

Annual Report

Fiscal Year 2018

Lynn Smith, P.G. - General Manager

12/31/2018



Lynn Smith
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This report describes the status of various goals that are stated in the District's Management Plan. It also serves to provide information to the Board of Directors and interested members of the public regarding activities performed by the District during the 2018 fiscal year.

Executive Summary

In the 2018 fiscal year, the Mesquite Groundwater Conservation District continued to make progress toward becoming a stronger management agency in addition to the past data collection activities that continue. Whitney Wiebe and Lynn Smith continue in their full-time roles as Administrative Assistant and General Manager respectively. Troy Thomason continues to serve the District as a Field Technician as needed. Linda Powell continues to serve the District as a Secretary as needed. Two new part-time staff members also contributed to the District's successes: Melody Neufeld works as an Office Assistant and Dallen Skinner works as a Field Technician.

The District continues to administer a meter grant program. The grant monies are to be used for water meters involved in agricultural production and must be matched dollar-for-dollar by the landowner. The water meters are used to quantify water conservation strategies implemented within the District. The third annual report for the grant program was completed by the District this year and was accepted by the Texas Water Development Board (TWDB).

The TWDB completed the realignment of the Groundwater Management Area Two and Groundwater Management Area Six boundary on August 26, 2015. The realignment was undertaken to reflect actual hydrogeological conditions rather than following county boundaries. This realignment was supported by the District and has resulted in several parcels being annexed this fiscal year in eastern Briscoe County that were not contiguous to existing District lands. The District expects that trend to continue and likely increase as the District's work in eastern Briscoe County becomes well understood. As of this report's date, the District has 3,162 acres in Briscoe County.

New rules were adopted by the District that became effective in 2015. The most significant change was the requirement to meter and report all water produced by non-exempt wells. Metering and reporting is phased in over several years, becoming mandatory last year. Groundwater Production Units were also defined and implemented on the same schedule as metering. Groundwater Production Unit declarations, meter inspections, and related enforcement activities have taken up the bulk of Staff time early this fiscal year but has dramatically tapered off as the year progressed.

The District spent significant time during the second half of this fiscal year preparing a new Management Plan. It was pre-reviewed by Texas Water Development Board staff in September 2018. Next year's Annual Report will reflect the goals and objectives for that new Management Plan adopted by the District on October 19, 2018.

The District continues to measure water levels and rainfall. Several water quality tests were performed for wells within the District. Other District activities included providing educational seminars, well permitting, and sponsoring a scholarship program.

The remainder of this report provides details on activities of the District during this fiscal year. They are categorized into goals that appear in the District's Management Plan. Comparisons with previous year's data are made, where appropriate. It should be noted that some of the Management Plan goals and

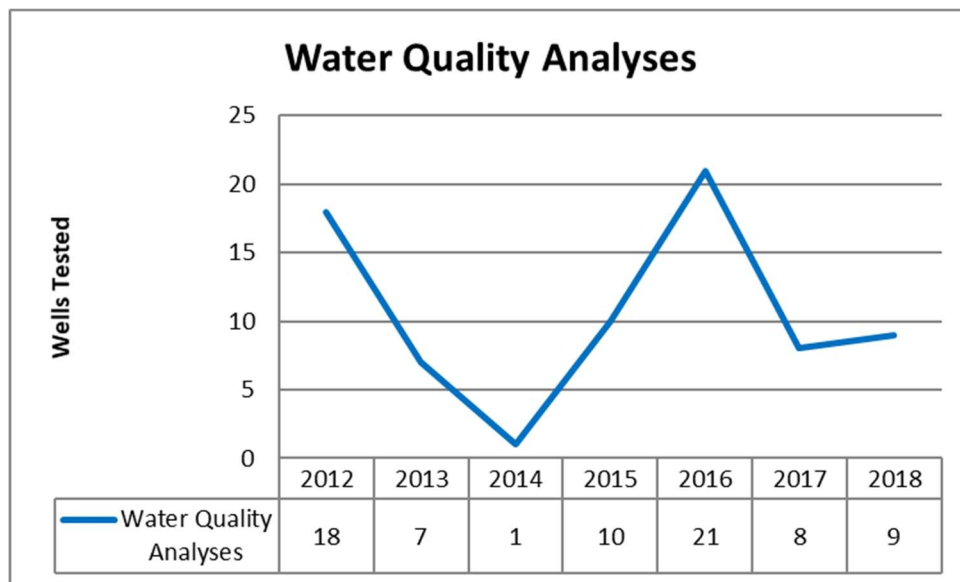
objectives were reorganized in 2016. This report continues that new organization; no goals or objectives were added or deleted.

