



Source: San Antonio Water Systems

Representation of the Twin Oaks Aquifer Storage and Recovery facility. This facility is a key component of the 2012 SAWS Water Management Plan.

EDWARDS AQUIFER PROTECTION PROGRAM

NEWS AND UPDATES

In June, staff of the City of San Antonio (COSA) Edwards Aquifer Protection Program (EAPP) attended the Edwards Aquifer Authority (EAA) Distinguished Lecture Series. The annual lecture series, hosted by the EAA, covered topics relating to sustainability of karst aquifers and affects of urbanization and socio-political factors affecting regional groundwater quality and supply.

In July, COSA EAPP staff had the opportunity to tour the San Antonio Water System (SAWS) Aquifer Storage & Recovery (ASR) facility. City staff along with members of the Conservation Advisory Board and EAA toured the Twin Oak ASR facility, which was constructed in 2004. The Twin Oaks ASR facility is used to store water underground for future use in times of drought. Water from the Edwards Aquifer is pumped into the Carrizo Aquifer in Southern Bexar County until needed during peak summer water demands, when it is pumped back into San Antonio's water supply.

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For more information on the program or to receive quarterly newsletters via email, please visit our new website at:

<http://www.sanantonio.gov/edwardsaquifer>





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TEXAS NEWS

STATE CLIMATE STUDY PREDICTS HOTTER SUMMERS

A new study by state climatologist John Nielsen-Gammon predicts longer, hotter summers for the state of Texas in the future. Findings suggest that we can expect average summer temperatures in the triple digits. By 2060, maximum average summer temperatures could be as much as five degrees higher. According to Nielsen-Gammon, statewide temperatures have been on a steady incline since the 1970s, which was “the coldest period in recorded climate history for Texas.” Experts fear that these trends, combined with the ongoing drought conditions that persist throughout the state, could result in another drought of record like Texas had in the 1950s. From 1950 to 1957, Texas experienced its most severe drought in recorded history.



Nielsen-Gammon’s study will be featured in a larger volume on climate change titled “The Impact of Global Warming on Texas,” available at: <http://texasclimate.org/Books/ImpactofGlobalWarmingonTexas/tabid/481/Default.aspx>



For more information on family fun things to do this fall, please visit the websites below:

Government Canyon:
<http://www.tpwd.state.tx.us/state-parks/government-canyon>

COSA Parks:
<http://www.sanantonio.gov/parksandrec/calendar.aspx>

Cibolo Nature Center:
<http://www.cibolo.org/>

Mitchell Lake Audubon Center: <http://mitchelllake.audubon.org>

AUTUMN IN SAN ANTONIO

FUN FOR THE WHOLE FAMILY

The passing of summer and the drop in extreme temperatures means that Autumn is just around the corner. For many San Antonians, this means different things: the return of the fall festival season, mountain biking in Government Canyon State Natural Area, or overnight camping trips in the hill country. No matter what you’re looking for, there are plenty of things to do to stay busy this fall. Take the family and visit the Cibolo Nature Center in Boerne, just north of San Antonio. Go on a guided tour and learn about fall migratory birds at Mitchell Lake Audubon Center. Or visit any one of the City of San Antonio public parks or nature centers for a complete list of great fall activities for kids, adults and the whole family. Who knows, maybe we’ll even get a few rain showers too!



Source: Scientific American

Although residents of coastal areas are most at risk, tropical storm systems can travel hundreds of miles inland, creating the potential for wind damage and flash flooding throughout the state.

TROPICAL STORM FORECAST

TURBULENT WEATHER AHEAD

The Atlantic hurricane season runs from June 1st to November 30th and so far the season has been unusually calm. However, Texas has a history of being battered by numerous hurricanes in the months of September and October. While weather forecasters debate on the number of potential hurricanes or tropical storms that might hit Texas, they all have predicted that it will be an above-average season. The Atlantic hurricane season is a time when most tropical cyclones are expected to develop across the northern Atlantic Ocean. This is a result of the West African monsoon climate pattern, which affects hurricane formation and promotes high activity. The long-term pattern began in 1995 and the era tends to last 25-40 years. Sea surface temperatures are also warmer than average in the tropical Atlantic and Caribbean Sea, which produces tropical systems. The last hurricane to make landfall in Texas was Hurricane Ike in 2008.

