, reflective of the economic times. As such, we have moved to smaller, more intimate venues, more in-line with the original feel of the early symposia of the Society. ***Space is limited at the 2013 symposium, and the event is expected to sell out. Register early to guarantee your spot.***

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

<http://ahssymposium.org/2013/>

**Sponsors and Exhibitors** - Please see update written by Mike Block in this newsletter.

**Technical Sessions** - 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 with presenters and will be available online soon for review.

**Plenary Sessions** - 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.

**Thursday Lunch Presentation (September 19) - 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.

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**Workshops (September 18)** - A total of five workshops are currently being planned. Please check our website for the current status of ongoing workshop plans. The workshops listed below are nearly finalized and will be up on the website shortly for sale:

Ø **MODFLOW-USG — A New Direction in MODFLOW Groundwater Modeling**

*James Rumbaugh, the co-author of Groundwater Vistas software*

Our course is designed to introduce users to the newly released MODFLOW-USG code using Groundwater Vistas, a leading pre- and post-processor for the MODFLOW suite of codes. MODFLOW-USG utilizes finite volume discretization, allowing for use of both horizontal and vertical nested grids as well as irregular grid cell geometry. This increased flexibility in grid design allows for better resolution around key model features and boundaries, as well as allowing the user to sub-discretize individual model layers to better represent complex hydrostratigraphic units. Each model layer can have a different nesting structure, effectively allowing sub-layers and discontinuities to be more accurately modeled than previous versions of MODFLOW. The course structure combines lectures and hands-on computer time that allow participants to explore the concepts covered in the lectures.

Ø **Basic Programming and Training on the use of Campbell Scientific Data Acquisition and Remote Data Collection Systems**

*Josh Hanks, sales and support representative at Intermountain Environmental, Inc.*

This course will provide an introduction to programming the Campbell Scientific data acquisition and remote data collection systems. These systems measure multiple types of sensors and record the data on internal memory, at user defined intervals. Training will be provided on the basics of programming and the options for transmitting the data to a remote location for analysis and storage. There are a variety of remote data collection options that will be covered, such as, radio, cellular, Wi-Fi and other Internet communication devices. These systems are used in remote locations and have the ability to use small DC power systems with solar recharge. At the conclusion of the class attendees will be able to write a simple program, understand sensor connections, and know how to setup a communication connection with the datalogging device. If time permits, we will also cover publishing of data on the Internet.

Ø **Writing Strategies for Earth Science & Water Resource Professionals**

*Nancy Riccio, Principal, Plateau Technical Communication Services*

Most of us in the earth science and water resource fields spend a significant part of our professional lives generating reports, proposals, and other technical documents -- despite having received little or no training in how to write effectively. This workshop is a great opportunity to learn some strategies for technical communication from a seasoned writer / editor and former groundwater consultant. We'll analyze real-world examples at the document, paragraph, and sentence levels to identify common pitfalls and explore ways to make your writing clearer and more effective. We'll also learn a few key principles that are guaranteed to make the writing process easier and more enjoyable. Additionally, a

workshop on Private Wells and a workshop on GoldSim (planning software) are currently still in planning stage and being evaluated for feasibility.

**Field Trips (September 21)** - Three field trips are currently in the planning stage and being evaluated for feasibility. These field trips are an Arizona wine country day-trip tour, a trip to Biosphere II to tour the Landscape Evolution Observatory (world's largest artificial watershed), and a birdwatching tour at the Sweetwater Wetlands water treatment facility, which has a variety of exotic bird species. See the following website for species observed and frequency: <https://sites.google.com/site/sweetwaterwetlands/checklist>

Check the AHS symposium website regularly for updates.

## 2013 AHS SYMPOSIUM SPONSORS/EXHIBITORS UPDATE

### - Mike Block, Symposium Fundraising Committee Member, Metro Water District

With only three and half months left until the Symposium, we only have 4 premium exhibit spaces left and 11 regular exhibit spaces remain. So if your company wants to join in on what will be a premier networking and educational event, get your registration in soon! Other sponsorship opportunities include the Platinum Level, Wednesday Icebreaker, 2 Breaks, Small Company or Individual sponsor, Teacher's Workshop and Student scholarships to the Symposium.

Many thanks to the Salt River Project for renewing as a Gold sponsor. Silver sponsors include Bureau of Reclamation, Clear Creek Associates, Montgomery & Associates, National Exploration, Wells & Pumps, Roscoe Moss Company, and Resolution Copper.

Exhibitors besides our Gold and Silver Sponsors include Accutest Laboratories, ACZ Laboratories, Bill Johnson Equipment Company, Central Arizona Project, Golder Associates, Intermountain Environmental, Inc., and the University of Arizona Water Resources Research Center.

Our thanks to Haley & Aldrich for sponsoring the Thursday dinner. We greatly appreciate GeoSystems Analysis, Inc. for being the Thursday lunch sponsor and the Central Arizona Project for sponsoring the Friday awards luncheon.

Thanks to Archaeological Consulting Services and National Exploration, Wells & Pumps for each sponsoring a Break.

Much thanks to Hydro Geo Chem for joining as a Small Company sponsor.

If your firm or agency would like to also be a sponsor, please go to the Symposium AHS website at [www.ahssymposium.org/2013](http://www.ahssymposium.org/2013) or contact me at (520) 575-8100 or [mblock@metrowater.com](mailto:mblock@metrowater.com).

On the behalf of the Symposium Planning Committee, I would like to again thank all of our donors for helping the Symposium reach 64% of its fundraising goal. Your incredible generosity and support will help us make for a successful 2013 Symposium!

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## PHOENIX CHAPTER NEWS

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### Phoenix Chapter Dinner Meeting

The next Phoenix Chapter dinner meeting will be held **on Tuesday, June 11, 2013**, at SunUp Brewing Co., in midtown Phoenix (on the north side of Camelback Road, just east of Central Avenue). Please join us for a beverage, to share business cards, and talk water!

**Location:** [SunUp Brewery](#)  
322 E. Camelback Road  
Phoenix, AZ 85012

**Event:** An Irrigation District's Perspective On The CAP &

Other Issues

Brian Betcher, General Manager, Maricopa Stanfield Irrigation And Drainage District

**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 with Michele Robertson at [mrobertson@elmontgomery.com](mailto:mrobertson@elmontgomery.com) or 480-948-7747.

Hope to see you there!



