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Water and Environmental Leadership is Theme of WRRC's Annual Conference

Novelist John Updike is taking a dim view of leadership when he asks in his novel, *Rabbit is Rich*, "How can you respect the world when you see it's being run by a bunch of kids turned old?"

The Water Resources Research Center conference was organized with a far loftier idea of leadership, at least in the water and environmental field. Titled "Creating New Leadership for Arizona's Water and Environment in a Time of Change," the conference was premised on the belief that present and up-and-coming leaders share a commitment to ensure future wise management of the state's water and environment.

With due respect to Updike, the conference recognized that many graduating students, the bunch of kids who will be turning older, will be the emerging leaders in the water and the environmental field. This, however, is seen as a cause of optimism; the conference recognized their talents and offered an opportunity to advance their interests.

A program lineup of seasoned professionals in the water and environmental field and promising rookies was part of the game plan for addressing conference issues.

The conference raised some critical questions: What kinds of leaders are needed to navigate a future marked by change and uncertainty? What is the best way to foster these leaders? The meeting served as a forum for participants, both established professionals and emerging leaders, those who have long labored in the field and those

**WRRC Conference
Newsletter Edition**

getting started, to work together to answer the very challenging questions.

This special edition of the *Arizona Water Resource* newsletter provides conference coverage, identifying major issues and noting some of the recommendations and findings from the different sessions. What is included is necessarily selective. Hopefully, however, the featured highlights will show that the conference was a vigorous and engaging event. Additional conference information is available at the WRRC web site: cals.arizona.edu/azwater.

Only seasoned, water-savvy leaders are honored as true Water Buffalos



AZ Water Sustainability Program Sponsors AWR

This edition of the AWR newsletter is sponsored by the University of Arizona's Water Sustainability Program. The newsletter supplement describes WSP's commitment to groom young leaders to resolve current and future water resource challenges in Arizona and beyond. Both the supplement and newsletter are devoted to the issue of leadership. WRRC appreciates WSP's generous support.

Any meeting that purports to discuss Arizona water leadership must give due recognition to Water Buffalos. The WRRC conference was no exception. As part of her welcoming remarks WRRC Director Sharon Megdal displayed a carved image of a Water Buffalo and set the wooden figure on the speakers' podium so that the spirit of the Water Buffalo might prevail over the conference.

Established water professionals attending the conference smiled knowingly at the mention of Water Buffalos. Some loudly guffawed. Many of the emerging leaders at the meeting, those with less experience in the water field, were woefully unacquainted with the species. Their education is incomplete.

Water Buffalos were generally prominent and respected leaders in Arizona water affairs. To be a Water Buffalo was a point of pride showing that an individual made a mark or a splash in Arizona water. At one time most Arizona water meetings had at least a few Water Buffalos attending, a knowing aura of water wisdom setting them apart from the common herd. Water Buffalos are now few and far between, most having retired and gone on to greener pastures. See page 4 for interview with Sid Wilson, a well respected Water Buffalo who has made his mark on Arizona water affairs.

“What is a Good Leader?” Was Lead Question at WRRRC Conference

A conference devoted to leadership takes on the difficult task of first defining leadership. Herein lies a challenge. Leadership unlike, say, water quality or quantity, defies quantitative analysis. It cannot be accurately measured as parts per billion or acre feet. The task of defining leadership calls for some personal and subjective interpretation.

The conference featured two panel sessions, each focusing on leadership from a different perspective. Panelists represented a broad range of backgrounds including a creative writing professor, research scientist, student body president, newspaper reporter, utility official and representative of a developer.

Below is a sampling of lessons and advice from a few of the speakers:

The leadership I feel I have is leading from behind. I am not always needing to be in the limelight. I would much prefer to be behind the scenes orchestrating and helping people develop their own leadership, helping pull together the parts and creating a system that will work and resolve problems. **Tahnee Robertson, Director, Southwest Decision Resources**

Always be looking for knowledge. Look for new ways to understand things. I am an example that you don't necessarily have to go the traditional route. I am not an engineer; I am not a hydrologist. I learned what I could about water and became knowledgeable about water resource policy management issues here in Arizona. **Warren Tenney, Central Arizona Project Board of Directors**

Leadership makes me a lot more able to negotiate and work through what are often the most controversial topics in water resource planning in the state, particularly from the development side of things. When you enter the room or the debate you are seen with a black hat, black shirt and it is not the cool Johnny Cash kind, more like Brutus from Popeye. One of the challenges is to overcome that by demonstrating you are a thoughtful engaged citizen who wants just as much for this community. You show you have that knowledge and also that you would work out compromise solutions that will work for each individual. **Vince Vasquez, Water Resource Coordinator, Diamond Ventures.**

If you look at the elements of leadership and what great leaders are capable of doing, certainly they are able to take very complex issues and break them down to deconstruct them in such a way that people can wrap their heads around them and make progress. **Barry Roth, Co-Director, Teach Arizona**

Quality leaders have the ability to really draw the most out of people around them. Great leaders do not necessarily do the work; great leaders create the environment in which people can accomplish and do great things. **Lon Huber, Policy Program Associate, Arizona Research Institute for Solar Energy**

You don't have to be assigned the role. Leadership sometimes just emerges. And a corollary to that is you don't necessarily get recognition for real leadership. You can step up as a leader, not have an assignment, not have a title of director, general manager or an elected position and you can make a big difference. **Placido dos Santos, Binational Projects Manager, Central Arizona Project**

The word leadership strikes terror in the hearts of reporters especially reporters who came of age in the years that I did because we were always told in journalism school “Keep yourself out of the story. Don't inject your viewpoints; don't inject your opinions and whatever you do don't go out and try to affect what is going on in the story.” So that is why covering an event you will see us sitting over at the edge, stony faces, not laughing at the jokes and not applauding at the high points. Of course, the truth is every time we go to work and decide what story we are going to write that day we are injecting some of our points of view, some of our world views into those stories.

