Volume 17, Issue 1

SOUTHEAST TEXAS GROUNDWATER CONSERVATION DISTRICT

Summer 2024

SETGCD Well Monitor

DISTRICT LOSES ONE OF THE BEST

FAMILY, FRIENDS, AND COLLEAGUES SADDENED BY UNEXPECT LOSS

As you may know, the District lost its Board President, Roger Fussell, just after the start of the year. Roger was the senior member of the Board having been originally appointed to the District's Board of Directors by the Hardin County Commissioner's Court and Judge Caraway in 2006. Roger became the Vice President of the Board in the fall of 2009. In 2018 Walter Glenn retired from the Board as its President and the Jasper, Newton, Hardin, and Tyler County Commissioner's Courts unanimously appointed Roger to be Mr. Glenn's successor.

Roger was a consummate water industry professional, not only managing public water systems but a true supporter of all water management professionals. In addition to being on the District Board for 17 years, Roger was part of the Texas Water Utilities Association for 30+ years. He was always aware of the importance of those who were licensed and trained to manage our water resources and waste water treatment. We will miss not only his leadership, but his story telling as well, which always put a smile on your face.

IMPACTS OF A DRY SUMMER OR PROLONGED DROUGHT ON LOCAL STATIC WATER LEVELS

One of the more important functions of the District is to monitor the static water levels of the Gulf Coast Aquifer System. The Gulf Coast Aquifer System is called such because it is comprised of several slightly different layers. From the surface down these layers are known as the Chicot, Evangeline, Burkeville Confining, Jasper, and Catahoula aquifers with the Chicot being the primarily used layer throughout most of the District. Afterall, why drill a well 1,000 feet deep or deeper to the Evangeline or Jasper layer when 100–500 feet down into the Chicot is often deep enough even for moderately high volume commercial wells.

The District has a network comprised of approximately 50 observation wells located throughout the four counties of the District that are visited twice a year to collect static water level data. The District has only been collecting the data since 2008, however in most instances our observation wells have data going back much further that was collected either by the Texas Water Development Board or the USGS. Some of the observation wells have data going back nearly 70 years.

Many people wonder and worry about what happens to our aquifer and the static water levels and how it might affect their water wells when we experi- (Continued on page 2)

Did you Know?
Texas is the only state that considers groundwater a private property right.

Inside this issue:

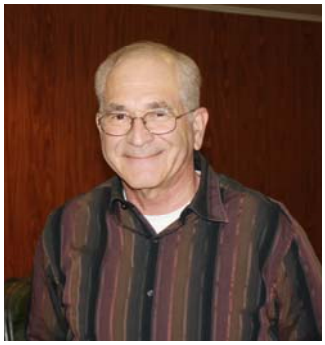
Appointment of New Executive Committee

Olen Bean, having been the District's Vice President prior to the loss of Roger, lead the District until the Jasper, Newton, Hardin, and Tyler County Commissioner's Courts took official steps to appoint Mr. Bean as the Board President. Mr. Bean was originally appointed to the Board by the Newton County Commissioner's Court in 2011.

After Mr. Bean became the Board President the full board took action at its March 14, 2024 meeting voting to move Bobby Rogers (formerly the District's Sec./Treas.) to the Vice President position and to make Director Zimmerman the District Secretary/Treasurer. Both of these gentlemen have been longstanding members of the Board, with Mr. Rogers serving since 2008 and Mr. Zimmerman since 2012.