**At the June Phoenix Chapter meeting, Brian Betcher, General Manager of the Maricopa Stanfield Irrigation and Drainage District, will give a presentation on the unique position of agricultural water providers in the world of Arizona water, and provide insight into some of the strategies that the MSIDD has employed to protect the interests of its members in the face of rising energy costs, the increasing competition for limited water supplies, and other issues.**

Brian Betcher was hired by Maricopa-Stanfield Irrigation & Drainage District (MSIDD) in 1988 as its District Engineer and became its General Manager in March 2008.

During his 25-year tenure with the District, Mr. Betcher has had primary responsibility for managing the District's water resources consisting of groundwater wells and CAP water, along with overseeing its operation and maintenance field personnel.

Prior to joining MSIDD's staff in 1988 he spent 11 years working for Bookman-Edmonston Engineering, Inc., the firm responsible for the feasibility, design and construction management of the District's CAP canal project. Mr. Betcher served as the Project Engineer for MSIDD during that time. He has been working with Pinal County irrigation District's in the development and operation of their irrigation systems since 1980. This provides him with a unique working history of the CAP and its relationship to serving the needs of irrigated agriculture.

Mr. Betcher has had the opportunity to serve on many committees representing water interests in Pinal County and in particular, irrigated agriculture. He served on the Technical Advisory Committee for the Governor's 2004 Water Commission. Recently he has participated in CAP's ADD Water program, represented agricultural interests related to proposed EPA rules for NGS, and currently sits on an ad hoc committee working with ADWR and CAP for State-wide planning for future recovery of stored CAP water.

He holds a Bachelor of Science degree in Civil Engineering from the University of Southern California,

specializing in water resources, and he is a registered professional engineer in the State of California.

**Abstract:**

MSIDD is currently the second largest irrigation district in Arizona receiving water from the Central Arizona Project (CAP), having delivered more Colorado River water than any other entity since the CAP became operable in the 1980s (over 4,000,00 AF). MSIDD operates a conjunctive use system of more than 200 miles of canals and over 300 irrigation wells to provide commercial irrigation water service to its growers. In the face of increasing energy costs, environmental regulations, encroachment from residential development and competition for water supplies MSIDD is working to face the challenge of keeping water supplies secure and affordable.

Brian Betcher, General Manager of MSIDD, will discuss the pressure points and the strategies being employed to meet this challenge.

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**Future Event Calendar (see also calendar on [www.azhydrosoc.org](http://www.azhydrosoc.org))**

- **Tuesday July 9, 2013**, at Nello's in Tempe  
Guy Carpenter, Carollo Engineers  
**Hot Topics from Central Arizona Project, and Their Implications for the Water Industry**
- **No Phoenix Chapter meetings in August or September. Please join us at the 2013 AHS Symposium in Tucson, September 18-21, 2013.**
- **Tuesday October 8, 2013**, at SunUp Brewing Company  
Kelly Mott LaCroix, University of Arizona Water Resources Research Center  
**Environmental Water Needs Assessment**

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.

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**TUCSON CHAPTER NEWS**

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Please join us for the next Tucson Chapter meeting, **Tuesday, June 11**. At the June meeting, Dale Mason with the Arizona Department of Water Resources will present ADWR's recently released update to the Tucson Active Management Area Groundwater Flow Model.

Location: Montgomery and Associates  
1550 East Prince Road  
Tucson, AZ

Social half hour: 6:00 PM

Program: 6:30 PM

Bio: Mr. Mason has worked for the ADWR since 1988 in the Field Services, Assured and Adequate Water Supply, and Modeling Sections. Mr. Mason is currently a project leader in the ADWR Modeling Unit, with 20 years of experience in groundwater modeling. Mr. Mason also was the co-author of the initial Tucson AMA groundwater flow model publisher in 2006.

**Abstract**

The Arizona Department of Water Resources (ADWR) Tucson Groundwater flow model was updated in an on-going effort to provide the best tools possible in the long-term management of the water resources in the



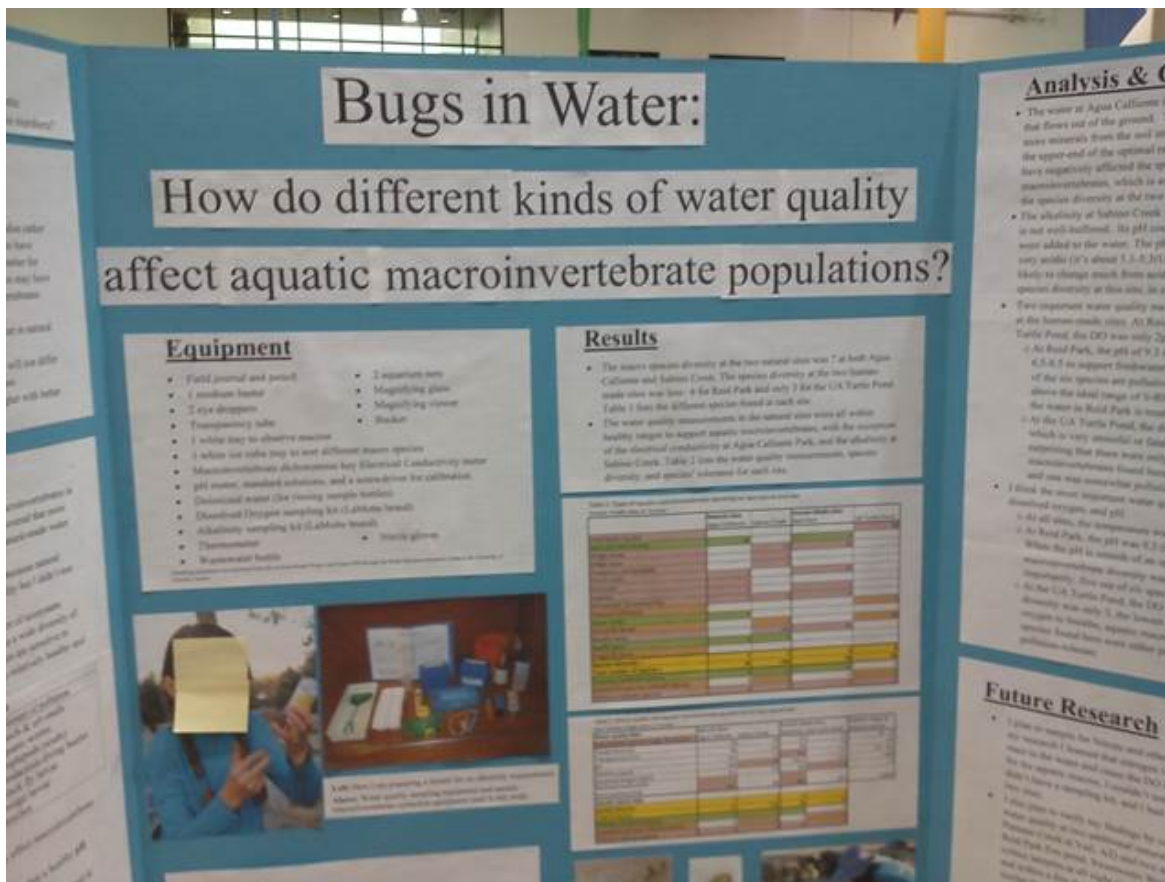
Tucson Active Management Area (AMA). The model has been updated to simulate conditions from 1940 to 2010 and includes several major upgrades. The upgrades include: a defined bottom layer for the model, the addition of annual stream infiltration distributed along the major drainages, improved historical pumping volumes and distribution, and improved historical agricultural recharge volumes. The model was re-calibrated using the latest well specific head data.

