



# The AQUAhoman

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## OWRRI's 6th Annual Water Research Symposium

The OWRRI's 6th Annual Water Research Symposium took place at the Sheraton-Reed Conference Center in Midwest City, Okla., Oct. 29 and Oct. 30. The Symposium, held in conjunction with the Oklahoma Water Resources Board's Governor's Water Conference, is an opportunity for researchers, professionals, students, and others to meet, discuss, and learn about water research advances and needs in Oklahoma. This year there were more than 550 attendees in the six sessions.



Photo courtesy of OWRB

Attendees enjoy the opportunity to network during the Symposium's breaks.



Photo courtesy of OWRB  
 OSU President Burns Hargis gave welcoming remarks to the Symposium attendees.

page 7. The OWRRI staff would like to thank everyone who took advantage of these opportunities by participating. For more information visit the OWRRI website at <http://environ.okstate.edu/owrri>.

Session 1, chaired by Ed Rossman, kicked-off the Symposium with updates and new developments. Burns Hargis, System CEO and President of Oklahoma State University, gave a welcome during Session 2. Other sessions highlighted a wide variety of water-related issues such as global climate change, water issues in Oklahoma, water planning, and water research done by Native American tribes in Oklahoma. Dr. Jurgen Garbrecht, USDA hydraulic engineer, gave a historical presentation titled "The Transbasin Water Supply in the Kingdom of Urartu." Session 6, co-chaired by Noel Osborn and Jeanne Schneider, wrapped up the Symposium with presentations regarding water budgets. Each year a poster contest is held for undergraduate and graduate students to showcase their research. This year's winners are listed on



Photo courtesy of OWRB

Dr. Baxter Vieux, OU professor, Dr. Glen Brown, OSU professor and Rudy Herrmann, OWRB Board Member, visit during one of the breaks

## From the Director Why Should Oklahomans Care about Water Planning?

The OWRR has been managing the ongoing citizen participation process in support of the revision of Oklahoma's Comprehensive Water Plan since January 2007. Over the first two years of the 4.5-year process, we are happy to report that the quantity and quality of citizen involvement has exceeded our every expectation. More than 2500 citizens submitted comments during the 42 local input meetings held in 2007. In 2008, 93% of the 368 invited participants attended our 11 regional input meetings along with another 210 observers. Each of these 53 meetings has reinforced our faith in the willingness of Oklahomans to work together to manage water resources for the benefit of all Oklahomans over the long term. We want to congratulate those who are dedicating their time to helping to make this best water management plan in the nation.

Despite our success so far, however, we have learned that a few citizens have criticized the citizen participation process as too long, unproductive, or exclusionary. I want to take this opportunity to offer my response to these critics.

So why indeed do we need a public participation process and what do we hope to accomplish with it? To begin our answer to this question, perhaps it is best to answer the inverse question: Why not write the Oklahoma Comprehensive Water Plan without public participation? It is certainly possible for OWRB staff to write a plan without public participation. If OWRB believed that it needed technical assistance in the effort, it could contract for that support with experts located at the State's universities, other government agencies, and private consulting firms. I have no doubt that a technically sound plan could be written using in-house and external expertise, but would this be the right plan for Oklahoma? In other words, could the plan be significantly improved through a competent public participation process? My answer is, obviously, yes! Here are eight justifications.

*Justification #1: Evidentiary Participation.* No one knows water resources better than the people who live with and depend on them. Involving the public in discussions about the water plan improves the quality of information that is brought to bear on water management prescriptions.

*Justification #2: Constitutive Participation.* Involving the public brings a benefit that far exceeds that of bringing evidence to the discussions. A properly designed public participation process also builds support for the plan that ultimately is produced from the process. If the people of Oklahoma believe that the public participation process is open and fair, then they will more likely support the plan that results from the process. After all, what good is a plan that is technically sound but politically and



socially opposed?

*Justification #3: Value Saliency.* The development of a water resource management plan necessarily involves choices. These choices always involve value preferences. Since the values of technical experts are not superior to the values of other Oklahomans, it makes sense to involve Oklahomans in discussions about these choices. Moreover, since it is likely that not all Oklahomans agree on every value that affects water management, then it makes sense to involve them in negotiations about these choices. Informed and

fair deliberation about values and value-based choices about the kind of future we want to live is, after all, the cornerstone of democracy.