Olen Bean, President

Bobby Rogers, Vice President

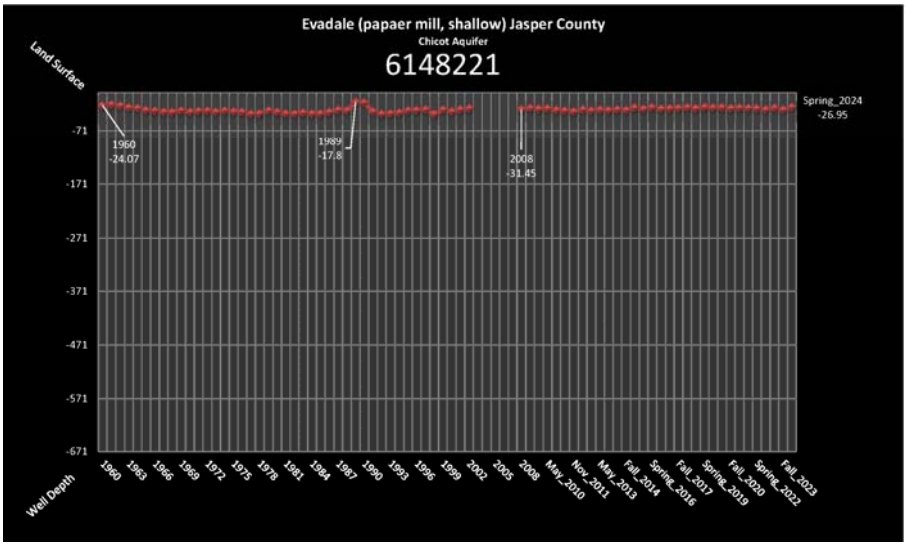


Charles Zimmerman, Sec./Treas.

Continued from page 1—Impacts of Drought on Local Static Water Levels

ence drought conditions, as we did in 2023 or the prolong 2010—2012 drought. Fortunately for us, we live in an area that not only has a healthy aquifer that has not been over taxed, we also have the luxury of 3 river systems, the two largest reservoirs in the state, and an extremely healthy annual average rainfall. These factors combine to keep our water levels relatively stable even through periods of extended drought.

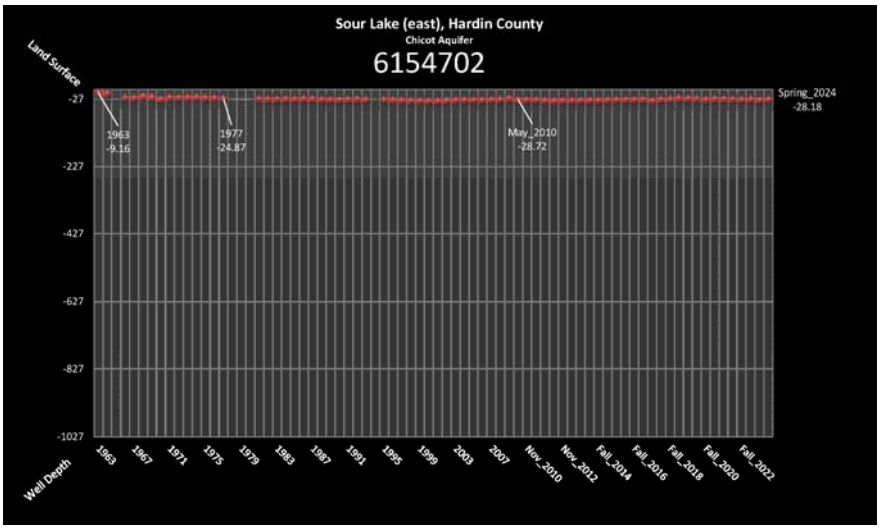
As you can see from the graph for Well 6148221, the static water level has remained relatively stable for the 60 years of data shown. The well is 671 feet deep and as you can see fluctuates only nominally. When you take into consideration the depth of the well and the water column, which averages about 640 feet in depth, even during the prolonged 2010—2012 drought, the water level never dropped below –35.4 feet, which was a change in the water column of about 1% from the pre-drought level taken in May of 2009.



Another very interesting fact about Well 6148221 is that it is located just across the street from the Evadale papermill which uses a combined groundwater and surface water amount exceeding 10s of millions of gallons a day (and has been doing so since the1950s).