The transient calibration was able to simulate regional water level fluctuations during the 70 year transient model simulation. The model calibration was evaluated by comparing well specific water levels from 1940 to 2010 to simulated heads, time-series simulated heads to observed heads at wells with long-term hydrographs records, and by comparing hand-drawn measured water level contours with model simulated head contours. Approximately 66 percent of the observed heads had a weighted residual error (simulated – observed water level) of  $\pm 10$  feet or less, and about 97 percent of the weighted residuals were  $\pm 50$  feet. The mean residual error (ME) was 3.6 feet, and the mean of the absolute value of the weighted residuals (MAE) was 11.3 feet. The simulated water budget had a zero percent discrepancy between inflow and outflow and closely matched estimated conceptual water budget values.

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## SOUTHERN ARIZONA REGIONAL SCIENCE AND ENGINEERING FAIR (SARSEF)

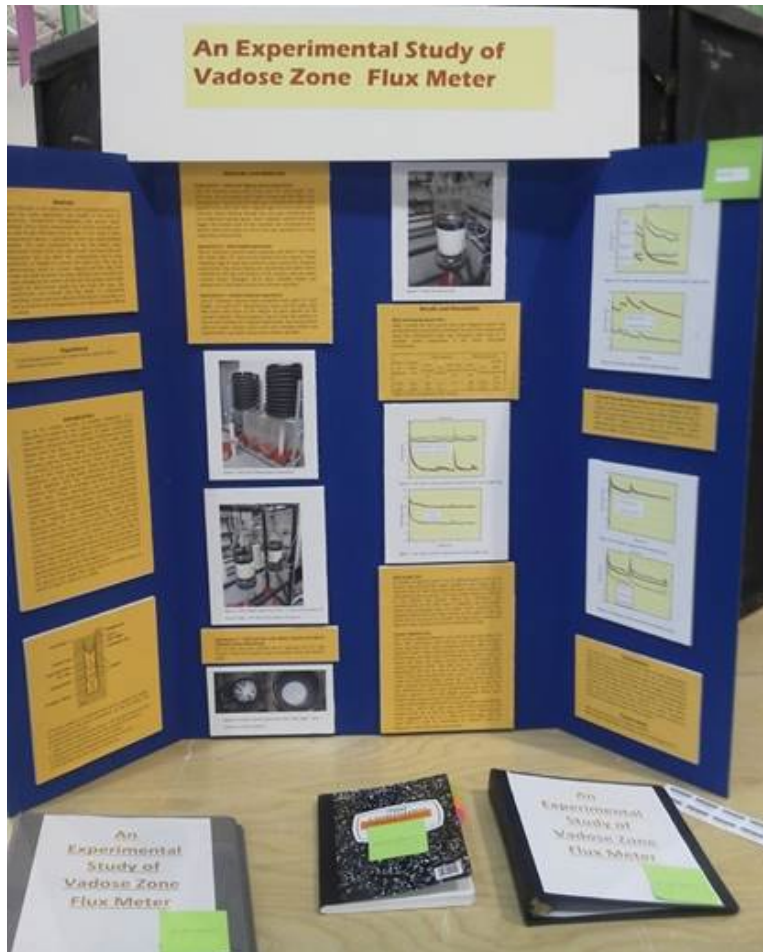
On March 12<sup>TH</sup>, AHS participated in the Southern Arizona Regional Science and Engineering Fair (SARSEF). Judges on behalf of AHS were Gary Burchard of Metro Water, Brittney Bates of Montgomery and Associates, and Dick Thompson of Tucson Water. The AHS panel presented 20 awards ranging from \$20 to \$100 for posters K thru 12 grades. Dick Thompson presented the awards in person at the award ceremonies the following Thursday and Friday nights. The winning projects are summarized below:



Rachel Whitaker: **"bugs In Water"**, Arizona Hydrological Society 1st Place - Cash, SciEnTeK-12 Foundation 1st Place

Gallego Basic Elementary School:

Kai Sparacin: **Got Fresh H2o?**, Arizona Hydrological Society 2nd Place - Cash, SciEnTeK-12 Foundation 3rd Place