Management Goal 1: Implement measures to provide for conservation of the groundwater resources of the District

Objective 1: Conduct water quality analyses of requested wells

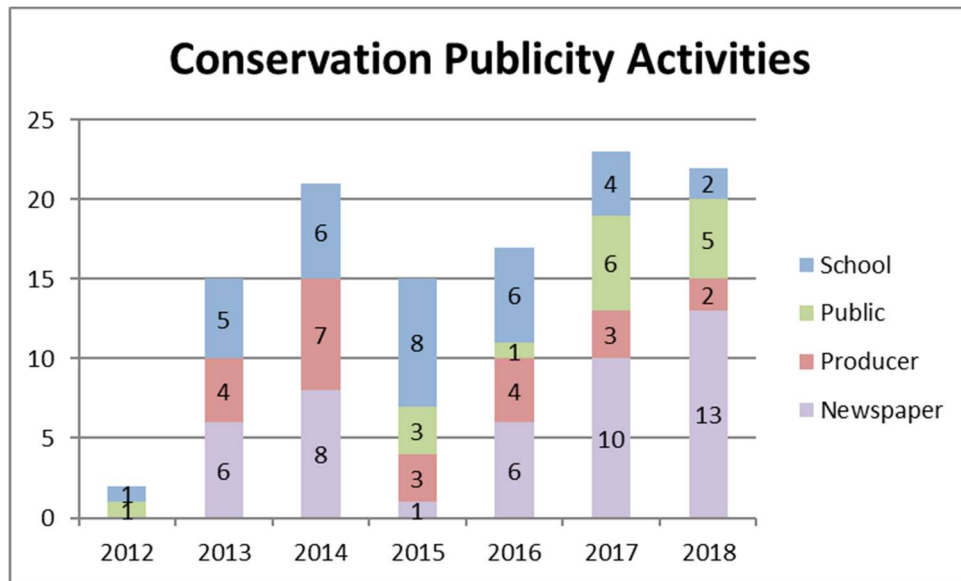
The performance standard for this objective is to conduct the requested analyses within forty-eight hours of receipt of the water sample. Nine water quality analyses were requested this fiscal year; each was analyzed within forty-eight hours of receipt of the sample. Results were provided to the owner or well contractor as appropriate.

The District increased the value of its water quality report by adding a calculated Total Dissolved Solids value. It is based on the empirical relationship between Total Dissolved Solids and Conductivity.



Objective 2: Publicize groundwater conservation issues through local newspapers, group presentations, schools, and other media opportunities

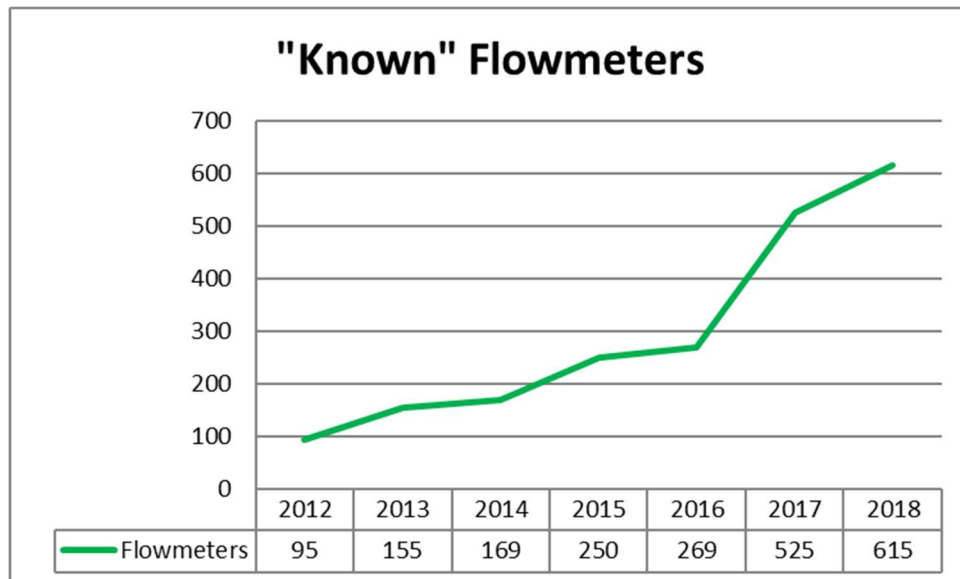
The performance standard for this objective is to publicize a groundwater conservation issue on at least one occasion during the fiscal year. Where applicable, the Texas Water Development Board conservation webpage and best management practices should be used. In this fiscal year, the District publicized conservation issues in thirteen newspaper articles, at two producer meetings, at five public meetings, and two school presentations. The District continues to maintain our website with conservation information and links to other conservation groups.