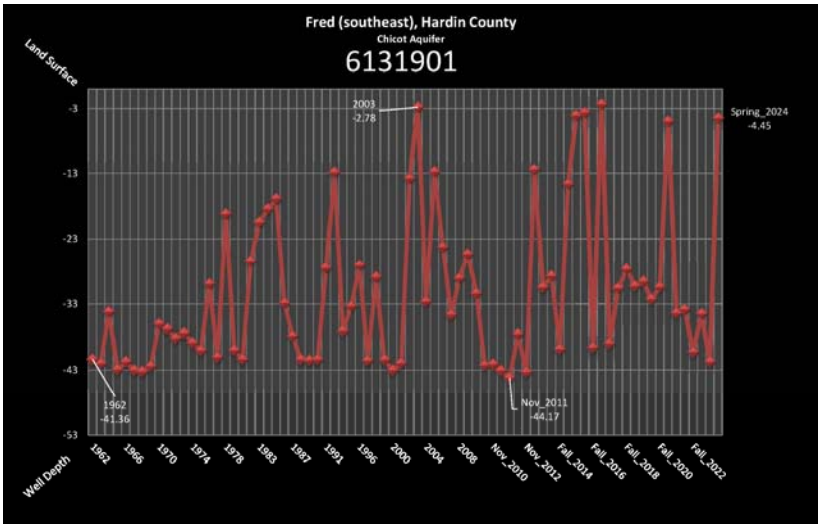
Continued on page 3

Continued from page 2—Impacts of Drought on Local Static Water Levels



Another well with a long history of water level readings is Well 6154702 which is located on Hwy. 105 in Sour Lake. This well has regular recording going back 60 years to 1963. The well is a little deeper and further south in the District putting this well in the Evangeline layer of the Gulf Coast Aquifer. The well was drilled in 1951 with the earliest know water level having been taken in 1959 which indicates that it was 5.57 feet below the surface. Between 1959 and 1966, for unknown reasons, there was a moderate drop in the static water level to 23.94 below the surface but it has remained extremely stable since with the latest measurement being 28.18 feet below the surface. In the case of this well, the drop in static water level to approximately –32 feet during the 2010—2012 drought was approximately a 0.5% drop in the water column of this well.

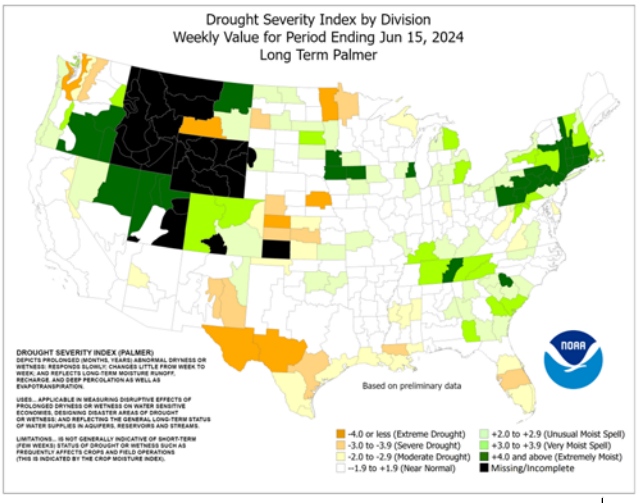
Most wells that have 100 feet or more of depth to them show little impact from short to mid length droughts, but shallow wells can be a completely different story. Shallow wells are very susceptible to current weather conditions and during drought periods may see drastic drops in static water levels. Conversely, when we are experiencing wet conditions, those same wells can recover water just as quickly as they have lost it. This is clearly visualized by the graph for Well 6131901, which is located in northeast Hardin County. This well was drilled in 1940 and is the typical hand dug well of that era . This well is only 53 feet deep and is no where near as stable as the wells that are deeper. The change from the fall 2023 measurement to the spring 2024 measurement was an astounding 37 foot increase in the water level. This well had a similar recovery after the 2010—2012 drought with nearly a 31 foot recovery. Another interesting element of this well that is the fact that even during prolonged droughts the well maintained approximately 10 feet of water in the well. Also interesting is that the earliest water level recorded for this well was taken in April of 1942 and was –38.79 feet, far lower than our latest measurement.



