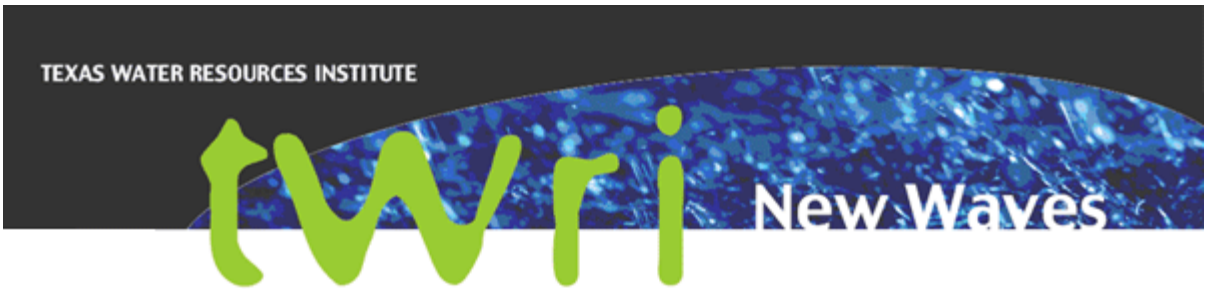

Breaking news about water resources research and education at Texas universities

July 17, 2006

This day in history...

President Lyndon B. Johnson signed the Water Resources Research Act into law on July 17, 1964, which created individual state water resources research institutes. To read the original White House press release announcing that event, visit
http://twri.tamu.edu/events/WH_Press_Release_7-17-64.pdf

1. Texas Water Resources Institute establishes office to analyze critical water issues

The Texas Water Resources Institute recently established the Office of Strategic Water Issues to provide non-biased, science-based analyses of critical water issues facing Texas, according to **Allan Jones**, the institute's director.

Jones said the office will develop consensus recommendations and communicate these to policy and decision makers to help them make informed decisions on these complicated issues.

"The Office of Strategic Water Issues will bring together government agencies and interest groups to seek solutions and advise decision-makers regarding the critical water resources issues facing the state," Jones said. "We'll provide unbiased advice concerning complex economic, societal and environmental consequences of water resources policy and management decisions."

He said the office is needed because resolving water quantity and quality issues are paramount to Texas, its future water supplies and its economic development.

"We see the office as inviting experts from regulatory agencies, interest groups and universities to analyze important water issues, using the best available science and most effective policies," Jones said. "Issues could range from protecting our aquifers from overdraft and contamination or purifying and using the state's extensive brackish and saline water resources."

For more information, go to http://twri.tamu.edu/projects/OfficeStrategicWaterIssues.pdf

2. TAES economist receives funding to study urban water use

Texas Agricultural Experiment Station economist **Dr. Ronald Griffin** will receive funding for 2006 through the U.S. Geological Survey and the National Institutes for Water Resources for his research proposal, *An Econometric Investigation of Urban Water Demand in the U.S.*

Griffin's research is funded through Texas Water Resources Institute, one of 54 federally designated water resources research institutes. He will receive more than $100,000 for two years to estimate urban, domestic, commercial and industrial water demands in many large U.S. cities.

Griffin will first gather information and review trends over several years on monthly water use, water rate, climate and economic activity in these cities. He will use his research data to create or improve current water demand models and present new opportunities for water use.

The U.S. Geological Survey in cooperation with the National Institutes for Water Resources funded eight research proposals for 2006 that aim to improve water supply and availability nationwide. They received more than 60 applications from investigators at higher learning institutes in the United States requesting a total of $8.5 million.

To read an AgNews story about Griffin's research, visit
http://agnews.tamu.edu/dailynews/stories/AGEC/Jul0506a.htm

More information about his research can be found at http://waterecon.tamu.edu .

3. Mills Scholars winners announced

The Texas Water Resources Institute awarded 13 Mills Scholarships in 2006-07 to Texas A&M University graduate students. They are:

- **Kendra Johnson**, Graduate Advisor: **R. Karthikeyan**, Biological and Agricultural Engineering
- **Vanessa Kelly**, Graduate Advisor: **Ron Kaiser**, Recreation, Park, and Tourism Sciences
- **Trevor Knight**, Graduate Advisor: **Michael Masser**, Wildlife and Fisheries Sciences
- **Meredith Langille**, Graduate Advisor: **Timothy Kramer**, Civil Engineering
- **Anna Marie Nordfelt**, Graduate Advisor: **Steven Quiring**, Geography
- **Oke Nwaneshiudu**, Graduate Advisor: **Yavuz Corapcioglu**, Civil and Environmental Engineering
- **Sucheta Parkhi**, Graduate Advisor: **Timothy Kramer**, Civil Engineering
- **Lisa Prcin**, Graduate Advisor: **Fred Smeins**, Rangeland Ecology and Management
- **Jeremy Joseph Rice**, Graduate Advisor: **Ron Kaiser**, Recreation, Park, and Tourism Sciences
- **Nick Russo III**, Graduate Advisors: **Bruce Lesikar**, Biological and Agricultural Engineering, **Ron Kaiser**, Recreation, Park, and Tourism Sciences
- **Ronnie Schnell**, Graduate Advisor: **Donald Vietor**, Soil and Crop Sciences
- **Kati Ireland Stoddard**, Graduate Advisor: **Douglass Shaw**, Agricultural Economics
- **Zach Vernon**, Graduate Advisor: **Raghavan Srinivasan**, Spatial Sciences Laboratory

4. University of Texas student researched environmental flow model

Marc Russell, a former University of Texas marine sciences graduate student, and advising professor, **Dr. Paul Montagna**, developed a hydrological/biological model to determine the effects that freshwater inflow has on an estuarine function.

An estuary is freshwater inflow mixing with salt water. The function, productivity and impairment of an estuarine ecosystem are linked to a watershed through freshwater inflow, but their relationships to the watershed are unclear, Russell said.

The model compiled hydrologic and climatic characteristics, and landscape characteristics like soil types, land use and land cover, and meteorological data. Data gathered helped to find the range of freshwater inflow.

Changes in freshwater inflows affect the water quality of a watershed because of the change in the amounts of inorganic and organic compounds. The function of an ecosystem is characterized by heterotrophic, having a high respiration rate; autotrophic, primary productivity is greater than the respiration rate; or balanced.

"I have been involved in numerous nutrient and dissolved oxygen assessments in Texas Bays and through these experiences began to question how landscape characteristics and climate affect the bays," said Russell, a recipient of a $5,000 2004-05 U.S. Geological Survey research grant.

Russell and Montagna used net ecosystem metabolism, measured from dissolved oxygen rates, as an indicator of ecosystem function.

His research assessed the changes in metabolic rates due to climate change and watershed development in the Aransas River watershed in South Texas. They compared the changes to current levels of impairment and concluded that "human development in watersheds and their effects on climate change are directly linked to the vast ecological resources provided by estuarine ecosystems."

They also estimated the metabolic response of estuarine ecosystems to predicted urban development within a watershed and predicted climate change over the next one hundred years.

"Scientists and managers of ecological and water resources can use the methods and results of my research to help create tools for linking landscape modifications to estuarine responses," he said. "Proper stewardship of landscapes can help sustain the estuarine processes that serve as the foundation for valued economic and ecological sectors."

Russell is currently working as an ecologist for the Smithsonian Institute Environmental Research Center in Maryland. He is working on developing landscape indicators of watershed impairment. He hopes to one day advance into an academic position as a research professor, or a research position with the EPA or other government agency.

His research was funded by TWRI through the U.S. Geological Survey 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 Russell's research, visit "USGS Research Grants" at http://twri.tamu.edu.

5. Graduate student assesses accuracy of Soil and Water Assessment Tool

Texas A&M University graduate student **Xuesong Zhang** is working with his advising professor **Raghavan Srinivasan**, director of Texas A&M's Spatial Sciences Laboratory, to evaluate and improve the accuracy and reliability of the SWAT model or Soil and Water Assessment Tool. SWAT, developed by USDA-Agricultural Research Service and Blackland Research and Extension Center in Temple, is a water model used to determine what impacts land management practices have on a watershed.

"The accurate simulation of SWAT can assist the government in making correct decisions about water management practices, which are important for human health, agricultural management, industry development, environmental quality, flood risk assessment and recreation," said Zhang, a recipient of a $5,000 2004-05 Texas Water Resources Institute research grant.

Zhang, and Srinivasan evaluated the heterogeneity of a watershed through the HRU (Hydrologic Response Unit) concept using the SWAT model. Precipitation, topography, soils, geology and land use, infiltration and evapotranspiration are all highly heterogeneous, or varied, characteristics of a watershed.

Zhang worked to not only improve the accuracy and reliability of SWAT, but also to develop new programs and algorithms to assist the model in describing the hydrologic processes at the HRU scale more realistically.

"In order to facilitate the application of the new algorithms, user friendly interfaces were developed using Visual Basic 6.0 and MatrixVB language," Zhang said.

