

# AQUIFER BULLETIN

www.bseacd.org

May - August 2007

2007, No. 2

## THE DISTRICT AREA IS NOT IN A DECLARED DROUGHT

### Drought Comes to an End!

The District and much of Texas experienced a severe drought that began in May 2005 and ended in March 2007. From the high aquifer conditions that existed in May 2005, it took 9 months to enter Alarm Stage Drought, and another 6 months to enter Critical Stage Drought. Drought declarations by the District lasted about 13 months and triggered the implementation of conservation measures by aquifer permittees. Drought conditions

see **DROUGHT** on page 2

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Figure 1



Drought Status: **No Drought**



Barton Springs/Edwards Aquifer Conservation District

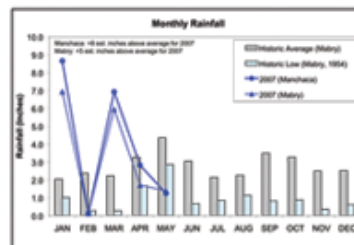
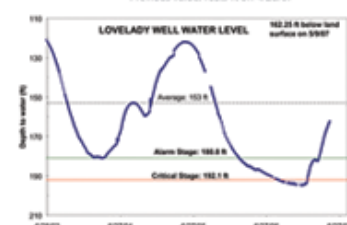
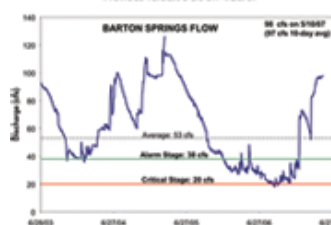
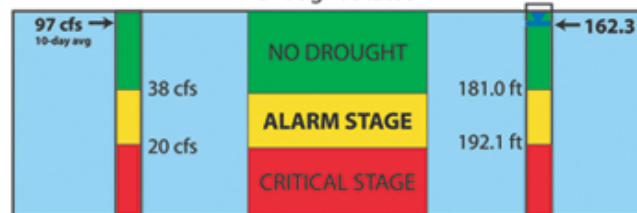
May 10, 2007



Barton Springs Discharge  
(cubic feet per second)



Lovelady Monitor Well  
Depth to water level (feet)



#### DROUGHT RULES

Either Barton Springs OR Lovelady can trigger a drought declaration. However, both Barton Springs AND Lovelady must be above their respective level to exit a drought declaration. There are 2 stages of drought:

**Alarm Stage Drought**  
20% reduction in use

**Critical Stage Drought**  
30% reduction in use  
No lawn irrigation  
Limited outdoor use

Click on the this image for an updated drought figure.

## BOARD OF DIRECTORS

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*Precinct 3 - President*

**Jack A. Goodman**  
*Precinct 4 - Vice President*

**Craig Smith**  
*Precinct 5 - Secretary*

**Chuck Murphy**  
*Precinct 1 - Director*

**Gary Franklin**  
*Precinct 2 - Director*

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*General Manager*

**Dana Wilson**  
*Administration Manager*

**Tammy Flow**  
*Administrative Assistant - Personnel*

**Shannon DeLong**  
*Administrative Assistant - Accounting*

**Jennee Galland**  
*Environmental Educator  
Newsletter Editor*

**Julie Jenkins**  
*Environmental Educator*

**Dr. Brian A. Smith, P.G.**  
*Senior Hydrogeologist*

**Brian Hunt, P.G.**  
*Hydrogeologist*

**Joseph Beery**  
*Hydrogeologist*

**John Dupnik, P.G.**  
*Regulatory Compliance Specialist*

**Guy Rials**  
*Regulatory Compliance Technician*

**Nathanael Banda**  
*GIS Specialist*

## ***DROUGHT*** Continued from page 1

came to an end following above-average rainfall in January and March 2007. Review of data from this drought provides a good indication of the amount of time it takes to get into a severe drought and how much less time it takes to exit a drought. Current aquifer conditions indicate that if dry conditions return we might expect to enter into drought again by the end of September.

### **Anatomy of the 2005-2007 Drought**

In 2005, most of the state received below average rainfall and Austin received about 63% of its normal rainfall total, only 22.3 inches. Onion Creek, the largest contributor of recharge to the aquifer, stopped flowing in late May 2005. Decreased recharge resulted in lower water levels, or storage, in the aquifer. Water levels in the Lovelady monitor well dropped 59 feet from a high in May 2005 of 122 ft (depth to water) to an Alarm Stage Drought trigger of 181 ft in early 2006. Barton Springs flow dropped from a high of 113 cubic feet per second (cfs) in May 2005 to an Alarm Stage Drought trigger of 38 cfs in January 2006 (average flow is about 53 cfs).

Weak "La Niña" conditions persisted through the spring and summer of 2006 maintaining drier than normal weather across a broad swath of the southwestern U.S. For example, the rain station in Manchaca received only 23.9 inches of rain (~71 % of normal). The persistent dry conditions in 2006 resulted in very little recharge to the Barton Springs segment of the Edwards Aquifer. Creeks and streams that normally contribute recharge remained dry. Storage and spring flow continued to decrease and the District declared Alarm Stage Drought on February 6, 2006, requiring a 20% reduction in water use from permittees and end-users. During the Alarm Stage Drought that lasted 9 months, permittees were able to meet their drought reduction targets for every month except August 2006. Actual duration of a declared drought would generally be less than when water-level or spring flow values cross the drought thresholds.

By the end of 2006, water levels in the Lovelady well dropped an additional 21 feet and went below the Critical Stage Drought trigger. Barton Springs flow also decreased to a low of 19 cfs by September, also below the Critical Stage Drought trigger. The District declared a Critical Stage Drought on September 27, 2006, for the first time since it began making drought declarations in 1991. This level of drought requires a 30% reduction in groundwater pumping from permittees and end-users. Critical Stage Drought lasted 5 months. Permittees met their drought reduction targets every month during the Critical Stage Drought.