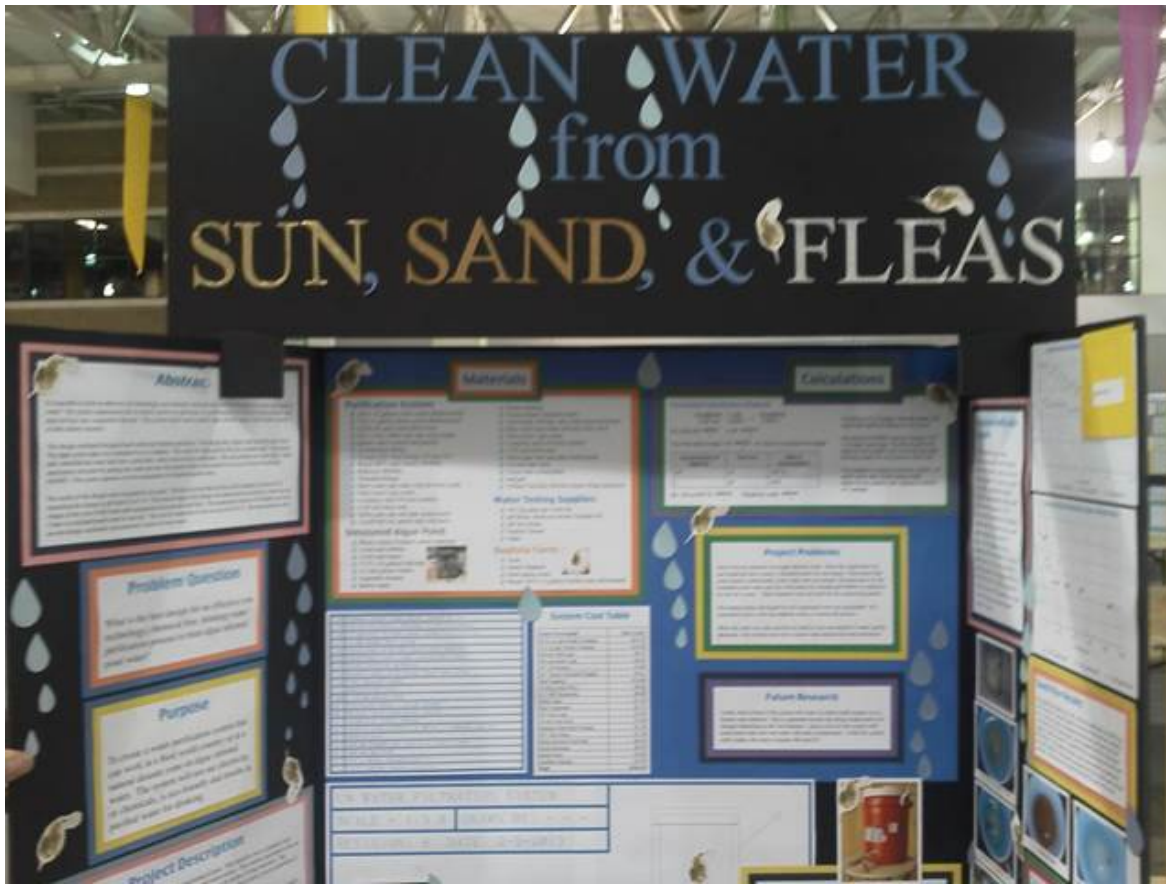


University High School:

Stephen Yao: **An Experimental Study Of Vadose Zone Flux Meter**, Arizona Hydrological Society 1st Place - Cash, U of A Water Sustainability 1st Place - Cash, United States Navy Award, Stockholm Water Environment Federation Certificate + Nomination, SciEnTeK-12 Foundation Scholarship, I Sweep Certificate + Nomination, SciEnTeK-12 Foundation 1st Place

Flowing Wells High School:

Casey Ellwood: **Wipeout**, Arizona Hydrological Society 2nd Place, National Oceanic & Atmospheric Administration Medal - Certificate, SciEnTeK-12 Foundation 3rd Place



Immaculate Heart Academy:

Amanda Minke: **Clean Water From Sand, Sun, And Fleas**, Arizona Society of Civil Engineers - AZ Branch CERTIFICATE, Association of Women Geologists 1ST PLACE CERTIFICATE, Arizona Hydrological Society 1st Place - Cash, Pima Co Regional Wastewater Reclamation Dept Certificate, SARSEF Director's Award 1st Place, Intel ISEF Observer, SciEnTeK-12 Foundation 1st Place

"NO PICTURE"

Hollinger Elementary School:

Group or Class Project - Teacher Manuela Gilbride: **Do Liquids Disappear?**, Arizona Hydrological Society 1st Place - Cash, Tucson Electric Power 3rd Place, SciEnTeK-12 Foundation 1st Place

"NO PICTURE"

E C Nash School:

Group or Class Project - Teacher Kelly Sudac: **Frosty Forms**, Arizona Hydrological Society 2nd Place – Cash

"NO PICTURE"

Gallego Basic Elementary School:

Group or Class Project - Teacher Kathy Pfothenauer: **Soil What?**, Arizona Hydrological Society  
1st Place – Cash

Carden Of Tucson:

Arjun Rajagopalan: **Water Pressure In A Container**, Arizona Hydrological Society 2nd Place –  
Cash

“NO PICTURE”

Robins K-8 School:

Reyven Melendez: Clouds - **Weather Or Not**, Arizona Hydrological Society 1st Place – Cash

Copper Creek Elementary School:

Aidan Brown: **The Recirculator**, Arizona Hydrological Society 2nd Place – Cash

Ocotillo Ridge Elementary:

Collin Wade: Making Water, Arizona Hydrological Society 1st Place - Cash, International School of  
Tucson 3rd Place, Southwest Gas 1st Place - Cash, SciEnTeK-12 Foundation 1st Place

