land use in these subwatersheds consists of row crop agriculture and rangeland. Fertilizers used on crops and fields may contribute to the nutrient concerns seen throughout these water bodies.

Many of the reservoirs in these subwatersheds have been classified as eutrophic to hypereutrophic based on the “Trophic Classification of Texas Reservoir” report by TCEQ (http://www.tceq.state.tx.us/assets/public/compliance/monops/water/04twqi/04_reservoir_narrative.pdf). This report states that reservoirs become more eutrophic as they age due to a buildup of nutrients within the reservoir, which is the likely cause for Chlorophyll-a issues in these reservoirs.

Data collected by the TRA CRP are used for regulatory purposes, such as setting water quality standards, modeling for permit limits, and for water quality assessments. Every two years, TCEQ conducts an assessment of water quality throughout the state and issues a Water Quality Integrated Report; which identifies impairments and concerns for designated uses. These designated uses include Aquatic Life Use, Contact Recreation, General Use, Fish Consumption, and Public Water Supply Use. The 2012 Texas Water Quality Integrated Report was used in the development of this report.

TRINITY RIVER BASIN
The Trinity River basin covers approximately 18,000 square miles. As discussed in the 2012 Basin Highlights Report, the northern portion of the Trinity River Basin is influenced by the features found in this area-namely the Blackland Prairie and the Dallas-Fort Worth Metroplex (DFW). In contrast, a large portion of the subwatersheds discussed in this report are rural with small areas of urbanization throughout the watersheds.

Over the past year, many of the water bodies in these subwatersheds have experienced ongoing drought conditions with the reservoirs falling below conservation pool elevation and the streams going dry or having very low flows. Much of the

BASIN HIGHLIGHTS REPORT
This report is intended to characterize the watersheds of the Trinity River basin. Features such as land use, soil and vegetation types, and watershed activities are reviewed. Potential sources of impairments and concerns based on the 2012 Texas Water Quality Integrated Report are identified and recommendations to improve water quality are suggested when known.

This report focuses on the Elm Fork and East Fork Trinity River as well as the Cedar Creek and Richland-Chambers subwatersheds. The 2012 Basin Highlights Report covered the Main Stem Trinity River and the Trinity River below Lake Livingston. The 2013 Basin Highlights Report covered the West and Clear Forks and Village and Mountain Creek subwatersheds. This report concludes the watershed characterizations of the basin with the Elm Fork and East Fork Trinity River and the Cedar Creek and Richland-Chambers subwatersheds. Site numbers listed in the text of this report are defined in the Site Glossary at the end of this document. In addition, the sites assigned to each assessment unit are as defined by the 2012 Texas Water Quality Integrated Report and may change slightly in future water quality integrated reports.
Elm Fork Subwatershed

0824 – Elm Fork Trinity River Above Ray Roberts Lake

SEGMENT DESCRIPTION
Segment 0824 begins at a point 9.5 km (5.9 miles) downstream of the confluence of Pecan Creek in Cooke County and continues up to US 82 in Montague County. There are five assessment units in this segment: 0824_01 is the lower 7.5 miles of the segment. Sites in this assessment unit include 11029 and 11031. 0824_02 is a two mile reach near an unmarked county road 1.4 km downstream of the Gainesville wastewater treatment plant. Sites in this assessment unit include 11033. 0824_03 is a 3.5 mile reach near SH 51. Sites in this assessment unit include 15635 and 17670. 0824_04 is a 25 mile reach near FM 3108. Sites in this assessment unit include 16432. 0824_05 is the upper 48 miles of segment.

Figure 0824.1 shows the locations of assessment units, monitoring stations, dischargers, landfills, and confined animal feeding operations (CAFOs). Table 0824.1 lists the stations being monitored in fiscal year 2014 as well as the parameters being collected and the frequency of sampling.

HYDROLOGIC CHARACTERISTICS
The median annual average discharge in this segment is 97.0 cubic feet per second (cfs) based on historic values at the USGS flow gage near Gainesville (08050400). The outfalls of the cities on Saint Jo, Muenster, and Lindsay contribute to the streamflow at this gage. The City of Gainesville outfall meets this segment downstream of the mentioned USGS gage. Over the past year, post-rainfall flows have returned to normal in less than a week for short duration rain events. Large magnitude peak flows caused by multiple rain events over several days have generally returned to normal within two weeks.

IMPAIRMENT/AREA OF INTEREST DESCRIPTION
Based on the 2012 Texas Water Quality Integrated Report, there are impairments in assessment units 0824_01, 0824_02, and 0824_03. Details of the assessment are located in Table 0824.2.

LAND USE AND NATURAL CHARACTERISTICS
This watershed is mainly rural with cropland and pastures dominating the land use. There is a smaller band of rangeland dotted with areas of forest seen on the western and very southeastern ends of the watershed. The main watershed drainage is located almost totally within the Grand Prairie. A few of the tributaries drain part of the Eastern Cross Timbers in the lower part of the watershed. See Figures 0824.2 to 0812.4 for land covers, soil regions, and vegetative provinces in this watershed. See Figure 0824.1 for three small dischargers in this area, plus the discharge from the largest town along this segment: the City of Gainesville. There are also several landfills in close proximity to the segment, seen in Figure 0824.1.

POTENTIAL CAUSES OF IMPAIRMENT OR INTEREST
Low DO values reported in AU 3 may be related to typical low flows found in this segment. Nutrients and chlorophyll a values throughout the reach may be related to the contributions of small wastewater treatment plants in the segment as well as the runoff from fertilizers used in row crop agriculture throughout the segment.

POTENTIAL STAKEHOLDERS
City of St Jo
City of Muenster
City of Lindsay
City of Gainesville
City of Dallas

RECOMMENDATIONS FOR IMPROVING WATER QUALITY
Landowner education on water quality could assist in preventing runoff of chemicals from farming and landscaping. Limiting the use of pre-emergent herbicides and fertilizers or opting for safer alternatives may reduce the harm of runoff into the stream from the cropland and rangeland found in this area.

ONGOING PROJECTS
There are no ongoing projects in this segment.

