The 50-Year Water Plan

With the city's population expected to double by 2050, the San Antonio Water System (SAWS) has been aggressively seeking non-Edwards Aquifer water sources to meet its future needs.

"We've had to move into this water acquisition earlier than a lot of cities because of our dependence on the aquifer," says Calvin Finch, water resources director for SAWS. Under the most recent 50-year water plan, approved in December, about $2 billion worth of new water projects are in the pipeline. By 2020, the city plans to get 55 percent of its water from the Edwards—down from 90 percent today.

New water sources in the 50-year plan include:

• Edwards Aquifer rights. The city currently leases 25,000 acre-feet of water rights. It wants to buy another 35,000 acre-feet of rights, mostly from agricultural users.

• Colorado River. A $1 billion deal to pipe 150,000 acre-feet of water from the Colorado River to users in San Antonio was signed in 2002. This huge and controversial project, currently under study, would transfer vast amounts of water to the city—almost as much as it currently takes from the Edwards Aquifer.

• Recycled water. The San Antonio Water System's four water recycling centers currently produce millions of gallons of recycled water daily. The agency is developing a plan to increase its use of recycled water, possibly by the use of incentives.

• Aquifer storage and recovery. Water will be pumped from the Edwards Aquifer in winter and injected into the Carrizo Aquifer, a less permeable sand aquifer. The stored water would be used in the summer, the time of least rainfall and peak demand.

• Desalinization. The water system has plans for a new brackish groundwater desalinization facility, which would generate a moderate amount of water (up to 10,000 acre-feet or possibly more) to offset summer usage peaks. Brackish groundwater is less expensive to desalinate than seawater.

In 2005, water system president David Chardavoyne appointed a task force to conduct a comprehensive review of the city's existing water supply agreements. Each project was assessed to determine whether it provides adequate water supplies year-round, postpones dependence on more costly resources, promotes greater use of non-Edwards Aquifer water, and recognizes that future supplies must be affordable.

Following the recommendations of the task force, the water department withdrew from two projects. One, a plan to divert 94,500 acre-feet of water from the Lower Guadalupe River, faced environmental opposition and possible regulatory obstacles.

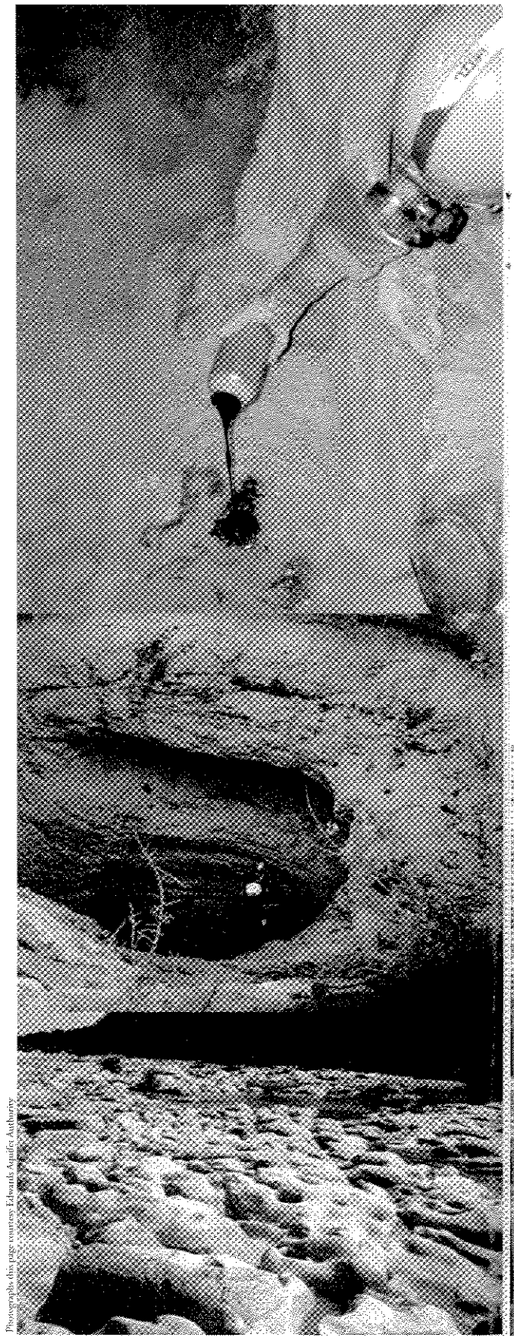
The Guadalupe offers recreational opportunities and supports the endangered whooping crane by ensuring a flow of freshwater into Matagorda Bay. The bay is the habitat of the blue crab, the crane's major food source. In addition, a provision in Texas Senate Bill 1, the omnibus water bill passed during the 1997 legislative session, makes interbasin transfers like this more difficult. For many of the same reasons, San Antonio also withdrew from its deal with Alcoa, the huge aluminum producer, to buy water from the Simsboro Aquifer east of Austin.

