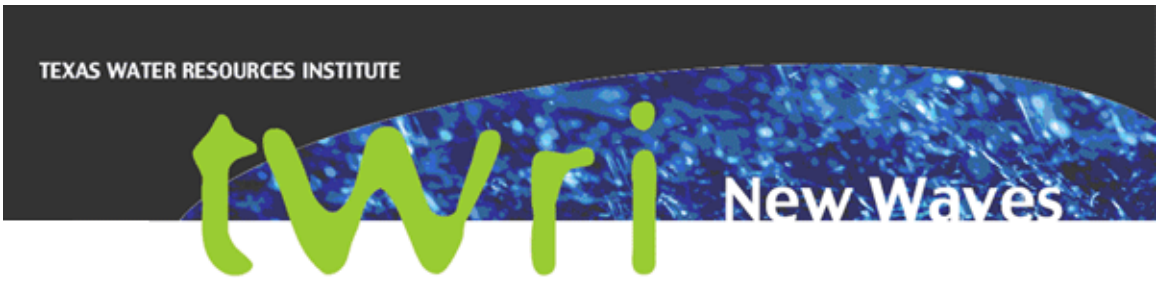

Breaking news about water resources research and education at Texas universities

Jan. 12, 2006

1. Water Resources Faculty, Programs Win Awards at Agriculture Conference

Several water resources faculty, two water-related teams and a state water agency won awards Jan. 10 at the annual Texas A&M Agriculture Conference.

Dr. Elsa Murano, Texas A&M University System vice chancellor and dean of agriculture and life sciences, presented Awards in Excellence to:

- **Dr. Ben Wu**, Department of Rangeland Ecology and Management, for graduate teaching. Wu is associate professor of rangeland ecology and management. Wu, a 10-year faculty member at Texas A&M, is involved in landscape ecology; wetland restoration ecology; landscape pattern and hydrology in rangeland and urbanizing watersheds.
- **Dr. Neal Wilkins,** Department of Wildlife and Fisheries Sciences**,** for State Extension Specialist. Wilkins' water related interests include assessing the aquatic biology of the Rio Grande ecosystem; evaluating the extent to which land use change is occurring throughout Texas and how that may affect water quality and aquatic habitats in rivers and streams.
- **Dr. M. Keith Owens** for Off-Campus Researcher. Owens, an Experiment Station scientist at Uvalde, is a range expert whose central efforts pertain to sustaining water resources in semiarid regions.

Also at the conference, Texas Cooperative Extension presented a Partnership Award for 2006 to the **Texas State Soil and Water Conservation Board** (TSSWCB).The partnership award recognizes agencies and organizations that collaborate with Extension to "significantly enhance the outreach and impact of extension for the people of Texas,"

TSSWCB, headquartered in Temple, has partnered with Extension and Texas Water Resources Institute on water issues for decades. Since 2001, more than $3 million in federal funds have funneled through the Board to Extension and its sister agency, the Texas Agricultural Experiment Station. This money helped Extension develop programs to reduce water pollution.

TAES conferred 2005 Faculty Fellows to **Dr. Bruce A. McCarl**, a regent professor of agricultural economics. His water-related research focuses on economic analyses concerning the effects of global climate change; modeling the economics of water use in the Edwards Aquifer region; and economic issues pertaining to water systems security.

Extension also presented Superior Service Awards to **Dr. Bruce Lesikar,** professor and Extension program leader in Biological and Agricultural Engineering Department, County Extension Agents **Raymond Bader**, of El Paso County, and **Billy Kniffen**, of Menard County.

Dr. Monty Dozier, assistant professor and Extension Water Resources specialist in the Soil and Crop Sciences Department; **Dr. Scott Senseman**, associate professor in the Soil and Crop Sciences Department, along with **Paul Baumann**, professor and Extension weed specialist, won a team superior service award for "Atrazine Abatement."

The Coastal Bend Irrigated Research Verification Program," also won a team Superior Service Award. **Dr. Thomas Gerik**, professor, and **Dr. Charles Stichle**r, professor and extension agronomist, along with **Dr. Larry Falconer**, **Dr. Steve Livingston**, **Dr. Roy Parker,** and **Jeffrey Stapper**, are members of this team.

2. RGBI Team Receives Partnership Award

The Rio Grande Basin Initiative (RGBI) team received the Vice Chancellor's Award in Excellence for Industry-Agency-University-Association Partnership Jan. 10, at the 2006 Texas A&M Agriculture's Awards Convocation.

Dr. Elsa Murano, Texas A&M University System vice chancellor and dean of agriculture and life sciences, presented the partnership award to the RGBI team for working with numerous individuals, groups, organizations and agencies to reach the goals and objectives originally set forth for the project. Texas and New Mexico's Agricultural Experiment Stations and Cooperative Extension work hand in hand with farmers, citizens and local governments. Partners include irrigation districts, cities and counties, USDA-NRCS, USBOR, Regional Water Planning Groups, Texas Department of Agriculture, Texas Water Development Board, Commodity Organizations, North American Development Bank, Border Environmental Conservation Commission, selected consultants, International Boundary and Water Commission, and the Lower Rio Grande Development Council.