*Justification #4: Technical Analyses.* Why not speed up the public participation process? My easiest response takes the form of another question: What good is it to stop public participation before these analyses are completed and provided to the public? It takes time to conduct the technical studies needed to understand current water supplies and water use demands, project these supplies and demands out to 2060, identify and evaluate alternative water resource management strategies for ensuring a reliable supply of clean water, write a plan that includes selected strategies, and solicit feedback from citizens on implementation of these strategies. Our timing of the five stages of the public participation process is designed to coincide with the completion of these studies in order to educate citizens about water supplies and management alternatives. Only with this information can citizens make informed judgments about how water resources should be managed.

*Justification #5: Uncertainty and Adaptive Management.* Even if value-free choices about water resource management was possible, we do not know enough about water supplies, demands, and management alternatives over the next 50 years to know how to manage water resources optimally. For example, we face substantial uncertainty about population growth, economic conditions, technological developments, climate change, natural variations in rainfall, urban and rural development patterns, changes in law, changes in political climate, and improvements in scientific findings and forecasting models. It is impossible to write a plan now that will guarantee optimal water resource management over the next 50, or even 10 years. Therefore, a flexible plan that maximizes opportunities for learning and allows quick and effective plan revisions in light of this learning, is best. Involvement of the public in providing feedback to water resource managers so that the plan can be revised as necessary is essential.

*Justification #6: Plan Implementation.* A plan is simply a document. Far too often, good plans have been written that sit on shelves without any effective means of being implemented so that their goals and objectives are actually met. For a plan to be successful, it needs to

be implemented. Implementation of a successful water resource management plan necessarily requires the support of those involved in water resource management. Doesn't it make sense to involve the public in deliberations about the plan if its success depends on their cooperation in its implementation?

*Justification #7: Efficacy Building.* The first of two important secondary benefits of public participation in planning is the increase in the competence of citizens to participate in governance. In other words, through participation, citizens learn more about government processes, policies, and means of implementation that makes them better citizens and partners in government. Again, democracy depends on the engagement of citizens in the political process. It is important that citizens believe that they can make a difference if they are to develop the skills necessary to participate effectively.

*Justification #8: Trust Building.* The second, and no less important, secondary benefit of participation in planning is the trust that can be built. This trust takes at least four forms. First, citizens will trust government more when it demonstrates that it will honor and respect citizen expectations and preferences. Second, citizens will trust each other more once they learn that they share many values and are willing to accommodate each other in pursuit of shared goals. Third, citizens will trust science and scientists more when they learn that the science is aimed at issues that citizens believe are important. Fourth, citizens will trust the participation process more if they see that their participation in it is fair, inclusive, and transparent. A good process will build trust in all four areas. Since trust is tantamount to risk acceptance and deference, it is a form of social capital that can be used by planners to increase the efficiency and effectiveness of water resource management.

I hope that these justifications will convince the reader that our process, as designed, is essential to the success of the ongoing planning effort.

### **Planning Workshops: The Next Stage in the Planning Process**

So far, the public participation process has focused on setting an agenda for what the Oklahoma Comprehensive Water Plan should address. In the local input meetings, we identified the issues and concerns that Oklahomans all across our state have about water and water resources. In the regional input meetings, we engaged citizens holding various perspectives on water resource management on which of these issues should enjoy priority attention in further discussions. We have finalized the Statewide RIM Report which summarizes the issue prioritized identified by RIM participants across the entire State. (In another article in this issue of the Aquahoman, Jeri Fleming reports on our analysis.)

We have begun preparing for the third stage of the planning process: the planning workshops, scheduled for the second half of 2009. The primary purpose of the planning workshops is to formulate feasible alternatives for water resource management that meets the needs of

all Oklahomans all across Oklahoma over the long term (out to 2060). We anticipate that these workshops will be "energetic" and productive. By this, we mean that the participants will work hard by engaging in serious discussion about management preferences, learning a lot about the expected outcomes of various preferences, and reflecting on the opinions and values of others in the deliberations. We believe that at the end of the workshops, the participants will have developed a series of workable and broadly supportable management strategies that deserve further discussion in the fourth stage: the Oklahoma Academy Town Hall, currently scheduled for May 2010.

We have organized 10 workshops based on the themes that emerged from the regional input meetings. Each theme was defined so that it cuts across traditional interest-based conflicts, is relatively independent of other themes and encompasses a coherent collection of issues that can be managed with a set of coordinated strategies. For example, we did not develop a theme called agricultural water use and another called urban water use. Such a division would reinforce existing conflict, does not represent a coherent collection of issues that could be solved by the same management strategy, and is not sufficiently independent since agricultural and urban uses affect each other.