Shaun McKinnon, Reporter, The Arizona Republic

In my seven years on the Arizona Corporate Commission and in a few years working for Janet Napolitano I came up with a few things that I think

New Leaders Urged to Close Political Gap


Keynote speaker Lattie Coor, CEO of the Center for the Future of Arizona, cautioned that Arizona is deficient in long-term planning, with lack of effective political leadership at the root of the problem. He says, “My judgement reinforced rather strongly by the Arizona We Want Gallup-Arizona poll is that there is a substantial disconnect between elected officials, particularly at the state level, and the citizens.”

Coor says that the Gallup-Arizona poll, the most extensive poll of Arizona attitudes ever done, shows that only ten percent of Arizonans believe their elected officials are doing a good job and that only ten percent believe that elected officials represent their interests.

The Gallup-Arizona poll also found that contrary to the image of Arizona as a transient state, with people coming and going, Arizona residents are passionately attached to where they live. Also contrary to conventional wisdom the poll found that Arizonans agree on more than they disagree on major political issues. According to respondents the state's natural environment is its greatest single asset.

Coor says the most strongly recommended policy — more supported than those having to do with education, health care, energy, infrastructure and job creation — was to adopt a water management plan to protect water supplies for all Arizonans.

Coor says, “Policy proposals on the table, some already adopted, are in fundamental conflict with those larger views of citizens. That is the disconnect I believe new leadership — your leadership, the leadership of the other sectors — need to address ... We need to develop an enduring and long-term blueprint for Arizona, especially for water and the environment.”

are key characteristic of leaders: 1) Great or good leaders are not afraid to fail 2) They don't shy away from tough issues 3) They work hard at work worth doing 4) Good leaders are willing to find common ground and cooperate with other leaders toward the public interest 5) Good leaders are willing to share credit with each other even when they are the ones who led the way. That is perhaps the most important. **Kristin Mayes, Chairman, Arizona Corporation Commission.** (The above remarks are taken from Ms. Mayes' address.) 



WRRC News and Information

A Final Note ...

By Joe Gelt

With the completion of this newsletter I am without a job. This is not a tale of woe, another story of a person terminated due to budget cuts etc., but an event of my own choosing. I am retiring after about 25 years at the Water Resources Research Center. Mine was a fortunate career, undertaking work I enjoyed with people I liked. Who could ask for more?

I hope that in some small way I have served the interests of the Arizona water community

Much to my satisfaction I will continue to be a presence at the WRRC despite my retirement, although in name only. The Undergraduate Writing Contest on Water, a WRRC annual event, has been renamed the Joe Gelt Student Writing Competition. I truly cannot think of a more satisfying award for a person who has spent years writing about water than to name in honor of him a contest intending to encourage better water writing.

Thanks are in order, to University of Arizona's administrators for the interest and support they showed me over the years. Thanks also to my co-workers at the WRRC and the UA, all those with whom I labored in the water resources field.

And thanks, too, to you reading this. If it were not for you, the reader, there would not have been a newsletter to write and edit.

Arizona Project WET Director Scores Two Awards

ANREP (Association of Natural Resource Extension Professionals) presented Arizona Project WET Program Director Kerry Schwartz with the 2010 Individual Program Leadership Gold Award for her outstanding work. Kerry Schwartz along with Nancy Crocker, Mary Ann Stoll and Candice Rupprecht also received the 2010 Innovative Programs Gold Award for the School Water Audit Program in Arizona.

Arizona Project WET is a Water Resources Research Center program.

2010 Conference Concludes; 2011 Conference Planned

The WRRC 2010 conference is over. Conference organizers may well sigh with relief and feel satisfied that a job was well done. Yet they must now brace themselves for the one-down-another-to-go task as plans are afoot for the 2011 conference. This is a propitious time to get started with the experiences and successes of the recent conference fresh in mind.

The topic of the 2011 conference has been identified: salinity and desalination. The location and date are to be determined. The conference theme is the same as the topic to be covered by the 2011 *Arroyo*. The *Arroyo* is an annual WRRC newsletter that focuses on a single, critically important water issue.

The annual WRRC conferences are much anticipated occasions; they are special events in the water year, noted for the time-



Kristin Mayes, on the Arizona Corporation Commission, Lattie Coor, founder of the Center for the Future of Arizona, and WRRC Director Sharon Megdal confer during 2010 conference. Photo: T. Glass

liness of their topics, their wide and varied coverage and the extensive interest and support they attract, both from sponsors and attendees.

At this early date we invite your comments and suggestions regarding the 2011 conference. Your early, ground-floor participation will be an important contribution to the planning of the next WRRC conference. Contact Susanna Eden at seden@cals.arizona.edu

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Reflections of a Water Buffalo: Leadership Then and Now

The following exchange is from a recent question-and-answer session between Joe Gelt, editor of the Arizona Water Resource newsletter, and David S. "Sid" Wilson. Mr. Wilson recently retired after 14 years as general manager of the Central Arizona Project. His stature and authority within the Arizona water community well establishes his water buffalo credentials — or rather his pedigree.

JG: Who qualifies as a water buffalo?

SW: When I started my career in 1967, I was hired by the Salt River Project as a Watershed Specialist. My first assignment was as SRP's representative on the Southwest Phreatophyte Subcommittee. I was 23 or 24 and everybody else had gray hair. I thought they were incredibly old — they might have been about 55 — and much wiser than I could ever be. They were generally recognized as "Water Buffalos". A Water Buffalo is someone who has studied water issues in a region long enough and thoughtfully enough to be a person that others look to for advice, insight and help in solving water related problems.

Every generation is in the process of developing water buffalos. There are bright young people coming out of college each year and if they are thoughtful, committed to continued learning on the job and stick with it long enough they may one day be considered a Water Buffalo.

JG: Are Water Buffalos a thriving or endangered species?

SW: When I was younger it seemed to me that there were more Water Buffalos than today. They were people who had been with their organizations for a long time and were really committed to water resource management.

