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into the rivers. He warned that while conservation does help to extend the water supply, we need to be realistic because conservation alone cannot meet all of our future needs. Other water supply alternatives, in addition to conservation, should be part of an integrated strategy to meet future water needs.

Conservation Implementation Task Force

Carole Baker, member of the Task Force, reported on the status of conservation efforts in the Texas Legislature. A number of bills filed in the House by Representatives by Rep. Robert Puente

were based on the legislative recommendations of the Task Force. Issues addressed include:

- enhancing toilet performance;
- analysis of the effects of take-or-pay contracts on conservation efforts;
- exemption of water rights from cancellation for non-use if non-use resulted from a water conservation measure;
- creation of a Water Conservation Advisory Council; and
- support for a statewide conservation awareness campaign.

Several conservation bills left over from last session were also considered:

- defining water-saving standards for

- commercial clothes washers;
- replacing spray valves with auto-cutoff valves in commercial kitchens;
- limiting property owner associations' ability to prohibit or hinder water conservation landscaping; and
- establishment of a Rainwater Harvesting Evaluation Committee.

Carole explained that her main priority is ensuring legislative and fiscal support for the statewide conservation awareness campaign on water conservation.

For more about the "Water IQ: Know Your Water" campaign, visit www.water-iq.com.

Regional Water Plans submitted, hearings to be held over summer

The initially prepared regional water plans were due to the Texas Water Development Board by June 1. The regional planning groups will host public hearings this summer to gather comments. Once a region's hearing takes place, the public will have an additional 60 days to submit comments on the plan to the regional planning group.

For more information on hearing dates and locations, or how to view your region's plan, visit www.twdb.state.tx.us/RWPG/group_info.asp.



NEXT ISSUE: HOW WATER FARED IN THE 2005 SESSION OF THE TEXAS LEGISLATURE!

New publications

Two useful new publications are available at our website. Visit www.texaswatermatters.org.

- *Water Metering in Texas* outlines the important role water meters play in groundwater management.
- *2005 Update: Spotlight on Groundwater Districts in Texas* provides objective information on key groundwater issues as illustrated by recent developments in various groundwater districts across the state.

In this issue: Highlights of our 5th Annual Statewide Water Conference!

Texas Water Policy Update

A publication of the Texas office of Environmental Defense • June 2005

'Creating' Water

ON MARCH 4, ENVIRONMENTAL DEFENSE hosted *Creating 'New' Water: Exploring the Options*, our fifth annual statewide water conference, at the Lady Bird Johnson Wildflower Center in Austin. A broad array of speakers and attendees explored the true "water creating" potential—including the challenges and limitations—of the more popular alternative water management strategies of land stewardship, desalination, rainwater harvesting, and conservation. [Log on to www.texaswatermatters.org to see the PowerPoint presentations from the conference.]

Commissioner Larry Soward, of the Texas Commission on Environmental Quality (TCEQ), opened the conference by explaining that, despite decades of planning, we are still not fully prepared to meet our future water needs. Our resources are limited, he explained, and shifting water from agricultural uses to municipal uses and physically moving water from rural areas to urban areas is a growing reality

in many parts of Texas. He warned that we must be flexible, have foresight and be cognizant of different interests in order to meet the changing water needs of the state. He reminded the audience that water has guided our state's progress and shaped our destiny, and the choices we make today and in the next 10 years could well determine what Texas can be for generations to come.

Land Stewardship

The first panel of the morning delved into land stewardship and how it relates to enhancing water supplies. There is a growing recognition in Texas and across the West of the role brush management can play in increasing recharge, augmenting springs and river flows, and creating healthy riparian habitat.

Dr. Allan McGinty, Texas A&M Extension Service specialist, gave the audience an overview of brush management activities across the state. He began by explaining how brush management programs primarily target redberry and ashe juniper, mesquite, and salt cedar. The Texas State Soil & Water Conservation Board, which funds many brush management activities across the state,

has projects in the North Concho watershed (one of the first and largest projects), the Pedernales, the Pecos, and the Upper Colorado watershed.

Dr. McGinty described how, in addition to physical and chemical removal of the species, biocontrol of salt cedar through the use of beetles also holds potential, especially as a cost-effective way to extend the treatment life of other removal mechanisms.

