Groundwater Conservation Districts Viewer User Guide

Application Overview

The Groundwater Conservation Districts (GCD) interactive online map allows users to view GCD boundaries within the State of Texas. GCDs are the state's preferred method of groundwater management and are governed by a locally selected board of directors. GCDs are the only entities in Texas explicitly authorized to manage groundwater by providing for the conservation, preservation, protection, recharging, and prevention of waste of the groundwater resources. This web map application displays the TCEQ Priority Groundwater Management Area (PGMA), an area designated and delineated by the TCEQ that is experiencing or is expected to experience, within the immediately following 50-year period, critical groundwater problems including shortages of surface water or groundwater, land subsidence resulting from groundwater withdrawal, and contamination of groundwater supplies.

You may use this GIS Web App Viewer to do the following:

- Search by address and street intersection to locate a GCD.

- Search by county name to locate an existing GCD

- Obtain information from the GCD's website.

Note: Acronyms which are displayed within the viewer:

- ASRCD — Aquifer Storage and Recovery Conservation District

- CD — Conservation District

- CRD — Conservation and Reclamation District

- GCD — Groundwater Conservation District

- RA & GWD — River Authority & Ground Water District

- UFWCD — Underground and Fresh Water Conservation District

- UWCSD — Underground Water Conservation & Supply District

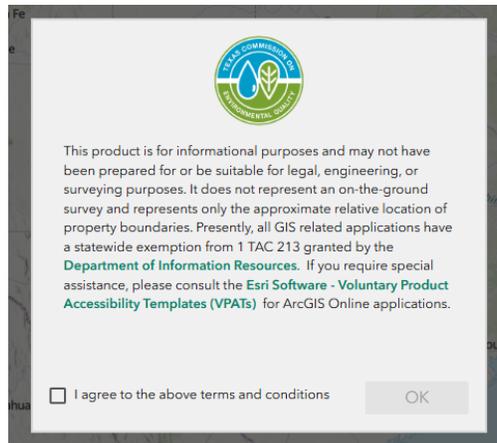- UWCD —Underground Water Conservation District

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Navigating Around the Map

Splash Screen Pop Up:

When first accessing the Viewer, you will see a pop-up that includes disclaimer information on the intended use of the application. Users must select the checkbox next to "I agree to the above terms and conditions" and then the "OK" button will be selectable. Click the OK button to exit the window and continue to view the application.
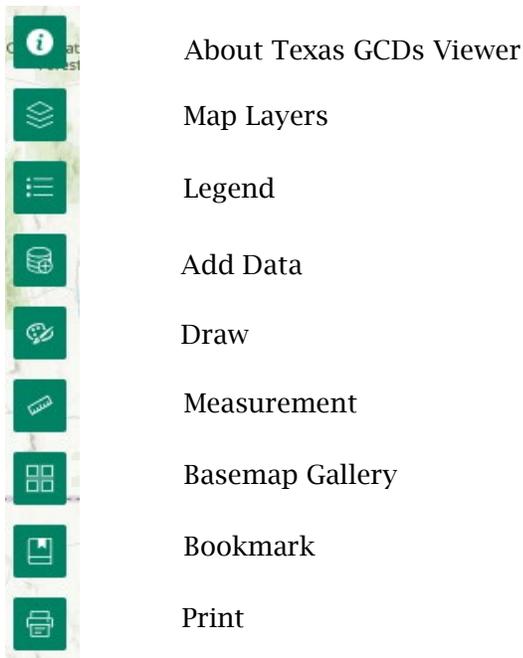

Viewer Header:

The header section of the Viewer includes the Viewer's title and essential information about the Viewer. It provides links to the TCEQ Homepage, the viewer's landing page under the TCEQ Geographic Web Apps page, the Viewer's User Guide, and GCD Information. A version number may also be displayed to assist version control for developers.
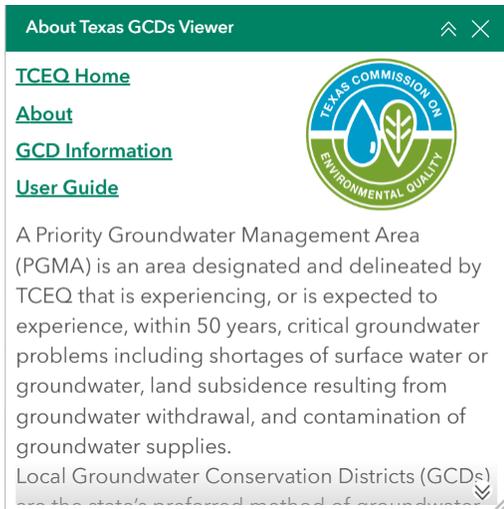
Widget Controller:

The widget controller is located on the left-hand side of the Viewer. It hosts individual widgets to conduct varying actions such as measuring or changing the basemap being displayed.