MAJOR WATERSHED EVENTS (PRESENT AND FUTURE)
There are no known or anticipated events that would affect water quality in this segment. There are several small dischargers in this segment; one of which renewed their water quality permit in 2012. See Table 0824.3 for details.

IMAGES
See Figures 0824.5 to 0824.8 for images of this segment.
<table>
<thead>
<tr>
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Dataset Qualifier Codes:
- AD - Adequate Data (10 or more samples)
- ID - Inadequate data (less than 4 samples)
- LD - Limited Data (between 4 and 9 samples)

Impairment Level Codes:
- CS - Screening level concern
- CS* - Screening level concern carried forward from previous assessments
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<td>Cooke</td>
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<td>Renewal</td>
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Elm Fork Subwatershed

0840 – Ray Roberts Lake

SEGMENT DESCRIPTION
Segment 0840 begins at Ray Roberts Dam in Denton County and continues up to a point 9.5 km (5.9 miles) upstream of the confluence of Pecan Creek in Cooke County. It impounds the Elm Fork Trinity River up to the normal pool elevation of 632.5 feet. There are eight assessment units in this segment. 0840_01 is the lowermost portion of reservoir adjacent to dam. Sites in this assessment unit include 14039 and 17834. 0840_02 is the lower portion of Jordan Creek arm west of Pilot Point. Sites in this assessment unit include 11076. 0840_03 is the upper portion of Jordan Creek arm. Sites in this assessment unit include 16823. 0840_04 is Buck Creek cove. Sites in this assessment unit include 16822. 0840_05 is the lower portion of the Elm Fork arm. 0840_06 is the middle portion of the Elm Fork arm. 0840_07 is the upper portion of the Elm Fork arm. Sites in this assessment unit include 16824. 0840_08 is the remainder of reservoir. Sites in this assessment unit include 20897 and 20899.

Unclassified water bodies in this segment include those listed below.

0840A—Unnamed tributary of Jordan Creek—From the confluence with Jordan Creek south of CR 226 to the headwaters near South Neathery Street in Collinsville in Grayson County.

Figure 0840.1 shows the locations of assessment units, monitoring stations, dischargers, landfills, and confined animal feeding operations (CAFOs). Table 0840.1 lists the stations being monitored in fiscal year 2014 as well as the parameters being collected and the frequency of sampling.

HYDROLOGIC CHARACTERISTICS
Some hydrologic characteristics of this segment can be assessed based on historic values from the USGS flow gage at Greenbelt near Pilot Point (08051135 in Segment 0839), which is the first gage downstream of the Lake Ray Roberts dam release. Over the past year, the median annual average flow at this gage is 656 cubic feet per second (cfs) based on historic values from the USGS flow gage. Further investigation reveals, however, that the variable Lake release rates cause median monthly flow values to fluctuate from as low as 42.9cfs in a Summer month to 1367.7 during a heavily precipitated month in 2013. After large rain events the Lake release generally lowers and stabilizes within approximately 30 to 45 days.

Ray Roberts Lake has a conservation pool elevation of 632.5 feet and is fed by the Elm Fork Trinity River. This reservoir is used for flood control, water supply, and recreational activities. At the time of this writing, the reservoir has been below the conservation pool elevation by up to 7.8 feet since April 27, 2012.

IMPAIRMENT/AREA OF INTEREST DESCRIPTION
Based on the 2012 Texas Water Quality Integrated Report, there are impairments in assessment units 0840_01, 0840_02, 0840_03, 0840_04, and 0840_08. Details of the assessment are located in Table 0840.2.

LAND USE AND NATURAL CHARACTERISTICS
Land use in this watershed is nearly all classified as agriculture and/or pasture, with some forest class lands to the north and south of central 0840. The eastern portion of the watershed is in the Eastern Cross Timbers ecoregion and the western portion is in the Grand Prairie ecoregion.

POTENTIAL CAUSES OF IMPAIRMENT OR INTEREST
The TCEQ report titled Trophic Classification of Texas Reservoirs classified Ray Roberts Lake as being eutrophic, which notes that reservoirs become more eutrophic as they age due to the buildup of nutrients in the reservoir.

POTENTIAL STAKEHOLDERS
Surrounding Cities such as Tioga, Collinsville, Pilot Point, Sanger, Denton and Dallas/Ft Worth.
Park authorities
University of North Texas

RECOMMENDATIONS FOR IMPROVING WATER QUALITY
With common issues inherent to a eutrophic lake, any measure which limits nutrient-heavy inflows/runoff to the lake should be explored. Landowner education on water quality could assist in preventing runoff of chemicals from farming and landscaping. Limiting the use of pre-emergent herbicides and fertilizers or opting for safer alternatives may reduce the harm of runoff into the stream from the cropland and range-land found in this area.

ONGOING PROJECTS
There are no ongoing projects in this segment.

MAJOR WATERSHED EVENTS (PRESENT AND FUTURE)
Zebra mussels were found in this reservoir in 2012. Due to their ability to reproduce quickly and filter large amounts of water, zebra mussels can dramatically change the food web of a reservoir. In addition, they selectively reject blue-green algae which can lead to blooms of these algae which are associated with taste and odor problems in finished drinking water. Two dischargers renewed their water quality permits in 2012. See Table 0840.3 for details.

IMAGES
See Figures 0840.5 to 0840.8 for images of this segment.
### TABLE 0840.1: Fiscal Year 2014 Monitoring

<table>
<thead>
<tr>
<th>Monitoring Entity</th>
<th>Segment</th>
<th>AU</th>
<th>Site ID</th>
<th>Site Description</th>
<th>Monitoring Type</th>
<th>Metals Water</th>
<th>Conventional</th>
<th>Bacteria</th>
<th>Flow Field</th>
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<td>17834</td>
<td>RAY ROBERTS LAKE AT DALLAS WATER UTILITIES INTAKE W SIDE OF DAM 1.02 KM N AND 232 METERS E OF INTERSECTION OF BURGER RD AND FM 2153 (R6)</td>
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<td>12 (Water Temp, Air Temp, Specific Conductance, DO, PH, Flow Severity, Days Since Precipitation Event)</td>
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<td>0840_02</td>
<td>11076</td>
<td>RAY ROBERTS LAKE ISLE DU BOIS CREEK ARM WEST OF JORDAN PARK 2.84 KM N AND 599 M W OF INTERSECTION OF ISLE DU BOIS PARK RD AND QUAIL RUN (R5)</td>
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<td>RAY ROBERTS LAKE IN RANGE CREEK COVE AT US 377 BRIDGE 600 M SOUTH AND 57 M WEST OF INTERSECTION OF PATTON RD AND US 377 SW OF SHERMAN (R2)</td>
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**Dataset Qualifier Codes**
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- ID-Inadequate data (less than 4 samples)
- CS-Screening level concern
- CS*-Screening level concern carried forward from previous assessments
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Elm Fork Subwatershed