Management Goal 2: Provide for the most efficient use of groundwater in the District

Objective 1: Monitor flowmeters on wells to facilitate water usage efficiency studies

The performance standard for this objective is to record cumulative water production data from ninety percent of flowmeter locations by December 31st. District staff recorded water production data at 142 flowmeter locations in November and December. This amounts to 27.4 percent of the known flowmeter locations at that time. While this technically, is a failure to meet the standard regarding flowmeter readings, the remaining meter were read early the following year with a total of greater than ninety-five percent known meters read. The discrepancy with this year's reading versus past years is that District Rules required owners to provide meter readings and they were Due in March. This Objective has been modified for next year to reflect the new due date. For the fiscal year, ninety new flowmeters were installed within the District. Practically all of those installations utilized grant monies. District staff inspected each flowmeter location and recorded initial production data at those locations.



Objective 2: Publicize the need for efficient use of groundwater through local newspapers, group presentations, schools, and other media opportunities

The performance standard for this objective is to publicize groundwater efficiency issues at least once by September 30th. In this fiscal year, the District publicized efficiency issues at one producer meeting, one public meeting, two school presentations, and maintained our website with conservation and water use efficiency information.

Management Goal 3: Implement management strategies that will control and prevent waste or contamination of groundwater

Objective 1: Identify and address local irrigation practices that are wasteful of groundwater resources

The performance standard for this objective is to educate the public on wasteful irrigation practices with at least one news article, group presentation, or other local publicity opportunity by September 30th.

District staff presented two educational seminars that addressed wasteful irrigation practices.

Additionally, the District Board reviewed two instances of potential water wasting. Investigation revealed that they were both due to mechanical failure. In each instance, the owner made adjustments in a timely manner. No action was deemed necessary by the Board.

Objective 2: Maintain a program to identify, locate, and obtain closure of abandoned wells

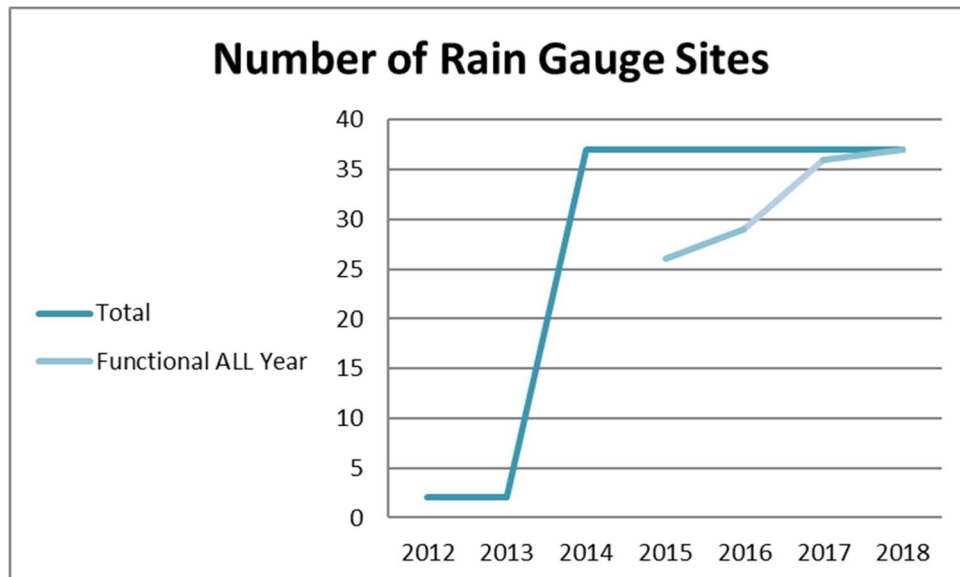
The performance standard for this objective is to inspect and complete a report on each open or abandoned well within thirty days of receipt of the report of such well. District staff did not receive any reports of abandoned wells this fiscal year.