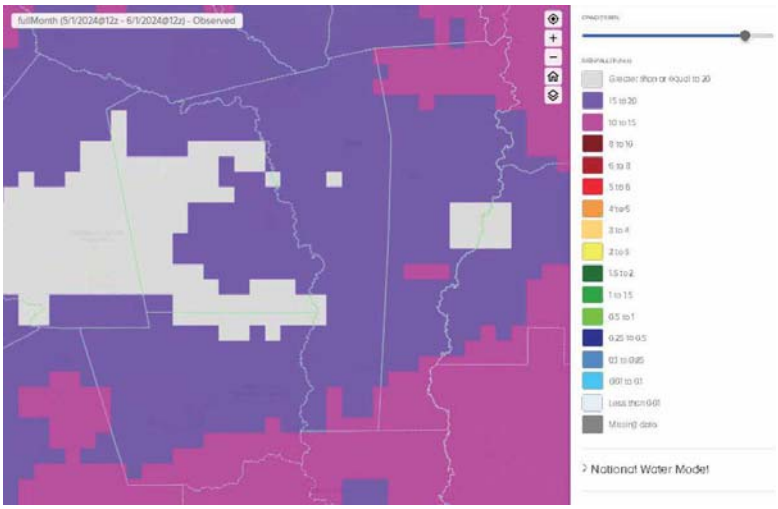
Will wells go dry during droughts, yes — of course wells will go dry from time to time; however, we are fortunate to live in an area that hasn't seen its groundwater resources overused and has a groundwater district in place to manage the aquifer. I once heard a local water professional say he thought that our area of the Gulf Coast Aquifer System was drought proof. While I don't want to temp fate, I do think it is safe to say that the Gulf Coast Aquifer System in our area is relatively drought resistant.

For more static water level information see pages 6 and 7.

DROUGHT CONDITIONS



It's a bit difficult sometimes to understand drought maps. A good example of this is the current U.S. Palmer Drought Severity Index (PDSI) which shows our area to be experiencing near normal conditions; however the majority of the District has already received nearly its annual average amount of rainfall for the year, with one rain gauge in Tyler County reading over 70 inches of rainfall since January 1. Needless to say, we have improved significantly from last year when we were experiencing D4 Exceptional Drought Conditions for several consecutive months. The D4 designation is the most severe conditions the U.S. Drought Monitor gives, and it is not often seen here in East Texas.



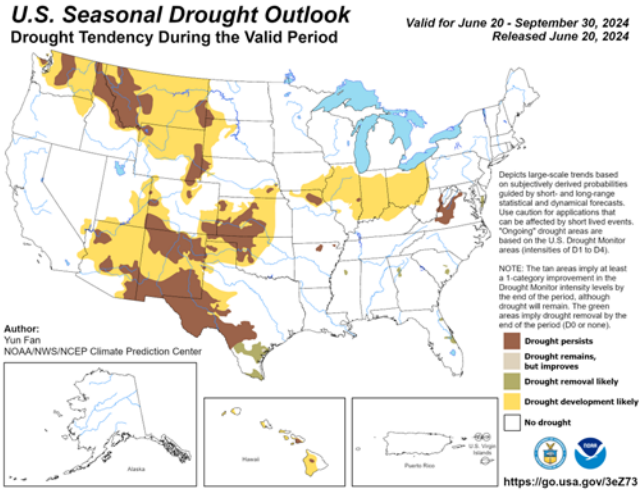
As you can see from the National Water Prediction Services map (left), the rainfall totals for May alone ranged from 10 to well over 20 inches, with the majority of the District having received between 15 and 22 inches for May. Those May totals combined with several other wet months this year have some areas of the District already reaching our annual average of 52—54 inches of rainfall.

How the remainder of the year will play out with regard to rainfall is, of course, unknown. On one hand we are expecting an active hurricane season which can easily drop a "little" extra rain on the area (anyone recall Hurricane Harvey?) but the prevailing weather pattern is expected to revert to a La Nina pattern which typically means hotter and drier weather like we saw last year.

SEASONAL DROUGHT OUTLOOK

As you can see from the June 20, 2024, U.S. Seasonal Drought Outlook map (right), here in east Texas we are not expected to develop any drought conditions in the next several months. The second half of the year may be interesting with the predicted active hurricane season and the La Nina weather pattern expected to return. This makes it difficult to predict what our precipitation totals will be for the year.