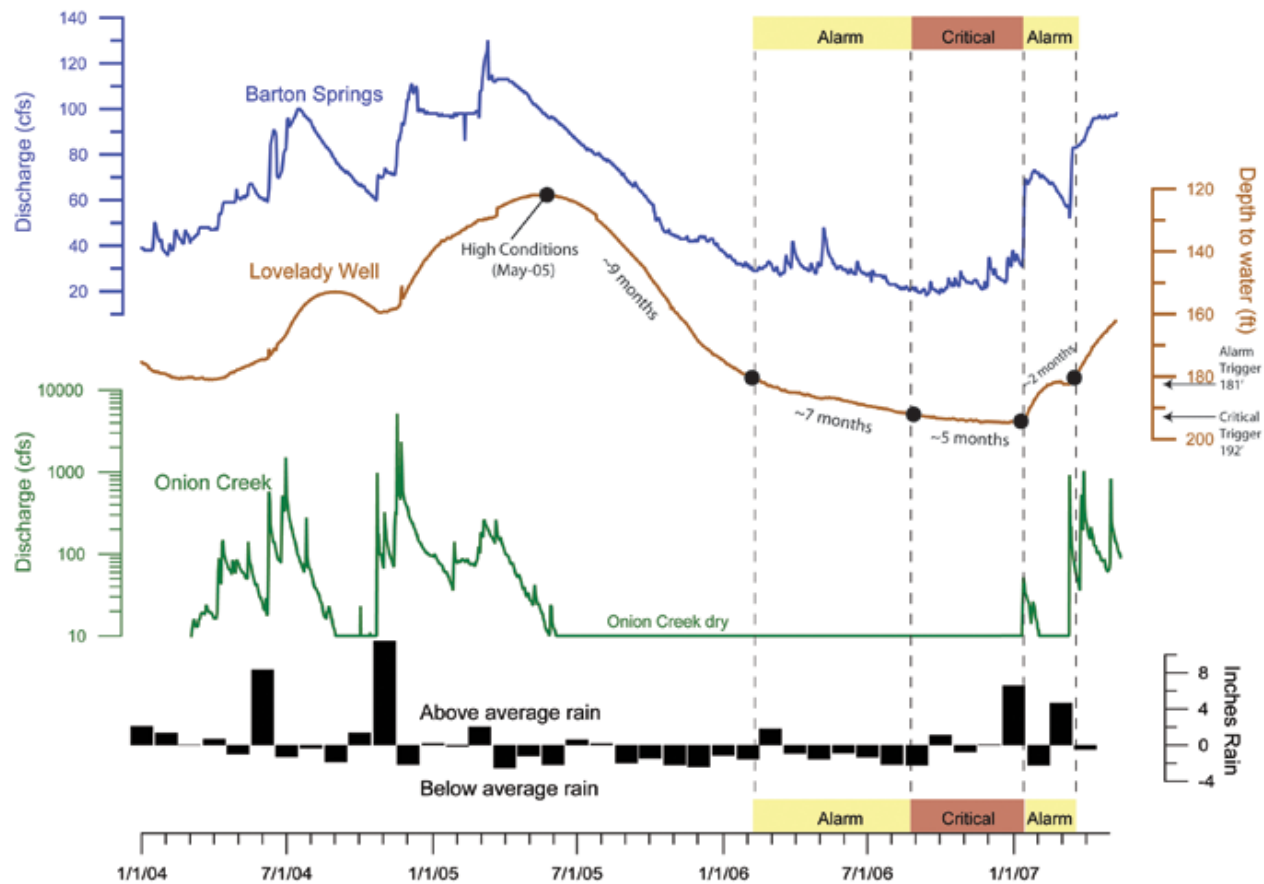
### **How Did It End?**

After a year and a half of falling water levels, the water level in the Lovelady monitor well started to rise following heavy rains in the middle of January 2007. The weather station at Camp Mabry registered close to 5 inches of rain over a 4-day period. Some of that precipitation came in the form of ice! In response to the rainfall many creeks, including Onion Creek, flowed for up to two months. Water levels continued to rise in the Lovelady well until March 1st when levels started to decrease again. Water levels only dropped about half a foot when 3.5 inches of rain fell at Camp Mabry over a 3-day period in March. Water levels in the Lovelady well have continued to rise since then due to above average rainfall in March and

see ***DROUGHT*** on pages 3

**Figure 2**

**Hydrograph of the 2005-2007 Drought**



*Figure 2: Graph showing key hydrologic elements of the 2005-2007 drought. Due to below average rainfall, Onion Creek ceased flowing and providing recharge to the aquifer. Little recharge coupled with increased pumping brought water levels and spring flow to their critical stages. In early 2007, above average rainfall and creek flow brought water levels and spring flow above drought triggers.*

April and near average rainfall in early May. Creeks and streams continue to flow and contribute recharge to the aquifer in the first half of 2007. Meanwhile, spring flow from Barton Springs has been between 90 and 100 cfs since early April.

### How long will it last?

On the basis of current aquifer conditions and historic aquifer responses to rain and drought, the aquifer will remain out of drought for some time. Even if climatic conditions return to what we experienced during the spring and summer of 2006, the aquifer is not likely to reach drought levels again until the end of September. With continued uncertainty about the presence of "El Niño" or "La Niña" conditions in the Pacific Ocean, we can only hope for average to above average rainfall and responsible water use during the summer months to keep us out of drought for the remainder of the year.

*This article was written jointly by Brian Hunt, P.G. who oversees the District's Monitor Well Network, and Dr. Brian A. Smith, P.G. who is the District's senior hydrogeologist and Aquifer Science Team Leader.*

## From the Desk of the General Manager

This issue's column is something of a potpourri...maybe it will have something of interest for everyone! And if you would like to hear about some other specific topic or issue in a future column, please let me know.

**Rains...Finally!** - The spring rains have provided multiple benefits to the aquifer. Not only did we emerge from drought, but also the rains were distributed favorably with respect to time and space. So these rains have generally been effective in encouraging the deep root growth that should in turn help our lawns weather the normal, dry summer season with less lawn watering. The rains also had the effect of decreasing the amount of groundwater pumpage required during the spring green-up and early growing season. So the net recharge to the aquifer has been even larger than otherwise after such rains, and therefore the aquifer's water levels continue to rise. But after more than a year and a half of rather severe drought, the water levels in the aquifer continue to be below their average levels.

**Seasonal Water Conservation** - As of May 1st, we have entered into our calendar-driven Water Conservation Period, which lasts through September 2007. All groundwater users are urged to be aware of how and where you and your family use water during this period, and pay particular heed to water-wise practices. There is a five-day watering calendar and some summer-time water use tips on page 12 of this newsletter that should be helpful. We would like for all users to voluntarily reduce water use by at least 10% during this five-month period. If we all do our part, we may be able to avoid going into a declared drought stage that mandates larger restrictions on use.

**Automatic Lawn Sprinkler Use** - As I have expressed previously, automatic lawn sprinklers are the biggest water wasters in the District. But they don't have to be. Please resist the temptation "for the sake of convenience" to set your sprinkler systems on fully automatic operation and/or to set station times that correspond to summertime conditions, and then apply a "set it and forget it" mindset. Our aquifer simply can't afford that wasteful water use, especially during the time of year when the aquifer is under most stress. As an alternative, use the semi-automatic setting and manually trigger a cycle only when your lawns really need it. This will avoid watering after or during rainstorms, or otherwise exceeding the amount of water that must be applied to offset evapo-transpiration losses during the period. As a corollary, if your sprinkler system has a rain sensor or an evapo-transpiration calculator/controller,

make sure that it is functioning properly and is turned on. Finally, if just one smaller part of your lawn is exhibiting stress, just irrigate that area only, using a hose-end sprinkler or even hand-held hose, rather than running the system through all of its stations.

**Our Legislative Initiatives** - The District is sponsoring two bills in this session of the Legislature that we believe are very important to advancing the District's mission to preserve, conserve, and protect the groundwater resources of the District. One of these bills, which is designated SB 747 being carried by Senator Kirk Watson and its companion HB 3792 being carried by Chairman Patrick Rose, is designed to deal more effectively with extreme drought management. It raises the water use fee on newly requested conditional groundwater to be more in line with the costs of raw (untreated, undelivered) surface water, and it prescribes curtailment of various classes of water under specified conditions. This bill was modified to address some reasonable concerns of certain affected permittees, and a negotiated committee substitute was reported out of Senate Natural Resources Committee, then passed by the full Senate. It was then sent to the House, where Representative Valinda Bolton picked it up; it has now been reported out of the House Natural Resources Committee and awaits action on the House floor, as of this writing. We remain optimistic about its passage in this session. The second bill we are sponsoring is HB 3039, being carried by Chairman Patrick Rose, and would prohibit direct discharge of treated wastewater in the contributing and recharge zones of the Barton Springs segment in the future, with certain restrictions. Testimony on this bill was heard and the bill remains pending in the House Natural Resources Committee, as of this writing. This bill has received widespread support and little opposition, but we are concerned that, given the large numbers of bills pending in House committees and on the floor, time may have run out for this particular bill, especially since it doesn't have a Senate companion.