Management Goal 4: Implement strategies to address drought conditions

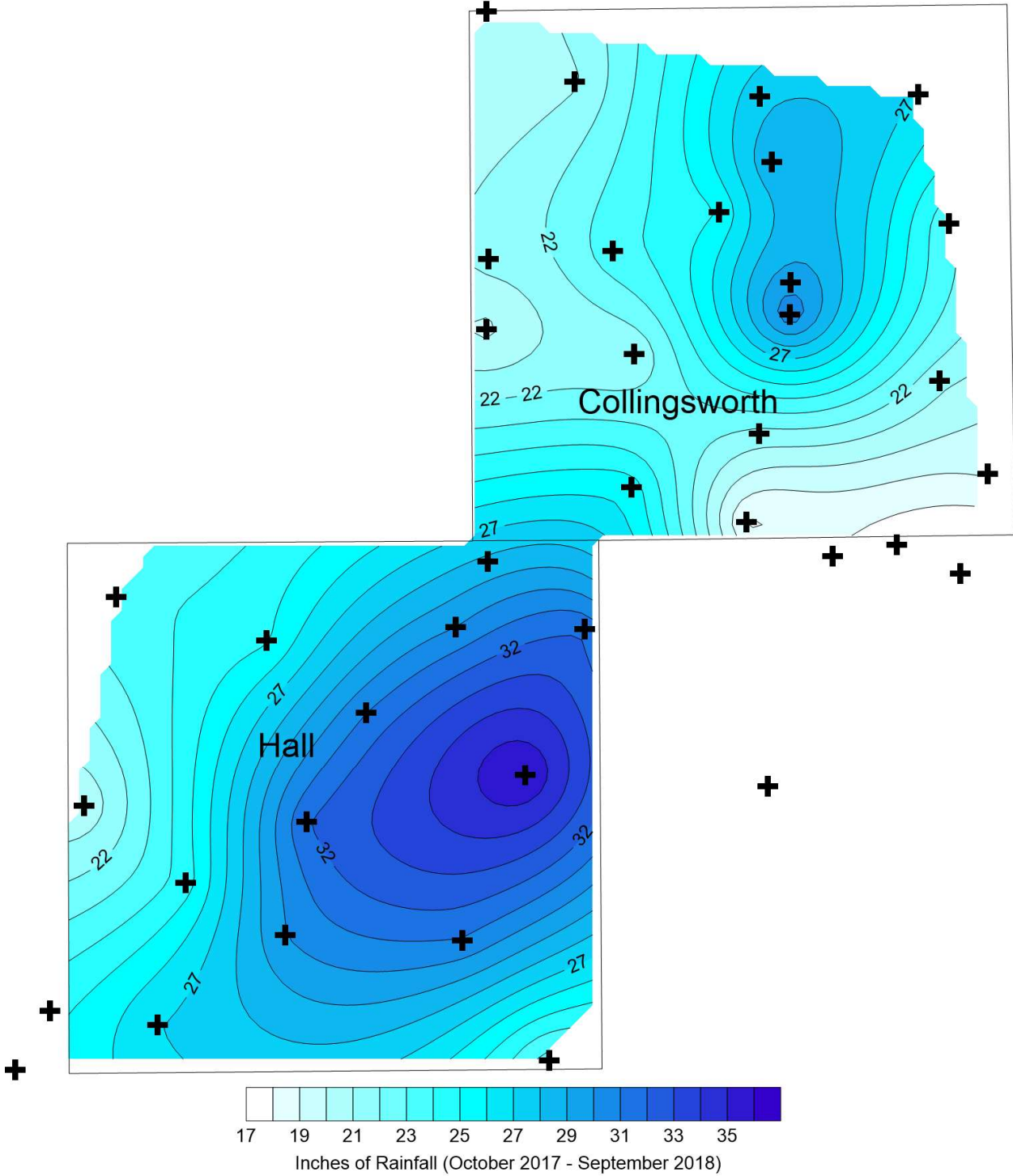
Objective 1: Maintain the District's Drought Contingency Plan