The Big Bend area has not been as fortunate as the eastern, and to a lesser degree the southern portions, of Texas and is experiencing moderate to extreme drought conditions according to the June 20, 2024 U.S. Drought Monitor (not pictured).



Conservation Corner

Drought Preparedness—Reduce Wasteful Practices to Bank Water for Future Use

It was just last year that much of the Southeast Texas Groundwater Conservation District (and east Texas in general) was experiencing very severe drought conditions. How quickly things have changed - from drought conditions to wet conditions in only a matter of months. It's times like this that it's difficult to talk to people about conserving water, especially when, as of June 1, some parts of the District have received or surpassed (in some instances significantly surpassed) the annual average rainfall for the entire year. Even in an average year we typically have an abundance of rain with an average annual amount of 52 - 54 inches. Having already hit our annual average in some places and with a very active hurricane season predicted, it is quite possible that we could get 70 or more inches of rain in 2024 (one rain gauge in Tyler County has actually already surpassed 70 inches).

Although we have experienced wet conditions for the first five months of the year, predictions are that we will be transitioning back to a La Nina weather pattern which typically brings warmer and drier weather as was the case during the summer of 2023. Prolonged La Ninas are not unheard of, as was the case in 2010 - 2012 which was one of the driest periods in Texas history. Most areas within the Southeast Texas Groundwater Conservation District saw 30% - 35% less rain than normal during that period. The northwestern portion of the District (Woodville area) saw closer to 50% less rainfall. Because drought is always possible, it is best that we conserve our most precious resource when we can so that it will be available in the future. Just because we have plenty right now, doesn't mean that we shouldn't stay water wise and conserve whenever we can. Don't forget, it was only last summer that some parts of the District were experiencing category D4 Exceptional Drought Conditions, the highest drought rating on the U.S. Drought Monitor, which is a weekly map of drought conditions that is produced jointly by the National Oceanic and Atmospheric Administration (NOAA), the U.S. Department of Agriculture, and the National Drought Mitigation Center (NDMC).

Although it may seem unnecessary to conserve during wet periods, it is always a good practice so that when we are experiencing drought conditions, it doesn't hurt as much.

Here are some ways in which you can reduce your groundwater consumption and prevent waste:

Conserving Water Indoors:

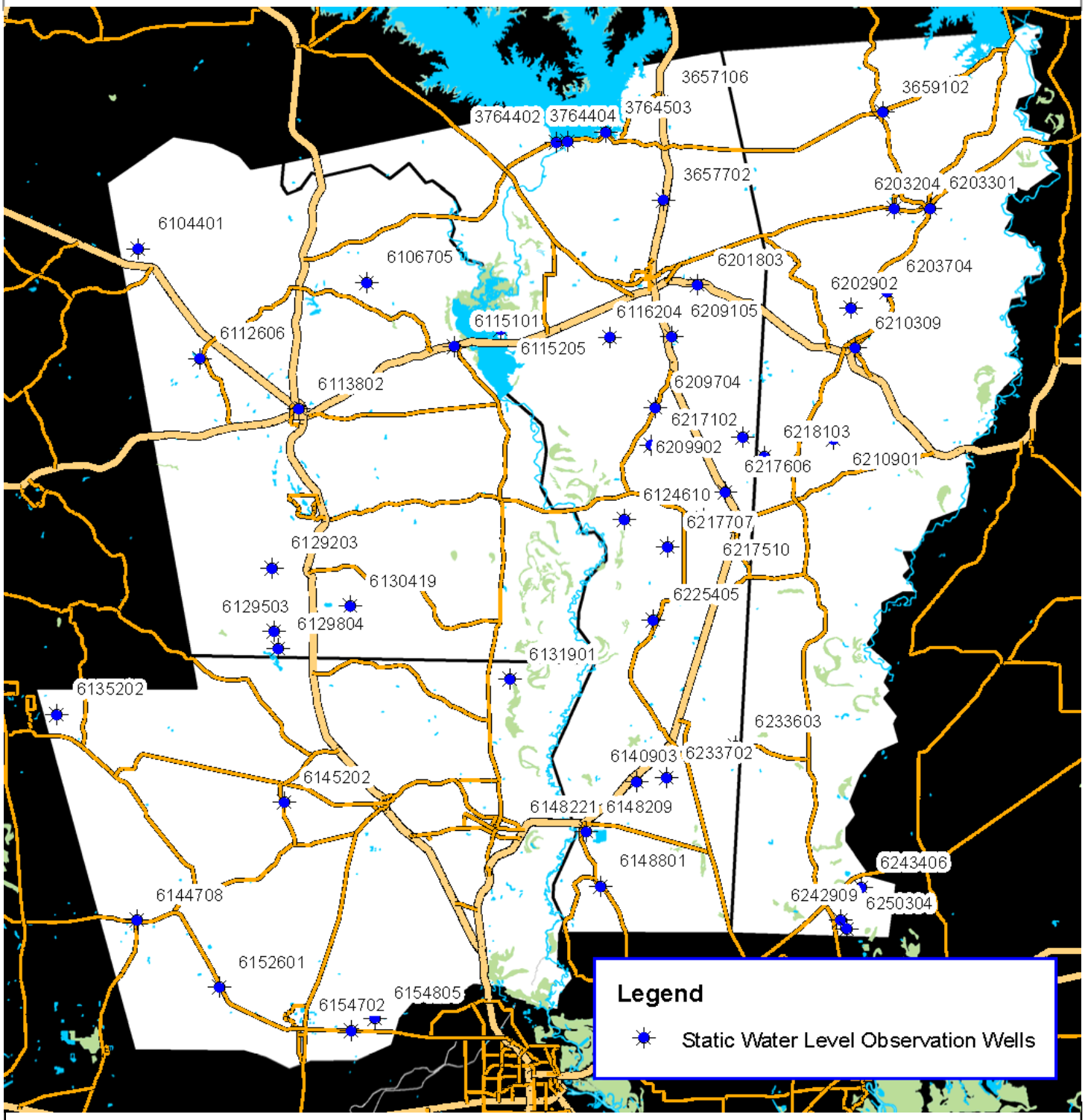
- Using efficient showerheads and aerators on your faucets can significantly reduce the amount of water you use. In fact, installing an efficient showerhead is one of the most effective water saving steps you can take inside your house. You can save a little more water by getting into the shower as soon as possible - don't let the water run too long while warming it up.
- When possible, update and replace old toilets, washing machines, and dishwashers. New efficient models can save you thousands of gallons per year.
- An older clothes washer will use up to 23 gallons per load, whereas a new energy efficient model may use as little as 13 gallons. Considering that the average household washes about 300 loads per year, the numbers add up quickly. Another thing to keep in mind is that if you wash with hot water, up to 90% of the cost to wash those clothes is simply for heating the water. Only use hot water when necessary so you'll save on your electrical bill and reduce the impact on the water-energy nexus (a complex relationship of water usage in the production of electricity).
- In the kitchen, a water efficient dishwasher can save over 1,000 gallons per year. Keep in mind that 1,000 gallons may not seem significant, but multiply that by a neighborhood and 1,000 gallons per home will add up to quite a lot very quickly.
- Newer water efficient toilets will use only about 1—1.5 gallons of water per flush. You should always keep an eye out for any leaks in your toilet. A leaking toilet can waste quite a bit of water, possibly thousands of gallons a month in extreme cases. It is estimated that 10% of all homes in the U.S. have water leaks wasting 90+ gallons of water per day.

Conserving Water Outdoors and Reducing Waste:

- If you have a swimming pool, consider covering it when not in use. In the summer, a pool can lose as much as half an inch per day due to evaporation, which can add up to the equivalent of your pool's entire volume each summer. You could potentially save 10,000 – 20,000 gallons or more depending on the size of your pool.
- Water landscaping in the morning or late evening to reduce evaporation loss, and only water when needed. Most lawns only need 1 inch of water per week.
- If you have a sprinkler system, keep it well maintained and keep an eye out for leaks.
- If you have a vegetable or flower garden consider a drip irrigation system. It will water your plants more efficiently and with less waste.
- Be conscientious when washing your vehicles at home. If you leave a hose running, you could use as much as 100 gallons or more washing your vehicle. Have a sprayer head on the hose to save water or consider a commercial car wash. A commercial car wash typically uses 35 – 70 gallons of water with newer high-tech facilities using as little as 15 gallons.