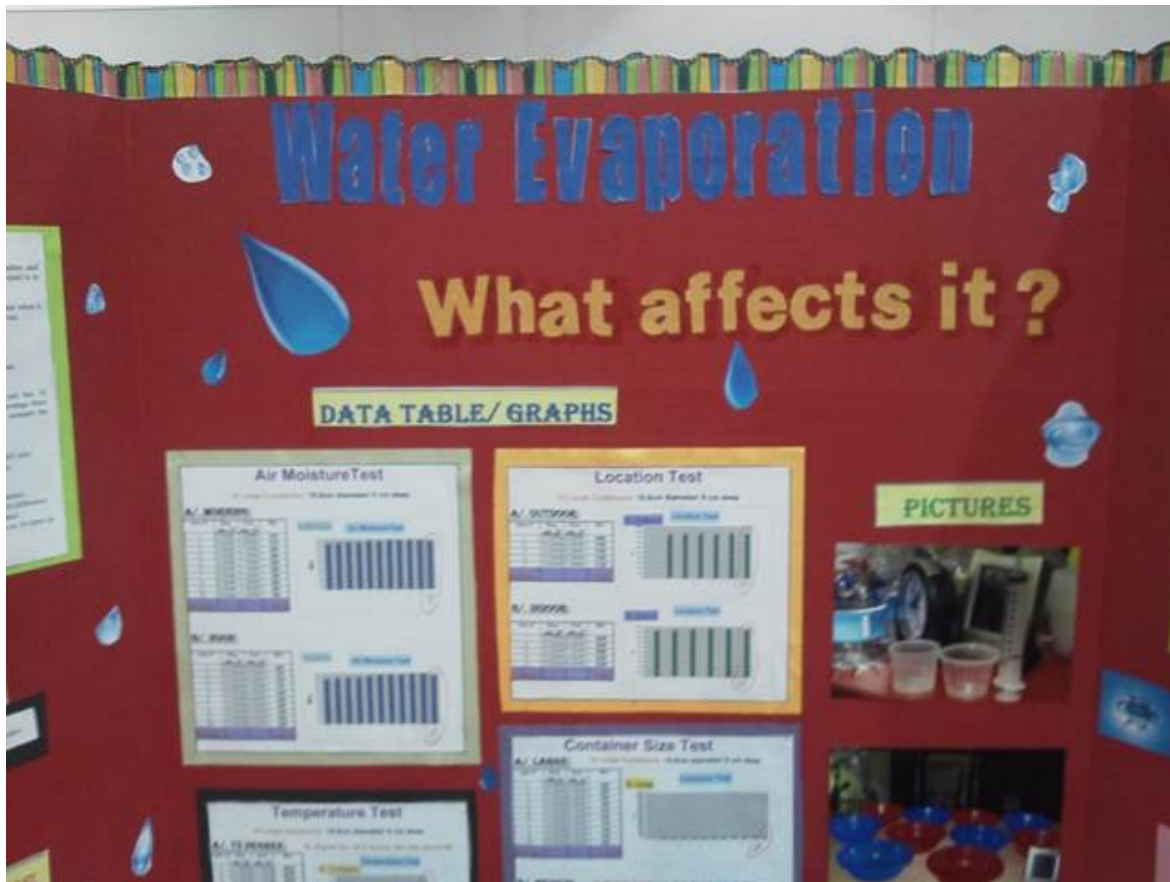
Summit View Elementary:

Carlos Stahlkopff: **Absorption In Different Types Of Soil**, Arizona Hydrological Society 2nd  
Place – Cash

Winifred Harelson Elementary School:

Quinn Hudson: **Can Water Float On Water**, Arizona Hydrological Society 2nd Place - Cash

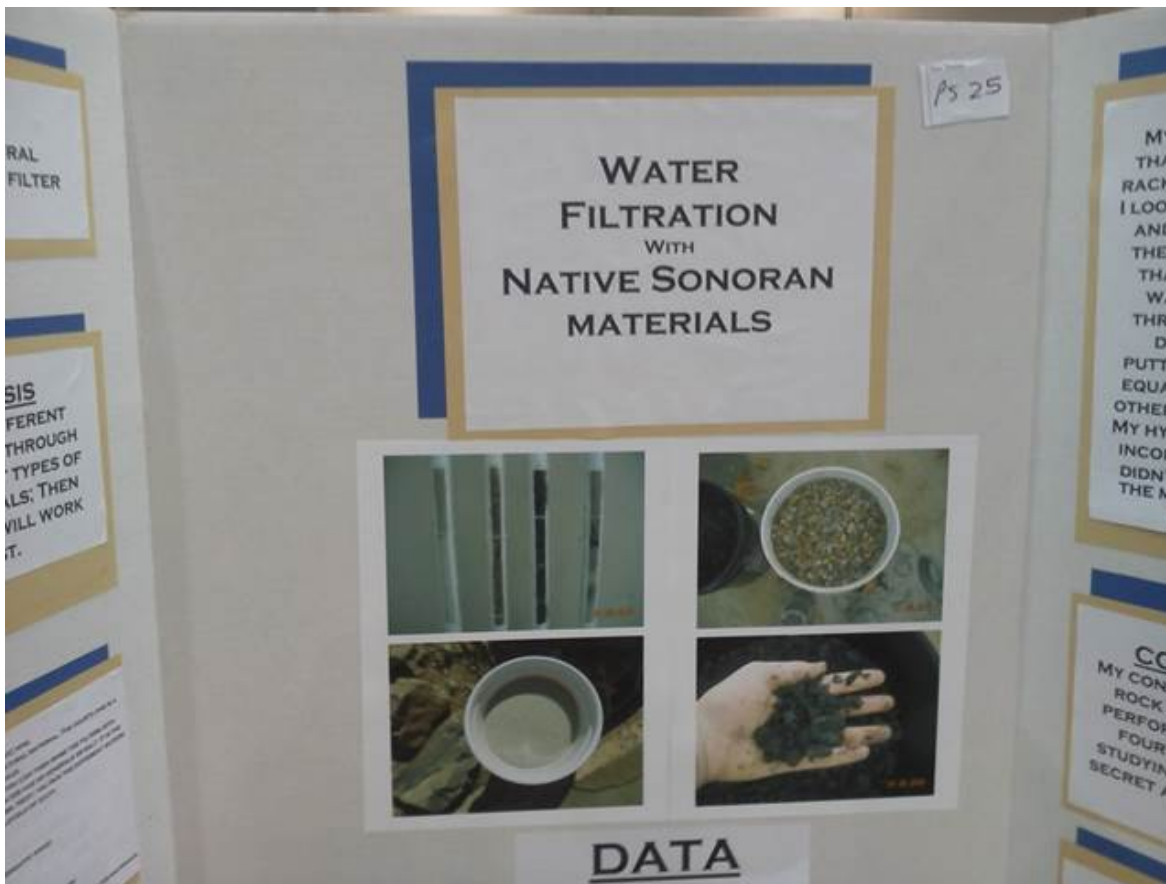
Legacy Traditional School - Nw Tucson:



Dylan Tran: **Water Evaporation**, Arizona Hydrological Society 1st Place - Cash, SciEnTeK-12 Foundation 1st Place

St. Elizabeth Ann Seton:

Jacob Landon: **Gps Rain Gauge**, Arizona Hydrological Society 2nd Place – Cash

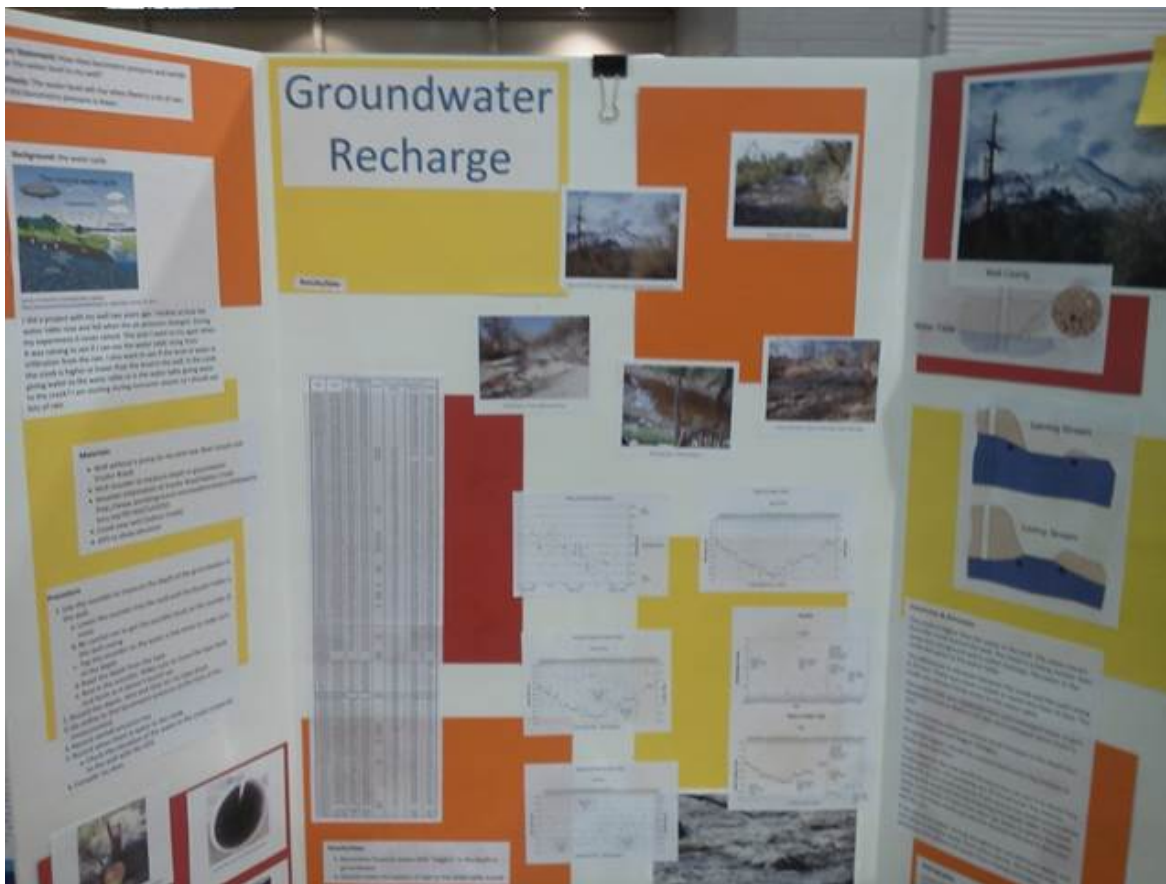


Pusch Ridge Christian Academy:

Zach Sawyer: **Native Sonoran Desert Water Filtration**, Arizona Hydrological Society 1st Place - Cash, SciEnTeK-12 Foundation 2nd Place

Pusch Ridge Christian Academy:

Keegan Chafin: **Help Me! The Salt Is Coming!**, Arizona Hydrological Society 2nd Place - Cash, U of A School of Plant Sciences Honorable Mention



Satori Charter School:

Michael Hughes: **Ground Water Recharge**, Arizona Hydrological Society 1st Place - Cash, SciEnTeK-12 Foundation 1st Place

Sonoran Science Academy - Tucson:

Julia Kassa: **Soil Liquefaction**, Arizona Hydrological Society 2nd Place - Cash, SciEnTeK-12 Foundation 2nd Place

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## FLAGSTAFF CHAPTER NEWS

The next Flagstaff Chapter meeting is scheduled for 1800-2000 MST on Thursday, 13-June-2013 to be held tentatively at Flagstaff City Hall. Mike Tomlinson will send out an e-mail confirming the location and listing the specific room for the meeting. Virtually all of the meeting will be dedicated to discussing the status of the 2014 Joint AHS/AIPG Symposium. If possible, each point person for the symposium should come with a brief plan of action for their specific task and their informational needs for their respective tasks.

In addition to discussing the 2014 Symposium, Mr. Robert (Bob) Kampfe, Friends of Oak Creek and AHS member, will speak briefly on their volunteer needs for this summer ([click here for flyer](#)).

Thanks to Norman Honie and John Cochran, the AHS-Flagstaff Chapter had a successful and very interesting field trip to Blue Canyon – Hopi Nation Tribal Park. We will be preparing a brief write-up of our field trip at a later date and Mike Tomlinson promises he will have the Google Earth-based virtual field trip setup by the end of the month.

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## HYDRO-NEWS

## RIVER ADVOCACY TRAINING

Audubon's Western Rivers Action Network is a multistate grassroots coalition to advocate for rivers in the arid west—and the birds and other wildlife that depend on our rivers.

**When:** June 8, 8:30 am – 3:30 pm (light breakfast and lunch included)

**Where:** Nina Mason Pulliam Rio Salado Audubon Center, 3131 S Central Ave, Phoenix

Workshop Topics:

- Critical western rivers issues
- Policy priorities for the Western Rivers Action Network
- Audubon Chapters' current riparian protection efforts
- Effective advocacy, communications and training – with an introduction from Arizona legislators AND more!

RSVP to Sarah Luna, [lsarah@msn.com](mailto:lsarah@msn.com)

## **HISTORY OF VIOLATIONS, COMPLAINTS STIRRING OUTRAGE OVER JOHNSON UTILITIES**

**By Sean Holstege**

*The Republic | azcentral.com*

*Sat May 25, 2013 2:12 PM*

Queen Creek, the wash that gives the town its name, smelled of sewage so often that Paul Caldwell's children started calling it "Stinky Creek."

He blamed the local water and sewage treatment company, Johnson Utilities, in his formal complaint to the Arizona Corporation Commission in late 2007. Since then, Pinal County residents have lodged 44 more such complaints, accusing the company of raw sewage in the streets, unsafe drinking water, smelly air and unresponsiveness.

The number of filings is not unusual for a company with nearly 55,000 residential customers, the commission says. But what emerges from dozens of state records is a consistency between angry complaints and violation notices issued by state environmental regulators.

The Arizona Department of Environmental Quality has issued 13 notices of violations to Scottsdale-based Johnson Utilities in the last 10 years. That doesn't include older ones or a high-profile mess this month, when a foul-smelling stew filled up the community ponds in the San Tan Heights subdivision.