**District Office Relocation** - Those of you who have attended meetings or hearings at our current office or who have visited with District staff members in their offices know that our office facilities are

see **GM REPORT** on page 5



## GM REPORT *Continued from page 4*

woefully inadequate for effectively and efficiently supporting our mission. We have initiated a process to find a new office location that better serves the District's staff and stakeholders and to design, at a preliminary level, new office facilities. We have been generously offered a gift of a tract of land that initial analysis suggests meets our needs, and we are proceeding to the next stage of consideration of this tract as our new office location. This land, which would in part be dedicated conservation land, is located near the Lady Bird Johnson Wildflower Center. No final decision on accepting this land will be made until late summer of this year, and no move to new facilities to be constructed on this land will likely be possible until late 2008. But we are very excited about these prospects!

*Kirk Holland, P.G. is the District's General Manager.*

## District Calendar

The Board of Directors usually meets on the 2nd and 4th Thursdays of the month beginning at 6 p.m. **However, the meeting schedule is subject to change.** Please contact the District office at 512-282-8441 or the website at [www.bseacd.org](http://www.bseacd.org) for more information about upcoming meetings of the Board as well as advisory committee meetings. The agenda for posted meetings can be found on the District website. Most Board Meetings and Work Sessions are held at the District's office at 1124 Regal Row, Austin, TX 78748.

May 24	6:00 p.m.	Board Meeting
May 28	Office Closed for Memorial Day	
June 14	6:00 p.m.	Board Meeting
June 16	9:00 a.m.	Board Work Session
June 28	6:00 p.m.	Board Meeting
July 4	Office Closed for Independence Day	
July 12	6:00 p.m.	Board Meeting
July 26	6:00 p.m.	Board Meeting
August 9	6:00 p.m.	Board Meeting
August 23	6:00 p.m.	Board Meeting

## Mark Your Calendar

### 2007 Austin Cave Festival

Saturday, October 27, 2007

9 a.m. - 4 p.m.

Village of Western Oaks Karst Preserve  
La Cresada and Davis Lane just west of Mopac



**Caving, Booths, Hands-On Activities, and Prizes.  
Free!**

### 2007 Conservation Awards

The District will begin accepting applications for this year's Conservation Awards in July.

More information on the Awards  
can be found at:

[www.bseacd.org/conservation\\_awards.html](http://www.bseacd.org/conservation_awards.html)



## How "Lessons Learned" Affected District Rules and Policy

Our mission here at the District is to provide for: "...the conservation, preservation, protection, recharging, and prevention of waste of groundwater." This is never more important than when our groundwater resources are stressed, as they are during extended drought conditions. Now that all of us in the District can reflect on our experiences in the Drought of 2006 with the benefit of hindsight, you may be interested in how the "lessons learned" resulted in some significant Rule and Policy changes.

The District went through two rounds of Rule changes in response to the challenges that emerged from our efforts to manage the Aquifer during the drought. The first round was the result of inputs received from two town-hall meetings, an aquifer workshop, much public comment, public hearings, and Board deliberation. The second round was initiated to incorporate measures resulting from these discussions that were not identified in the first round. Below is a brief summary of the more significant changes.

### Permitting

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The following changes were implemented to strengthen the District's existing conditional permitting requirements for more effective drought management:

- Established two classes of Conditional Production Permits (Class A and B):
  - Class A - existing and approved Permits, and Permit applications being processed as of April 12, 2007.
  - Class B - Production Permit applications submitted after that date for use of freshwater from the Edwards and Upper Trinity aquifers.
- Added requirement for Class B Conditional Permit applicants to provide specific information with an application to demonstrate an alternative water supply.
- Amended Rule to require that Class B Conditional Permit holders demonstrate the ability to provide for 100% substitution with an alternate water supply within the first year after the Permit's effective date. Permit will be revoked by the Board if demonstration is not satisfied.
- Added criteria requiring the Board to consider whether an application would allow withdrawals in excess of the Extreme Drought Withdrawal Limitation (EDWL) (see below) prior to approval.
- Amended Rule to specify that Permit renewal may also be contingent on a permittee's compliance status and the resolution of any pending enforcement.
- Added a provision for obtaining a variance to conditional permitting provisions if a proposed alternative provides an overall benefit and will preserve or reduce the EDWL.

### Drought Management

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These changes were implemented to provide the District with the necessary tools to effectively manage and preserve the groundwater resources of the District for its historic permittees and users during drought:

- Defined Extreme Drought as a severe drought period, deep in the Critical Stage Drought, triggered when Barton Springs flow is below 14 cfs.
- Established an Extreme Drought Withdrawal Limitation (EDWL) for withdrawals during Extreme Drought from the freshwater Edwards and Upper Trinity aquifers at 8.5 cfs on an annual average basis.
- Defined an Emergency Response Period (ERP) to be triggered by Extreme Drought that specifies 90-day increments of increasing and decreasing curtailment for Class A Conditional Permit, and other emergency actions warranted and ordered by the Board.
- Amended Rule to specify curtailment requirements for Class A and Class B Conditional Permits during District-declared drought. Prior to declaration of an ERP, drought pumpage curtailment requirements for Class A are consistent with that of Historic Production Permits. Class B Permits must curtail 50% during Alarm Stage; 75% during Critical Stage; and must cease pumpage upon declaration of an ERP.
- Amended Rule by removing requirement for a public hearing prior to a Board order for curtailment and by allowing a permittee to appeal a Board order for curtailment after issuance.
- Amended Rule to assess a monthly Regulatory Management Fee to permittees for non-compliance with monthly pumpage limits during drought.

see **RULES** on pages 7

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### **Drought Planning**

These changes were implemented to reinforce and streamline permittee drought planning requirements:

- Added requirement that User Drought Contingency Plans must be updated at least every five years as a condition of Permit renewal.
- Added a requirement that specifies that a District-permitted CCN holder must modify its TCEQ Drought Contingency Plan as necessary to be consistent with the District plan.
- Added requirement that a District-permitted CCN holder is required to have mandatory water use restrictions, an enforcement protocol, and must inform customers of enforcement intent.

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### **Water Conservation/Proscribed Use**

These changes were implemented to address egregiously excessive use not specified in the definition of "waste" and to provide more equitable limitations on water use during drought:

- Added "Proscribed Uses" to specify that "Proscribed Use" during drought constitutes a threat to and harmful alteration of the character of groundwater and is prohibited.
- Prohibited use of excessive amounts of groundwater and failure to conserve during drought.
- Defined criteria for determining "Proscribed Use."
- Added a requirement that specifies the methods and factors that can be used to rebut allegations of proscribed use.

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### **Reporting**

These changes were implemented to facilitate more efficient compliance monitoring:

- Changed meter-reading reporting deadline from the 15th to the 5th day of the following month.
- Specified acceptable and unacceptable means of meter-reading reporting.