Each session will be guided by questions that will guide participants toward alternatives formulation. Experts will be available at the sessions to answer questions that participants may have. All sessions will be professionally facilitated.

Each of the 10 workshops will be repeated twice more (three sessions in all for each theme) with about 10 weeks between sessions. This separation allows experts to analyze and evaluate water resource management scenarios developed by the workshop participants. Results of these analyses will then be presented to the workshop participants at the beginning of the next session. It is our expectation that after three iterations, each thematic group will flesh out feasible management strategies, learn about their potential outcomes, eliminate those strategies that are judged inferior, and articulate management alternatives that should be considered in the Town Hall.

Workshop participants will be chosen from among the RIM participants, though limited to something closer to 240 in all (about 24 participants per workshop), which allows everyone to have substantial opportunity to deliberate. All sessions will be open to public observation, however, and reports of proceedings will be posted on our website.

We look forward to this next stage in the planning process. This is where we begin to really "let the rubber hit the road." We have now moved beyond the agenda setting phase and are now ready to consider how the issues raised over the last two years will be addressed in the water plan.

***Let the deliberations begin!***

## OWRRI Research Projects Funded in 2009

Each year since 1965, the OWRRI has sponsored water research projects that contribute to the improvement of water resource management in our state. This year we are pleased to announce that we are funding the three projects listed below. These were chosen as meeting Oklahoma's needs by our Water Research Advisory Board from among the 13 proposals submitted. The funding for these projects comes equally from the U.S. Geological Survey and the Oklahoma Water Resources Board.

### ***Alternative Water Conservation Policy Tools for Oklahoma Water Systems (Dr. Damian C. Adams, OSU)***

The goal of this project is to increase water managers' and other stakeholders' awareness of: (1) available alternative water conservation policy tools, (2) their feasibility for local conditions, and (3) their relative costs and water savings. Using a literature review, surveys and expert panels, researchers will identify and evaluate water conservation policy tools that are suitable for local conditions in Oklahoma. The researchers will synthesize the results and report the findings to stakeholders as appropriate. This project is expected to generate valuable information that can be used to support the efforts of the Comprehensive State Water Plan process.

### ***Stream Depletion by Ground Water Pumping: A Stream Depletion Factor for the State of Oklahoma (Dr. Garey Fox, OSU)***

This project will develop a standardized method for determining the effects of alluvial ground water pumping and/or recharge on stream flow in Oklahoma. Elsewhere, a stream depletion factor (SDF) has been developed for this purpose but is based on ideas developed in the 1960s. This effort will utilize state-of-the-art analytical solutions to develop an Oklahoma SDF. Specific tasks include: (1) measuring streambed conductivity in the North Canadian and Washita Rivers using grain size analyses and/or falling head permeameter tests; (2) developing a database of geologic information and aquifer parameters for specific reaches of these rivers; (3) long-term monitoring of stream and ground water levels during both recharge and pumping conditions and field testing existing SDFs; and (4) developing a modified SDF for these rivers. This improved SDF will allow water managers to determine short-term and/or long-term impact of ground water pumping on the availability of surface water.

### ***Quantification of water fluxes and irrigation use through remote sensing (Dr. Baxter Vieux, OU)***

This project is a continuation of the project lead by Dr. Hong in 2008 (see reverse) which demonstrated that remote sensing can be used to estimate the evapotranspiration from cultivated lands in the Oklahoma panhandle and can potentially be applied to water use and availability studies over broad areas in Oklahoma. This year the researchers will extend this work to include rural and urban areas, different climatic conditions, and quantify the amount of water flux in excess of precipitation that is derived from irrigation. This project will examine trends over time and space associated with agricultural irrigation and urban areas water use. Irrigation application in the Lugert Altus district and in Texas County will be estimated. By considering precipitation and detailed vegetative cover and the land surface, more accurate estimates of water usage can be produced. Future significance of this work is the application of this technique to better quantify water use in urban areas and areas where the economy depends heavily on irrigated agriculture. Water management practices of drip irrigation, low or no-till agriculture, salt cedar eradication efforts could potentially be measured by the methods developed through this research.

## Oklahoma's 52nd Legislature kicks off with a flood of water related bills

Jeri Fleming

The Oklahoma legislature is back in session with approximately 25 bills introduced this session that pertain to water or water rights. It seems all the publicity and activity related to updating Oklahoma's Comprehensive Water Plan has led to the introduction of several bills. The bills range in content from extending the water sale moratorium to appropriating funds to pay the debt on Sardis Lake. Below is a brief synopsis of some of the bills.