For more on biocontrol, contact Dr. Jack DeLoach at USDA: jdloach@spa.ars.usda.gov

Dr. McGinty admitted that the big question of the day—"Will brush control produce water?"—was not an easy one to answer. There is a wealth of in-

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WENDY WATRISS, of FotoFest in Houston, used striking visuals from last year's "FotoFest 2004: Water" exhibit to show our water conferees a different way of looking at H₂O.

To view selections from the exhibit (including the one above), visit the FotoFest site at www.fotofest.org.

formation on individual plant species research, small plot research, and small basin research, he explained, but this cannot be extrapolated to million-acre watersheds. He did say that there is general consensus with experts and scientists that, with the control of salt cedar, there will be increased water yield.

Wayne Hamilton, of **Texas A&M University**, gave insights from the **Leon River Restoration Project**, which involves the removal of ashe juniper from the Leon River watershed in Hamilton and Coryell counties. The research components of the project include water,

range management, compost and re-vegetation, economics, and wildlife. The project has a diverse group of stakeholders ranging from environmental to agriculture to landowner interests, he said, and a diversity of cooperators that until recently would not have been possible. Some of the objectives of the project include evaluating changes in water yield and water quality that may result from brush management, improving wildlife habitat and increasing wildlife populations, assessing economic impacts of the project on participating landowners, and the transferability of the project to other areas of the state. The project is currently in the pretreatment phase but the second post-treatment phase of the project should be completed by the end of 2006.

Steve Manning, project manager of the **Leon River Restoration Project**, discussed funding options available for land stewardship and brush management activities. He reiterated that the intent of brush management projects is not just to fix the problem in a particular watershed but to transfer the lessons learned to other areas of the state

where brush management may be part of the answer.

Using the Leon River Project as an example, Steve outlined how the diversity of stakeholders translated into a diversity of monetary contributions.

Some of those include:

- EPA money for equipment;
- a Texas Water Development Board grant for help with water monitoring;
- grants through other state and federal agencies; and
- funding and in-kind contributions from non-government organizations.

Steve stressed that this level of cooperation and the ability to pull together NGOs and state and federal agencies is going to be key for not only funding but to get landowners involved and to have success on any kind of scale.

Desalination Potential

With 2.7 billion acre-feet of brackish groundwater and “unlimited” amounts of water from the Gulf, Texas has turned its gaze to saltwater as a potential source of water. While desalination is often referred to as “drought-proof,” it may not be the silver bullet some believe it to be. In addition to an overview of desalination activities in Texas, our panelists spoke candidly to this issue.

Chairman Rod Pittman, of the **Texas Water Development Board**, spoke about the state’s involvement in desalination. Chairman Pittman said the TWDB included an appropriation request to the Leg-

islature for the development of a demonstration brackish desalination project for small- to medium-size communities. The TWDB has identified

three sites for desalination pilot studies: Brownsville, Corpus Christi, and Freeport. In addition, TWDB research studies and projects have examined such desalination issues as disposal of concentrate in oil and gas formations, oil and gas product water desalination, development of permitting and decision models for desalination projects, and capacitive deionization technology.

Chairman Pittman explained how we’ve made great strides in desalination technology and will continue to do so. He believes, though, that the most serious issue that still needs to be dealt with is the concentrate — what to do with it, how to dispose of it, etc. Developing that technology is essential if desalination is to be a viable supply alternative.

☛ **For more about the TWDB’s desalination activities, visit www.twdb.state.tx.us/desalination/desal.**

Next, **James Beach** of **LBG Guyton & Associates** described some of the opportunities and challenges associated with brackish groundwater desalination. He said the use of brackish groundwater is not really a paradigm shift in the way we view drinking water since some *surface* water supplies used today require more treatment than is required for brackish groundwater to make them potable.

Disadvantages include concentrate (residue) management issues, potential impact on up-gradient freshwater zones, potential subsidence, and potential increases in pumping costs over time. The advantages of brackish groundwater include its availability, proximity to demand, and limited infrastructure requirements. In addition, the treatment and pre-treatment costs associated with brackish groundwater are lower than those for seawater desalination and in fact are decreasing.

James explained that with brackish groundwater, the feasibility and cost depend on many site-specific factors — socioeconomic, regulatory, environmental, hydrogeologic, engineering, and political—that should be considered simultaneously. He believes the path forward is to recognize the resource, develop innovative and cost-effective concentrate

management approaches and, where appropriate, simplify the regulatory path for permitting concentrate injection wells.