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### **Enforcement/Penalties**

These changes were implemented to further specify enforcement measures and protocols of existing District enforcement authority to ensure consistent and objective enforcement:

- Amended Rule by specifying penalties for drought-related violations and criteria for assessing penalties.
- Established a new reserve account funded by drought fees and penalties to be used for drought-related needs.

The drought experienced in 2006 was certainly the mother of invention needed to develop the policies and management tools necessary to effectively manage our Aquifers during drought. The District will now be better prepared for future drought conditions as a result. A copy of the Rules and a summary of changes may be obtained through the District's website at [www.bseacd.org](http://www.bseacd.org). For more information or answers to any questions related to any of the Rule changes, feel free to contact the District office during normal business hours.



*John Dupnik, P.G. is the District's Regulatory Compliance Team Leader.*

## Meet Craig Smith, Director of Precinct 5

District staff continued its series of "up close and personal" visits with another of our Directors recently. These dialogues are proving to be of great interest to District groundwater users, constituents, and stakeholders as they are recounted in the District's newsletters. In this issue, we interview Mr. Craig Smith, Director of Precinct 5, which includes the northwestern part of the District in both the City of Austin and Travis County. Craig is one of our longer-time Board members and ran unopposed in last year's precinct election; his current four-year term ends May 2010.

**Staff:** Craig, we know that you are a lawyer and recently announced that you are leaving private practice and becoming an Assistant County Attorney for Travis County. Tell us a little bit about your legal career and why you are joining the County Attorney's office.

**Craig Smith:** I like to help people and to serve and protect the public good. For the past 12 years, I have had a personally satisfying and mostly rewarding law practice devoted primarily to helping people out of financial trouble. I really wasn't looking for a change, but as sometimes happens when you aren't looking for something, this opportunity with the tax collection department of the Travis County Attorney's office came up. It was attractive in numerous ways, but most importantly it allows me to continue to help the public by ensuring that they receive the financial resources they expect and are owed. That sits well with me.

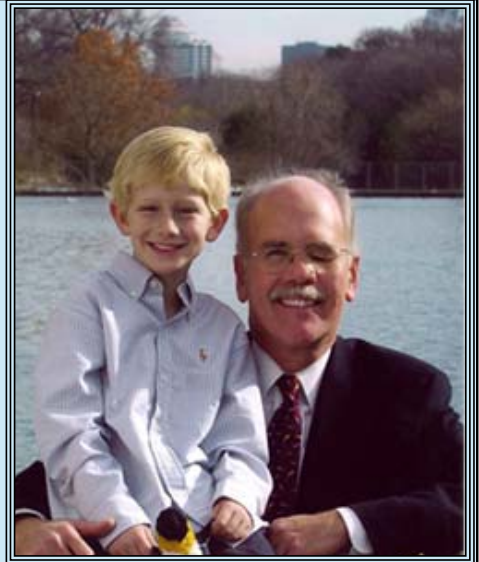
**Staff:** Would you like to say anything about how you are going

to balance District and County affairs and avoid conflicts of interest?

**CS:** This was one of the main things I wanted to establish even before I accepted the job with the County. There is no legal conflict of interest in these two jobs, and I have been encouraged by my new employer to continue to serve as District Director. While current state law is a little ambiguous about the necessity of doing this, I will be refusing to receive compensation for my service as Precinct 5 Director, other than necessary expense reimbursement, at least until such time as the law is clarified. I have visited with my fellow District Board members about this change in my status, and they also are very supportive. I will of course recuse myself from any Board deliberation and decision that directly or indirectly involves Travis County government; fortunately, there aren't many that fall into that category. But I intend to be vigilant about avoiding even the perception of a possible conflict of interest, and I have asked both the Directors and the District's General Manager to help me in that endeavor.

**Staff:** What else would you like folks to know about you at a personal level? What would most people be surprised to learn about you?

**CS:** I am a Stephen F Austin University grad, and then attended law school at UT, getting my law degree and being admitted to the bar in 1977. I have been married to Mary Ann Neely for nearly 14 years. We both have been very active in the local environmental scene for many years. Mary Ann was the former State Director for Clean Water Action and recently retired from the Lower Colorado River Authority. She is currently working part-time for Austin Energy's plug-in hybrid vehicle program. We have a 7-year old grandson, named Dylan, living here in Austin whom we of course dote on.



*Craig Smith and grandson Dylan*

Most people don't know that I am a regular swimmer in Barton Springs Pool, swimming there 4 to 5 times each week, and more frequently than that in the summer. I swim  $\frac{1}{4}$  mile on weekdays (two lengths of the pool), and  $\frac{1}{2}$  mile on weekends. I am proud to say I have achieved my annual goal of swimming 100 miles each year for the past four years, including swimming 3 miles on each of my birthdays!

**Staff:** Why did you choose to run for election to the Board of the District in the first place? What prepared you to do so?

**CS:** I was first exposed to water issues through my volunteer service in the Sierra Club; I was president of the Austin chapter from 1991-1993. That was back in the early, more contentious days of the "either-or, environment vs. development" battles, especially over the Balcones Canyonlands Preserve and the Barton Creek development being pursued by Freeport McMoran. I served as the Sierra Club representative on the first of several [City of Austin] Mayor's Task Forces that led to the SOS Coalition and ultimately the

*SMITH Continued on page 9*



**SMITH** Continued from page 8

SOS Ordinance. I started swimming at Barton Springs in the mid-80s, and eventually decided I need to become more involved in environmental politics associated with protecting my swimming hole. So I became an active member of the Save Barton Creek Association in 1992, and was its president in 1994-1995. I continue to be an active member of that organization. I also was a member of the City's Environmental Board and the last Citizens Advisory Committee for the Balcones Canyonlands Conservation Preserve, serving on the citizens' task force that worked out the BCCP recommendations. I successfully ran for public office as a Director of the Barton Springs/Edwards Aquifer Conservation District Board in 1998. And the rest, as they say, is history.

**Staff:** Who would you say served as a mentor for you during that tumultuous time period from the early to late 1990s?

**CS:** I think there were two folks that I was most influenced by, for their knowledge of the issues, their demeanor, and their commitment to a cause: George Avery, then the Sierra Club Conservation Chair; and Jon Beall, of the Save Barton Creek Association.

**Staff:** What's the first thing that comes to mind about what you know now that you probably didn't at the time of first becoming a member of the District Board?

**CS:** I better understand that what's good for the aquifer is, in the long run, also good for the economy and will bring people and resources into this area. Fortunately, I am not alone in that belief. No longer do we have to think of the economy and environment being an either-or type deal. While I appreciate that it can be frustrating to deal with, I believe the SOS Ordinance actually helped Austin (and by extension, development in its ETJ and beyond) to become an attractive place to both live and do business. A dialogue is now possible where both parties can take a long-run view. We are trying to build on that mind-set in groundwater management in our District.

**Staff:** What do you see to be the District's main goal today?

**CS:** I think the District can make the biggest difference in protecting our area's foremost natural resource. We've made considerable and important progress in helping people understand the aquifer's importance, its characteristics, and its need for protection. The good news is that people are "wising up" to these things, and that offers some hope that our understanding can catch up with the many stresses that increasingly affect the systems today.