The performance standards for this objective are to review and update the Drought Contingency Plan by September 30th and to incorporate newly annexed areas into the plan annually. The Drought Contingency Plan was reviewed at the July Board meeting. No updates were deemed necessary at that time. The District continues to monitor rainfall utilizing a network of thirty-six rain gauges maintained by the District and one additional gauge maintained by the National Weather Service. The District will likely annex additional parcels in eastern Briscoe County in the near future and is looking at several options for placing another rain gauge in that area. The graph below shows how the number of gauged sites has increased over time as well as the sites that remained functional for the entire year. The map on page six depicts the rainfall amounts that were recorded at thirty-seven gauge sites that remained functional for the entire fiscal year. The data has been gridded and contoured to estimate likely rainfall amounts between gauge sites. For the sites that were functional in FY 2017 and FY 2018, the average rainfall was 0.62 inches less in FY 2018. This seems like a small amount but consider that it is 12.8 inches less than 2016 to gain perspective, 2018 was indeed a very dry year for most of the District. As always, there are outliers with specific gauges showing anywhere from thirteen inches less than last year to nine inches more than last year.

The District spent significant time upgrading the rain gauge sites to be more resistant to being chewed up by rats and other animals. That effort is shown in the high percentage of gauges that remained functional for a full fiscal year.



Total Rainfall FY 2018



January 1, 2019

Management Goal 5: Address recharge enhancement within the District

Objective 1: Recharge Enhancement Feasibility Study

The performance standard for this objective is to perform a recharge enhancement feasibility study by September 30, 2016. The Texas Water Development Board conducted a project that studied the Blaine Aquifer and its potential for brackish water production. The project was expanded to include the Whitehorse Group and thus encompasses a significant portion of the District. A portion of the project is focused on recharge and recharge features. The project was to be completed in September 2016 but was not completed until late in 2016. Unfortunately, this was also when District Staff were ramping up efforts to get GPUs and metering completed in the District. This schedule prevented Staff from working on the recharge enhancement feasibility study in FY 2017.

The District utilized the data and opinions from the 2016 Blaine Aquifer study for its recharge enhancement feasibility study. The District completed the study on July 1, 2018. It was reviewed by the District's Board during their July meeting.

Objective 2: Rainwater Harvesting Demonstration Project

The performance standards for this objective are to construct a rainwater harvesting demonstration project within the District by September 30, 2014 and provide an annual summary of the results from the demonstration project annually. A rainwater harvesting demonstration project was constructed at Ellison Park in Wellington in the spring and summer of 2014. The District cooperated with Bawcom Supply, AgriLife, and the City of Wellington to construct the project. FY2015 year saw the tank fill with water from rainfall.

AgriLife has accepted responsibility for continuing the project as of August 2015 and plans to use it for students to learn about the principles of rainwater harvesting and strategies for conservation irrigation. AgriLife has just recently hired a new Extension Agent for Collingsworth County where the demonstration project is located. No projects were performed during the 2018 fiscal year.