### Water Sales

The Water for Oklahomans Act, HB 1328, if passed, would require citizen approval of water sales outside the state of Oklahoma. Rep. Mike Reynolds authored the bill, which has been referred to the Rules Committee. House Bill 1437, and Senate Bill 55 both would extend the current moratorium on out-of-state water sales.

Rep. Brian Renegar introduced HB 1437, that would extend the moratorium until the "state completes a comprehensive scientific hydrologic study of the water resources of this state." The senate version, introduced by Sen. Jerry Ellis, extends the moratorium until Jan. 1, 2012. The House bill has been referred to the Agriculture and Rural Development Committee and the Senate bill has been referred to the Energy and Environment Committee.

Senate Bill 545, authored by Sen. Ron Justice, also relates to water sales and transfers. It amends 82 O.S. 2001 Sec. 1020.9 Approval of Application by requiring the Water Resources Board ensure a proposed permitted use "is not likely to substantially degrade or interfere with springs or streams emanating in whole or in part from water originating from a sensitive sole source groundwater basin or sub basin as defined in Section 1 of this act 1020.9A of this title." This bill has also been referred to the Energy and Environment Committee.

Senate Bill 655 would give in-state water permit applications priority over out-of-state permit applications to ensure the in-state uses have adequate water to meet their beneficial uses. Sen. Mike Schulz authored the Bill which has been referred to the Energy and Environment Committee.

### Sardis Lake

Rep. Renegar has also introduced HBs 1438 and 1439.

HB 1438 would appropriate \$71 million from the General Revenue Fund to the Water Board to pay off the debt on Sardis Lake. The bill has been referred to the Appropriations and Budget Committee.

### Creation of Districts, Committees and Task Forces

HB 1439 creates the Oklahoma Water Basin Protection Act, which names the 19 water drainage basins in Oklahoma for which a water district could be established. The districts could advise the OWRB on approval of applications for water that would be transferred more than 20 miles outside the boundaries of the basin. The Bill includes several other provisions and has been referred to the Agriculture and Rural Development Committee.

The creation of a task force on out-of-state water sales is the purpose for HB 1633 authored by Rep. Anastasia Pittman. The task force would be comprised of ten members that would include seven members from industry, Native American tribes, county and municipal governments and citizens of the state. These members would be appointed by the governor and leaders in both the house and senate. The remaining three members would be the executive director of the OWRB, the secretary of the environment and the attorney general or their

designee. The task force would meet no later than Sept. 30, 2009 and would make a final report to the governor and the legislature by Dec. 31, 2009. The Bill has been referred to the Rules Committee.

Sen. Susan Paddack introduced SB 650 which would establish a technical review group to help determine the most efficient and cost effective ways to determine stream flows, identify aquifers that need to be studied and make recommendations on water quality and quantity data needs. The group would be established by Sept. 1, 2009, and could help inform the ongoing Comprehensive Water Plan update. The Bill is currently in the Energy and Environment Committee.

Several other water related bills clarify language or are "shell" bills (bills with title but no content). There are several other bills worth watching this legislative session including HBs 1445, 1483, 1572, 1587, 1703, 1884 and 2112, and SBs 316, 347, 429, 443, 56, 57, 58, 649, 754, and 842. To easily track these and other bills the Oklahoma legislature has established a bill tracking website found at <http://webserver1.lsb.state.ok.us/WebBillStatus/main.html>.



## Regional Input Meetings complete and future agenda set

Jeri Fleming

The OWRRRI has completed analysis of the comments and ratings from the 11 Regional Input Meetings (RIMs) held during 2008 and with citizens' input has completed the agenda for future meetings. During the RIMs, 368 selected citizens rated 54 issues (developed from the comments received in 2007) as either high priority or low priority issues for continued discussion. Using these results, the OWRRRI crafted 10 themes that will be the focus of planning workshops held this year.

The RIM participants were asked to consider three things when judging how to rate an issue: timeliness, importance, and appropriateness. In other words, they were to determine whether now is the time to discuss an issue, whether the issue is important enough to spend time on, and whether the issue is appropriate for the planning process. If the participants concluded that an issue met all three criteria, they rated it high. If they concluded that an issue did not meet all three criteria, they rated it low meaning that the issue would only be considered for discussion if there was time to do so. Ultimately, 11 issues enjoyed consensus agreement across the regions as being timely, important and appropriate; 26 issues were viewed differently within regions; and differences between regions occurred in the ratings of 17 issues. No issues were rated low across all regions.