For more information on water conservation ideas visit the Southeast Texas Groundwater Conservation District's Website at: https://setgcd.org/ or the Texas Water Development Board's site at: https://www.twdb.texas.gov/conservation/

Static Water Level Observation Well Locations & State ID



What Is A Static Water Level?

The Static Water Level is the distance from the surface of the ground down to the water table when a well is not being pumped. This is sometimes called the resting water level. For example, a static water level reading of –25 feet means that the distance from the ground down to the water table is 25 feet.

In the data on the following page, I have included a column indicating the amount of static water level change from the previous year. If the number is positive, it means that the water level has dropped in that particular well. If the change is a negative number, as most of them are, it means that the water level is higher than the previous year. Typically, large drops or rises are indicative of shallow wells

State Wel ID	County	Date Drilled	Well Depth	Early W.L. Reading / Year of W.L.		May_2009	Spring_2023	Spring_2024		1 year change
6131901	Hardin	1940	53	-38.79	1942	-25.35	-34.50	-4.45		30.05
6135202	Hardin	2003	363	-64	2003		-56.3	-56.87		-0.57
6144708	Hardin	1957	72	-24.12	1942	-24.21	-25.40	-26.15		-0.75
6145202	Hardin	2009	220	-12	2009		-7.95	-6.60		1.35
6152601	Hardin	1948	764	-21	1948	-29.67	-23.84	-24.59		-0.75
6154702	Hardin	1951	1027	-23.94	1966	-25.2	-27.22	-28.18		-0.96
6154805	Hardin	1998	618	-60	1998		-28.97	-30.2		-1.23
3657106	Jasper	1938	20	-8.7	1997	-4.69	-5.70	-4.90		0.80
3657702	Jasper	1994	378	-117.7	1997	-117.61	-116.02	-118.00		-1.98
3764402	Jasper	1962	300	-114.3	-114	-113.27	-109.07	-110.83		-1.76
3764404	Jasper	1982	260	-66	1982	-46.83	-44.82	-46.85		-2.03
3764503	Jasper	1981	260	-33.2	1997	-32.33	-31.59	-33.73		-2.14
6115205	Jasper	1984	442	39.96	1984	28.18	39.51	41.24		1.73
6116204	Jasper	1965	220	-51.7	1997	-51.61	-50.95	-50.86		0.09
6124610	Jasper	1998	200	-33.16	2008	-30.59	-31.84	-30.34		1.50
6148209	Jasper	1947	1295	-66.79	1956	-177.09	-199.98	-189.45		10.53
6148221	Jasper	pre 1956	671	-22.47	1956	-28.92	-28.50	-26.95		1.55
6148801	Jasper	1903	1084	-6.85	1960	-5.38	-7.90	-4.02		3.88
6201803	Jasper	1995	884	-85.1	1997	-85.54	-82.85	-82.85		0.00
6209105	Jasper	1967	15	-4.15	1997	-1.38	-1.88	-0.55		1.33
6209704	Jasper	1952	40	-35.84	1997	-34.4	-36.40	-34.18		2.22
6209902	Jasper	pre 1997	40	22.8	1997	-16.13	-18.98	-16.02		2.96
6217102	Jasper	1950	80	-54.85	1997	-80.00	-80.00	-52.68		27.32
6217510	Jasper	pre 1997	140	-15.9	1997	-14.7	-15.23	-17.57		-2.34
6217606	Jasper	1964	70	-7.8	1997	-1.09	-2.25	-0.85		1.40
6217707	Jasper	1950	28	-9.35	1997	-4.15		-2.37		-2.37
6225405	Jasper	1983	120	-58	1997	-57.5	-56.60	-58.12		-1.52
6233603	Jasper	1940	18	-14.7	1997	-10.92	-10.50	-5.77		4.73
6140903	Jasper	2002	802	-119	2002	New to Program		-116.85		
6233702	Jasper	1995	540	-65	1995	New to Program		-64.32		
3659102	Newton	2000	170	-98.76	2009		-93.09	-97.92		-4.83
6202902	Newton	pre 1999	24	-13.03	1999	-11.65	-7.86	-4.30		3.56
6203204	Newton	1979	645	-65.4	1994	-68.15	-66.40	-67.40		-1.00
6203301	Newton	1964	1050	-38.75	1992	-45.42	-36.53	-36.30		0.23
6203704	Newton	1989	640	-169	1989	-172.78	-171.68	-173.31		-1.63
6210309	Newton	1964	1218	-61.38	1993	-65.93	-63.25	-64.40		-1.15
6210901	Newton	1951	300	-13.68	1964	-16.48	-16.22	-16.50		-0.28
6218103	Newton	1980	208	-32.3	1992	-33.99	-34.65	-34.28		0.37
6242909	Newton	1981	590	-39.15	1992	-36.03	-36.80	-37.50		-0.70
6243406	Newton	1981	598	-30	1981	-26.29	-25.18	-25.60		-0.42
6250304	Newton	1983	420	-40	1989	-35.58	-36.65	-37.44		-0.79
6104401	Tyler	1935	860	-169.39	1960	-168.71	-164.37	-159.75		4.62
6106705	Tyler	1984	288	-145	1984		-148.02	-148.05		-0.03
6112606	Tyler	1960	250	-121.64	1964		-123.28	-123.45		-0.17
6113802	Tyler	1951	582	-155	1953	-174.13	-163.25	-167.70		-4.45
6115101	Tyler	1964	68	-31.66	1964	-33.09	-32.62	-32.96		-0.34
6129203	Tyler	pre 1953	30	-22.73	1953	-15.38	-15.25	-13.28		1.97
6129503	Tyler	2008	250	-20	2008		-19.33	-16.12		3.21
6130419	Tyler	pre 1965	22	-13.01	1965	-3.62	-4.02	-2.05		1.97
6129804	Tyler	1972	580	-22.92	2003	-31.70	-26.73	-29.15		-2.42