**Staff:** Besides that, in your opinion what are the one or two other big challenges facing the District at this time?

**CS:** Our experience in our recent, severe drought strongly indicates that dealing with drought in an equitable fashion and promoting conjunctive use and water supply diversity are at the top of the list. Not far behind is the need to preserve water quality of the groundwater resources of the District, wherein we will need to work without many of the tools that are really needed for that because they are not, nor likely to be, part of our statutory toolkit.

**Staff:** Do you think groundwater conservation districts will survive in the long run as a resource management entity?

**CS:** As they are better understood and as their advantages are perceived as being large and their disadvantages manageable, I see GCDs getting more and more support, not less. The systems will evolve but will fundamentally remain intact, because at the end of the day, people want to keep decisions about their water on local basis, just like education and local school districts.

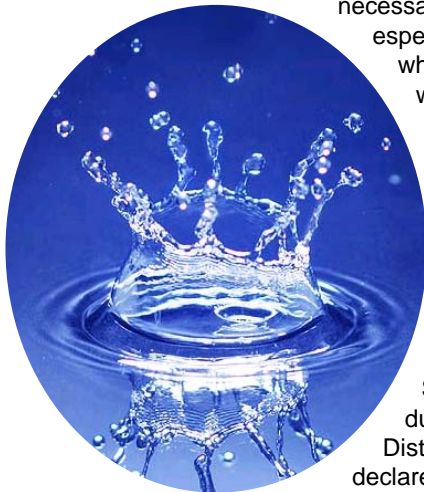
**Staff:** We always conclude these interviews with a few questions we ask all of our Directors. First, if you could wave a magic wand and have things be different, other than an unlimited groundwater resource, what would be the first thing you would want to change right now?

**CS:** I believe that if everyone would adopt a goal of "sustainability", both in their personal and business/organizational lives, we could more easily, assuredly and effectively make progress in protecting all of our water resources, both groundwater and surface water.

**SMITH** Continued on page 10

## Kudos to District Permittees

To successfully manage and preserve the Barton Springs segment of the Edwards Aquifer for those who depend on it for their water supply, the District relies on all of its permittees to practice water-wise practices and implement the appropriate water use restrictions when



necessary. This is especially important when in drought, when the resource is most stressed such as it was in 2006 through our Water Conservation Period (May through September) and during the District's first declared Critical Stage Drought, which occurred

from October through December.

The following permittees are recognized for achieving compliance with monthly pumpage limits and water use during both of these crucial periods. The District commends them and their end-users for taking steps to conserve and sustain our groundwater resources.

### Critical Stage AND Water Conservation Period

City of Buda  
City of Kyle  
Marbridge Foundation  
Twin Creek Park Water Supply Co.

### Critical Stage Drought

Aqua Texas, Inc.-Chaparral  
Aqua Texas, Inc.-Leisurewoods  
Aqua Texas, Inc.-Shady Hollow Estates  
Aqua Texas, Inc.-Southwest Territory  
Arroyo Doble Water System  
City of Austin Nature Center  
City of Buda  
City of Hays-Elliott Ranch  
City Of Hays Water Department  
City of Kyle  
Goforth Water Supply Company  
Marbridge Foundation  
Mountain City Oaks Water System  
Texas Lehigh Cement Co.-Plant  
Twin Creek Park Water Supply Co.

### Water Conservation Period

City of Buda  
City of Kyle  
Hays C.I.S.D.-Hays High School  
Marbridge Foundation  
Twin Creek Park Water Supply Co.

**SMITH** Continued from page 9

**Staff:** Gazing into your crystal ball, how do you see the District being different in 5 to 10 years from now?

**CS:** Well, I am confident that we will be better established as a vehicle for initiatives that do more to improve and enhance the region's water resources.

**Staff:** Is there anything else that you would want to say to the District staff? To your constituents in Precinct 1? To all those who live and work in the District?

**CS:** To the staff: keep up the good work! I am very pleased with where we are and how we are going about things now. To my constituents, and really everyone that is in the District: the District is doing its best to assure that the aquifer remains a source of pure and plentiful water for generations to come.

**Staff:** And finally, if you had to choose one or two words that describe how you feel about the District, what would they be?

**CS:** "Excited!" I am excited about how far we've come, and excited about our future.

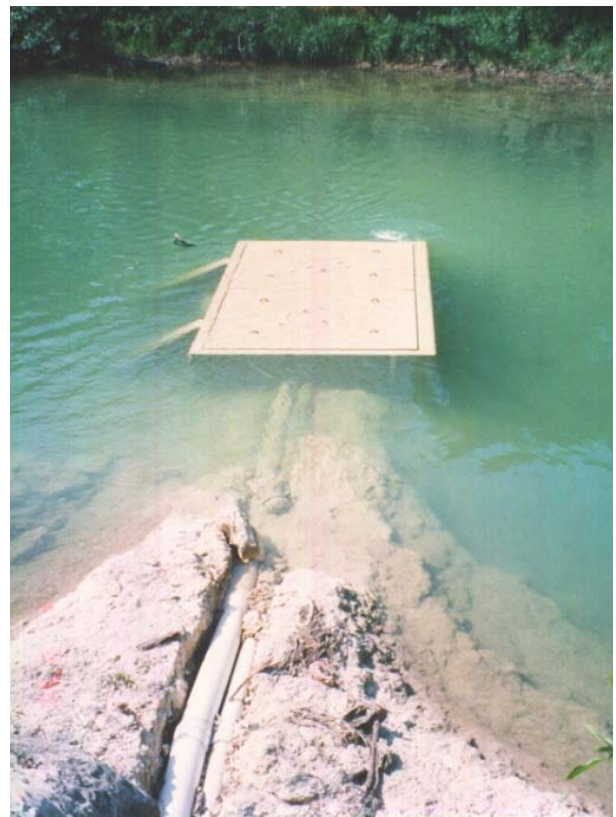
## District Awarded TCEQ/EPA Grant for Water Quality and Enhanced Recharge

A contract between the Barton Springs/Edwards Aquifer Conservation District (District) and the Texas Commission on Environmental Quality (TCEQ) was signed last month that will allow the District to better protect the quality of water in the Barton Springs segment of the Edwards Aquifer and to preserve and enhance the amount of water entering the aquifer. Funding for this grant comes from a program run by the U.S. Environmental Protection Agency (EPA) to reduce nonpoint source pollution of the nation's water resources. Section 319(h) of the federal Clean Water Act specifies that funding will be made available to the States to reduce, to the maximum extent practicable, the amount of pollution coming from nonpoint sources. The total grant amount is \$558,000 with 60% of the money coming from EPA and the remainder from the District, primarily from in-kind services. Kirk Holland, District General Manager, noted that "Grants such as this help the District fulfill its legislative mandate of conserving, preserving, protecting, and recharging groundwater within the District." The District has been a partner and cooperator with TCEQ in several water-quality monitoring programs and projects in the Barton Springs segment of the Edwards Aquifer.