Primary partners chosen to represent this team include: Edmund Archuleta, El Paso Water Utilities; Dr. B.L. Harris, Texas Water Resources Institute associate director in College Station; Sonny Hinojosa, Hildalgo County Irrigation District No. 2 general manager; Michael Irlbeck, U.S. Bureau of Reclamation special projects director in Austin; Dr. Allan Jones, Texas Water Resources Institute director in College Station; and Craig Runyan, New Mexico State Cooperative Extension.

These team members were selected as primary representatives from the numerous partners and approximately 160 participants of the Rio Grande Basin Initiative as a whole. Archuleta and Hinojosa represented the cities, municipalities and irrigation district managers along the Rio Grande. Irlbeck not only represented the U.S. Bureau of Reclamation, but all agencies that partner with the Rio Grande Basin Initiative. Runyan accepted the award on behalf of the New Mexico Agricultural Experiment Station and Cooperative Extension Service participants. Harris and Jones represented Texas A&M Agriculture's Texas Cooperative Extension and Texas Agricultural Experiment Station participants, as well as working with Runyan as the project administrators.

Together all of these groups and participants work towards the common goal of efficient irrigation for water conservation in the Rio Grande Basin.

3. Graduate Student Studies Flow Velocity, Biodegradation in Contaminated Groundwater

Texas A&M University graduate student Itza Mendoza-Sanchez and advising professors Robin Autenrieth and Jeff Cunningham are researching bioremediation of groundwater, a technology that employs microorganisms to transform toxic chemicals into non-toxic chemicals.

Twenty-six groundwater sites in Texas are contaminated, according to the U.S. Environmental Protection Agency Web site. Most of these sites include chlorinated volatile organic compounds like trichloroethene (TCE) and perchloroethene (PCE), which are widely used solvents. These chemicals are resistant to degradation which leads to toxicity of groundwater.

"Contamination of water is making it more expensive to provide this vital liquid to all people on earth. Therefore we have to care for water, preserve it, clean it and prevent it from contamination," said Mendoza-Sanchez, a recipient of a $5,000 2004-05 U. S. Geological Survey research grant.

One aspect of biodegradation that Mendoza-Sanchez and her professors are focusing on is the flow velocity of groundwater. Mendoza-Sanchez is developing an experimental model for the biodegradation of PCE in groundwater to evaluate the effect that different flow velocities have on biodegradation.

"We are trying to better understand the processes affecting biodegradation in groundwater to develop an efficient technology to remediate contaminated sites in an inexpensive and efficient way," said Mendoza-Sanchez.

PCE can be biodegraded under anaerobic conditions by bacterially mediated sequential reductive dechlorination. Basically, PCE is converted sequentially to TCE, dichloroethene, then to vinyl chloride and finally to the benign end product, ethene, with the help of bacteria.

Mendoza-Sanchez is creating glass beads columns that will be used as lab-scale models of a contaminated aquifer. The columns will be kept under anaerobic conditions, filled with a pre-contaminated water (with known amounts of TCE and/or PCE), and then inoculated with a bacterial culture. Water will be pumped through at different rates.

If the groundwater flow velocity affects the dechlorination rate, then contaminated sites can be evaluated to see if bioremediation technologies could be used, she said.

"I hope that the results of my research can be useful to develop low-cost water treatment and remediation technologies," said Mendoza-Sanchez.

Mendoza-Sanchez's research is funded by TWRI as part of the National Institutes for Water Research annual research program. TWRI is the designated institute for water resources research for Texas.
For more information on Mendoza-Sanchez's research, visit "USGS Research Grants" at http://twri.tamu.edu.

4. Irrigation Engineer Featured in AgNews about his Afghanistan Assignment

Dr. Guy Fipps, a Texas Cooperative Extension irrigation specialist, was featured in an AgNews article about his new assignment the senior water advisor for the Afghanistan Reconstruction Group. He will help develop water resources, treatment and delivery systems and policies in a country that has been ravished by more than two decades of war, he said. He plans to analyze irrigation needs and determine what is needed to rehabilitate existing systems.

For the complete AgNews story go to
http://agnews.tamu.edu/dailynews/stories/AGEN/Jan0506a.htm

New Publications/ Papers

Water Resource Economics and Policy, An Introduction; W. Douglass Shaw, Professor, Department of Agricultural Economics and Department of Recreation, Park and Tourism Sciences,

This comprehensive volume clarifies the role of economics and offers material that can be applied to water resource allocation problems around the world. Topics covered include: groundwater, floods and droughts, *in situ* uses of water and institutions and law.

"*The transport of waterborne solutes and bacteriophage in soil subirrigated with a wastewater blend*," Agriculture Ecosystems and Environment, N.W. Assadian, G.D. Di Giovanni and J. Iglesias, of the Texas A&M Research and Extension Center at El Paso; J. Enciso, of the Texas A&M Research and Extension Center at Weslaco; and W. Lindemann of New Mexico State University.

"Rainwater harvesting offers many conservation benefits," Michel Mecke, Program Specialist-Water Management, Texas Cooperative Extension, The CrossSection, a monthly publication Of The High Plains Underground Water Conservation District No. 1
For a copy of the article go to http://www.hpwd.com/CrossSection/12-2005%20Cross%20Section.pdf.

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