0839 – Elm Fork Trinity River Below Ray Roberts Lake

SEGMENT DESCRIPTION
Segment 0839 begins a point 100 meters (110 yards) upstream of US 380 in Denton County and continues up to Ray Roberts Dam in Denton County. There is one assessment unit in this segment, 0839_01, that covers the entire segment. Sites in this assessment unit include 13619.

Unclassified water bodies in this segment include those listed below.

0839A—Clear Creek—A 25 mile stretch of Clear Creek running upstream from the confluence with the Elm Fork Trinity River and continuing up to FM 455 just west of Bolivar in Denton County. This segment includes sites 10859 and 13618.

Figure 0839.1 shows the locations of assessment units, monitoring stations, dischargers, landfills, and confined animal feeding operations (CAFOs). Table 0839.1 lists the stations being monitored in fiscal year 2014 as well as the parameters being collected and the frequency of sampling.

HYDROLOGIC CHARACTERISTICS
This section of the Elm Fork is mainly fed by Lake Ray Roberts dam release. Over the past year, the median annual average flow in this segment is 656 cubic feet per second (cfs) based on historic values from the USGS flow gage at Greenbelt near Pilot Point (08051135). Further investigation reveals, however, that the variable Lake release rates cause median monthly flow values to fluctuate from as low as 42.9cfs in a Summer month to 1367.7 during a heavily precipitated month in 2013. After large rain events the Lake release generally lowers and stabilizes within approximately 30 to 45 days.

IMPAIRMENT/AREA OF INTEREST DESCRIPTION
There are no impairments or concerns in this segment.

LAND USE AND NATURAL CHARACTERISTICS
Segment 0839 is essentially the boundary line between the Grand Prairie and Eastern Cross Timbers ecoregions. Land use in the watershed is generally classified as agriculture/pasture with large sections of rangeland to the south and the City of Denton to the west/southwest. The ‘Greenbelt’ natural recreation area is located along a part of this reach.

POTENTIAL CAUSES OF IMPAIRMENT OR INTEREST
There are no impairments or concerns in this segment.

POTENTIAL STAKEHOLDERS
City of Denton
City of Dallas

City of Fort Worth
University of North Texas

RECOMMENDATIONS FOR IMPROVING WATER QUALITY
There are no impairments or concerns in this segment.

ONGOING PROJECTS
There are no ongoing projects in this segment.

MAJOR WATERSHED EVENTS (PRESENT AND FUTURE)
There are no known or anticipated events that would affect water quality in this segment. Being a very small segment and downstream of Ray Roberts Lake, this segment is dominated by releases from the dam. Therefore, it can be expected that issues impacting Ray Roberts Lake would also affect this segment. One discharger renewed their water quality permit in 2012. See Table 0839.2 for details.

IMAGES
See Figures 0839.5 to 0839.8 for images of this segment.
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Elm Fork Subwatershed

0823 – Lewisville Lake

SEGMENT DESCRIPTION
Segment 0823 begins at Lewisville Dam in Denton County and continues up to a point 100 meters (110 yards) upstream of US 380 in Denton County. It impounds the Elm Fork Trinity River up to the normal pool elevation of 515 feet. There are six assessment units in this segment. 0823_01 is the lowermost portion of reservoir. Sites in this assessment unit include 11025, 13995, and 13996. 0823_02 is Stewart Creek arm. Sites in this assessment unit include 13997 and 16808. 0823_03 is Hickory Creek arm. Sites in this assessment unit include 11027, 13998, 18476, 18477, 18478, 18479, 20893, and 18475. 0823_04 is Little Elm Creek arm. Sites in this assessment unit include 17830. 0823_05 is the middle portion of reservoir east of Lake Dallas. Sites in this assessment unit include 13999, 14001, and 11026. 0823_06 is the remainder of reservoir. Sites in this assessment unit include 18481 and 18480.

Unclassified water bodies in this segment include those listed below.

0823A—Little Elm Creek—From the confluence with Lake Lewisville in Denton County up to 1.4 km above FM 453 in Collin County. There are two assessment units in this segment. 0823A_01 is the lower 12 miles of the segment from the confluence with Lake Lewisville in Denton County up to FM 455 in Collin County. Sites in this assessment unit include 13617 and 16826. 0823A_02 is the upper 15 miles of the segment from FM 455 in Collin County up to 1.4 km above FM 121 in Grayson County near Guenther.

0823B—Stewart Creek—From the confluence with Lake Lewisville in Denton County up to the headwaters near Frisco in Collin County. This segment includes site 10860.

0823C—Clear Creek—From the confluence with Lake Lewisville in Denton County up to the headwaters west of Montague in Montague County. There are two assessment units in this segment. 0823C_01 is the lower 25 miles of segment. Sites in this assessment unit include 16827. 0823C_02 is the upper 40 miles of segment.

0823D—Doe Branch—From the confluence with Lake Lewisville/Elm Fork Trinity River in Denton County up to the headwaters northeast of Celina in Collin County. There is one assessment unit in this segment. 0823D_01 is from the confluence with Lake Lewisville/Elm Fork Trinity River in Denton County up to the headwaters northeast of Celina in Collin County. This segment includes sites 18560 and 20291.

HYDROLOGIC CHARACTERISTICS
Lewisville Lake has a conservation pool elevation of 522 feet and is fed by the Elm Fork Trinity River. This reservoir is used for flood control, water supply, and recreational activities. At the time of this writing, the reservoir has been below the conservation pool elevation by up to 8.92 feet since April 27, 2012.