ADEQ last acted against Johnson Utilities last fall. The company found E. coli bacteria in drinking water tests in August but failed to properly notify residents, the state said. In 2008, the state cited the company after it spilled raw sewage into Queen Creek. Five years earlier, the company paid the state's then-record \$80,000 drinking water fine after operating a water plant with no permit.

Read more at <http://www.azcentral.com/community/pinal/articles/20130517johnson-utilities-history-violations-complaints-outrage.html>

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## **PIPE INADEQUATE FOR 2 HOOKUPS TO CAP, CITY SAYS**

### **36-INCH LINE CAN'T HANDLE TWO CONNECTIONS**

*May 15, 2013 12:00 am • [Tony Davis Arizona Daily Star](#)*

An existing pipeline at a Sahuarita-area groundwater recharge project isn't nearly big enough to carry all the Colorado River water that two other parties say they want to put into two proposed connecting pipelines, Tucson officials said Tuesday.

The City Council unanimously agreed Tuesday to tentatively adopt 11 criteria for deciding who gets to hook their pipeline up to an existing pipeline, serving the Pima Mine Road Recharge Project, that's owned by the city and the Central Arizona Project. The council will have to formally adopt them later, after the city staff incorporates some changes the council wants in the criteria.

Before the vote, Tucson Water officials told the council that the utility's 36-inch existing pipeline can't accommodate both 36-inch pipelines that Farmers Investment Co. and Community Water Co. of Green Valley have proposed to take CAP to southern Pima County. Community Water Co. plans to recharge CAP water to compensate for groundwater pumping that Rosemont Copper will do for its proposed mine.



Both pipelines would parallel Nogales Highway from the Pima Mine recharge site - CWC's for seven miles, FICO's for 3 1/2 miles at first and up to nine miles later. The limited capacity might help FICO more in the next few years but prove more advantageous to Community Water later.

The city's current pipeline has a capacity of 40,000 to 42,000 acre-feet. About 30,000 acre-feet goes through the city CAP pipeline annually, leaving 10,000 to 12,000 unused space in that line or maybe a little more.

Read more at [http://azstarnet.com/business/local/pipe-inadequate-for-hookups-to-cap-city-says/article\\_1d88784b-4ed9-53ea-8dc1-919e7e704dec.html](http://azstarnet.com/business/local/pipe-inadequate-for-hookups-to-cap-city-says/article_1d88784b-4ed9-53ea-8dc1-919e7e704dec.html)

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## NAVAJO NATION AND SCIENTISTS WORK TO PROTECT WATER FROM URANIUM

**By Jenny Kane The Daily Times**

05/10/2013 07:36:18 PM MDT

SHIPROCK — The Navajo Nation is working with scientists on a new project to make sure that water is not reaching uranium-contaminated soil in northeast Arizona and northwestern New Mexico.

A team of lab scientists visited Shiprock last month to help install an instrument that will determine whether water is reaching contaminated soil. The tribe activated the instrument — a soil moisture monitoring system that looks like a 3-foot tall triangular configuration of silver pipes — this week.

The contaminated soil holds toxic levels of uranium, a radioactive material that was mined for several decades on the Navajo Nation. Some of the uranium contaminated the ground and water around the mines, according to the Environmental Protection Agency.

The mines are scattered across the Navajo Nation, most of them in northeastern Arizona.

It is believed that some of the people living in and around these mines have later suffered health problems, EPA officials have said.

To prevent further issues, much of the material with elevated levels of uranium has been contained in waste cells, areas designed to hold material without exposing it to the surrounding environment, including water that may fall on or seep into the ground.

Scientists from the Lawrence Livermore National Laboratory, based in Livermore, Calif., will be working with the Shiprock office of the Abandoned Mine Lands Reclamation Project to ensure that the cells are keeping all moisture from the contaminants.

Read more at [http://www.daily-times.com/four\\_corners-news/ci\\_23219335/navajo-nation-and-scientists-work-protect-water-from](http://www.daily-times.com/four_corners-news/ci_23219335/navajo-nation-and-scientists-work-protect-water-from)

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## EARTH NOTES: GLEN CANYON DAM - WHAT FLOWS IN (AND NOT OUT)

**By Alexandra Murphy**

KNAU - AZ Public Radio

WED MAY 8, 2013

Two hundred miles upstream from Glen Canyon Dam, the Colorado River roars through Cataract Canyon in a rust colored tumult, thick with silt and clay. Each year, the Colorado and its tributaries carry, on average, some 61 million cubic yards of sediment into Lake Powell, enough to fill more than 200,000 railroad boxcars.



*Upstream from Glen Canyon Dam*

*Credit National Park Service/Kyler Carpenter*

[Listen](#) to story...

When the Colorado meets the reservoir's still waters, it drops that load of suspended solids, forming a delta now 180 feet thick. Downstream, the San Juan River's own Lake Powell delta has mounded to a depth of 120 feet.

The reservoir's fluctuating water levels have caused sediments to drop out across a broad swath. As a result, deposits of new land now overspread 20 to 30 miles of both the San Juan and Colorado river corridors.

This sediment won't affect Glen Canyon Dam for a while, but it's already affecting how people experience the upper

reaches of Lake Powell. As the lake level has dropped in the last 10 years, the San Juan and Colorado have carved new channels through these deposits. In places, sediment banks tower above the water, cutting off boaters' access to the shore.

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## CAVE CREEK THIRSTY FOR WATER FROM CENTRAL ARIZONA PROJECT

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**By Philip Haldiman**

**The Republic | [azcentral.com](#)**

*Fri Apr 26, 2013 9:28 AM*

Cave Creek is jumping at the chance for an allocation of Central Arizona Project water that is being made available to Arizona municipalities.

Utilities Manager Jessica Marlow said the town is applying to the Arizona Department of Water Resources for 1,300 acre-feet of Central Arizona Project water at a cost of \$1,388 per acre-foot.

Marlow said the price is a good deal — an acre-foot can cost multiple thousands of dollars. The Department of Water Resources is expecting to get so many applications that most municipalities will probably get less than what they request, she said.

“We should take advantage of this opportunity now that we have it,” Marlow said. “There will be a rush of people applying for this water. If we get half of what we ask for, I’d be happy.”