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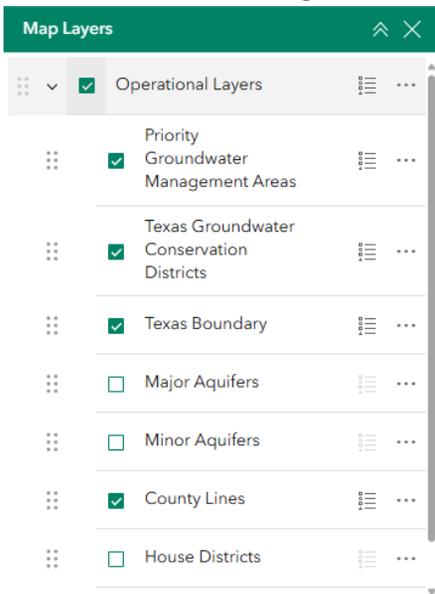
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About Texas GCDs Viewer

- The **About** widget provides users with essential information regarding the application, including its purpose, user guide, data sources, and any credits or acknowledgements related to the content.
- To use the **About** widget, click on the **About Texas GCDs Viewer** icon in the widget controller
- This opens a brief description of the application and the links

- To close the window, click **Close** ☒ in the upper right-hand corner.
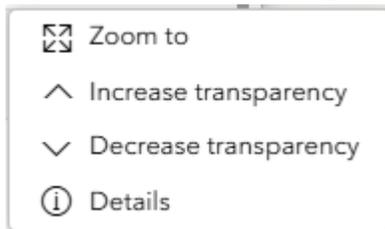- To collapse the window, click **Collapse** ☆ just to the left of the close button.

Layers

- The **Layers** widget can be used to turn on and off data layers such as the Surface Water Intake and the current query results.
- To **view** the layers, simply click the **Layers** button ◈ in the widget controller.
- Then browse through the available layers.

- To **Toggle the layer visibility**, locate the layer in the list and click on the checkbox next to the layer name. This toggles the visibility on and off the map.

- **Expand** the layer by clicking the small arrow to the left of the check box. Here you can see the layer symbology.
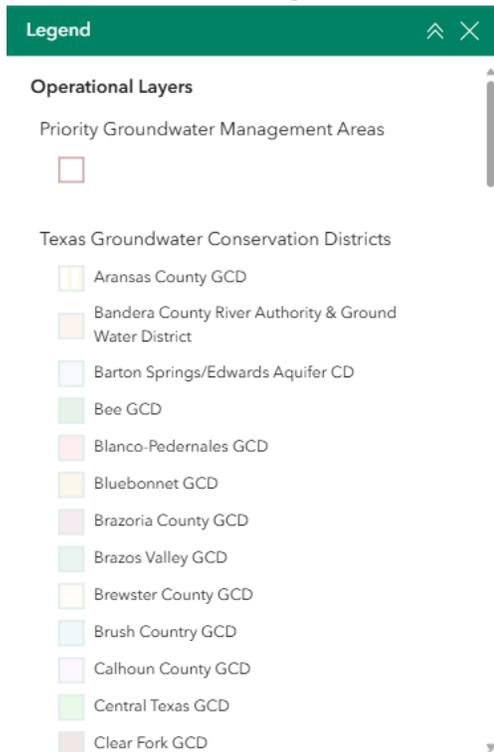
- To **Zoom, increase/decrease transparency, and get details** of the layers, click on the **options** button ⋯ and select the desired option.
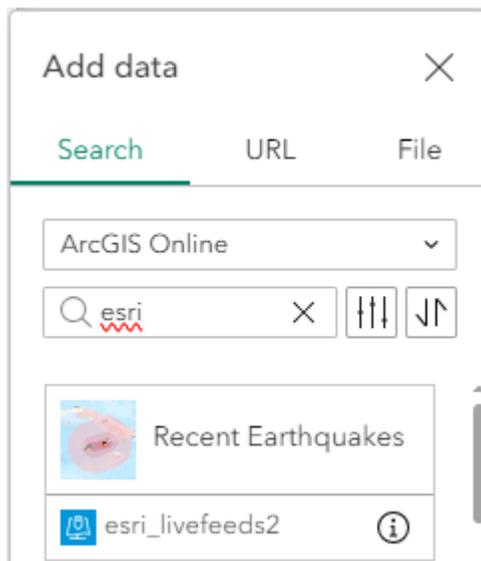
  - ⤢ Zoom to
  - ∧ Increase transparency
  - ∨ Decrease transparency
  - ⓘ Details

Legend

- The **Legend** widget shows the symbols for the various layers on the map.

