



The backside of Mansfield Dam on Lake Travis clearly shows the effect of drought with the water level low enough to expose turbine intakes.
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With the 2011 drought exposing the strengths and weaknesses in Texas' water supply systems and the accompanying planning and policies, water security has become a buzzword in Texas water resources circles. The need to move forward in research, planning and policy and to diversify the state's water supplies were the common threads at the Texas Water Summit, organized by The Academy of Medicine, Engineering and Science of Texas, in May.

Many expressed a *carpe diem* theme of "let's not waste this drought" to make critical changes.

Dr. Ron Kaiser, professor and chair of the Texas A&M University Water Program, said the state should not waste a bad drought but instead use this opportunity to make substantial changes to water policy. He cited major changes made to water planning regulations after previous droughts,

including methods of integrating different water laws into a prior appropriations system after the 1950s drought of record and Senate Bill 1 in the 1990s, which instituted the current state water planning process.

He predicted that the state will experience more urgency in moving water between river basins and greater need to consolidate groundwater districts.

"Texas will struggle to find solutions to integrate surface and groundwater management," he added.

While many agreed that the state's water planning has advanced since the drought of record, the recent drought has exposed areas in which the state needs to improve.

Dr. Todd Votteler, executive manager of science, intergovernmental relations and policy for the Guadalupe-Blanco River Authority, said the state no longer has the surplus water it had from

SECURING TEXAS WATER

Experts call for additional planning, policies, expanding “new” water



the reservoirs built after the drought of record. “(Building those reservoirs) created this cushion, which peaked in the early 1970s and is now gone,” Votteler said.

Texas has the same amount of surface water storage capacity per capita available now that it had in 1953, he said.

Although the current state water plan calls for more than \$53 billion in water management strategies and projects to meet the needs of the projected population in 2060, state funding for those improvements, in light of other pressing funding concerns, will probably not happen in the next session, the experts said.

Votteler noted that there is no financing mechanism to fund these strategies and projects. “And the prospects for that (financing) happening in the next legislative session are not good since it has started to rain,” he said.

Dr. Robert Mace, Texas Water Development Board deputy executive administrator for water science and conservation, said cost is the biggest obstacle in getting the water plan funded. “It’s expensive, and the challenge is convincing rate payers and politicians that it is worth the cost.”

Dr. David Maidment, professor and associate director of the Center for Integrated Earth System Science at the University of Texas at Austin, said the state needs to improve its ability to predict water supplies in the near future

He believes building a real-time information system for water in Texas can help project what will happen six to 18 months into the future. He is working with a Drought Technology Steering Committee, a group of Texas University researchers and water agency staff, “to move forward with the best insight and understanding of what the future conditions are going to be,” he said. “We need to →



think about developing more specific measures to quantify drought.” (See related story on page 5.)

Developing “new” water was touted at the May summit as critical to meeting the state’s demand.

Advanced water conservation, or using the existing water resources more efficiently, “constitutes a large part of where we think our future water supply is going to come from,” Mace said.

According to Dr. Michael Hightower of Sandia National Laboratories in Albuquerque, NM, desalination use is growing by 10 percent a year and water reuse by 15 percent in the United States. That diversification is important, he said, because the country is “stressing its surface water and groundwater sources.”

Although cost is a hindrance to desalination, he said, that cost is decreasing while the cost of fresh water production is increasing.

Robert Puente, San Antonio Water System (SAWS) president and chief executive officer, said San Antonio has diversified its water supplies by recycling treated wastewater, using aquifer storage and recovery, and planning desalination of brackish water. The water system successfully used that model from 1984 to 2009.

“We have 67 percent more customers and use zero percent more water,” he said. “If we had not had water conservation, we would need an additional 121,000 acre-feet to deliver water to those customers.”

Ed Archuleta, El Paso Water Utilities president and chief executive officer, said its Kay Bailey Hutchison Desalination Plant can produce 27.5

million gallons of water a day and increases fresh water production for El Paso by 25 percent. The agency also uses reclaimed water, about 2.1 billion gallons a year, for watering its golf courses and other uses.

Archuleta said El Paso saves 231 billion gallons of water from conservation and reclaimed water.

Dr. Ellen McDonald, principal of Alan Plummer Associates Inc., pointed to the Colorado River Municipal Water District’s plans to build a direct water reuse plant in Big Spring as an example of what Texas needs to do.

The Big Spring project will be “one of three direct reuse projects in the world,” McDonald said. “Texas is really on the forefront with this project.”

McDonald said water reuse, or the beneficial use of treated wastewater, “is not the answer to everything but can play an important role” in future water supplies.

Other countries that have faced severe water shortages, such as Australia and Israel, have diversified their supplies, and this kind of diversification is essential for Texas, Mace said. “Just like you diversify your financial portfolio, you want your water portfolio diversified.”

According to Ralph Eberts of Black and Veatch, Australia is a good example for Texas. He said the Australian state of Queensland came close to running out of water in 2007 with only 15 percent of its total water capacity remaining. The government aggressively attacked its problem by building three advanced wastewater treatment plants, implementing water restrictions tied to percent of water capacity in its storage sources, building desalination plants and building a massive pipeline system to interconnect all the water supplies.

“The biggest drama that has been played out in the world of water in the last 10 years is Australia,” he said. “They truly experienced drought beyond anything they ever dealt with before.”

For more information go to: twri.tamu.edu/publications/txh2o/. 

Dr. Ron Kaiser, professor and chair of the Texas A&M University Water Program, speaks to Texas Water Summit attendees in May about water law in Texas. Photo courtesy of The Academy of Medicine, Engineering and Science of Texas.