I don't see as much of that today. I don't feel that we are retaining as many capable people over the long haul. For example, look at the Arizona Department of Water Resources. Due to budget reductions and retirements they have lost the core of folks that could be viewed as Water Buffalos and with the associated pay and employment uncertainties, it will be hard to attract and retain folks for that long-term commitment that is needed. Same thing for the Bureau of Reclamation, various cities, etc. Even the Central Arizona Project is losing those folks to retirement.

I'm also concerned that the political environment agencies are faced with today tends to impede Water Buffalo development. Continuing political "heat" creates a "fox hole mentality" so that folks tend to keep their heads down and avoid risk taking. If they become at all controversial, some special interest group, politician or bureaucrat may go after them. A job well done is no guarantee against demotions, transfers or dismissals (voluntary or otherwise).

JG: What are some changes confronting new leaders today?

SW: The technology and associated real-time availability of large amounts of information has had a huge impact on how we deal with water issues. Back when I started, the data we had was more limited. Even so, I think folks were often closer to understanding what was happening. It was both science and art in the best sense. Today the amount of information is incredibly voluminous. It requires the use of computers to sort, assess and interpret the data.

This technology and data availability is a tremendous advantage but we have to be careful. Remember the old adage "garbage in; garbage out". As data collection becomes less hands on and more voluminous it can cause us to lose that 'gut' feeling old timers talk about. We can't rely solely on the computer print out for answers while losing the very real benefits of human qualification. If that happens, we can't tell a bad answer from a good one.

JG: What is the greatest single change over the course of your career?

SW: In 1967 there were relatively few agencies that possessed significant technical water knowledge. At that time the Arizona Department of Water Resources was just emerging from the old Arizona Water Commission. The cities had very few water professionals working for them. The agricultural districts had farmers very knowledgeable about on-field application of water but little about overall planning and manage-

ment of a water district. The Salt River Project was the major water player in the state, even though its water service area was limited to the Salt River valley. Water knowledge was limited and a relatively few people/organizations had a lot of control over what was done in this state...and in the West for that matter.

That has changed dramatically! The competition in the late 50s and early 60s was largely between — I am speaking of Arizona but it was fairly typical throughout the West — agricultural water users and developing municipalities. The competition today is much more diverse and intense. There are more interests involved and virtually all of them have more capacity and knowledge than the "old guard". You still have competition between agriculture and cities, but you also have competition between one big city and another big city; between big cities and small cities; cities and rural areas; non-Indians and Indians; people needs and environmental needs; between states and even countries (U.S. a Mexico).

It is now tougher — maybe impossible — for one entity or interest to dominate. If that domination occurs, it can not be sustained. Autocratic decision making is no longer effective. It takes collaborative leadership and shared decision making to develop sustainable water management strategies and solutions.

In this change area, another significant difference exists today in Arizona and I suspect throughout the West. When I began my career, you had a political system with people who really understood the importance of a sustainable water supply. Frankly without water and air conditioners, Phoenix would not exist. Politicians understood that. I don't believe you have that today. There are very few



Sid Wilson had the above pins made up to distribute to worthy folks at the 85th Arizona Town Hall in October 2004.

Brains, Imagination, Enthusiasm, the Redoubtable Resources That Fueled Conference Discussions

No PowerPoint presentations but lots of direct personal contact

The 2010 Annual Conference, “Creating New Leadership For Arizona’s Water and Environment In a Time of Change,” was organized to allow full opportunity for participants to interact. The intent was to encourage dialogue and an exchange of information. All participants — politicians, scientists, educators, business owners, writers, artists, students, and others — would have their say. The conference held two types of forums. The two-hour-long roundtable sessions conducted during the first day were small in scale, while the workshops offered the second morning were larger gatherings. Information from the various sessions is provided below; this, however is merely a sampling of the total output of the conference. Additional information is available at the Water Resources Research Center’s web page: <http://ag.arizona.edu/AZWATER/>

Roundtable discussions — close-up, across-the-table deliberations

Roundtable discussions were the order of business during the afternoon of the first day of the conference. Participants were distributed among 17 concurrent roundtable sessions to discuss a broad range of topics. Topics ranged from state planning and policy to grassroots organizing to the arts. Two sets of sessions were scheduled, A and B, enabling each participant to be involved in two roundtable discussion groups.

Participants labored and identified a list of needs followed by a rather lengthy and detailed listing of strategies or recommendations for addressing those needs. Following is a list of the seven identified needs followed by a brief and selective summary of some of the strategies identified for meeting the needs.

1) Our rationale for valuing the environment in Arizona needs to be articulated Strategies for meeting this need include educating policymakers about the environmental values of individual communities and making the protection of these values a priority; creating leadership connected to the needs of the people and the land; revitalizing perceptions of neighbors and neighborhoods to encourage communication and the development of shared values; and creating ways to experience a sense of place — our rootedness in the desert landscape.

2) Long term statewide water planning in Arizona is a critical need Progress toward meeting this need depends upon articulating a long term vision of water resource management for Arizona; defining what sustainability means and determining how it fits with regulations already in place; requiring environmentally sustainable practices to accelerate change and promote an environmental ethic; addressing the policy disconnect between groundwater and surface water; matching quality of water to use; encouraging the use of graywater and rainwater; making use of city/county regulations and regional planning to conserve water; developing a clear direction on the future of agriculture in Arizona; promoting a dialogue between agricultural and urban stakeholders; and developing economic analyses that reflect the full cost of water.

3) A water agency is needed to take leadership and articulate a vision for Arizona’s future Progress in meeting this need involves recognizing that the Arizona Department of Water

Resources’ loss of funding has left the state without leadership in the water area. Needed to fill the gap is a credible, separately funded agency to provide independent oversight for enforcing rules already in place, provide a technical function separate from policy and regulation and frame a vision for Arizona with continuous and credible



The roundtable sessions, each involving as many people as could sit around a medium-sized roundtable, encouraged a direct exchange of information. Photo: T. Glass

water quality and quantity data.