IMPAIRMENT/AREA OF INTEREST DESCRIPTION
Based on the 2012 Texas Water Quality Integrated Report, there are impairments in assessment units 0823_02, 0823_04, 0823A_01, 0823B_01, and 0823D_01. Details of the assessment are located in Table 0823.2.

LAND USE AND NATURAL CHARACTERISTICS
Land use to the east of the watershed is generally classified as agriculture/pasture and urban or rangeland to the west. Moving from northwest to southeast, the watershed covers portions of the Grand Prairie, Eastern Cross Timbers, and Blackland Prairie ecoregions respectively. Over the last 25 years, the Lake Lewisville watershed has seen tremendous urbanization.

POTENTIAL CAUSES OF IMPAIRMENT OR INTEREST
It is probable that the nutrient concerns in segments 0823, 0823B and 823D are the result of a combination of factors present in these reaches, including wastewater treatment plant inflows, runoff from nearby cropland and concentrated animal feedlots, and the runoff from fertilized landscape in the urban areas dotting the region. Dissolved Oxygen issues in 0823A may be attributed to the low flows typical of an area which is upstream in the watershed, as 0823A is. The E. coli concern reported in 0823D could be due to two CAFOs near this part of the segment.

POTENTIAL STAKEHOLDERS
Cities of Lewisville, Dallas.
Nearby park authorities
Nearby lake recreation businesses/marinas

RECOMMENDATIONS FOR IMPROVING WATER QUALITY
Education of safe urban and farm fertilization practices
Safe disposal of CAFO animal waste

ONGOING PROJECTS
The Surface Water Quality Monitoring team of TCEQ is currently sampling for the Diurnal Dissolved Oxygen (DO) Dynamics in Selected Least Disturbed Streams project. Under this project, diurnal DO is monitored in reference streams in each ecoregion to determine the appropriateness of existing DO criteria.

Figure 0823.1 shows the locations of assessment units, monitoring stations, dischargers, landfills, and confined animal feeding operations (CAFOs). Table 0823.1 lists the stations being monitored in fiscal year 2014 as well as the parameters being collected and the frequency of sampling.
MAJOR WATERSHED EVENTS (PRESENT AND FUTURE)
Zebra mussels were found in this reservoir in 2012. Due to their ability to reproduce quickly and filter large amounts of water, zebra mussels can dramatically change the food web of a reservoir. In addition, they selectively reject blue-green algae which can lead to blooms of these algae which are associated with taste and odor problems in finished drinking water. Twelve dischargers renewed their water quality permits in 2012. In 2013, five dischargers renewed their water quality permits and one filed for an amendment. See Table 0823.3 for details.

IMAGES
See Figures 0823.5 to 0823.8 for images of this segment.
<table>
<thead>
<tr>
<th>Monitoring Entity</th>
<th>Segment</th>
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<th>Site Description</th>
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<td>LAKE LEWISVILLE IN STEWART CREEK ARM AT FM 423 BRIDGE 389 METERS NORTH OF INTERSECTION OF OVERLAKE DRIVE AND FM 423/MAIN STREET (L4)</td>
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<td>LEWISVILLE LAKE NEAR LITTLE ELM CREEK ARM 1.82 KM SOUTH AND 2.85 KM WEST OF INTERSECTION OF HIDDEN COVE AND HACKBERRY CREEK PARK (L5)</td>
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Dataset Qualifier Codes

AD-Adequate Date (10 or more samples)
ID-Inadequate data (less than 4 samples)
LD-Limited Data (between 4 and 9 samples)

Impairment Level Codes

CN-Use concern
CS-Screening level concern
CS*-Screening level concern carried forward from previous assessments
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SEGMENT DESCRIPTION
Segment 0825 begins at the confluence with the Elm Fork Trinity River in Dallas County and continues up to Grapevine Dam in Tarrant County. There is one assessment unit in this segment, 0825_01, that covers the entire segment. Sites in this assessment unit include 11034 and 14244.

Figure 0825.1 shows the locations of assessment units, monitoring stations, dischargers, landfills, and confined animal feeding operations (CAFOs). Table 0825.1 lists the stations being monitored in fiscal year 2014 as well as the parameters being collected and the frequency of sampling.

HYDROLOGIC CHARACTERISTICS
The median annual average discharge in this segment is 49 cubic feet per second (cfs) based on historic values over the past four years at the USGS flow gage of Denton Creek near Grapevine (08055000). The outfall of the Town of Flower Mound contributes to Denton Creek at the confluence of Bakers Branch, approximately 1.4 river miles upstream of this gage. As 0825 is below Grapevine Lake, a flood control reservoir, flood control releases determine much of the discharge of 0825.

IMPAIRMENT/AREA OF INTEREST DESCRIPTION
There are no impairments or concerns in this segment.

LAND USE AND NATURAL CHARACTERISTICS
Despite the proximity to the fast-growing DFW ‘Mid-cities’ area, this portion of the Elm Fork flows through land mostly classified as agriculture/pasture. The watershed of segment 0825 is located entirely within the Blackland Prairie ecoregion.

POTENTIAL CAUSES OF IMPAIRMENT OR INTEREST
There are no impairments or concerns in this segment.

POTENTIAL STAKEHOLDERS
Cities of Grapevine, Southlake, Carrollton, Irving, Farmers Branch, Dallas and Fort Worth.

RECOMMENDATIONS FOR IMPROVING WATER QUALITY
There are no impairments or concerns in this segment.

ONGOING PROJECTS
There are no ongoing projects in this segment.