Using previous 319(h) grant funds, the District installed a Best Management Practice (BMP) structure over Antioch Cave on Onion Creek in 1997. A valve on the structure is kept open while there is normal flow in the creek to allow relatively clean surface water to enter the cave and recharge the aquifer. When sediment- and contaminant-laden storm water runoff is flowing in the creek, the valve is closed to minimize the amount of sediment and contaminants entering the cave and then the aquifer. The current grant plan calls for upgrading the BMP at Antioch and installation of a BMP at another recharge feature within the District. Continuous water-quality monitoring systems will be installed at each BMP in addition to automated systems to open and close valves that will minimize the amount of sediment and pollutant-laden stormwater from entering the aquifer at these recharge features. To locate a site for a second BMP, an evaluation will be conducted to determine where the most sediment and pollutant reduction can be achieved. Dr. Brian

Smith, project manager for the District, said that automation will make the systems more efficient by opening and closing the valves sooner than they would have been activated by field personnel. An important aspect of the grant is establishing a baseline and measuring the changes in various pollutant loads to the aquifer after the new BMP is in operation. The project is scheduled to be completed by August 2009.

*Dr. Brian A. Smith, P.G. is the District's senior hydrogeologist and Aquifer Science Team Leader.*



*The BMP at Antioch Cave. Note whirlpool on far side of BMP indicating flow into the structure.*

# Summer Watering Schedule

Summer is just around the corner! Follow the “every 5-day” watering calendar, and use the tips below to maintain your landscape while saving water and money through the hot, dry summer.



**Go Native:** Keep Texas Looking like Texas! Plant native plants and trees and reduce the amount of turfgrass in your landscape. Drought-resistant, native plants thrive in our climate and soils and require very little water and maintenance if established correctly. ([www.ci.austin.tx.us/growgreen](http://www.ci.austin.tx.us/growgreen))



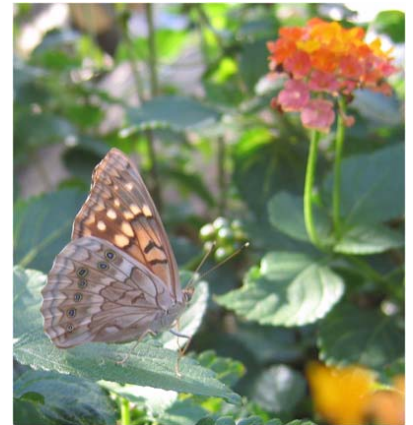
**Save water and weed less.** Adding a 3-inch layer of organic mulch in garden beds protects plants by covering and shading soil, minimizing water evaporation, inhibiting weed growth, and reducing soil erosion.



**Watch the Weather.** If it rains one inch or more, delay lawn watering for another five days. Install a rain shut-off device, which will automatically cut off your system when it rains. These devices can pay for themselves over a summer.



**Tame Irrigation Waste.** Over half of household water goes into our landscapes. Chances are your landscape is getting watered more than it needs, which can cause plant disease and decline. Visit [www.lcra.org/docs/water\\_irrigation\\_tips.pdf](http://www.lcra.org/docs/water_irrigation_tips.pdf) and find out how to give your irrigation system a check-up!



For more ideas on how to save water and money, visit the Barton Springs/ Edwards Aquifer Conservation District at [www.bseacd.org/conservation.html](http://www.bseacd.org/conservation.html) or call 512-282-8441 for more assistance.

Para más información en español, visite nuestra página electrónica [www.bseacd.org/conservation.html](http://www.bseacd.org/conservation.html)

Print out this page, cut along dotted line and place on refrigerator

## Summer Watering Calendar Horario de Regar durante el Verano

If your address ends in . . .

*Si el último número de su*

*domicilio termina en . . .*

**Recommended Watering Times**

(check with your water supplier for prohibited times):

Hose-end Sprinklers: Midnight to 10am, plus 7pm to Midnight

Underground Systems: Midnight to 10am



*Then your watering days are . . .*

*Entonces su día de regar es . . .*

0 or 9	May 1,6,11,16,21,26,31	June 5,10,15,20,25,30	July 5,10,15,20,25,30	Aug. 4,9,14,19,24,29	Sept. 3,8,13,18,23,28
1 or 8	May 2,7,12,17,22,27	June 1,6,11,16,21,26	July 1,6,11,16,21,26,31	Aug. 5,10,15,20,25,30	Sept. 4,9,14,19,24,29
2 or 7	May 3,8,13,18,23,28	June 2,7,12,17,22,27	July 2,7,12,17,22,27	Aug. 1,6,11,16,21,26,31	Sept. 5,10,15,20,25,30
3 or 6	May 4,9,14,19,24,29	June 3,8,13,18,23,28	July 3,8,13,18,23,28	Aug. 2,7,12,17,22,27	Sept. 1,6,11,16,21,26,31
4 or 5	May 5,10,15,20,25,30	June 4,9,14,19,24,29	July 4,9,14,19,24,29	Aug. 3,8,13,18,23,28	Sept. 2,7,12,17,22,27

During a Critical Stage Drought, all lawn irrigation using groundwater is prohibited.

Si la sequía llega a la Etapa Crítica, se prohibirá regar el césped por completo.



## Water Conservation Interactive Websites for Kids

The temperature is rising and soon Austin area school children will be celebrating another summer vacation. When the heat hits, your favorite youngster can explore these fun interactive websites that stress the importance of water conservation.

Want to be an H2O Hero? The San Antonio Water System has designed a water conservation club for kids that includes online puzzles, activities books for print out, and newsletters:

[www.saws.org/education/h2o\\_university/H2O\\_Heroes/FunPages](http://www.saws.org/education/h2o_university/H2O_Heroes/FunPages)

Can you name three aquifers in Texas? How much water can you save if you turn off the water while brushing your teeth? Learn the answers to these questions while coloring and finishing games like in the "Know Your Water" coloring book from the Texas Water Development Board.

[www.twdb.state.tx.us/kids/index.htm](http://www.twdb.state.tx.us/kids/index.htm)

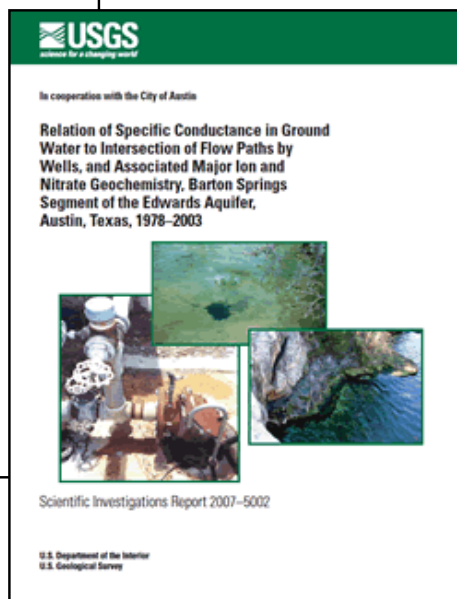
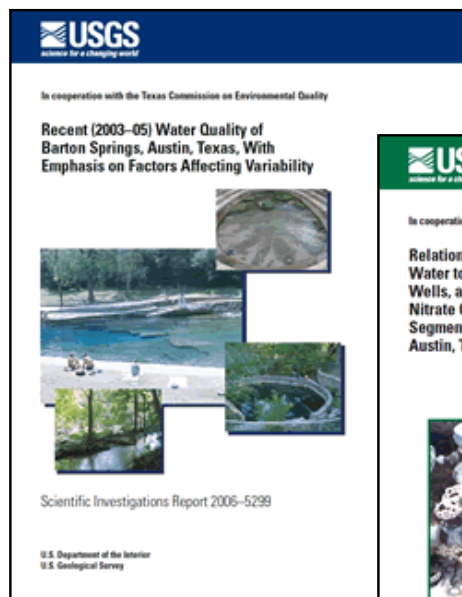
Bert and Phil have a job to do. These water busters have only a short time to explore their home and use water conservation tools to fix leaks and other water wasting activities. This interactive game includes bonus questions that test your water conservation knowledge.