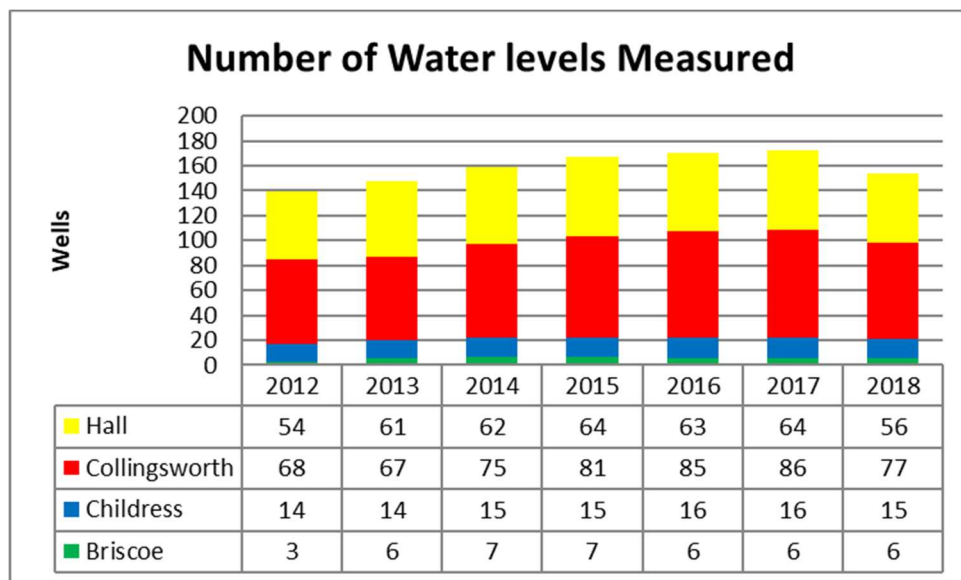
Additionally, the District has started documenting the presence of other rainwater harvesting project within or near the District. It is thought that these projects may be monitored in the future to determine their relative success within the region.

Management Goal 6: Implement strategies to achieve Desired Future Conditions

Objective 1: Monitor static water levels in selected wells

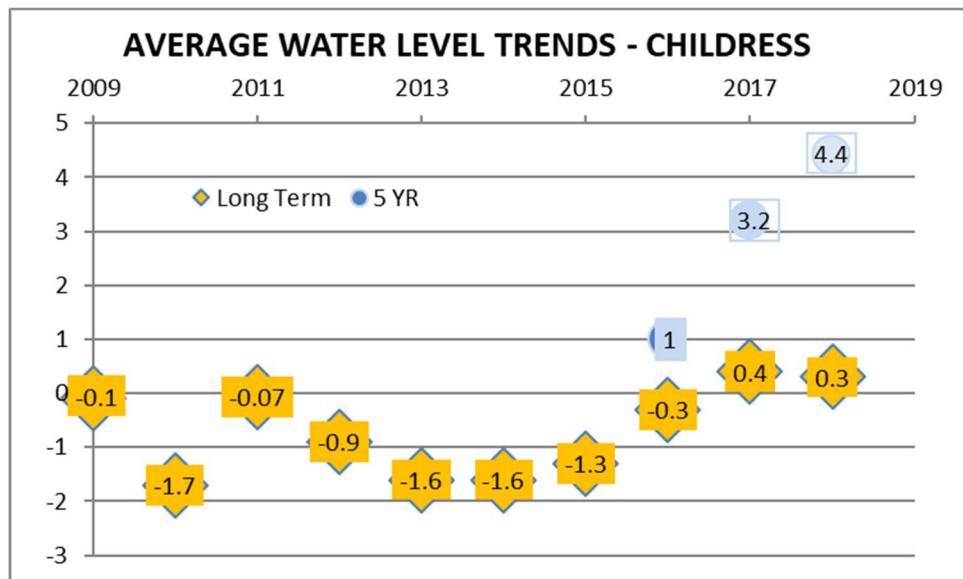
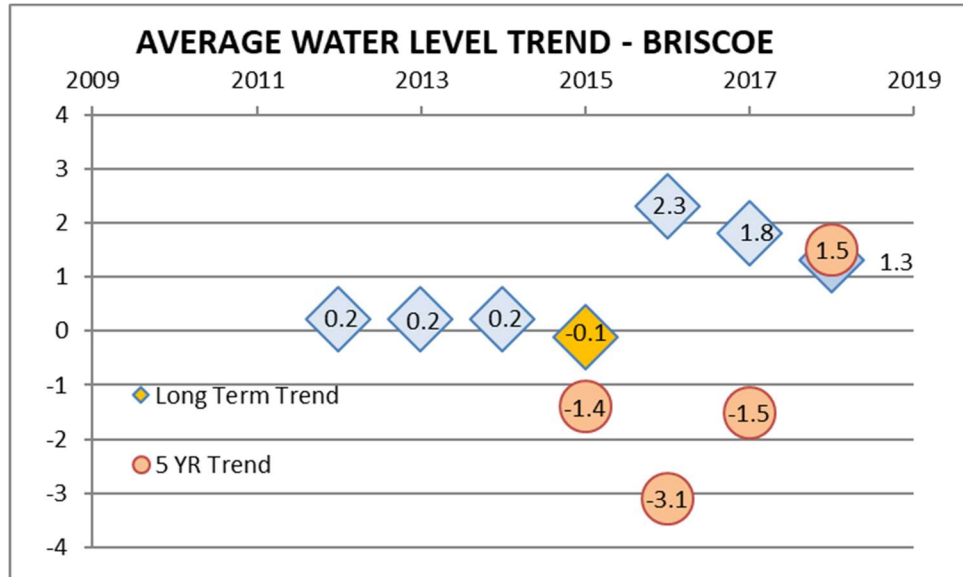
The performance standard for this objective is to measure the static water level in at least 100 wells within the District by April 1st. The District measured water levels in 154 wells within the District. The District will likely annex additional parcels in Briscoe County in the near future and is looking at several options for monitoring additional wells in that area.