- Simply click the **Legend** button ▤ in the widget controller

Legend ⌃ ✕

Operational Layers

Priority Groundwater Management Areas

Texas Groundwater Conservation Districts
- Aransas County GCD
- Bandera County River Authority & Ground Water District
- Barton Springs/Edwards Aquifer CD
- Bee GCD
- Blanco-Pedernales GCD
- Bluebonnet GCD
- Brazoria County GCD
- Brazos Valley GCD
- Brewster County GCD
- Brush Country GCD
- Calhoun County GCD
- Central Texas GCD
- Clear Fork GCD

Add Data

- Click to add publicly available layers from ArcGIS Online or external websites, or user-owned GIS layers. Layers added to the viewer using the **Add Data** 🗄 widget will be removed when the viewer is closed and will not appear when the viewer is opened again.

- To search publicly available layers on ArcGIS Online, select "Click to add data", then select "ArcGIS Online" from the drop-down menu under the search tab. In the search bar, enter the name of the layer you are searching for (e.g., "forest") or layer author (e.g., ESRI). Select the data you would like to add and click "Done". To add a layer from your computer, select the "File" tab.

- From the **Add Data** widget window, click on the **Actions** icon ⊞ to add the data to your map.

- To move the layer under the project points, click on **Layers** ⊜ in the widget controller, hold the **Reposition: "layer name"** icon ⸬ to the left of the added layer, and drag the layer to its desired position.

Draw

- Use the **Draw** widget to draw simple graphic and text on the map.

- Click on the **Draw** widget ⬚ icon in the widget controller. Click on the various symbols to draw a **point, polyline, polygon, rectangle, circle, or text**.

  ⬚ ⬚ ⬚ ⬚ ⬚ ⬚

- For points, polylines, polygons, and shapes drawn, you can change the symbol type and fill/outline color as well as show the location, length, and area/perimeter measurements. You can change the color, font, and text size for added text.

- To select graphics drawn using the widget, **select feature, by rectangle or by lasso** under "Select draw mode". You can then **delete** or **duplicate** the selected features.
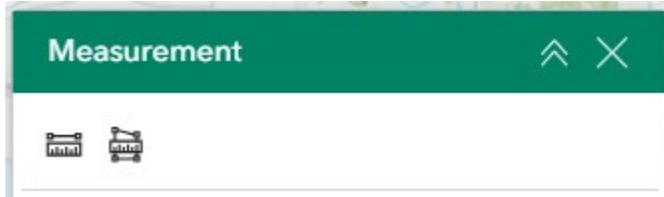
  Select draw mode

  ⬚ ⬚ ⬚

- Use the **arrows** ↺ ↻ to **undo** and **redo** draw actions.

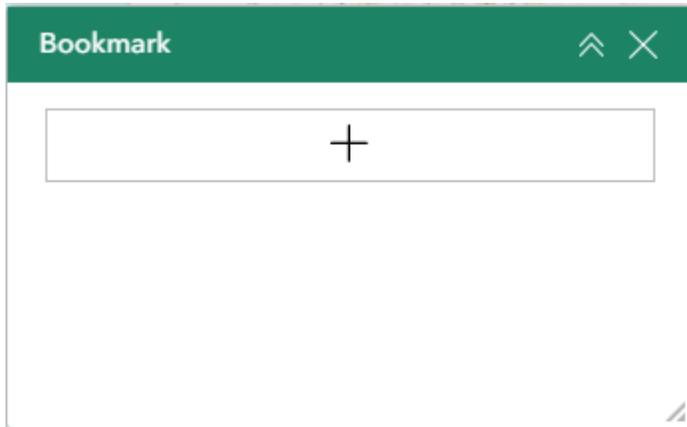- To **clear all**, select the **eraser** icon ◇ .

Measurement

- The Measurement widget enables user to calculate the area, and distance directly on the map.
- To measure a feature, click on the **Measurement** ▱ widget in the widget controller.
- The Measurement window will appear as shown below.

- There are <u>two</u> different ways to measure features on the map:

▱ **Distance** - Click the button with a line (first from the left), choose a unit of measurement from the drop- down list, then single-click the first point of your line on the map. Continue to single-click until you have finished measuring your linear feature. Double-click to end. Results will appear in the Measurement window.