[www.savingwater.org/waterbusters/](http://www.savingwater.org/waterbusters/)



SAWS' H2O Heroes!

## New Barton Springs Aquifer Studies Available from USGS



Two new Barton Springs Aquifer studies are now available on-line from the U.S. Geological Survey:

Recent (2003-05) Water Quality of Barton Springs, Austin, Texas, With Emphasis on Factors Affecting Variability

<http://pubs.usgs.gov/sir/2006/5299/>

Relation of Specific Conductance in Ground Water to Intersection of Flow Paths by Wells, and Associated Major Ion and Nitrate Geochemistry, Barton Springs Segment of the Edwards Aquifer, Austin, Texas, 1978-2003

<http://pubs.usgs.gov/sir/2007/5002/>

## Bowie High School Student Receives Honors with Groundwater Research Project

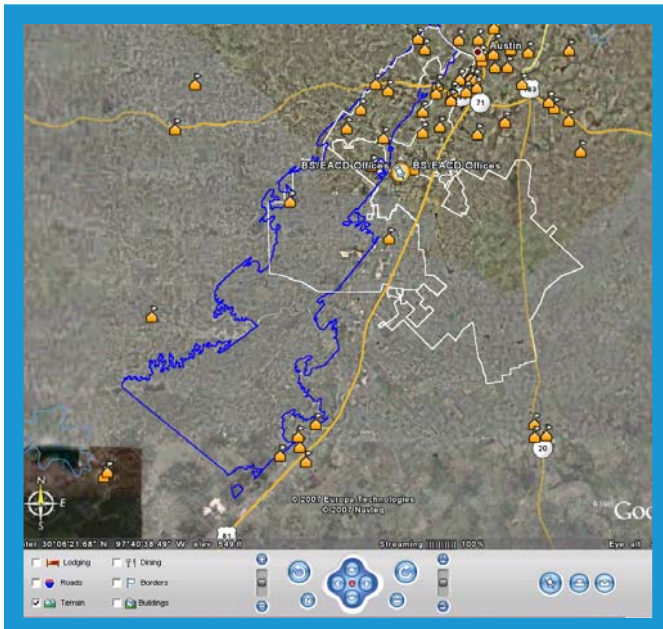
Bowie High School student, Jenna Kromann, worked with GEOS Consultant John Mikels and District staff to investigate if drought affects the salinity zone, therefore degrading the water quality in the Edwards Aquifer. Water quality tests were conducted on water from various wells located within the freshwater/saline interface of the Barton Springs segment of the Edwards Aquifer. The water samples were tested for alkalinity, chlorides, hardness, nitrates, sulfates, and sulfides. Once data were collected and analyzed, maps were developed to plot isopleth lines for total dissolved solids (TDS), chlorides, and sulfates.

At the Science Fair regionals in Austin, Jenna won Best of Fair and placed first in the Earth Science category. She also received awards from: the American Water Works Association - 1st place, Office of Naval Research Award, US Airforce Award, Society of Women Engineers Award, Austin Geological Society, and Association for Women Geoscientists. In the state competition in San Antonio, she placed fourth in her age category and went home with the Stockholm Jr. Water Prize and a NOAA award.

Our congratulations to Jenna for a job well done!



## Google Interactive BSEACD Precinct Boundary Map



Am I in the District's boundaries?  
Am I living within the recharge zone boundary?

These are two of the most asked questions we receive here at the District. Often times we can answer the question easily, but sometimes it comes down to whether or not your address is on the west or east side of the road.

Taking advantage of the Google Earth application, you can now investigate the District's boundaries at home at your leisure. To use the map, you must have Google Earth downloaded on your computer. To get this free application, please visit: <http://earth.google.com/>. Next, you can find the boundary map at: [www.bseacd.org/maps2.html](http://www.bseacd.org/maps2.html).

Google Earth allows you to zoom in/out and has layers that you can turn on and off that show the location of local resources like schools or hospitals. Please contact the District at 512-282-8441 if you have questions or need assistance.

## Summer Educational Events

### AQUATIC SCIENCES ADVENTURE CAMP TEXAS STATE UNIVERSITY

The Aquatic Sciences Adventure Camp at Texas State University-San Marcos offers students ages 9 to 15 an opportunity to learn about aquatic biology, water chemistry, the Edwards Aquifer and freshwater ecosystems in a university setting in the beautiful Texas Hill Country. Students sample aquatic life from ponds, streams, and artesian wells, perform water quality tests, and learn about the water cycle and aquatic resources utilizing facilities at Texas State University, including Aquarena Center.

Additionally, students have the opportunity to engage in water-oriented recreation activities such as tubing, swimming in spring-fed pools, river rafting, a

scuba/snorkeling lesson and a trip to Sea World. Sessions are limited to 26 campers and are supervised by university staff and certified teachers. Eight week-long resident sessions and two 2-day non-resident sessions are available. For information contact the Edwards Aquifer Research and Data Center at 512-245-229 or e-mail Lendon Gilpin at LG16@txstate.edu.



### GET WILD THIS SUMMER!

Learn how to teach young people about ecology and wildlife using fun, hands-on educational activities from Project WILD. During the six-hour training workshop participants will sample activities and receive a curriculum and activity guide. Activities are adaptable for all grade levels, integrated with core subject curricula and aligned to the TEKS and TAKS. Teachers, informal educators and youth group leaders may take the training. Held just west of Austin at the Westcave Preserve, 24814 Hamilton Pool Rd. June 21, 2007 from 9 a.m.-4 p.m.; fee \$10 per person; preregistration required. To register, contact John Ahrms at john@westcave.org or (830) 825-3442.

To learn more about Project WILD visit  
[www.tpwd.state.tx.us](http://www.tpwd.state.tx.us)

### CLEAN CREEK CAMP THE CITY OF AUSTIN, WATERSHED PROTECTION DEPARTMENT



Why should kids have all the fun?!

Parents, join your 9-12 year old child for a week of fun exploring water in Austin's creeks or Edwards Aquifer. Groups with adult leaders are welcome! Parents and Children sign up to explore Austin's Creeks and Aquifers.

Aquifer Camp (June 25-28, 9am-noon, M-Th)

Watershed Camp (July 9-12, 9am-noon, M-Th)

Watershed & Aquifer Camp (July 30- August 3, 9am-noon, M-F)

Cost: \$ 20 reimbursable deposit per child.  
Parents are free!

For more information, visit:

[www.cityofaustin.org/watershed/cleancreek\\_camp.htm](http://www.cityofaustin.org/watershed/cleancreek_camp.htm)  
or call 974-6571.

### SUMMER ACTIVITIES ON THE GO KEEP AUSTIN BEAUTIFUL

Looking for something to do with your scout troop, or camp group this summer? Teach youth about bugs, aquifers, plants, recycling and litter with Keep Austin Beautiful Patch Pals Activity Kits that are available for checkout. The activity kits come with easy to follow lesson plans and all the supplies needed for the hands-on activities. Visit [www.keeptaustinbeautiful.org](http://www.keeptaustinbeautiful.org) (click on education and Patch Pals) to find out more about the Activity Kits.





