The aquifers mapped by the Brackish Resources Aquifer Characterization System (BRACS) team at the Texas Water Development Board (TWDB) in Brackish Groundwater in Aquifers of the Upper Coastal Plains, Central Texas (Meyer and others 2020), are the Wilcox, Carrizo, Queen City, Sparta, and Yegua aquifers (listed oldest to youngest). The team mapped these aquifers in all or parts of 14 counties (Atascosa, Bastrop, Bexar, Caldwell, Dewitt, Fayette, Gonzales, Guadalupe, Karnes, Lavaca, Lee, Live Oak, Williamson, and Wilson counties), five regional water planning areas (G, K, L, P, and N), and nine groundwater conservation districts.

BRACS studies provide Texans with an estimate of the location and quantity of brackish groundwater, as groundwater salinity is an important parameter for desalination. Groundwater salinity classes are mapped as fresh (0-999 mg/L TDS), slightly saline (1,000-2,999 mg/L TDS), moderately saline (3,000-9,999 mg/L TDS), very saline (10,000-34,999 mg/L TDS), brine (greater than or equal to 35,000 mg/L TDS), or some combination of these classes (Winslow and Kister, 1996). The BRACS team accomplishes this goal by:

- tracking stratigraphic framework from geophysical well logs,
- estimating saturated pore space using lithology interpreted from geophysical well logs and static water level,
- calculating total dissolved solids from geophysical well logs where no measured water quality samples exist,
- delineating the extent of salinity classes based on the measured and calculated total dissolved solids, and
- calculating an estimate of in place groundwater volume per aquifer salinity class.

For Brackish Groundwater in Aquifers of the Upper Coastal Plains, Central Texas, geophysical well logs were used to make 4,652 stratigraphic picks and 65,139 groundwater salinity calculations. More than 2,000 wells with geophysical well logs or driller’s descriptions assigned lithologic intervals (Figure 2). Data mining and aquifer determination yielded 3,862 measured water quality samples. All this data is interrelated and provided the foundation to map and characterize the groundwater of the study area.

GIS datasets from this study, for example formation surface elevation rasters and net sand point value shapefiles, can be downloaded from the Texas Water Development Board’s website: http://www.twdc.texas.gov/environment/bracs/studies/UCPIndex.asp.

In addition to the study report and GIS datasets, stratigraphic, lithologic, and salinity interpretations are saved in the BRACS Database. It may be downloaded with an accompanying data dictionary: http://www.twdc.texas.gov/environment/bracs/database.asp.

The aquifiers mapped by the Brackish Resources Aquifer Characterization System (BRACS) team at the Texas Water Development Board (TWDB) in Brackish Groundwater in Aquifers of the Upper Coastal Plains, Central Texas (Meyer and others 2020), are the Wilcox, Carrizo, Queen City, Sparta, and Yegua aquifers (listed oldest to youngest). The team mapped these aquifers in all or parts of 14 counties (Atascosa, Bastrop, Bexar, Caldwell, Dewitt, Fayette, Gonzales, Guadalupe, Karnes, Lavaca, Lee, Live Oak, Williamson, and Wilson counties), five regional water planning areas (G, K, L, P, and N), and nine groundwater conservation districts.

BRACS studies provide Texans with an estimate of the location and quantity of brackish groundwater, as groundwater salinity is an important parameter for desalination. Groundwater salinity classes are mapped as fresh (0-999 mg/L TDS), slightly saline (1,000-2,999 mg/L TDS), moderately saline (3,000-9,999 mg/L TDS), very saline (10,000-34,999 mg/L TDS), brine (greater than or equal to 35,000 mg/L TDS), or some combination of these classes (Winslow and Kister, 1996). The BRACS team accomplishes this goal by:

- tracking stratigraphic framework from geophysical well logs,
- estimating saturated pore space using lithology interpreted from geophysical well logs and static water level,
- calculating total dissolved solids from geophysical well logs where no measured water quality samples exist,
- delineating the extent of salinity classes based on the measured and calculated total dissolved solids, and
- calculating an estimate of in place groundwater volume per aquifer salinity class.

For Brackish Groundwater in Aquifers of the Upper Coastal Plains, Central Texas, geophysical well logs were used to make 4,652 stratigraphic picks and 65,139 groundwater salinity calculations. More than 2,000 wells with geophysical well logs or driller’s descriptions assigned lithologic intervals (Figure 2). Data mining and aquifer determination yielded 3,862 measured water quality samples. All this data is interrelated and provided the foundation to map and characterize the groundwater of the study area.

GIS datasets from this study, for example formation surface elevation rasters and net sand point value shapefiles, can be downloaded from the Texas Water Development Board’s website: http://www.twdc.texas.gov/environment/bracs/studies/UCPIndex.asp.

We constructed nine regional cross-sections, six strike-oriented and three dip-oriented (Figure 3), to illustrate the stratigraphy, lithology, and salinity interpretations for selected wells in the project. Structural cross-section of Strike Line F (Figure 1) was constructed from Brackish Groundwater in Aquifers of the Upper Coastal Plains, Central Texas data and interpretations stored in the BRACS Database. Each well on the line is labeled with the owner’s name and either the BRACS Database ID (5 digit, auto-assigned number) or the Groundwater Database State Well Number (SWN). Vertical intervals are displayed in feet relative to mean sea level with a vertical exaggeration of 80x. An approximate ground surface is shown for illustrative purposes.

This strike-oriented line was selected to display the groundwater salinity and lithology mapping in the downdip portion of the study area. All of the mapped aquifers in Strike Line F have brackish, very saline, or brine groundwater based on total dissolved solids estimates from geophysical well logs. There are no water quality samples from wells in the study area aquifers this far downdip. The water quality is less saline in the northeast portion of the study area. Wells 39941 and 15344 are within the Yoakum Canyon. Brine is present in the basal Wilcox Aquifer in the southeastern part of the study area.

Additional information and cross-sections from Brackish Groundwater in Aquifers of the Upper Coastal Plains, Central Texas (Meyer and others, 2020) are available to download from the study’s webpage.

References
TWDB (Texas Water Development Board), 2019a, BRACS Database: Texas Water Development Board.
TWDB (Texas Water Development Board), 2019b, Groundwater Database: Texas Water Development Board.