MAJOR WATERSHED EVENTS (PRESENT AND FUTURE)
There are no known or anticipated events that would affect water quality in this seg-

IMAGES
See Figures 0825.5 to 0825.8 for images of this segment.
<table>
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<th>Monitoring Entity</th>
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<td>DENTON CREEK 41 METERS UPSTREAM OF DENTON TAP ROAD 2 MI NORTH OF COPPELL (E5)</td>
<td>RT</td>
<td>2 (Dissolved Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Nickel, Silver, Zinc, Selenium)</td>
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<td></td>
<td></td>
<td>12 (Water Temp, Air Temp, Specific Conductance, DO, pH, Flow Severity, Days Since Precipitation Event)</td>
</tr>
</tbody>
</table>
Elm Fork Subwatershed

**0822 – Elm Fork Trinity River Below Lewisville Lake**

**SEGMENT DESCRIPTION**

Segment 0822 begins at the confluence with the West Fork Trinity River in Dallas County and continues up to Lewisville Dam in Denton County. There are four assessment units in this segment. 0822_01 is the lower 11 miles of segment. Sites in this assessment unit include 16436, 17163, 17164, 18310, 18648, and 20287. 0822_02 is a reach 4.5 miles upstream to 7.5 miles downstream the Dallas Water Utilities intake. Sites in this assessment unit include 11024, 16438, and 17162. 0822_03 is a reach 1.0 mi upstream to 4.5 miles downstream of SH 121. Sites in this assessment unit include 13615 and 18358. 0822_04 is the upper 1.5 miles of segment. Sites in this assessment unit include 15252 and 16437.

Unclassified water bodies in this segment include those listed below.

- **0822A—Cottonwood Branch**—A 6 mile stretch of Cottonwood Branch running upstream from the confluence with Hackberry Creek up to Valley View Road in Dallas County. There are two assessment units in this segment. 0822A_01 is a 2.5 mile stretch of Cottonwood Branch running upstream from the confluence with Hackberry Creek to approximately 0.5 miles downstream of North Story Road in Dallas County. Sites in this assessment unit include 17167, 17168, and 18359. 0822A_02 is a 3.5 mile stretch of Cottonwood Branch running upstream from approximately 0.5 miles downstream of North Story Road up to Valley View Road in Dallas County. Sites in this assessment unit include 17165 and 17166.

- **0822B—Grapevine Creek**—A 5.5 mile stretch of Grapevine Creek running upstream from Coppell Road in Coppell in Dallas County up to approximately 1.5 miles upstream of SH 21 in Tarrant County. There is one assessment unit in this segment. 0822B_01 is a 5.5 mile stretch of Grapevine Creek running upstream from Coppell Road in Coppell in Dallas County up to approximately 1.5 miles upstream of SH 21 in Tarrant County. This segment includes sites 17169, 17531, and 17939.

- **0822C—Hackberry Creek**—A 5.5 mile stretch of Hackberry Creek running upstream from confluence with Cottonwood Branch up to approximately 2.4 miles upstream of SH 114 in Irving in Dallas County. There is one assessment unit in this segment. 0822C_01 is a 5.5 mile stretch of Hackberry Creek running upstream from the confluence with the South Fork Hackberry Creek up to approximately 2.4 miles upstream of SH 114 in Irving in Dallas County. This segment includes sites 17170, 17171, 17172, 17532, and 17938.

- **0822D—Ski Lake**—A 65 acre reservoir located just south of the intersection of US 35E and spur 482 in Irving. This segment includes site 17849.

Figure 0822.1 shows the locations of assessment units, monitoring stations, dischargers, landfills, and confined animal feeding operations (CAFOs). Table 0822.1 lists the stations being monitored in fiscal year 2014 as well as the parameters being collected and the frequency of sampling.

**HYDROLOGIC CHARACTERISTICS**

The discharge of segment 0822 is determined by the flood control reservoir Lake Lewisville, with contributions for approximately 10 small creeks, as well as treated wastewater outfalls from the Town of Flower Mound, the City of Lewisville and the City of Dallas, each permitted for 10-15 million gallons per day (MGD). The median annual average discharge in the upper portion of this segment is 290 cubic feet per second (cfs) based on historic values over the past for years at the USGS flow gage of the Elm Fork Trinity River near Lewisville (08053000), the upper-most gage in the segment. The median value of discharge in the lower portion of the segment over the past four years is 199 cubic feet per second (cfs) based on historic values at the Elm Fork Trinity River at Spur 348, Irving, TX USGS flow gage (08055560).

**IMPAIRMENT/AREA OF INTEREST DESCRIPTION**

Based on the 2012 Texas Water Quality Integrated Report, there are impairments in assessment units 0822_01, 0822_04, 0822A_01, 0822A_02, 0822B_01, 0822C_01, and 0822D_01. Details of the assessment are located in Table 0822.2.

**LAND USE AND NATURAL CHARACTERISTICS**

The north portion of the segment 0822 watershed is mainly agriculture and cropland, dotted with forested areas. The middle and lower portions are highly urbanized and include DFW International Airport. The watershed of segment 0822 falls completely within the Blackland Prairie ecoregion.

**POTENTIAL CAUSES OF IMPAIRMENT OR INTEREST**

It is possible that both the nutrient and Chlorophyll-a concerns in this segment are the result of the intense urban growth in the area that 0822 flows through: possibly including runoff from construction, public and private landscaping and the runoff from fertilized cropland in the northern area of the region. High pH can be caused by possible runoff from fertilizers and stock animal waste from the crop and range land in the surrounding watershed, as well as urban runoff from landscaping. This could also be the potential cause of the high nutrient sample result in 0826_07.

**POTENTIAL STAKEHOLDERS**

Cities of Lewisville, Grapevine, Dallas

**RECOMMENDATIONS FOR IMPROVING WATER QUALITY**

- Water quality education
- Education of safe urban and farm fertilization practices
- Stream-friendly management of stock animal wastes

**ONGOING PROJECTS**

The Cottonwood Branch and Grapevine Creek Bacteria TMDL is currently ongoing in this segment. This TMDL focused on the E. coli impairments in 0822A and 0822B. The report for this project has been submitted for approval.
MAJOR WATERSHED EVENTS (PRESENT AND FUTURE)
There are no known or anticipated events that would affect water quality in this segment. However, this segment is highly urbanized and may be affected by common urban pollutants such as fertilizers and animal waste. In addition, there are several landfills along the segment. Three dischargers renewed their water quality permits in 2012. See Table 0822.3 for details.