4) We need to encourage the development of environmental leaders in Arizona

To meet this need means recognizing the value of a pipeline of future leaders and creating a centralized organization to manage a student mentoring network;

creating mentoring opportunities for emerging leaders within agencies, grassroots organizations, businesses, and universities; setting up mentoring partnerships between successful, environmentally conscious businesses and new businesses; opening career pathways for emerging leaders with outside-the-box training; and developing economic incentives to keep emerging leaders and mentors in the environmental field in Arizona.

5) Communicating complex environmental issues to public and elected officials is a need Strategies to accomplish this include educating the public in an engaging, personal and emotive way; communicating data, and uncertainty of the data, to policy leadership; creating communications teams trained in a variety of venues—print, social media, face to face and oral communication; creating “citizen’s guides” to water and environmental resources; identifying trusted advocates who can act as conduits for information, especially with the intent of closing the urban rural digital divide; making use of well regarded community voices and grassroots organizations that rise above the political fray to spread the message in an increasingly diffuse media landscape; and developing advisory councils, workshops and training sessions to involve and educate the community about how water works.

6) There is a need to create networking and data sharing opportunities among diverse groups involved with environmental issues Strategies include creating a stable, centralized clearinghouse with trustworthy data and a consistent funding mechanism; creating networks that leadership across local, state and federal levels; creating a venue for grassroots organizations to connect to each other and collaborate, so they can develop a broader, unified voice; organizing and standardizing water quality and quantity data to facilitate consensus building; publicizing successful innovations and creating a method for sharing innovative ideas between communities; and fostering transparency in information, particularly regarding the uncertainty of numbers and predictions.

7) Creating better K-12 environmental education is needed Progress depends upon promoting authentic, hands on, minds on experiences for students with the environment; encouraging collaboration, professional connections and “two way” communication between students and the community (including scientists and policy makers); encouraging students to seek out credible sources of information and to exploring different viewpoints; tracking students after graduation and creating career pathways; building a database of information for teachers, students and community to use; creating a way for scientists, teachers and artists to collaborate; and tapping the community’s volunteer potential.

Workshops — large group gatherings to address issues in depth

The second day of the conference was taken up with four workshops, each devoted to a different topic. The workshops are listed below along with a sampling of the information from each session. Workshop assignments included considering the strategies offered by the roundtable sessions.

Identifying Key Issues in Statewide Water Planning This workshop was led by Ken Seasholes (Central Arizona Project), Madeline Kiser (Inside/Out Poetry Program) and Kelly Mott Lacroix (Arizona Department of Water Resources). A creative approach was

taken with participants asked to write a chapter title in a proposed Arizona Water Plan. Participants were later asked to rank the results by indicating which chapter they would most likely read and which they considered the most clever.



Workshop 1 works at its assigned task of identifying key issues in statewide water planning. Photo: T. Glass

Lead Speakers Add Personal Voice to Conference

To ensure a diversity of voices, conference organizers included as part of the program the personal messages of lead speakers along with the collective voices of roundtables and workshops. Lattie Coor, Chairman and CEO of the Center for the Future of Arizona, was the keynote speaker. (See sidebar on page 2 for Coor’s message.) Kristin Mayes, Chairman, Arizona Corporation Commission, reflected on her experiences both as a college student and as a working professional that helped develop her ideas of leadership. (See page 2 for Mayes’ leadership quote.) Jihan Gearon, organizer, speaker, and writer on Indigenous Peoples and environmental justice, energy, climate change and climate justice, works to build the capacity of communities throughout the U.S. and Canada impacted by energy development and climate change. She emphasized that leaders do not work alone but need to connect with those within and outside the community. Luncheon speaker Pat Graham, state director, The Nature Conservancy, continued the personal story-telling at lunch with examples of leaders he has known whose stories illustrate essential characteristics of leaders.

The following chapter title won on both accounts: “No more studying the issue. This chapter identifies the top fifteen steps that must be taken in the state to achieve a sustainable water supply for the environment, urban, and rural communities, agriculture, and industry. Importantly, this chapter also sets forth how these steps will be accomplished.”

Other ideas expressed as chapters included stakeholder input and public engagement; secure water management and regulatory funding; developing market pricing for Arizona water; value of water for energy; tools to fund watersheds and their protection; and conservation and water reuse.

Workshop leaders again challenged the creativity of participants by assigning them to write a press release. They were told it is 2015, and “The Statewide Water Plan” is complete and a press release is needed that answers the questions: What is in your Plan? How is it different from previous efforts? What would change as a result? Priorities emerging from this assignment include conservation, economics/funding, environmental water needs, public outreach, water reuse, and achieving sustainability in water supply and demand. A central question arising from the discussions was: Will a crisis have to occur before Arizona acts on statewide water planning?

Creating an Arizona Environmental Leadership Institute Workshop 2, led by Melaney Seacat (Pima County), Andrea Gerlak (Udall Center for Studies in Public Policy) and Tom Murray (Sonoran Institute for Leadership Development), focused on crafting an outline for an Arizona Environmental Leadership Institute. Participants were asked to develop a needs assessment by each submitting five needs they believe the institute could meet. Eighty-six needs were identified, covering a wide range of issues. They were organized within 12 categories.

Participants were then asked to consider the effects of establishing such an institute. They were asked: In ten years, what would be different in our lives and community if an Environmental Leadership Institute were successful?” Responses include: healthy economy because of commitment to sustainability; balanced

Continued on page 8

Humanities, an Unlikely but Apt Topic at a Water Leadership Conference

Including humanities was one of several conference innovations

In several ways, the WRRRC conference took a nontraditional route. For one, there were no PowerPoint presentations. The meeting hall was a PowerPoint-free zone. Also, the event was planned to attract a wider and more varied group of participants than usually shows up at water conferences. Policymakers, water experts and researchers mingled with writers, artists and teachers; experienced professionals rubbed shoulders with high school and college students.