Conservation groups are still concerned about the environmental impact of the Colorado River project. The diversion could have an impact on Matagorda Bay, which depends on freshwater flow from the river to support a key nursery and a $178 million fishing industry. Studies are under way that will determine the levels of flow needed to support wildlife and keep the river and bay healthy.

In a report called *Alternative Water Management Strategies for the 2006 South Central Water Plan*, the Lone Star Chapter of the Sierra Club offers conservation strategies that it says would make the Colorado River project unnecessary. The report proposes improvements in irrigation canals, use of more efficient center-pivot sprinklers, drought management, and increased use of the aquifer storage and recovery process.

Nevertheless, conservationists praise San Antonio's conservation program. Since 1984 the city has reduced its per capita water usage from 225 gallons a day to 143 gallons, making it one of the thriftiest water users in the West.

Those savings will multiply over time, making conservation the city's biggest source of new water. Says former water department planner Susan Butler, AICP, "Looking out 50 years, when our population is expected to double, we can create 100,000 acre-feet of new water through conservation."



Photographs this page courtesy Edwards Aquifer Authority

Dye injected into Ezells Cave in San Marcos was detected in several artesian wells in Hays County (top). The 150-foot-deep Seco Creek Sinkhole is part of the aquifer recharge area. The once-endangered fountain darter was reintroduced to the Comal Springs aquatic ecosystem in the 1970s and has flourished ever since. Opposite: Once abundant Texas wild rice, an endangered species, is now found only in a small section of the San Marcos River.

complex, which will include two golf courses, houses, and a 1,000-room JW Marriott Resort, will bolster the city's reputation as a premier golf attraction.

As is usual in San Antonio, however, the real battle is not over tees and trees, but what lies below: water. This 2,855-acre tract north of downtown is part of the 800,000-acre aquifer recharge zone.

San Antonio's metro-area population of 1.7 million depends on the Edwards Aquifer for 90 percent of its drinking water, so protecting the water source is a top priority. "For the last 30 years, the city has been polarized politically over that issue," says planning consultant Thomas Brereton, AICP, who has been involved with water issues since the 1980s.

