The AQUAhoman

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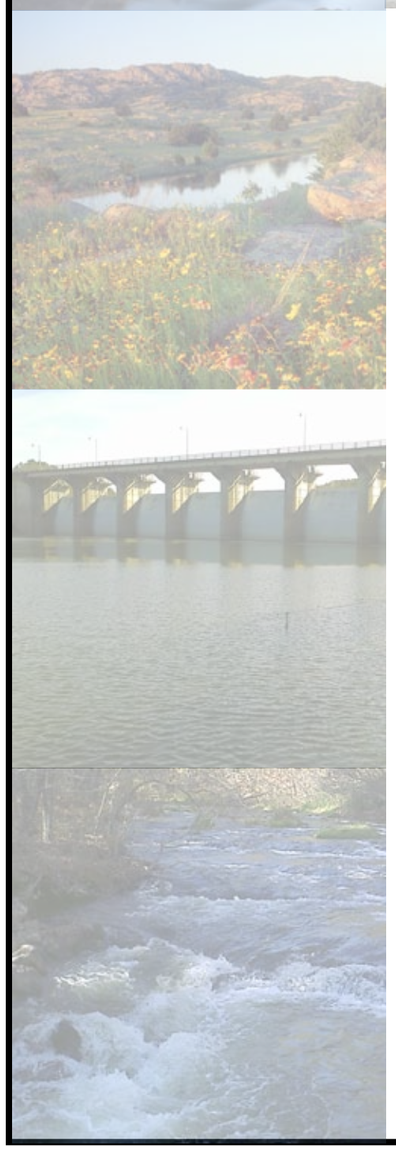

From the Director...

The OWRRI is leading the public participation portion of the Oklahoma Comprehensive Water Plan update. The second phase of that process is the Regional Input Meetings (RIMs). These meetings are now underway. Our first meeting was held on August 7 in Big Cabin. We will conclude all 11 RIMs by November 13. The purpose of these meetings is to identify those issues that the people of Oklahoma want discussed at the water planning workshops that will be held in 2009. We obtained more than 2,500 comments during our 42 Local Input Meetings held last year. We have since consolidated these comments into 54 issue categories. During each RIM, we ask the participants to rate the importance of each issue category for discussion in the workshops. Our Institute, working with the OWRB and a planning advisory board, will define as many as 12 planning sessions based on the results of the RIM discussions. So far, the RIMs have gone very well. The participants have had no trouble in rating issue categories. In most cases, we have found substantial agreement among participants on the relative importance of the issues. We look forward to the valuable contributions of other citizens as we move across the State. I want to thank our Institute staff for their remarkable efforts in making these meetings a success. In particular, I want to recognize Mike Langston (assistant Institute director), Jeri Fleming (communications manager), Johnna Stevenson (communications intern), Valerie Fleming (program support), Kylie Ahearn (program support), Shanna McFeeters (program support), and Lloyd Ramirez (program support). I want to especially thank our meeting facilitator, Diana Leggett, for her excellent management of these meetings. Finally, I want to thank the various Regional Councils of Government staff and Oklahoma Cooperative Extension Services for their assistance throughout the planning process. We will post the results of each RIM as soon as we can after each meeting is held. Please consult http://okwaterplan.info for these reports and other information.

For the RIM schedule please see the back cover.

Oklahoma Comprehensive Water Plan

Oklahoman's Engage in Revising Comprehensive Water Plan

The OWRRI recently began the second stage of its efforts to gather public input for the Oklahoma Comprehensice Water Plan. These 11 Regional Input Meetings (RIMs) are intended to help set the agenda for the planning workshops that will be held in 2009.

In the first stage, we held 42 public meetings throughout the state to listen to citizens tell us what the issues are regarding water in our state. We received over 2,500 comments, which have been consolidated into 54 issue categories. We are now asking citizens which of these issue categories are the most important for further discussion.

Elk City Meeting

Big Cabin Meeting

The information gathered in these two phases will be used to develop a list of topics to be considered in the next part of the process, brainstorming management strategies and then coming to consensus on what recommendations should be included in a report to the Water Board for their consideration in the water plan.

McAlester Meeting

To ensure all Oklahomans are informed and involved, we have developed a Web site, okwaterplan.info. On this site, anyone can make a comment, review RIM reports, and read all of the comments received.

"The first seven meetings have been great," said Mike Langston , assistand director of the OWRRI. "As with the meetings last year, we have been quite pleased with the caliber of citizens at the meeting and the high degree of public involvement. Oklahoman's care about their water."

Lawton Meeting

All meetings are open to the public. OWRRI encourages all Oklahomans to attend a meeting (see schedule on back page). Meetings begin at 3 pm with a discussion among invited participants and at 7 pm a time for comments by all citizens begins.