What, if anything, do the arts and humanities have to do with water resources? This question, one with broad implications, was addressed at the WRRRC conference. The above photo of a rainwater cistern artistically embellished might provide a partial answer. The arts can add beauty and interest to the most unlikely of subjects. Photo: ©2009 Tucson Arts Brigade / Michael B.

Another singular innovation, one qualifying as a notable landmark along the nontraditional road, had to do with conference content: the humanities were on the agenda. Do the humani-

ties have a role in managing water resources? Can poetry, music and literature take their place along side of hydrology, engineering, sociology and political science as disciplines to prepare future water and environmental leaders?

“I feel the arts and humanities should be included into as many kinds of environmentally focused projects as possible. I would like to see writers in residence assigned to the Central Arizona Project.”

-Alison Hawthorne Deming

Alison Hawthorne Deming, poet, essayist and University of Arizona Creative Writing professor believes the humanities can play a role in natural resource management. She began her presentation by stating: “I am very excited at the potential for the arts and humanities to work together with the sciences on the issue of sustainability and environmental protection.”

She described what she believes is the ideal “... with artists and scientists working together as equal partners to find a new lan-

guage.” She looks forward to art being respected as a deeply authentic way to see the world that will encourage “experimenting with putting what is a less influential discipline, an art culture, beside the incredibly important and powerful discipline of science to discover new ways of seeing.”

She said, “Poems speak to what we feel. ... One of the things missing in motivating people to develop good policies and actions is a sense of passion. Art in one way brings love and beauty into the equation. ...We don’t only treasure economic growth and fun on golf courses, we also treasure beauty and the wealth the of the natural world surrounding us, and that we are part of.”

She mentioned several efforts to include the arts to encourage a broader environmental sensitivity and understanding. She noted National Science Foundation funded projects at ecological sites throughout the country that bring together scientists, philosophers, artists and writers to develop new ways of working together. She also mentioned a K-12 student watershed environmental poetry contest started by Robert Hass, former U.S. poet laureate.

She also described a project at a zoo that inserted poetry as part of the interpretive materials in an effort to increase zoo visitors’ conservation values. Pre-and post-visit interviews showed a 47 percent increase in such values after poetry was worked into the interpretive materials.

She says people were able to better understand their feelings for the animals. “They now had words for the things they felt.”

(The results of this project obviously impressed participants at one of the 17 concurrent roundtables sessions conducted during the afternoon of the first day of the conference. Among the recommendations proposed by those at the roundtable discussing the use of art was that utilities include poetry in their water bills.)

Deming looks to an expanded use of the arts in the natural resource area. She says, “I feel the arts and humanities should be included into as many kinds of environmentally focused projects as possible. I would like to see writers in residence assigned to the Central Arizona Project.”

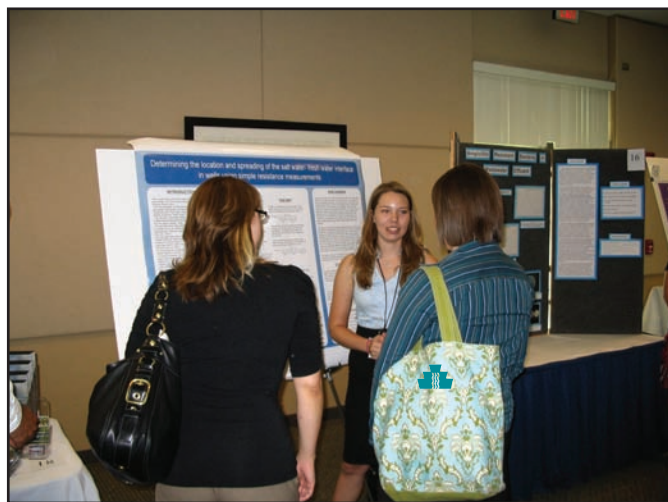


Ellen McMabon, UA school of art, led the roundtable session discussing the arts. She is adding the comments and recommendations from the arts roundtable to the posting board displaying the results from all the sessions. Photo T. Glass

Discussions...continued from page 6

needs with resources for healthy quality of life; citizens have ready access to information, experts, policymakers; everyone would know an environmental leader personally; less black and white and more grey—better informed citizenry; decision makers have nuanced knowledge and tools; decisions made with 25 plus year outlook, focused on future generations; long term assessment; better education of elected officials; young leaders are more empowered; pipeline of environmental leaders into politics; enlightened electorate with environmental values; young people actively engaged in real projects (development and research); resources for young leaders; 50 year water/environmental state plan that is adapted to local policy; more collaboration and the skills to collaborate; and Arizona viewed as enlightened state in environmental issues.

The above provided the groundwork for an institute mission statement: Foster development of current and future leaders by empowering them with resources and skills to make a positive difference for people and the environment.



The conference included a poster session with 24 posters. A wide variety of organizations presented posters including Green Valley Pecan Company, Central Arizona Project and students from Tucson High Magnet School. Above is Tucson High Magnet School student Kelsey Waite and her poster, "Determining the location and spreading of the salt water-fresh water interface in wells using simple resistance measurements." Photo: J. Moxley

Creating an Information Clearinghouse and Communications Network

Workshop 3, led by Betsy Woodhouse (Institute of the Environment) and Jan Holder (Gila Watershed Partnership), discussed issues central to every environmental effort: how to network with one another and communicate effectively to the public. In taking on the issue participants identified major and supporting ideas.

The workshop's major ideas were: 1) re tool the essential public message of population sustainability; 2) create an online resource that organizes information from various technical sources and provides a platform for information exchange; 3) use art to communicate to the community via all effective mediums, networking with schools and organizations; 4) educate policy makers through hands on immersion and relevant science; 5) reach and influence the public through educational advertising; 6) create a face, voice, or image for the environmental message; 7) create a one stop shop to connect those who know



Results of the four workshops were posted on a bulletin board. Photo: T. Glass

with those who want to know.