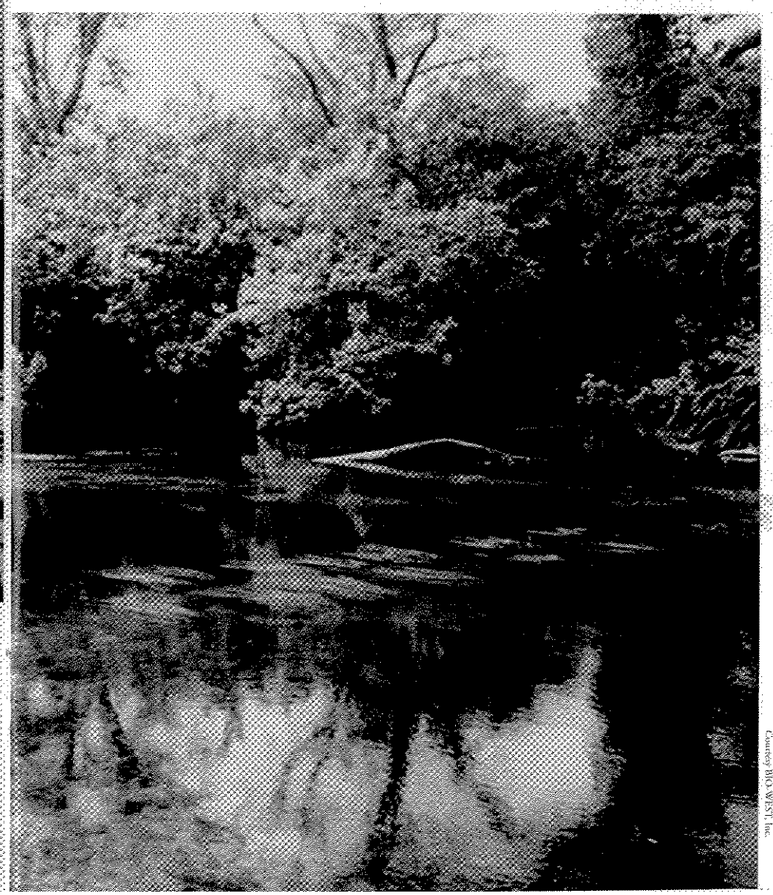
"I think it's clear that the majority of citizens want to protect the aquifer," he says, noting that they have made their positions clear in every referendum on development over the aquifer.

This time, the aquifer advocates weren't so lucky. In 2002, the city council signed an agreement with the Texas-based Lumbermen's Investment Corporation to build a golf resort on the same site for the Professional Golfers Association, the PGA. Citizens groups collected 77,000 signatures for a referendum to halt the project. Faced with a vote, project supporters changed the agreement, claiming that it was different from the one subject to a referendum.

In May 2004, the PGA decided to pull out of the agreement. Two months later, a different group, PGA Tour, announced that it was considering the site for its own golf resort. The city council approved the new plan by a vote of 10 to one in 2005 and, in a further concession to the developers, the city agreed not to annex the property for 29 years, an arrangement that allows the developers to avoid city taxes for decades.

PGA Tour wanted more. Early last year, the developer asked the state legislature for a special taxing district so that it could collect all of the project's sales and property taxes to finance infrastructure development. In the final hours of the 2005 legislative session, despite efforts by state representative Lon Burnham of Ft. Worth to block the measure, the developers got what they came for.

Now Peace watches as housing developments rise in the area in anticipation of the coming resort. "We have been opposing tax breaks over the recharge zone for ages because it's poor public policy," she says. "You use tax incentives to develop in areas where you want development. And we do not want development in that area."



Courtesy BIO-WEST, Inc.

A shared resource

While water planners in other cities struggle to protect their water sources in the face of development pressures, San Antonio's struggle is unique. This fast-growing city sits atop a vast underground reservoir of cool, pure water. The Edwards Aquifer and its catchment area measure some 8,000 square miles and include all or part of 13 counties in south central Texas.

The groundwater is of such extraordinary quality that it requires little or no treatment before drinking. In 1975, the Edwards Aquifer became the first aquifer in the nation to be designated a "sole source aquifer" by the U.S. Environmental Protection Agency. Until recently, when San Antonio started getting small quantities of water from other sources, it was the largest city in the world dependent solely on an aquifer for its drinking water.

One of the most productive aquifers in the world, the Edwards is quickly replenished by rainfall, which percolates through the karst limestone in the recharge zone. But the highly porous rock also makes the Edwards particularly vulnerable to contamination from urban runoff and spills.

"For the most part, the quality of the water in the Edwards in excellent," says George Rice, a hydrologist and board member of the Edwards Aquifer Authority, which manages and issues permits for aquifer water rights. "However, manmade contaminants such as pesticides and chlorinated solvents are beginning to be detected. In most cases, their concentrations are quite low, but their presence tells us that we need to be careful."

Protection of the water quality is important not just to city residents but to the many other users in the region who are dependent on water from the aquifer. Farmers rely on the groundwater to irrigate their fields. Communities like San Marcos and New Braunfels depend on aquifer flow into their rivers and springs, which have created a $200 million water-recreation-based economy. The aquifer's abundant flows into the Guadalupe River provide water to the city of Victoria and to industries all the way to the Gulf of Mexico.