Dr. Michael Mickley, of **Mickley and Associates**, explained how the treatment and production cost associated with desalination have been steadily decreasing due to better and lower-cost membranes, energy recovery, and increased competition. Dr. Mickley stressed that one of the main issues regarding desalination is the associated energy cost. Another major issue is concentrate disposal and its regulation. Concentrate-management costs have increased due to the growing size and number of plants in a

region, the increasing regulation of discharges, and decreasing resource water quality. He explained that these disposal costs will be a growing percentage of total plant costs.

Dr. Mickley explained that 45% of the plants dispose of concentrate in surface water, 27% in sewer, 13% through injection wells, 8% to land, 4% to evaporation, and 1% each goes to recycle or reuse systems. Disposal costs are site-specific, variable, and difficult to generalize; however, sewer and surface water tend to be the least expensive relative to concentrate flow rate and evaporation ponds tend to be the most expensive.

Dr. Mickley stressed that regulations and guidelines regarding concentrate

☛ **PETER PFEIFFER**, an architect with **Barley & Pfeiffer Architects**, presented a great slide show on the mainstreaming of rainwater systems across the state.

☛ **For more on rainwater catchment systems: www.twdb.state.tx.us and www.arcsa-usa.org.**

☛ **The American Rainwater Catchment Systems Association** hosts the **North American Rainwater Harvesting Conference in Seattle on July 14-15, 2005**. [For info, visit www.arcsa-usa.org.]

Five regional planning groups (Regions B, F, L, N and P) discussed desalination as a water management strategy in their 2001 Regional Water Plan.

Brackish groundwater is part of municipal water supply strategies in El Paso, South Texas, San Angelo and Corpus Christi.

disposal should be based on good science. He added that the goal of concentrate management should be sustainability through reuse of the concentrate and making use of some salts by creating markets in such things as building materials. He also stated the need for additional research and development of new disposal solutions.

Water Conservation

As planners across the state set—and strive to meet—water conservation goals, it is increasingly important to have a clear definition of conservation. The **Conservation Implementation Task Force** grappled with this issue when they

decided to standardize the calculation of water consumption rates, an important step as Texas moves forward on the conservation front. At the heart of the debate was whether the reuse of wastewater should be factored directly into the conservation equation. As we heard from **Mark Jordan** and **James Oliver**, the debate is not over yet.

Mark Jordan, of the **Lower Colorado River Authority**, began by explaining how the definition of water conservation has changed over time. While the definition now involves reducing waste and using water efficiently, it used to mean building a reservoir and capturing water to assure a year-round water supply. Mark thinks the best way to define conservation is to identify water management goals you

are hoping to achieve whether they involve extending water supplies, protecting a resource, or using water more efficiently. But, Mark argued, reuse does not achieve this end but is simply a continuation of wasteful water use practices while merely substituting out the type of water being used.

Mark explained that the Task Force made great strides in quantifying con-

servation targets and goals and that it came up with an excellent set of “best management practices” (see www.twdb.state.tx.us) to guide communities in meeting these goals. But Mark feels the Task Force stumbled in allowing reuse to be included in the calculations of a municipality’s conservation target goals.

Finally, Mark reminded us that current law required most communities to submit conservation plans by May 1 of this year. He urged the audience to weigh in on local discussions on how these goals are calculated. He also urged audience members to participate in the regional planning groups and to push the issue in those forums also.

James Oliver, of the **Tarrant Regional Water District**, agrees there must be a balance between conservation and reuse as part of conservation. James said that, while he doesn’t believe reuse should be substituted for conservation, he does feel it can play an important role in helping to meet conservation goals. James gave an overview of the Tarrant Regional Water District’s reuse project at Richland Chambers Reservoir in the Corsicana area.

The project, a collaboration with the Texas Parks & Wildlife Department, was designed to manage and conserve natu-

ral and cultural resources and provide the western half of the Dallas-Fort Worth Metroplex with a reliable source of water. In 1990, the District did a long-range plan and concluded that it needed to look at reuse as a viable option to extend its supplies. It came up with an innovative concept: take water originating from reservoirs upstream that

had been sold to its customers and discharged into the river, run it through a wetland, and then cycle it back up into the reservoirs.

James noted that conservation efforts also affect the volume of water returned to the system. He explained how by minimizing demands, less water would be circulating through the system and