Supporting ideas were identified for each major idea. For example, supporting ideas for major idea number 5 were: high quality video public service announcements; water flash ads; weekly "Main Street" message with e links; point of purchase info snippets; and educate the public using advertorial messages.

Workshop 4: Fostering Environmental Leadership in K 12 Students Workshop 4 was led by Kerry Schwartz (Arizona Project WET) and Margaret Wilch (Tucson High Magnet School). To stimulate their thoughts workshop participants were presented with three questions to consider. The intent was to encourage the development of recommendations, strategies and best practices for fostering environmental leadership in K-12 students. The three questions were: What experiences are critical for students to have to become environmental leaders? What resources are needed to make these critical experiences happen? If we are able to create experiences critical for students to become environmental leaders and we had the resources to create those experiences, would we have everything we needed?

The workshop then focused on a four-pronged approach to revitalize environmental education in K-12 schools. The four approaches were: 1) empower youth 2) student development 3) community, agency, and business involvement 4) engaging teachers through development and ongoing support. ■■■

WRRC Says Thanks to Supporting Organizations

Co-organizers of the conference were the Flinn Foundation, Morris K. Udall and Stewart L. Udall Foundation and the University of Arizona Water Sustainability Program. Conference sponsors were: Agri-Business Council of Arizona, Arizona Cooperative Extension, Arizona NEMO, Arizona Public Service, BKW Farms, Central Arizona Project, Farmers Investment Company, Lewis and Roca, Montgomery & Associates, Pima County Library, Salt River Project, Snell & Wilmer, Southern Arizona Water Utilities Association, U.S. Bureau of Reclamation, U.S. Geological Survey, UA College of Agriculture and Life Sciences and Walton Family Foundation

New Course of Study for Water Leaders Entering a Broader, More Varied Field

Any effort to understand the workings of effective leadership would fall sadly short if education were not given its due consideration. As John F. Kennedy said, "Leadership and learning are indispensable to each other." Much earlier and along the same line Wendell Wilkie stated "Education is the mother of leadership."

In its focus on the essentials of water and environmental leadership, the Water Resources Research Center conference did not neglect education. The big education question was: What kind of education creates new leadership for Arizona's water and environment in a time of change?"

In response, many propose that water education and training be interdisciplinary to better prepare students to deal with an issue that has become broader and more complex in the face of recent developments.

Water resource managers need to understand the political, social and cultural significance of water and know the principles of water sustainability. In academic terms, an interdisciplinary understanding of water is called for, one going beyond a traditional curriculum relying solely on hydrology and engineering. A new University of Arizona master's degree program is taking such an approach. (See sidebar for program description.)

Christopher Scott, a faculty member in the new UA program, says "For many years water resources decision making was thought to revolve entirely within the water sector. It has become evident that there are other nonwater considerations that exert a strong influence on decision making in the water sector. ... Objectives from outside the water sector impinge on water management and start to bring in cross disciplinary, nonsectorial considerations that require alternative approaches."

He noted two critical contemporary issues that demonstrate water resource boundaries are not fixed: the water energy nexus and the environmental demands for water.

He says "I think the water energy nexus is going to very fundamentally drive the way water is managed. ... We have to look across a whole set of activities, in the transportation and construction sectors but also the water sector to deal effectively with carbon emissions and climate change. Water management will have to get more carbon conscious and will have to get more energy conscious from a conservation perspective."

With regards to the environmental demand for water, Scott says, "The issue was highlighted at the global level at the 1992 Rio Earth Summit. A whole set of issues was put on the table including biodiversity, rainforest conservation, and environmental quality issues. The gauntlet was thrown down to water managers to manage water

for [such issues]."

Scott focuses on geography as a discipline providing a wide perspective on water. He says, "Geography looks at physical resources dynamics. For example, geography considers climate change in terms of temperatures, precipitation rates and models but at the same time it considers the human element. An emerging area in geography is 'coupled natural and human systems.' Its intent is to

New UA Master's Degree in Water, Society and Policy

The new University of Arizona's master's degree in water, society and policy is designed to fill the need for a graduate program that integrates science, policy and decision making in the arena of water. Graduates of the program will be able to articulate the basic principles of economics, management, law, and policy that are necessary to properly inform decision making for adequate management of water resources. They will be exposed to the coupling of human and environmental processes as they affect water and watersheds.

The WSP degree program will prepare students to assume managerial or other professional level positions in the field of water management broadly defined. They will be well suited for career trajectories in interdisciplinary, policy oriented work environments. They will be well equipped to engage with emerging areas where science, society and policy intersect. For more information check the program's website: <http://waterpolicy.arizona.edu>.



consider physical processes along with human processes to determine the most effective management of water and other resources."

Scott says anthropology also is important because it enables us to interpret cultural values arising in contemporary water affairs. For example, community values are an issue when plans are considered to take effluent out of the Santa Cruz River and make it available for human uses, for example, to water new golf courses. Effluent released into the river supports a riparian habitat that provides bird watching opportunities and other recreational and aesthetic amenities to the public. Access to the golf course benefitting from the effluent is limited to members who can pay club membership or greens fees.

Scott says at issue is not just public access but social or cultural values. "There are these culturally constructed, culturally mediated values that are central to some water issues. Anthropologists would play an important role to help shed light on that."

He says an ideal educational situation would be for students to get a firm disciplinary grounding in a particular degree program that requires that the students also seek other viewpoints and expertise areas. He says a committee of different faculty would open the student's eyes — and faculty members' eyes also — in ways that might not be expected. He says, "I think this can lead to some very positive synergy." ■



Guest View

Water Leadership Lesson to be Learned From Phoenix Suns

Richard Rushforth, author of this guest view, is a graduate student in the University of Arizona's soil water and environmental science program. He thanks the Water Resources Research Center for the opportunity to write this guest view and congratulates the WRRRC for hosting a wonderful and stimulating conference on the topic of water and environmental leadership in Arizona.