Research Update...

Garey Fox is having an impact on our understanding of nutrient transport, an important factor in water quality. Fox is an assistant professor in the biosystems and agricultural engineering (BAE) department at Oklahoma State University and is conducting research funded by the OWRRI.

Barren Fork Creek near Tahlequah, Okla

Fox has assembled a multidisciplinary team to perform research in this area. The team includes four other professors at OSU: Dan Storm and Glenn Brown (also in the BAE department), Todd Halihan (geology) and Chad Penn (plant and soil sciences).

These researchers are studying subsurface transport of nutrients in alluvial flood plains. In this particular case, Fox and his team tracked the movement of phosphorus. Excess amounts of phosphorus in a body of water can hasten eutrophication, including a decrease in dissolved oxygen, which can kill fish, cause odor problems, and can increase water treatment costs. To control nutrient overload effectively, it is important for scientists to understand all possible nutrient transport pathways.

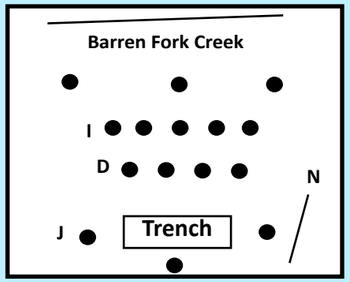

Diagram of trench piezometer system. -Note D, I and J filled up most quickly

Currently, many scientists believe runoff is the only cause of phosphorus overload in bodies of water. However, local conditions can promote nutrient movement through other water flow pathways, such as through the subsurface. Consider the Ozark region in eastern Oklahoma where gravelly subsoils commonly underlay thin layers of topsoil. In order to assess these subsurface pathways and their effect on nutrient levels, Fox and his team designed an experiment to monitor subsurface nutrient transport.

The team traveled to Tahlequah, Okla., and located their testing site about 20 meters away from Barren Fork Creek. The team constructed a trench/piezometer system allowing them to inject water into the subsurface and monitor its movement. To construct the trench, they dug down just below the topsoil/gravel interface, which was about 1.5 meters below the surface.

Next, the team used a GeoProbe to install 15 piezometers (shallow sampling wells) around the trench. At least one piezometer was located on each side of the trench. On the north side, between the trench and the creek, there were 12 piezometers staggered at different distances from the trench in three rows.

The team pumped creek water into the trench at a sufficient rate to maintain a steady trench water level as water flowed directly into the gravel layer. The team then injected a phosphorus solution and a dye tracer into the trench. They hypothesized that the phosphorus solution and dye tracer would move uniformly outward to each of the piezometers. However, in three piezometers on the northwest side of the trench, phosphorus and dye concentrations rapidly reached levels similar to the initial concentration in the trench. Concentrations at other piezometers remained much lower. These results led the team to believe they had built their site directly over an old gravel bar, which acted like a preferential flow pathway.

Garey Fox (left) and John Fuchs (right) sampling a piezometer

Because the phosphorus concentrations remained unchanged from the trench to some piezometers, the team concluded the preferential

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Research Cont...

flow pathways through gravel may be an important component of nutrient transport to this creek, suggesting the need for more research on the potential impacts subsurface transport may have on water quality. The results of this research also indicate that using riparian buffers along streams for nutrient management may be missing a significant flow pathway. Where preferential flow paths occur, groundwater may circumvent the buffers, allowing phosphorus to flow easily through gravel to the streams. Understanding this has important implications for Oklahoma's efforts to safeguard water quality.

Garey Fox (right) and John Fuchs (left) measuring water level depth in the piezometers

Fox's final report can be found at http://environ.okstate.edu/owrri/. For questions regarding this research please e-mail Fox at garey.fox@okstate.edu.

Grants Competion...

The OWRRI invites proposals for water research from any Oklahoma research university. Grants will be awarded to support one-year projects. Longer projects must be divided into discrete one-year proposals with distinct deliverables. Awards are typically $50,000. Proposals must reach the OWRRI office on or before Sun., Nov. 2, 2008.

For more information please visit environ.okstate.edu/owrri or call 405-744-9994

Legislative Update...

Oklahoma Water Law

Oklahoma's landscape is quite varied. If you travel from eastern Oklahoma to western Oklahoma and from northern Oklahoma to southern Oklahoma you will travel through 11 different ecological regions. The systems range from the arid plains of northwest Oklahoma to the subtropical forests and mountain ranges of southeastern Oklahoma. The waters of our state are just as diverse. Eastern Oklahoma has 22 major lakes and numerous springs and clear water streams. The Oklahoma panhandle overlies a portion of one of the largest aquifers in the U.S., the Ogallala. Major rivers, such as the Arkansas, Canadian and Cimarron run through the center part of the state. As you can imagine, water use varies across the state as well, with groundwater being the major water source for western and north central Oklahoma and surface water the main source for central and eastern Oklahoma. Diversity in water use translates to diversity in water law. Oklahoma is one of only 10 states that use a hybrid form of water law. What follows is a brief outline of Oklahoma's current ground and surface water laws.