IMAGES
See Figures 0822.5 to 0822.8 for images of this segment.
<table>
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<tr>
<th>Monitoring Entity</th>
<th>Segment</th>
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<td>LM FORK TRINITY RIVER AT INTAKE OF DALLAS WATER UTILITIES ELM FK TREATMENT PLANT 738 M DOWNSTREAM OF CONFLUENCE WITH DENTON CK IN CARROLLTON (E2)</td>
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<td>(Dissolved Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Nickel, Silver, Zinc, Selenium)</td>
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<td>0822_03</td>
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<td>ELM FORK TRINITY RIVER IMMEDIATELY DOWNSTREAM OF HEBRON PARKWAY SOUTHEAST OF LEWISVILLE TR255 (E4)</td>
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<td>(Dissolved Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Nickel, Silver, Zinc, Selenium)</td>
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<td>0822_04</td>
<td>15252</td>
<td>ELM FORK TRINITY RIVER AT LEWISVILLE LAKE SPILLWAY 3 MI NORTHEAST OF LEWISVILLE (E1)</td>
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<td>0822A</td>
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<td>17167</td>
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<td>Grapevine Creek at North MacArthur Blvd. 3.5 KM Upstream of the confluence with the Elm Fork Trinity River</td>
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<td>(Dissolved Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Nickel, Silver, Zinc, Selenium)</td>
<td>12 (Water Temp, Air Temp, Specific Conductance, DO, PH, Flow Severity, Days Since Precipitation Event)</td>
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### TABLE 0822.2: 2012 Water Quality Integrated Report

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<th>Parameter Description</th>
<th>Criteria</th>
<th>Number of samples assessed</th>
<th>Number of samples exceed criteria</th>
<th>Mean of samples assessed (avg or geomean)</th>
<th>Mean of samples that exceed criteria</th>
<th>Dataset Qualifier Codes</th>
<th>Impairment Level</th>
<th>Impairment Category</th>
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<td>Nutrient Screening Levels</td>
<td>Chlorophyll-a</td>
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<td>Recreation Use</td>
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<td>E. coli</td>
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<td>32</td>
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<td>Recreation Use</td>
<td>Bacteria Geomean</td>
<td>E. coli</td>
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</table>

Dataset Qualifier Codes:
- AD-Adequate Date (10 or more samples)
- ID-Inadequate data (less than 4 samples)

Impairment Level:
- CS-Screening level concern
- CS*-Screening level concern carried forward from previous assessments

Impairment Category:
- AD NS 4a: A TMDL has been completed and approved by EPA.
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SEGMENT DESCRIPTION
Segment 0826 begins at Grapevine Dam in Tarrant County and continues up to the normal pool elevation of 535 feet, impounding Denton Creek. There are eight assessment units in this segment. 0826_01 is the lowermost portion of the reservoir. Sites in this assessment unit include 13873, 13874, 16113, 17827, 20891, 20890, and 20889. 0826_02 is Morehead Creek cove. Sites in this assessment unit include 11036, 11037, 16118, and 20886. 0826_03 is the lower portion of the reservoir north of Oak Grove Park. Sites in this assessment unit include 16114. 0826_04 is North Main Slough cove. Sites in this assessment unit include 16116, 16117, and 20887. 0826_05 is the middle portion of the reservoir east of Meadowmere Park. Sites in this assessment unit include 13875 and 16115. 0826_06 is the middle portion of the reservoir southeast of Walnut Grove Park. Sites in this assessment unit include 13876, 16112, and 17828. 0826_07 is the upper portion of the reservoir east of Marshall Creek Park. Sites in this assessment unit include 13877, 13878, 16111, and 20882. 0826_08 is the remainder of reservoir. Sites in this assessment unit include 20883, 20881, and 20880.

Unclassified water bodies in this segment include those listed below.

**0826A—Denton Creek**—A perennial stream from the confluence with Grapevine Lake in Denton County to the headwaters northeast of Bowie in Montague County. There are four assessment units in this segment. 0826A_01 is the lower 7.9 miles of creek. Sites in this assessment unit include 14485. 0826A_02 is a reach from 15.7 miles upstream to 7.4 miles down stream of FM 156. Sites in this assessment unit include 14483. 0826A_03 is a reach from 9.3 miles upstream to 15.7 miles downstream of Greenwood Road. 0826A_04 is the upper 20.8 miles of creek.

**0826B—Trail Creek**—A perennial stream from the confluence with Denton Creek up to 2.1 km upstream of SH 156 in Justin.

**0826C—Henrietta Creek**—A 3 mile stretch of Henrietta Creek running upstream from the confluence with Denton Creek to the confluence with Elizabeth Creek. This segment includes site 16825.

Figure 0826.1 shows the locations of assessment units, monitoring stations, dischargers, landfills, and confined animal feeding operations (CAFOs). Table 0826.1 lists the stations being monitored in fiscal year 2014 as well as the parameters being collected and the frequency of sampling.

HYDROLOGIC CHARACTERISTICS
Grapevine Lake has a conservation pool elevation of 535 feet and is fed by Denton Creek. This reservoir is used for flood control, water supply, and recreational activities. At the time of this writing, the reservoir has been below the conservation pool elevation by up to 9.99 feet since April 28, 2012.

IMPAIRMENT/AREA OF INTEREST DESCRIPTION
Based on the Draft 2012 Texas Water Quality Integrated Report, there are impairments in assessment units 0826_07 and 0826A_01. Details of the assessment are located in Table 0826.2.

LAND USE AND NATURAL CHARACTERISTICS
The land near the classified sections of 0826 is a mottled mix of crop and range land, forest and urban development. A large swath of range land with areas of forest lies just north of the body of 0826, with mainly cropland with patches of urban development to the south, east and west of the segment. This portion of the segment is located within the Eastern Cross Timbers Ecotregion.

Land use in the surrounding areas of the unclassified streams of 0826 including 0826A, 0826B and 0826C is predominantly crop and rangeland. The unclassified streams of 0826 flow through the Western Cross Timbers (only 0826A) and Grand Prairie Ecoregions (0826A, 0826B and 0826C).

POTENTIAL CAUSES OF IMPAIRMENT OR INTEREST
High nutrients in 0826A_01 may be due to this being the most upstream part of a perennial stream (Denton Creek); periods of slow moving or disconnected flow in this assessment unit may be keeping the nutrients from dissipating. Samples at assessment unit 0826_07 (most upstream portion of Grapevine Lake) have shown values high in nutrients and pH. High pH can be caused by possible runoff from fertilizers and stock animal waste from the vast crop and range land in the surrounding watershed. This could also be the potential cause of the high nutrient sample result in 0826_07.