I have to admit that as a Phoenician transplanted in Tucson I may take the Phoenix Suns a little too seriously. But, for me, Amar'e Stoudemire's departure from my beloved Suns speaks to Arizona's overall anemic condition, the plight of Arizona's youth, and to the problems addressed by the Water Resources Research Center's 2010 annual conference. Now, this is where I will have to ask you to take a leap of faith and allow me to tie together the extremely disparate worlds of NBA free agency and the future of leadership in Arizona. Here goes nothing.



Conference participants included a large contingent of students, the water and environmental leaders of tomorrow. Seen above with WRRRC Director Sharon Megdal are Lesley Ash, UA, Camila Thorndike, Whitman College, Guest View author Richard Rushforth, UA, and Brittany Choate, UA.

Prior to the 2002 NBA Draft, Stoudemire was a case of raw basketball talent with questions surrounding his commitment and whether he could adapt to the nuances of the NBA game. However, the Phoenix

Suns felt that due to his talent and his commitment to his family his potential upsides far outweighed the potential negatives and drafted him 9th overall. In the eyes of this fan, he has not, except in a few games, disappointed: NBA Rookie of the Year in 2003, All NBA First Team in 2007, and 5 time NBA All Star. (He even won an NBA Community Assist in 2008 for his work in providing safe drinking water and functioning wells to impoverished communities in Sierra Leone.) He played amazingly, even through injuries, coaching changes and an ill fated Shaq experiment. After eight years, given the chance to opt out of his contract, he did, and signed a maximum deal with the New York Knicks.

So how does this apply to the future of leadership in Arizona? Arizona's youth are highly motivated, talented, and intelligent — we possess the raw talent necessary for strong leadership. Given the chance, however, we will opt out for a better deal in New York, in Los Angeles, in Chicago, in London, in Paris, or in Sydney. We do not like the direction in which the state is heading and we do not

feel it is our responsibility to right its course. The feeling is simple: why should we invest in a system that never invested in us? Unlike the Phoenix Suns who took a chance on Stoudemire and invested in his future, we feel that Phoenix (the Legislature, in particular) has never taken a chance on us and has showed little interest in our educations or our future — the future of Arizona

I am a product of the Arizona public school system (kindergarten though graduate school) and I have experienced firsthand the demotivating impact of what seems to be yearly education budget cuts and teacher layoffs. For the last decade, I have taken part in student sit ins and walkouts to protest teacher layoffs and massive budget cuts to no avail. We care about our education and our collective future, but feel no reciprocity. Why should we stay, if similar or better opportunities exist elsewhere? Mild winters and amazing sunsets only go so far. Let me ask you this: If you were a youth today, would you stay in Arizona given the same circumstances? Would you want to settle down and start a family here? My guess is probably not.

The WRRRC 2010 Annual Conference hit surprisingly close to home. Soon I will graduate with a master's degree in environmental science from the University of Arizona, and, to be completely honest, priority number one after graduation is getting out of Arizona as quickly as possible. I am not writing this to be polemical, but just to be completely honest. I could not agree more with the topic of the WRRRC conference: it is imperative that we create new leadership for Arizona's water and environment in a time of change. However, I am part of generation of young Arizonans spurned by the decisions of our elected officials to defund our educations, to defund our environment, and to defund our futures. Therefore, it should come as no surprise that we vote with our feet by heading abroad or to sunnier states, metaphorically speaking the brain drain is real. In my eyes, the reasons behind it are plainly evident.

However, I do not feel it is necessarily a bad phenomenon if we can re-attract our best and brightest after they have honed their skills elsewhere. Arizona is such a weird place (I mean this in the most academic way possible) that nascent professionals — private, public or academic — should spend the beginning of their careers elsewhere to appreciate and understand what Arizona is. This may not seem obvious, but I have found that if you say are from Arizona you immediately are asked, "What the hell are you guys doing there?" After fielding this question repeatedly, you begin to understand Arizona; the upsides, the downsides, and how great it can be. Not to belabor using the Suns as a metaphor for Arizona, but keep in mind that Steve Nash's back to back NBA Most Valuable Player awards only came after returning from a 6 year stint in Dallas.

Therefore, the problem facing Arizona is not leadership creation per se, rather leadership retention and re-attraction. How do we create an Arizona that retains the future leaders created within the halls of its schools? How do we attract top students with strong leadership potential? We should ask ourselves these questions just as much as, if not more than, how we can create new leaders. ■



Public Policy Review

By Sharon Megdal

A Summer Thought — Partnerships Are a Strategy For All Seasons



Summer time is often a time for travel and reflection. Reflecting on different aspects of my work during my summer travels, I see a constant theme emerging — the importance of effective partnerships. By partnerships, I mean people working together to effectuate change and improve water management. For example, our annual conference, dedicated to fostering good water and

environmental leadership, relied on partnerships for its success.

This was fitting, that a conference devoted to leadership should rely on partnerships since partners work together as a team, and teams require effective leadership to be productive. Partnerships imbued with the sense of good leadership enabled many individuals to work countless hours to develop an interactive and varied conference program. The numerous and varied perspectives resulted in a conference design that attracted much acclaim.

In the larger context, I think we all recognize that partnerships are fundamental to resolving the water management challenges we face. The legislatively required Water Resources Development Commission (Chapter 329 of Second Regular Session of the 49th Arizona Legislature) demonstrates the critical importance that varied perspectives be represented. The newly formed commission consists of 15 members, appointed by the director of the Arizona Department of Water Resources, along with nine ex officio and six legislative members. Although it is not explicitly required to develop a state water plan I am encouraged that the commission is charged with assembling much of the information that would go into a state water plan or needs assessment.

Elements include: compiling the projected water needs of each county in the next 25, 50 and 100 years; identifying and quantifying water supplies currently available in each county; identifying potential water supplies for use in meeting additional demands for the same time periods; identifying any legal and technical issues associated with the use of those supplies; and identifying potential mechanisms to finance the acquisition of water supplies and infrastructure required to treat or deliver water supplies. Finally, the commission is asked to make recommendations regarding the need for further studies and evaluations. All of this work is to be completed by October 1, 2011.