▱ **Area** - Click the button with a polygon (second from the left), choose a unit of measure from the drop- down list, then single-click the first point of your polygon on the map. Continue to single-click until you have finished measuring your area feature. Double-click to end. Results will appear in the Measurement window.

- To clear the measurement, click the **Trash** icon 🗑 or **New Measurement** [New measurement].

Bookmarks

- The **Bookmark** widget enables users to navigate to predefined map locations.
- To Create a bookmark, navigate to the desired map extent and click on the **Bookmark** widget ⊞ in the widget controller.
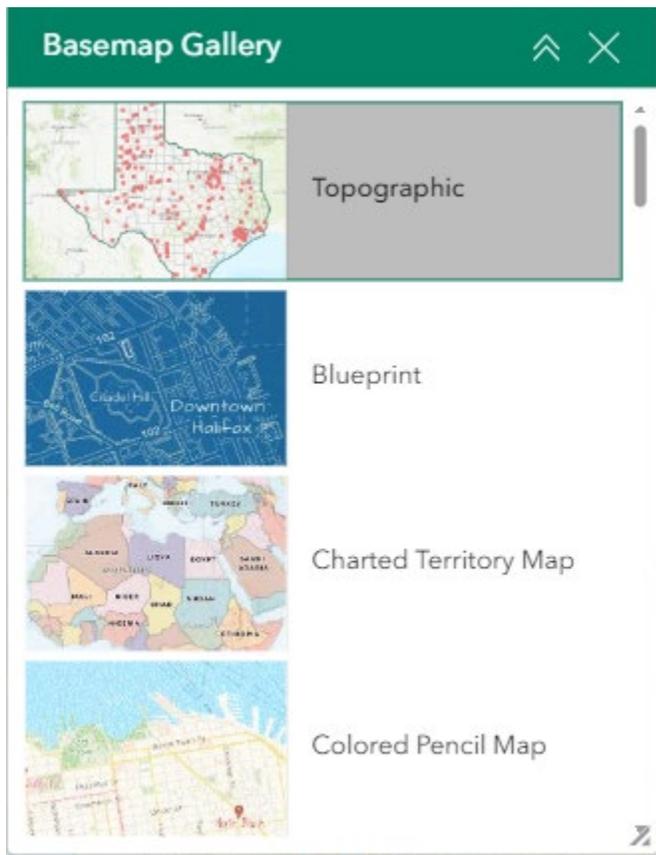- Click on the **Add Bookmark** ＋ icon in the window.

- Click on the name of the bookmark to rename it. Click on the **Delete** 🗑 icon on the right to remove the bookmark.
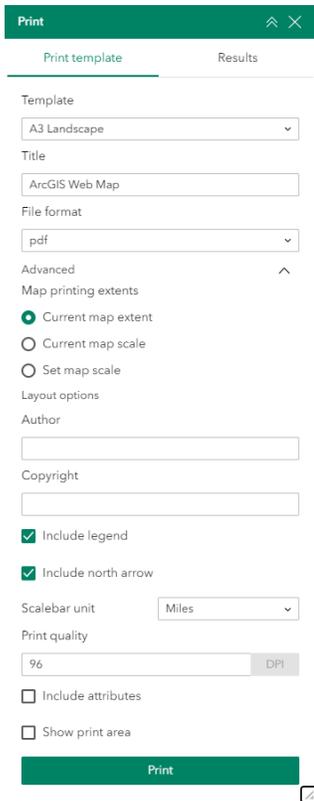
Basemap Gallery

- The **Basemap Gallery** widget can be used to change the background in the map viewer. The topographic basemap is the default basemap.

- To change the basemap, click on the **Basemap Gallery** widget 🔳 on the widget controller, then select the basemap you wish to use.
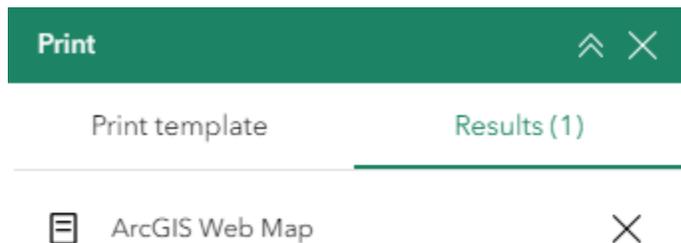

- You may choose from thirty-four different basemaps.

Print

- Use the **Print** widget 🖨 to save the current map as a pdf file. You may give it a customized title, choose the format, and select a layout and size. Advanced features include ability to add map scale, author, copyright, north arrow, and legend. You may also set the map extent and printing quality.