POTENTIAL STAKEHOLDERS
Cities of Denton, Grapevine, Southlake, Colleyville, Trophy Club, Justin
Northlake Partners, Ltd.
Aviation Utilities Services, Inc
Grapevine Lake Park & Recreation Authorities

RECOMMENDATIONS FOR IMPROVING WATER QUALITY
Water quality education
Education of safe urban and farm fertilization practices
Stream-friendly management of stock animal wastes

ONGOING PROJECTS
There are no ongoing projects in this segment.

MAJOR WATERSHED EVENTS (PRESENT AND FUTURE)
There are no known or anticipated events that would affect water quality in this segment. Three dischargers renewed their water quality permits in 2012 while two dischargers applied for amendments to their water quality permits. In 2013, two dischargers renewed their water quality permits. See Table 0826.3 for details.

IMAGES
See Figures 0826.5 to 0826.8 for images of this segment.
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<th>Monitoring Entity</th>
<th>Segment</th>
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<th>Conventional</th>
<th>Bacteria</th>
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<tbody>
<tr>
<td>Dallas</td>
<td>0826</td>
<td>0826_01</td>
<td>17827</td>
<td>GRAPEVINE LAKE AT DALLAS WATER UTILITIES INTAKE 349 METERS NORTH AND 328 METERS EAST OF INTERSECTION OF SILVERSIDE DR AND PARK ROAD 7 (G4)</td>
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<td>GRAPEVINE LAKE USGS SITE BC 753 METERS SOUTH AND 484 METERS WEST OF INTERSECTION OF WEST MURREL PARK ROAD AND SIMMONS ROAD (G5)</td>
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Dataset Qualifier Codes
- AD-Adequate Date (10 or more samples)
- ID-Inadequate data (less than 4 samples)
- NS-Non-support

Impairment Level
- CS*-Screening level concern carried forward from previous assessments

Impairment Category
- 5c-Additional data and information will be collected before a TMDL is scheduled

NS-Non-support

ID-Pre-screening level concern carried forward from previous assessments
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East Fork Subwatershed

0821 – Lake Lavon

SEGMENT DESCRIPTION
Segment 0821 begins at Lavon Dam in Collin County and continues up to the normal pool elevation of 492 feet, impounding the East Fork Trinity River. There are four assessment units in this segment. 0821_01 is the lowermost portion of the reservoir. Sites in this assessment unit include 15684 and 15685. 0821_02 is the East Fork arm. Sites in this assessment unit include 15686. 0821_03 is the middle portion of Sister Grove Creek arm. Sites in this assessment unit include 15687. 0821_04 is the remainder of segment.

Unclassified water bodies in this segment include those listed below.
- 0821A—Pilot Grove Creek—A perennial stream from the confluence of Desert Creek up to FM 121 near Blue Ridge.
- 0821B—Sister Grove Creek—From the confluence with Lake Lavon in Collin County up to the confluence of West Prong Sister Grove Creek/East Prong Sister Grove Creek, east of Van Alstyne in Grayson County. This segment includes site 13613.
- 0821C—Wilson Creek—From the confluence with Lake Lavon in Collin County up to West FM 455 just east of Celina in Collin County. This segment includes sites 10777 and 15041.
- 0821D—East Fork Trinity River above Lake Lavon—A portion of the East Fork Trinity River extending from the confluence with Lake Lavon (segment 0821) to the upper end of the water body in Collin County. This segment includes site 13740.

Figure 0821.1 shows the locations of assessment units, monitoring stations, dischargers, landfills, and confined animal feeding operations (CAFOs).

HYDROLOGIC CHARACTERISTICS
Lake Lavon has a conservation pool elevation of 492 feet and is fed by the East Fork Trinity River. This reservoir is used for flood control, water supply, and recreational activities. At the time of this writing, the reservoir has been below the conservation pool elevation by up to 12.61 feet since May 19, 2012.

IMPAIRMENT/AREA OF INTEREST DESCRIPTION
Based on the 2012 Texas Water Quality Integrated Report, there are impairments in assessment units 0821_01, 0821C_01, and 0821D_01. Details of the assessment are located in Table 0821.1.

LAND USE AND NATURAL CHARACTERISTICS
The majority of land use in the 0821 watershed is crop, pasture and other agriculture, with some forest dotting the land adjacent to 0821 and tributaries. There are also some large sections of urban development. The drainage area falls entirely within the Northern Blackland Prairie ecoregion.

POTENTIAL CAUSES OF IMPAIRMENT OR INTEREST
There is an E. coli concern in assessment units 0821C_01 and 0821D_01. This may be due to livestock runoff in the vast amount of agricultural land use that each of these assessment units flow through. The nutrient impairment in 0821_01 might possibly be due to natural occurrence of nutrients in sediment buildup from the streams in the Lake.

POTENTIAL STAKEHOLDERS
Cities of McKinney, Anna, Van Alstyne, Allen, Leonard, Prosper, Garland, Dallas Walton Texas, LP
Wylie Northeast SUD
East Fork Partners, LLC
Lake Lavon Baptist Encampment

RECOMMENDATIONS FOR IMPROVING WATER QUALITY
Water quality education
Education of safe urban and farm fertilization practices
Stream-friendly management of stock animal wastes

ONGOING PROJECTS
There are no ongoing projects in this segment.

MAJOR WATERSHED EVENTS (PRESENT AND FUTURE)
Zebra mussels were found in Sister Grove Creek in 2009 and 2010. In 2013, zebra mussels were also found in Lake Lavon. Due to their ability to reproduce quickly and filter large amounts of water, zebra mussels can dramatically change the food web of a reservoir. In addition, they selectively reject blue-green algae which can lead to blooms of these algae which are associated with taste and odor problems in finished drinking water. Lake Lavon receives water transfers from the North Texas Municipal Water District East Fork diversion below Lake Ray Hubbard as well as from lakes Tawakoni and Chapman. Eights dischargers renewed their water quality permits and one received an amendment to their water quality permit in 2012. See Table 0821.2 for details.