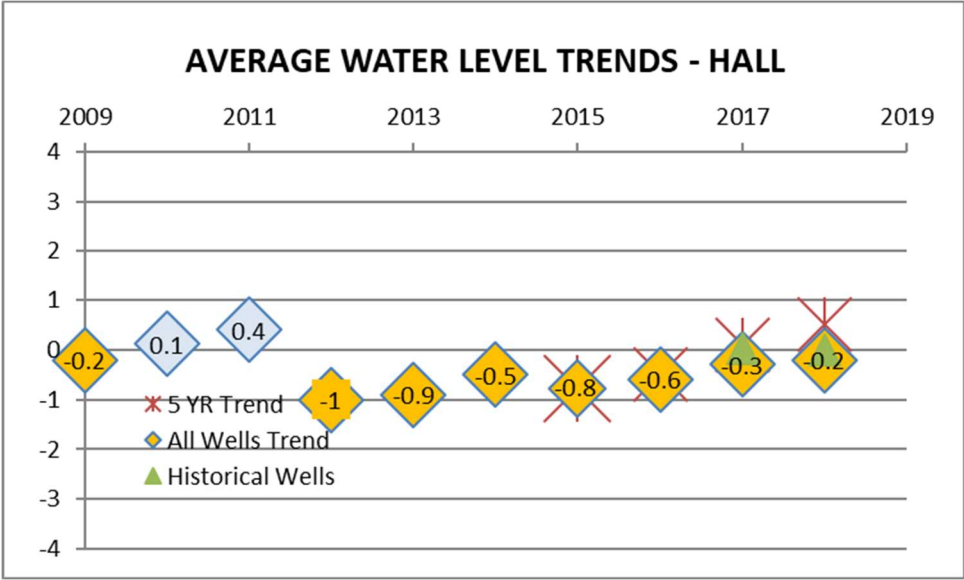
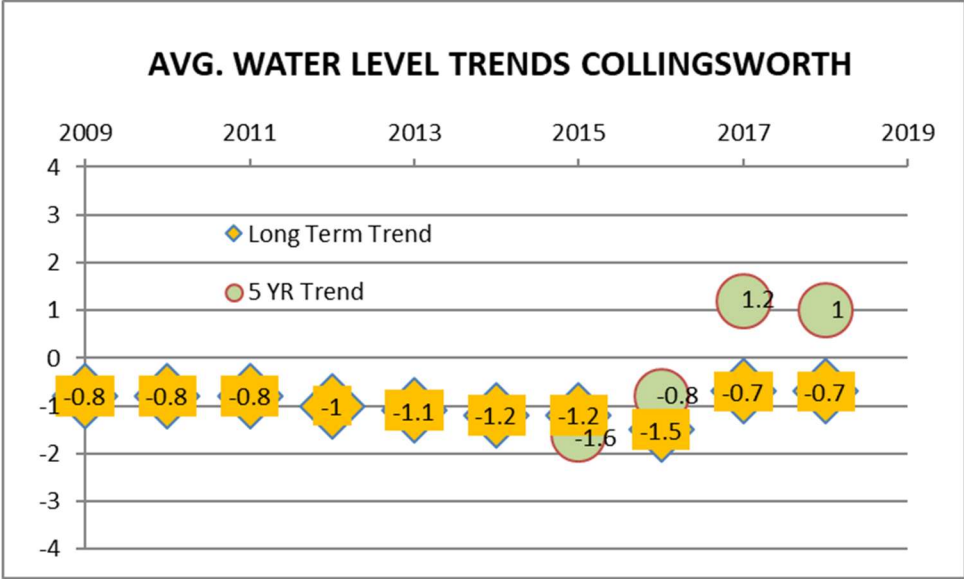
The very dry winter and spring resulted in significant winter irrigation during this fiscal year. This prevented the District from obtaining water levels in about ten cases. Two other wells were destroyed or otherwise became unusable for obtaining water level measurements. A few wells were very near other wells that were being measured and thus, were dropped from the list. The District continues to refine this program and will be adding new locations for water level measurements in the near future.