In 2004, the Arizona Water Settlements Act and the Arizona Water Settlement Agreement provided for the reallocation of about 96,000 acre-feet of Central Arizona Project water. This water has been reallocated to the Arizona Department of Water Resources and is now being made available to Arizona municipalities.

The town’s two water companies — Desert Hills Water Company and Cave Creek Water Company — provide water services to Cave Creek as well as parts of Carefree and unincorporated Maricopa County in the Northeast Valley.

Read more at <http://www.azcentral.com/community/scottsdale/articles/20130423cave-creek-thirsty-water-from-central-arizona-project.html>

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## LESSONS FROM ARIZONA'S WATER WAR

Glennon: Conservation, reuse even more important today

**By Robert Glennon**

*Fri May 24, 2013 3:42 PM*

Arizona Gov. B.B. Moeur was so frustrated by the state’s inability in the 1930s to secure water from the Colorado River that he sent the National Guard to block construction of Parker Dam.

The nation laughed as the Los Angeles Times’ “war correspondent” wryly described the “impending movement of State troops into this theater of war.”

Behind the humor lay a serious subtext: For the first time since the Civil War, a state was rebelling against the federal government. Over water.

Arizona will celebrate the 50th anniversary on June 3 of the U.S. Supreme Court’s decision in Arizona vs. California, a decades-long feud with California over water from the Colorado and Gila rivers.

Last year, Arizona Attorney magazine dubbed the case the most important judicial decision in the state’s history.

The water fight solidified in 1928 with the Boulder Canyon Project Act, which eventually allocated 2.8 million acre-feet of Colorado River water for Arizona (an acre-foot is roughly 325,000 gallons), in addition to exclusive rights to the Gila River. Arizonans rejoiced. The decision paved the way for Central Arizona Project, a canal that would convey water from the Colorado River to farmers and cities in the central and southern parts of the state.

Read more at <http://www.azcentral.com/opinions/articles/20130524arizona-water-war-viewpoints.html>

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## ‘WATER WRITES’ MURAL IN PHOENIX PART OF GLOBAL INITIATIVE

**By Amy B Wang**

The Republic | [azcentral.com](#)

Downtown Phoenix might seem an unlikely place for an oversize mural about the desert's scarcest resource — water — but the city is now home to a “Water Writes” mural, part of a global public-arts initiative that seeks to educate people about water use.

[See 30 downtown Phoenix murals | Video: Artists unveil "Water Writes" mural](#)

In less than two weeks, artists and residents gathered to transform the south-facing wall of the Valley Youth Theatre, at First and Fillmore streets, into an enormous mural titled “Water is Life.” The 2,466-square-foot art piece was unveiled last week.

The project makes Phoenix one of only about a dozen locations in the world (one is yet to be built) with a “Water Writes” mural. The others are in California, Honolulu, British Columbia, Colombia, El Salvador, the Gaza Strip, the Philippines and South Africa. Each chosen locale faces “critical water issues,” according to the Estria Foundation, a non-profit group heading the project.

“What we’re trying to do is show the importance of water in Arizona and where the city of Phoenix as well as the surrounding cities get their water from,” said artist Jeff Slim, one of about 15 local artists who contributed to the design of the mural.

Read more at <http://www.azcentral.com/community/phoenix/articles/20130502phoenix-arizona-water-writes-mural-part-global-initiative-prog.html>

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## IN PARCHED SOUTHWEST, ANXIOUS WAIT FOR SUMMER RAINS

By [Andrew Freedman](#)

Climate Central -- May 10, 2013

On the thirsty rangelands of Arizona and New Mexico, which have been mired in an on-again, off-again drought since 1999, ranchers and water managers are hoping for an unusually wet summer monsoon season that will help make up for this [winter's lackluster snowpack](#). Reservoirs have been [depleted to near-record lows](#), and the major rivers and tributaries are running at barely a trickle, making the summer rainfall season crucial to avert potentially severe water shortages, at least temporarily.

**This cross-section of Douglas-fir from Arizona shows the tree's annual growth rings. Tree rings like this can be used as a proxy record for the climate.**

**Credit: Daniel Griffin/University of Arizona**



However, if the past two summer monsoon seasons are any guide to what's ahead, meaningful drought relief may be wishful thinking.

“Another dry monsoon could be devastating,” said Victor Murphy, a climate services program manager with the National Weather Service.

Due in part to far below average river runoff from a thin mountain snowpack, which had all but vanished from the Southwest by mid-April, water rights and water allocation disputes have already begun to flare up along the Rio Grande and Pecos rivers.

In New Mexico, the 30-month period ending in March 2013 was the driest on record, and reservoir and river levels are reflecting this shortfall. The Brantley Reservoir on the Pecos River in southeastern New Mexico is at just 1 percent of capacity; and the combined storage in the four reservoirs on the Pecos River is at 25 percent, according to the [latest U.S. Drought Monitor](#), released

on May 9.

The Elephant Butte Reservoir in New Mexico's "Chile Belt" is at 10 percent of capacity, with the [lowest amount of water available for irrigation](#) in the region in almost 100 years.

Water managers across the state are sharply reducing supplies for irrigating farms and other uses. About 40 percent of the state is currently mired in "exceptional drought" conditions, the most severe category listed on the U.S. Drought Monitor. The drought is likely to intensify and expand throughout May and June, which are typically dry and hot months in this region, before any appreciable mid-to-late summer rains arrive.

In recent years, the month of June has been trending progressively hotter, which is consistent with climate change projections, according to Jonathan Overpeck, co-director of the [Institute of the Environment at the University of Arizona](#).

Scientists say there is no reliable way of predicting the summer monsoon, which typically brings showers and thunderstorms into Arizona and New Mexico beginning in mid-July and lasting until September. In a typical year, the months of July, August, and September are the three wettest consecutive months in New Mexico. However, the past two monsoon seasons have been below average, with the 2011 monsoon season coming in as the 14th-driest on record in New Mexico, and the 2012 season as the ninth-driest.

This year, with a thin spring snowpack already leading to scant summer runoff from the mountains, the stakes for the summer monsoon couldn't be higher.

Read more at <http://www.climatecentral.org/news/in-drought-stricken-southwest-anxious-wait-for-summer-monsoon-15971> \_

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## **JOB POSTINGS**

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

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## **ADDITIONAL INFORMATION**

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

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

*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. Please remember that your 2011 membership was included in the 2010 Symposium registration fee!*