- After clicking print, the results will show in the results panel of the Print window.
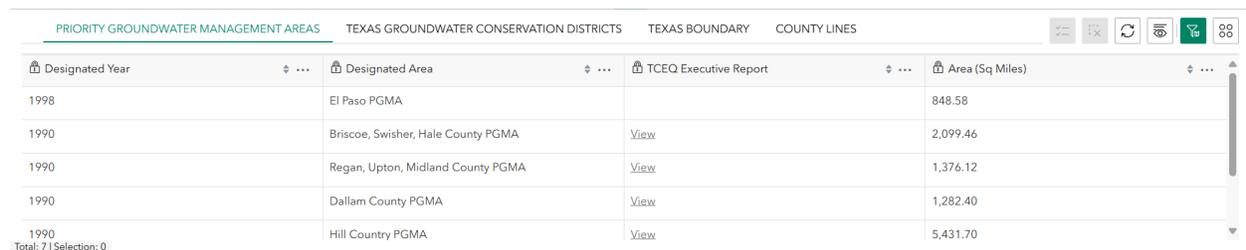
Search Bar:

- Type in an address or place into the bar to search for a location. As you type, you will be presented with similar matches. If you see your desired location appear, simply click on it and the map will zoom to that location. Or you can complete typing in the location and then press Enter on the keyboard or click the magnifying glass. You can click the **Clear** icon ✕ on the bar to clear out the search bar.

The following are examples of the types of searches you can perform.

- Addresses: 17041 El Camino Real, Houston, TX, 77058
- Names of places or projects: Houston Zoo, Cedar Bayou, Trash Bash
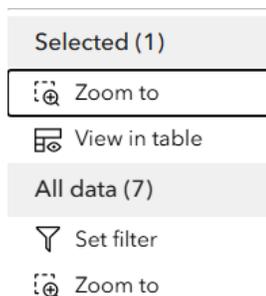
Attribute Table:

To view the attribute table, click on the green **Expand** arrow ⌃ at the bottom of the viewer. The attribute table will expand. To collapse the attribute table, click on the green **Collapse** arrow ⌄ at the top of the table.

Designated Year	Designated Area	TCEQ Executive Report	Area (Sq Miles)
1998	El Paso PGMA		848.58
1990	Briscoe, Swisher, Hale County PGMA	View	2,099.46
1990	Regan, Upton, Midland County PGMA	View	1,376.12
1990	Dallam County PGMA	View	1,282.40
1990	Hill Country PGMA	View	5,431.70

Total: 7 | Selection: 0

- Select points in the table by clicking on the row. Click the **Actions** icon ⊞ to **zoom to** or **view in table.** You can also set a filter for all the data in the **Actions** menu.

Map Tools:

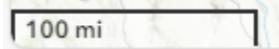The zoom tools are located on the bottom right hand side of the map application.

Zoom In – Click the **zoom in** button once or multiple times to *zoom in* at fixed increments

Zoom Out – Click the **zoom out** button once or multiple times to *zoom out* at fixed increments

Default Map View – Click the **default map view** button once to return to the default extent

Find My Location – Click the **find my location** button to take you to your current location.

Scale Bar – shows the scale of the map at your current extent, located in the bottom left corner of the viewer window.

Coordinates

- The **Coordinates** widget is found on the bottom left corner of the viewer window, above the scale bar. The coordinates automatically update to the location of the cursor in the viewer window.

  -96.404 28.658 Degrees

- To get the coordinates of a particular location on the map, click on the **Enable clicking the map to get the coordinates** icon.

- Click on the map to create a **marker** . The coordinates widget will update with the coordinates of the marker.

  -96.154 28.918 Degrees

- You can copy the coordinates of the marker by clicking the **Copy** icon.

Overview Map

- The **Overview Map** tool provides users with a smaller navigational map that offers an overview of the entire map or application. It helps users quickly locate their position within the larger map and navigate more efficiently.

- To use the **Overview Map** tool, click on the **Overview** arrow located in the upper-right corner of the map, directly below the **header bar**.

- A small map will appear, displaying your current view within a larger extent.

- To pan, click and drag the dark grey rectangle within the overview map to adjust your location.

- To collapse the small map, click on the **Overview Map** arrow again.

Contact Us

TCEQ Water Availability Division, Groundwater Planning and Assessment Team. If you have questions regarding this Web App, please email us gpat@tceq.texas.gov or contact via phone (512) 239-4600.

https://www.tceq.texas.gov/groundwater/groundwater-planning-assessment/gw_index.html

https://www.tceq.texas.gov