Objective 2: Complete hydrographs in monitored wells

The performance standard for this objective is to complete the hydrographs for the monitored wells by July 1st and provide them to the Board at their next regularly scheduled meeting. Hydrographs were provided to the Board at their June and July meetings.





Other District Activities

Data and Mapping

The District completed scanning and geo-referencing driller’s logs, permits, and well registrations that existed in the District’s hardcopy files in 2015. New well data is scanned and geo-referenced as it is received. Meter location and cumulative readings are now being entered into a database and can be analyzed and mapped as needed. Rainfall gauge locations and monthly measurements are also being entered into a database and can now be analyzed and mapped. This data is readily available to

individuals to support decisions such as plugging, drilling, or rehabilitating a well as well as to the District Board in support of setting Desired Future Conditions and other conservation actions by it.

Declaration of Groundwater Production Units (GPUs) is complete. ArcGIS mapping software was used to capture the extents of each GPU as well as features unique to each one. The addition of GPUs to District records will enable a much more streamlined response to water wasting complaints and similar matters. Eventually, they may be the basis for production limits if aquifer Desired Future Conditions are not being met.

Aquifer assignments for each well in the database started being made in FY 2016. Prior to that, some wells had been assigned to an aquifer by the Texas Water Development Board and others. The initial focus of the District has been on the group of wells the District measures water levels in. There are approximately 800 additional wells with cutting descriptions sufficiently detailed enough to assign to an aquifer. The District has some form of data on an additional 3,000 wells but it is insufficient for assigning an aquifer. This work will continue and be refined as additional data becomes available. The District has also found it useful to assign aquifers to meters. This work was started this fiscal year but is not yet complete.

Long term, all of this data will be used to measure the District's compliance with our Desired Future Condition statement. While it is hoped that the desired Future Condition is met in all geographic areas of the District, the data may also be useful to indicate areas where additional conservation efforts are needed without placing burdens on all the District water users as a whole.

Joint Planning

The District is actively involved in joint planning activities at the Area, Regional, and State level. The District has a voting membership in the Groundwater Management Area Six and the Region A Water Planning Group. These groups make decisions that affect the District both from a goal/rule setting standpoint and a monetary standpoint. All groups are on track with their planning and have held all required meetings. All full-time staff attend at least two state-wide meetings of groundwater conservation districts each year. The District is a voting member of the Texas Alliance of Groundwater Districts. As the Legislature continues to set more mandates for these groups (and the District); participation in them will only grow in importance.

Extra-District Activities

District staff participated in several organizations this year such as Texas Association of Groundwater Districts and the Texas Groundwater Association. Lynn currently serves on the TAGD Groundwater Protection Committee, Legislative Committee, GCD Index Audit Group, and the Education & Outreach Committee. Whitney is currently active in the Groundwater Educational Outreach Collaborative. She also is a volunteer in the local 4H club. While these organizations do not directly manage groundwater, they do provide opportunities for inter-district cooperation and education on many levels. They provide an excellent source of training for District staff. They also provide a good opportunity for staff to network with other agencies, water well contractors, and the general public.

Certifications and Seals

Mr. Lynn Smith, Texas Professional Geoscientist #11223, provided data analysis and prepared or supervised the preparation of the graphs and maps that occur within this report. He, in his capacity as General Manager and a Professional Geoscientist is responsible for the opinions and conclusions herein.