Southeast Texas Groundwater Conservation District

P.O. Box 1407, Jasper, TX 75951

(409) 383-1577, www.setgcd.org

«Suffix» «FIRST NAME» «LAST NAME»
«ADDRESS 1»
«CITY», «STATE» «ZIP»

Did you know that the Gulf Coast Aquifer is also known as the Coastal Lowlands Aquifer System. Also, it is not confined to the State of Texas. It extends from the Texas/Mexico border all the way over to the Florida Panhandle.

WATER IQ
Know your water.

CALENDAR OF EVENTS

July 4, 2024	**Independence Day — District office closed**
July 11, 2024	**SETGCD — Regular meeting of the Board, in Jasper, TX**
August 13, 2015	**SETGCD — No Regular Meeting**
September 2, 2024	**Labor Day — District office closed**
September 12, 2024	**SETGCD — Regular meeting of the Board, in Jasper, TX**
October 10, 2024	**SETGCD — Regular meeting of the Board, in Jasper, TX**
October 14, 2024	**Columbus Day — District office closed**
November 11, 2024	**Veteran's Day — District office closed**
November 14, 2024	**SETGCD — Regular meeting of the Board, in Jasper, TX**
Nov. 28 & 29, 2024	**Thanksgiving — District office closed**
Dec. 25 & 26, 2024	**Christmas — District office closed**

TEXAS GCD FACTS

- The first GCD was the High Plains Underground Water Conservation District formed in 1951.
- The smallest GCD is Red Sands at only 114 square miles.
- The largest GCD is High Plains at over 12,000 square miles.
- The Southeast Texas GCD is approximately 2,749 square miles.
- The western part of Texas is one of the driest areas in the U.S.
- The Eastern part of Texas is one of the wettest areas in the U.S.
- Annual average U.S. precipitation is approximately 30 inches.
- The annual average precipitation for the Southeast Texas GCD is 52—54 inches.