Groundwater in Oklahoma is considered a private property right, but is subject to reasonable regulations. If you own land, you own the groundwater beneath it and can use it for domestic purposes. Domestic use includes using water for your house, irrigating a garden up to three acres, and watering cattle up to the normal grazing capacity of the land. If you are going to use more water than that, such as irrigating several acres or using groundwater for municipal or rural water supply, you must get a permit from the Oklahoma Water Resources Board (OWRB). Currently, if no study has been done on the aquifer your land overlies, you are allowed 2-acre feet (651,702 gallons) of water per acre of land. That amount can either be increased or decreased if an aquifer study has been done.

In contrast, Oklahoma's surface water is public property that is managed by the state. You, as a landowner, do not own the surface water that flows through your property; however, you can use it for domestic purposes. You can use up to 5-acre feet per year for watering cattle to the normal grazing capacity of the land, water

Legislative Update Continued…

ing a 3-acre garden and for other household purposes. However, there is some surface water you do own and can use. Diffused surface water or sheet flow (also referred to as storm water run-off) is the landowner's property until it flows into a definite stream. So, the landowner can capture that water and use it without having to apply for a permit. Pond water is also generally the landowners and is not subject to regulation. However, if the pond is built in an area that could be defined as a definite stream then that water may be subject to appropriation by the state. A definite stream is defined as a "watercourse in a definite, natural channel with defined beds and banks, originating from a definite source or sources of supply." A stream does not have to continually flow for the water in it to be considered stream water.

Surface water use has some other restrictions you might need to be aware of. If there is not enough water for all of the permitted uses of a surface water source then the "first in time, first in right" rule applies. This means whoever used the water first gets to keep using the water even if someone else doesn't get their allotted amount of water. Each right is given a priority date based on the date their application for water was filed with the OWRB. The earliest date is allowed to use their full allocation while other users may be restricted to the water that is available, or none at all, if there isn't enough left. The person with the earliest permit date is considered the senior water right holder and everyone who applied for water on the same system after the senior right is considered a junior water right holder. However, domestic water users have first priority. All water, whether surface or ground, must be put to a beneficial use and water cannot be wasted.

To obtain a permit or find out more information about the permitting process, visit the OWRB's Web site at http://www.owrb.ok.gov/supply/watuse/programs.php.

Legislative Update- Fall 2008

In the last issue of the Aquahoman, I discussed several water related bills that were introduced during the second session of the 51st legislature. I wanted to update you on what happened with those bills. This will be very easy as all but one of the bills I discussed is either dormant or died in committee. There was only one bill, Senate Bill 1410, that was sent to the governor, who signed it on April 22. The Bill, authored by Sen. Susan Paddack and Rep. Wes Hilliard, directs the OWRB to create a technical work group to propose aquifer recharge demonstration projects and develop criteria to prioritize other recharge design projects.

The other bills discussed included an appropriation bill to pay off the debt for Sardis Lake. That bill is now marked as dormant. A bill to create the Oklahoma Water Conservation Grant Program which would allow the OWRB to solicit grant proposals for innovative water conservation pilot project in communities across the state. That bill was passed by the house and engrossed to the senate where it was referred to the Appropriation Sub-Committee – Natural Resources and Regulatory Services on March 25 and is now marked as dormant.

Rep. Dale DeWitt and Sen. Ron Justice introduced a bill to establish a state water portal system. The bill was passed by the house and referred to the senate where the bill was amended stating that if a court of competent jurisdiction requires water to be sold or transferred by the state or a political subdivision then there must be compensation. It was then referred back to the house where it died in committee. Other bills mentioned last time Senate Bill 2115 (to remove the moratorium on out-of-state water sales), Senate Bill 2116 (removes legislative approval for the transfer of water), Senate Bill 1693 (water sales taxation), and Senate Bill 1933 (excise tax on water) are all dormant. If you want more information or to review the language of the bills you can look them up at http://webserver1.lsb.state.ok.us/WebBillStatus/main.html.

Upcoming Water Events

Tishomingo RIM.....Murray State College.....Oct. 2

Tulsa RIM.....Central Community Center.....Oct. 9

Muskogee RIM.....Muskogee Civic Center.....Oct. 23

Governor's Water Conference and Research Symposium.....Oct. 28-30

Oklahoma City RIM..... Metro Technology Center.....Nov. 6

Seminole RIM.....Seminole State College.....Nov. 13

Annual OWRRI Grants Competition.....Now until Nov. 2

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