The 11 issues that received broad support need little analysis and comment. Participants frequently said that these 11 issues are "the focus of the plan," or that ignoring them would have objectionable results. These 11 issues are:

- Improvement and expansion of drinking water infrastructure
- State and federal funding of water storage infrastructure
- State and federal funding of water treatment and protection
- Water needs of municipalities in allocation decisions
- Water sales and transfers within the State
- Water sales and transfers outside of the State
- Economic impact of sales and transfers on both the State and the basin of origin
- Effects of land management practices on water quality and quantity
- Balancing demand and supply
- Working with other states concerning ground and surface water quality and quantity
- Incorporation of regional differences in water supply and use

Participants within a region had differing views on issues for a variety of reasons. For example, some people rated the issue of changes in groundwater law low because they did not want to see change, preferring the status quo. However, others said since the issue was already being discussed, they wanted to have input on any potential change. Some issues, particularly those concerning infrastructure, were seen as local rather than state-wide issues, and therefore not appropriate for the plan. Several issues were also said to be inappropriate for the plan because other agencies already dealt with these particular issues. Others said these should be discussed because the planning process could make things more efficient or provide for additional information and education.

Although 17 issues differed between regions, no clear geographic pattern emerged. Many of the issues were about agencies and changes in their authorities and services. Some regions considered that the number of agencies that manage water in Oklahoma should be revised, while other regions said they did not see the need to discuss this. Several issues were determined

not to be appropriate because they could not effectively be dealt with in the planning process. Others however, said the issues need at least some discussion, especially since the plan may need to include accommodations for future changes.

The ten themes developed from the RIM process are:

1. Balancing Water Supply and Demand
2. Water Conservation
3. Water Availability
4. Surface-Ground Water Relationship
5. Land Use Practices
6. Water Sales and Transfers
7. Inter-Governmental Water Resource Management
8. Inter-Agency Water Resource Management
9. Stakeholder Involvement and Conflict Management
10. Consideration of Local and Regional Issues in the State Plan

A complete analysis of the RIM results, and detailed explanations and expected outcomes of the Planning Workshop themes are available in the Final RIM Report, on the OWRRRI website,

<http://okwaterplan.info>



Dianna Leggett, OWRRRI facilitator, works with Lawton area residents during one of the RIMs.

**OWRRI Director Elected as the Next President of NIWR**

Dr. Will Focht was elected the next President of the National Institutes for Water Resources. NIWR is the umbrella organization of the nation's 54 state and territorial water resources research institutes. He is serving a three-year term on NIWR's executive council, that includes positions as President-Elect, President, and finally Past President beginning October 1, 2008. NIWR, working with the US Geological Survey, administers the federal water resources research program, first authorized by Congress in 1964. This year NIWR, working with the Universities Council for Water Resources, is publishing a special issue of the Journal of Contemporary Water Research and Education.

The OWRRI and the OWRB, were named the 2008 recipient of the Keep Oklahoma Beautiful Team Builders Award.

**2008 OWRRI Poster Contest Winners**

- 1st place and \$500.....J.D. McElhaney
- 2nd place and \$300.....Karl Garbrecht
- 2nd place and \$300.....Maria Moreno
- 3rd place and \$200.....Heather Moser

**We would like to thank the Cherokee Nation for their generous donation of the award money!**

**Save these Dates!**

- Feb. 19-20.....Oklahoma Ground Water Association Trade Show and Conference
- Feb. 22-24.....Oklahoma Association of Conservation Districts Annual Meeting
- Feb. 23-25.....National Institute for Water Research Annual Conference
- March 10.....Water Appreciation Day at the State Capitol
- March 11.....Oklahoma Funding Agency Coordinating Team Conference
- March 20 - 21.....Oklahoma Sustainability Network Eighth Annual Conference
- April 1 - 3.....18th Annual Oklahoma Clean Lakes and Watersheds Assoc. Conference

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### *Additional Opportunity to Participate in the Planning Process!*

As the OWRRI begins the third phase of the planning process, we invite you to give us your suggestions for managing Oklahoma's water resources, and we have developed a page on our website for that purpose. These suggestions should be well thought-out plans and could focus on one or more of the 10 themes. These ideas will be available to our workshop participants and could serve as a starting point for their discussions.

Visit <http://okwaterplan.info> and click on the [Enter Your Water Management Strategy](#) link. Select the theme you think best fits your strategy and enter away! We do ask for your name and email address solely for the purpose of contacting you if we need more information.

All strategies are available in a searchable database; however, your name and email are not shown so you can be assured your suggestion will be anonymous.