This is quite an undertaking, especially for ADWR, an agency that suffered a substantial budget cut and staff reduction to less than 100. Many will have to work in partnership for the commission to meet its mandate. The law explicitly identifies as sources of technical support ADWR, the Central Arizona Water Conservation District, the Arizona Water Banking Authority and rural water study groups. I would expect technical assistance from many more partners, including the water using sectors, the universities and the U.S. Geological


Survey, among others.

Partnerships are likewise extremely important to the U.S. Mexico Transboundary Aquifer Assessment Program, in which I have been involved since its inception. The University of Arizona is working closely with USGS, the U.S. and Mexican Sections of the International Boundary and Water Commission, Mexican state and federal water agencies, ADWR and others to implement the Arizona Sonora portion of this program. Differences in legal structures and the roles of government agencies have required us to carefully work through multiple layers of agreements to undertake binational work in a manner officially recognized by both countries.

In early July, I had the privilege of discussing the importance of partnerships at the Scientific Segment of the 19th Session of the International Hydrological Programme Intergovernmental Council, housed at UNESCO in Paris. The title of the session was “Hydrological Sciences for Policy Responses to an Uncertain Global Change Future.” The only social scientist of the six speakers, I highlighted our efforts to build a shared vision of approaching priority issues in the Santa Cruz and San Pedro aquifers. Some factors affecting policy responses to global change across national borders are very similar to those within our state. They include: differing rates of urbanization, population growth and economic growth; predictions for hotter and drier climate; and aquifer recharge that depends on ephemeral, intermittent and/or effluent discharges. I underscored the importance of collaboration of multiple agencies and universities to aquifer assessment and other studies to provide decision makers with information needed for water management.

Whether the task is developing leadership or furthering sound water management at the transboundary, state, regional or local water management level, it takes time to establish and maintain effective partnerships. Perseverance, flexibility, creativity, respect for different perspectives, appreciation of the need for multiple types of expertise, and good and regular communication are all required.

Turning to another matter, this one closer to home, a time of transition is at hand regarding an issue we at the Water Resources Research Center take a great deal of pride in — communication. Joe Gelt, editor of the AWR newsletter, who has been partially retired since 2008, will be making a full-time commitment of it. This newsletter is his last. Joe was involved at the beginning, when this newsletter was initiated in 1992, and has been editor and the primary writer since then. His many features and articles, covering a broad range of issues over the years, have been a valuable source of information for many people interested in water. His work has brought him and the WRRC numerous accolades. We are going to miss his contributions tremendously and hope he will think of us as he writes interesting articles in his spare time.

Given our resource constraints, we are now considering our options for the format (possibly moving to on-line publication only) and frequency of the newsletter. Meanwhile we will continue to print the annual *Arroyo* newsletter each winter, with the next issue focusing on desalination. I welcome any suggestions/comments you may have. My email address is smegdal@cals.arizona.edu. 

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elected officials who really understand water. Unfortunately, it is too often “form over substance”. There is not a lot of foresight given to considering the long-term future of Arizona and water. There is a lot of talk but no real commitment in my view.

JG: What are the qualities that define good leadership?

SW: I think leadership is a timeless thing. I think the most effective leaders are people who are good, thoughtful listeners. It is so important to be a good listener, to look at issues from other folks’ perspectives and then look for a problem solution that addresses the major needs of everyone involved.

An effective leader is an interactive person who works with the various stakeholders to find the best solution. There is always, ALWAYS more than one solution to a problem.

JG: What is the best preparation for emerging water leaders?

SW: A good basic education is important in water. My background was hydrology. It could have been engineering or some other science oriented field. You do not need an advanced degree.

Secondly, the formal education is only the beginning. The foundation. You should proactively continue your learning through experience. There is a difference between the classroom and — I hate to use the trite expression — “the real world”. In the classroom you learn basic principles (and I include communication here). In the “real world” you find more complexity and less structure. The basic principles still apply but differences have to be considered. Even “on the face of it” common situations differ. You can only learn about differences and how to apply principles through actual practice.

I also think there are

some inherent qualities in leadership that you cannot mechanically teach “from the ground up”. A sense of humor and humility are absolutes in my book. A sense of humor can save you when life gets really grim...and a sense of humility guards against insufferable arrogance. Also, we all need to realize that we are not perfect. We will make mistakes. It’s how we handle the mistakes that really provide a measure of our leadership ability.

Finally, I think leadership is that ability to identify and attract capable people; give them a vision and then let them help you paint the final picture. Don’t be threatened by people smarter than you because they are really what will make you successful.

JG: Any final thoughts?

SW: Throughout my career I always looked to the generation ahead of me...the folks a generation older than me; I looked at the ones I admired, that I thought did things really well and used them as my mentors. Sometimes formally and sometimes they never knew. I wanted to be that person in the way that I performed. They were people, usually further along in their careers and a little older. They were my role models — my mentors.

Finally, leadership (like life) is a never ending journey. It is a continuum of learning and observing and putting what you learn and observe to work in an effective way. ■■■

Help Us Plan Newsletter — Take Readers’ Survey

After almost 25 years, our WRRRC editor, Joe Gelt, is officially retiring. We will truly miss his journalistic signature, his knowledge and insight that made the AWR newsletter such a notable read.

Now we must rethink the newsletter’s format and content. As we think, we want to know what you value about the AWR. Therefore, we have created a short (12 question) opinion survey. To take the survey, go to the WRRRC website at cals.arizona.edu/azwater/ and click on the AWR Reader Survey button. The online survey will be open until Sept. 30th.

Please tell us what you like about the newsletter, what you would like us to change and what you have always wanted to read more about in AWR. We want the newsletter to be informative, relevant and useful; we are committed to responding to the concerns and recommendations of our readers.

As an added incentive to take our quick and easy survey, participants can enter to win a NEW Arizona Water Map!