NATIONAL CONSERVATION NEWS

PROTECT YOUR GROUNDWATER DAY—SEPTEMBER 10

September 10th was national Protect Your Groundwater day in the United States. Sponsored by the National Groundwater Association, Protect Your Groundwater Day is designed to call attention to the importance of groundwater protection and highlight things everyone can do to preserve and conserve our natural groundwater resources. Did you know there are currently over 100 active groundwater conservation districts (GCDs) in the state of Texas? These GCDs help with the management and implementation of regional groundwater conservation plants to assist landowners over all the major and minor aquifers in the state. Some of the most common causes of human groundwater contamination include improper storage and disposal of hazardous materials, or the improper use of fertilizers and herbicides in our yards. There are many simple steps we can all take to avoid these mishaps. Do your part to protect your groundwater, no matter what day it is.

Major Aquifers of Texas



Source: TX Water Development Board

Useful Links

TX Major Aquifers map:
<http://www.twdb.state.tx.us/groundwater/aquifer/major.asp>

TX Minor Aquifers map:
<http://www.twdb.state.tx.us/groundwater/aquifer/minor.asp>

CALENDAR OF EVENTS

UPCOMING 2013 FALL & WINTER EVENTS

Upcoming summer and fall conferences are around the corner! Don't miss out on these informative seminars regarding water and land-related issues:

- Water & Energy Conference — Houston, TX — Sept. 25-26
- UTSA Water Institute of Texas Symposium — San Antonio, TX— Oct. 4
- SXSW Eco Conference — Austin, TX — Oct. 7-9
- San Antonio Energy-Water Nexus Forum — San Antonio — Oct. 15
- Texas Water Symposium—Private Property Rights & Water — Kerrville — Oct. 24



THE HEADWATERS OF THE SAN ANTONIO RIVER

HISTORY OF THE “BLUE HOLE”

The largest of San Antonio's springs, the “Blue Hole,” is one of about 100 springs known as the Headwaters of the San Antonio River. This spring is called the “Blue Hole” for its bluish tint. The “Blue Hole” is located on the grounds of the University of the Incarnate Word, just north of East Hildebrand Avenue. There are many springs located at the headwaters, which flooded college campus buildings back in 1973. All of the springs once flowed directly into the San Antonio River. However, most of the area is now built up, or overgrown with vegetation. The San Antonio headwaters receives recharge from streams up to 75 miles to the west, which flows through the Edwards fault line and limestone. The “Blue Hole” is maintained by The Headwaters Coalition, a non-profit ministry that is sponsored by the Congregation of the Sisters of Charity of the Incarnate Word. The Headwaters Coalition offers education and community outreach programs. For more information, visit <http://www.headwaterscoalition.org/aboutus.html>.



Source: San Antonio River Basin

During wet weather, the “Blue Hole” can be seen with vibrant blue water. This historic well is located at the Headwaters Sanctuary on the grounds of the University of Incarnate Word.

DID YOU KNOW?

- The Edwards Aquifer is a karst aquifer.
- Karst is a landscape formed from the decomposition of rocks such as limestone, dolomite and gypsum. It consists of sinkholes, caves, and underground drainage systems.
- There are two main threats to the Edwards Aquifer: Pollution and Extraction.
- Urbanization causes pollution to collect on impenetrable surfaces, which is washed by rain into karst features and ultimately into the aquifer.
- An increased population puts a higher demand for water. If the amount of extraction exceeds the amount of recharge, the water level within the aquifer will fall, making existing wells unproductive and causing harm to sensitive species.

EDWARDS AQUIFER HABITAT CONSERVATION PLAN

PROTECTION OF SENSITIVE SPECIES IN THE AQUIFER

In late 2006, the U.S. Fish and Wildlife Service (FWS) brought together stakeholders to participate in the development of the Edwards Aquifer Recovery Implementation Program (“EARIP”) plan to contribute to the recovery of federally-listed species dependent on the Edwards Aquifer. In May 2007, the Texas Legislature directed the Edwards Aquifer Authority (EAA) as well as other state and municipal water agencies to prepare a FWS-approved EARIP plan by 2012 for protection of federally-listed species occurring in the Comal and San Marcos Springs. The plan was required to include recommendations regarding aquifer withdrawal during critical periods to ensure that these Aquifer dependent, federally-listed species would be protected. On February 15, 2013, the Final EARIP was published in the Federal Register. Protected species include the Comal Springs Dyropid Beetle, Comal Springs Riffle Beetle, Fountain Darter, Pecks Cave Amphipod, San Marcos Salamander, San Marcos Gambusia, Texas Blind Salamander, and Texas Wild Rice. For more information, visit: <http://eahcp.org/>.



Source: Edwards Aquifer Authority



Source: City of San Marcos