# Household Hazardous Waste Collections for Residents of Hays County



Protect your home and the environment by properly disposing of toxic chemicals you no longer need at one of these collections.

## When?

Saturday  
July 7, 2007  
September 15, 2007  
December 1, 2007

## Safety Tips:

- Transport chemicals in trunk of car
- Keep products in original containers
- If broken or leaking, place in container of like material
- Do not combine chemicals



## Where?

City of San Marcos  
City Hall  
630 E. Hopkins  
San Marcos, TX

## Cost:

Event free to all residents of Hays County and the City of San Marcos. Must provide proof of residency.



## We will accept:

Cleaning Products:  
Drain cleaners, concentrates, degreasers, oven cleaners, solvents, polishers, pool chemicals, household batteries

Paint Products:  
Latex & oil-based paints, spray paints, thinners, strippers, preservatives, brush cleaners, etc.

Gardening Products:  
Pesticides, sprays/dusts, weed killers, rat poisons, insecticides, etc.

Automotive Products:  
Antifreeze, batteries, motor oil & oil filters, brake fluids, transmission fluid, etc.



## We will not accept:

Tires, containers larger than 5 gallons, medical wastes, empty containers, compressed gas cylinders or wastes generated by businesses



**This is a drive-through event. You will not need to exit your car.  
For more information, contact 512-393-8000.**





# Hays County

# Linked Deposit Program

## WATER AND ENERGY PROJECTS

**Interested in installing a  
low water landscape?**

**Want to remove cedar  
from your property?**

**Planning to add solar panels  
to your home?**

**Hays County is now offering  
the Linked Deposit Program.**



This program provides Hays County residents with  
REDUCED Interest Rates for water or energy conservation projects.

### **Eligible Projects:**

- Connection of a water well to a public water system
- Removal of cedar
- Removal of mesquite
- Installation or expansion of a rainwater collection system for a residence or business
- Installation or expansion of a fuel cell system
- Installation or expansion of a drip irrigation system
- Installation or expansion of a low water use landscape
- Installation or expansion of a wind energy system
- Installation or expansion of a solar water pumping system
- Installation or expansion of a photovoltaic solar cell system

For more information:  
[www.co.hays.tx.us/departments/  
grants/LinkedDeposit/](http://www.co.hays.tx.us/departments/grants/LinkedDeposit/)

Or Contact: Robert Kennedy  
Phone: 512-496-3168  
Email: [Robert.Kennedy@co.hays.tx.us](mailto:Robert.Kennedy@co.hays.tx.us)

## 2007 BSEACD Essay Contest Winners

This year the District held its 7th annual groundwater essay contest and presented \$1500 scholarships to two very different essays.

The first scholarship went to Lyndon B. Johnson High School high school senior Andrea Kay Walker. Her essay entitled "Groundwater: An Essential But Limited Resource" focused on growth in the hill country and it's effect on existing wells. She discussed water quantity and water issues, and what steps Central Texans can take to extend already taxed groundwater resources.

Andrea will follow her environmental science interests and serve as a Student Conservation Association Volunteer this coming summer before heading off to Texas A&M in the fall.

The second recipient, John David Sanford, attends Jack C. Hays High School in Buda and wrote what might arguably be the most original essay the contest has ever seen. His essay "Groundwater Management as a Means for International Peace" discussed water inequality, stressing that water has and still remains a main motive for violence in the Middle East. His essay discusses examples of water-inspired conflicts, their severity versus conflicts over oil, and the need for international humanitarian aid.

The District's General Manager, Kirk Holland, noted, "Each year at this time, we are reminded that scholarships like these are one of the more long-lasting things we do to foster good stewardship of our increasingly precious water resources. This year's essay contest winners demonstrate excellence in appreciating these needs and reinforcing their importance."

The District would like to thank this year's judges who volunteered their time to read and choose the winning essays.

Mary Gay Maxwell, City of Austin Environmental Board Member; Carolyn Meredith, Environmental Specialist with the City of Sunset Valley; John Mikels with GEOS Consulting; Peggy Murphy, Capital Area Master Naturalist; Gary Franklin, BSEACD Precinct 2 Director; and Guy Rials, regulatory compliance technician with BSEACD served as the judges of this year's contest.

The winners were special guests of the District's Board of Directors at its regular meeting on Thursday, May 10th, where they were officially acknowledged and commended for their efforts. For information about future scholarship programs or to read this year's winning essays, visit [www.bseacd.org](http://www.bseacd.org).

*Top Photo: Board members congratulate 2007 Essay Winner, John David Sanford*

*Bottom Photo: Board Members congratulate 2007 Essay Winner, Andrea Kay Walker*





## Austin Nature Day



On April 21, Austinites were treated to over 40 unique outdoor events in celebration of the third annual Austin Nature Day. This event, patterned after the successful Austin Museum Day, brought over 20 area environmental and cultural organizations together to celebrate the city's beauty, vitality, and diversity of natural landscapes and resources. Sprinkled through the city were educational and recreational events that offered a wide variety of opportunities to experience and enjoy the open spaces and natural places that make Austin special. The activities

(most at no-cost) included stargazing, caving, guided walks, informational talks, local museum tours, and fishing.

The District joined the Texas Cave Management Association (TCMA) to offer two guided trips through Whirlpool Cave. This wild cave, owned and operated by TCMA, is not regularly open to visitors, and over 50 caving participants got the chance to learn more about the karst and caves of Austin and their direct connection to recharging the aquifer. For more information on caving in the area, please visit [www.tcmacaves.org](http://www.tcmacaves.org), and for more information on Austin Nature Day visit [www.austinnaturedays.org](http://www.austinnaturedays.org).



## Williamson Creek Cleanup

Many south Austin residents visit Sunset Valley's shops and restaurants, but don't know about Williamson Creek and its trail system located directly behind these Brodie Lane establishments. This section of Williamson Creek is located over the sensitive recharge zone of the Barton Springs Edwards Aquifer, and therefore garbage and debris in this section of the creek can clog recharge features (like caves or sinkholes) and degrade water quality. Each year, the Barton Springs/Edwards Aquifer Conservation District teams up with the City of Sunset Valley to tackle the ever-present trash in this urban watershed.

Due to heavy rains in late March, the annual cleanup had to be moved from March 30th to May 12th. On the 12th, fifty volunteers, many of whom were local boy scouts, joined both organizations' staff and Sunset Valley residents at the Brodie World Market bright and early. Group members were given bags, gloves, ivy block, and directions, and set off down the trail to pick up the trash that had been washed onto the banks and into the creek. The larger group split into two smaller groups and headed in opposite directions scouring the creek bed. In just over an hour and half, volunteers had picked up over 50 bags of trash, a car bumper, a water heater, and shopping cart. Please visit [www.keeptaustinbeautiful.org](http://www.keeptaustinbeautiful.org) to learn more about Clean Sweep Austin Day and other cleanup efforts across the city.

The Barton Springs/Edwards Aquifer Conservation District would like to extend its thanks to the staff of Sunset Valley and all the volunteers who made this event possible.



*Volunteers pose with their trash bags in the creekbed. The cleanup attracted volunteers of all ages.*