The researchers accomplished three major goals. They improved the accuracy of rainfall fields (one of the most important inputs for SWAT) through developing complex geo-statistical algorithm and GIS program and developed a more reliable algorithm using physically based snow routing algorithm to replace the original algorithm. They also developed an advanced automatic parameters calibration program that alleviates the model user from tedious parameters calibration work and provides more objective solutions.

Zhang said he would like to continue to work on the SWAT model, and he hopes to develop a national water quantity and quality system for U.S. EPA's water management program. Results are expected to be applied in the HUMUS (Hydrologic Unit Model of the United States), CEAP (Conservation Effects Assessment Project) and HAWQS (Hydrologic and Water Quality System), which are supported by EPA.

His research was funded by TWRI through the U.S. Geological Survey 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 Zhang's research, visit "USGS Research Grants" at http://twri.tamu.edu.

6. TWRI publishes "txH2O" magazine

The summer issue of Texas Water Resources Institute's "txH2O," a 30-page magazine featuring water resources research and outreach occurring around the state, is available for interested readers.

This issue contains stories on control of the water-thirsty saltcedar with imported beetles, an update of the institute's Fort Hood Rangeland Revegetation Project, a water conservation program promoting rain gardens as well as other features.

To download an electronic version, click here http://twri.tamu.edu/newsletters/txH2O/txh2o-v2n2.pdf. Request a hard copy by emailing twri@tamu.edu

7. Project seeks proposals for new technologies for waste pollution control

Request for Proposals (RFPs) for the project, ***"Demonstration and Evaluation of the Use of Technologies to Reduce Animal Waste Pollution"*** are still being accepted. Texas

Cooperative Extension and Texas Water Resources Institute seek proposals from technology providers for technologies to be tested and demonstrated in the Bosque and Leon River Watersheds. The proposals are due July 31, 2006.

Additional proposal information may be obtained at:
http://twri.tamu.edu/projects/NewTechnologies/RFP_2006.pdf

For more information, contact **Dr. S. Mukhtar**, Biological and Agricultural Engineering Department, Texas A&M University, by fax (979.845.3932) or mukhtar@tamu.edu .

Upcoming Seminars

8. Future of desalination and its technologies topic of short course

Texas A&M University's Separation Sciences Laboratory announced its second annual, practical short course, "The Future of Desalination in Texas," for Aug. 7-8 in College Station.

The course will cover water and wastewater including pretreatment, filtration technologies, economics, case studies, cleaning and sanitizing systems, and post treatment. Daily pilot plant demonstrations will be at the Separation Sciences Laboratory on the Texas A&M campus.

Attendees will receive a course notebook, Continuing Education Units (CEUs), daily lunch, certificate of completion, and a speaker and attendee list for networking and assisting with their questions.

For more information, please visit the website at www.tamu.edu/separations or call **Carl Vavra** at 979.845.2758 or email cjvavra@tamu.edu or **Connie Conaway** at 979.845.2272 or email connie@pe.tamu.edu

9. New Mexico institute sponsors technical symposium

The New Mexico Water Resources Institute will have a one-day technical symposium on Aug. 15, 2006 at New Mexico Tech University at Socorro.

Registration is $20 per person, which includes a notebook with abstracts, lunch, breaks, and the reception.

For more information or to register online, visit their Web site at
http://wrrinmsu.edu/conf/tc06/symposium.html or contact **Cathy Ortega Klett**
at 505.646.1195.

10. WaterSmart landscaping seminar set for professionals

A WaterSmart Landscaping Seminar for Professionals will be hosted by Texas Cooperative Extension, Texas Sea Grant and Harris County Storm Water Quality Section on Nov. 15 at the Sheraton Brookhollow Hotel in Houston.

The seminar will highlight cost-saving strategies, building better soils to build better landscapes, creating rain gardens and green roofs in urban settings, selecting WaterSmart plants and forecasting the future of water for Texas landscapes.

Visiting exhibitors and vendors, landscape architects/designers, grounds managers, nursery owners, developers/home builders, city and county planners and decision makers are encouraged to attend.

Early registration (before Nov. 1) is $55 and on-site registration fee is $70.

For seminar details and online registration, visit www.watersmart.cc or call 281.218.0721.

"News Waves," an e-mail newsletter of Texas Water Resources Institute publishes timely information about water resources news, results of projects and programs, and new water-related research projects, publications, papers and faculty, at universities in Texas. If you have information for possible inclusion in "New Waves," please e-mail items to kwythe@tamu.edu and include your contact information or call 979.845.1862. All submissions may be edited for grammar and style.

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