IMAGES
See Figures 0821.5 to 0821.8 for images of this segment.
<table>
<thead>
<tr>
<th>Segment and Assessment Unit</th>
<th>Use</th>
<th>Method</th>
<th>Parameter Description</th>
<th>Criteria</th>
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<td>0821C_01</td>
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Dataset Qualifier Codes:
- **AD**: Adequate Date (10 or more samples)
- **ID**: Inadequate data (less than 4 samples)

**Impairment Level**
- CS*: Screening level concern carried forward from previous assessments

**Impairment Category**
- 5c: Additional data and information will be collected before a TMDL is scheduled
- NS: Nonsupport
### TABLE 0821.2: New and Renewed Discharge Permits

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East Fork Subwatershed

**0820 – Lake Ray Hubbard**

**SEGMENT DESCRIPTION**
Segment 0820 begins at Rockwall-Forney Dam in Kaufman County and continues up to Lavon Dam in Collin County. It impounds the East Fork Trinity River up to the normal pool elevation of 435.5 feet. There are six assessment units in this segment. 0820_01 is the lower portion of the East Fork arm, centering on IH 30. Sites in this assessment unit include 16809. 0820_02 is the middle portion of the East Fork arm, centering on SH 66. Sites in this assessment unit include 16829. 0820_03 is the remainder of segment. 0820_04 is the lower portion of the main body of the reservoir extending up from the dam to Yankee Creek arm. Sites in this assessment unit include 16828 and 20110. 0820_05 is the mid-reservoir I-30 crossing Rowlett Creek Arm to Yankee Creek Arm. Sites in this assessment unit include 17829. 0820_06 is the outfall canal from Lake Lavon Dam. Sites in this assessment unit include 17846.

Unclassified water bodies in this segment include those listed below.
- **0820A—Cottonwood Creek**—A perennial stream from the confluence with Rowlett Creek up to SH 5 near Greenville Road.
- **0820B—Rowlett Creek**—A perennial stream from the normal pool elevation of 435.5 feet of Lake Ray Hubbard to the Parker Road crossing. This segment includes sites 10753 and 17845.
- **0820C—Muddy Creek**—From the confluence with Lake Ray Hubbard in Dallas County up to the headwaters east of Allen in Collin County. This segment includes sites 16828 and 20110.

Figure 0820.1 shows the locations of assessment units, monitoring stations, dischargers, landfills, and confined animal feeding operations (CAFOs). Table 0820.1 lists the stations being monitored in fiscal year 2014 as well as the parameters being collected and the frequency of sampling.

**HYDROLOGIC CHARACTERISTICS**
Lake Ray Hubbard has a conservation pool elevation of 435.5 feet and is fed by the East Fork Trinity River. This reservoir is used for water supply and recreational activities. At the time of this writing, the reservoir has been below the conservation pool elevation by up to 7.17 feet since June 16, 2012.

**IMPAIRMENT/AREA OF INTEREST DESCRIPTION**
Based on the 2012 Texas Water Quality Integrated Report, there are impairments in assessment units 0820_01, 0820_02, 0820_04, 0820_05, 0820B_01, and 0820C_01. Details of the assessment are located in Table 0820.2.

**LAND USE AND NATURAL CHARACTERISTICS**
The land in this watershed is a mix of crop and urban development. The intense urban region of Dallas lies just to the west of 0820, with mainly crop land to the east.

This portion of the East Fork subwatershed is located within the Northern Blackland Prairie Ecoregion.

**POTENTIAL CAUSES OF IMPAIRMENT OR INTEREST**
It is possible that both the nutrient and Chlorophyll-a concerns in this segment are the result of the intense urban growth in the area that 0820 is near; possibly including runoff from construction, public and private landscaping and the runoff from fertilized cropland in the northern area of the region. E. coli in 0820B_01 may be caused by runoff from stock animal waste from the crop and range land in the surrounding watershed, as well as urban runoff. This could also be the potential cause of the nutrient and dissolved oxygen concerns in 0820C_01.

**POTENTIAL STAKEHOLDERS**
Cities of Lavon, Dallas, Rockwall, Rowlett
Lake Ray Hubbard Park Authorities

**RECOMMENDATIONS FOR IMPROVING WATER QUALITY**
Water quality education
Education of safe urban and farm fertilization practices
Stream-friendly management of stock animal wastes
Promotion of safe disposal of pet waste

**ONGOING PROJECTS**
There are no ongoing projects in this segment.

**MAJOR WATERSHED EVENTS (PRESENT AND FUTURE)**
Zebra mussels were found in Lake Ray Hubbard in 2011. Due to their ability to reproduce quickly and filter large amounts of water, zebra mussels can dramatically change the food web of a reservoir. In addition, they selectively reject blue-green algae which can lead to blooms of these algae which are associated with taste and odor problems in finished drinking water. Two dischargers in 2012 and two in 2013 renewed their water quality permits. See Table 0820.3 for details.

**IMAGES**
See Figures 0820.5 to 0820.8 for images of this segment.
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<td>16809</td>
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<td>(Dissolved Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Nickel, Silver, Zinc, Selenium)</td>
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<td>0820</td>
<td>0820_02</td>
<td>16829</td>
<td>LAKE RAY HUBBARD EAST FORK ARM AT US 66 494 M NORTH AND 1.83 KM EAST OF INTERSECTION OF US 66 AND SCENIC DRIVE WEST OF ROCKWALL (H4)</td>
<td>RT</td>
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<td>LAKE RAY HUBBARD 1.79 KM E AND 193 METERS S OF INTERSECT GLORIA RD AND E FORK RD NEAR DALLAS WATER INTAKE STRUCTURE AT WEST END OF DAM (H1)</td>
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<td>LAKE RAY HUBBARD MID LAKE 1.13 KM SOUTH AND 165 METERS EAST OF INTERSECTION OF DALROCK ROAD AND COOKE DRIVE (H2)</td>
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<td>LAKE RAY HUBBARD EAST FORK TRINITY RIVER 200 METERS DOWNSTREAM OF LAKE LAVON OUTFALL AT COLLIN CR 384 (V1)</td>
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<td>ROWLETT CREEK AT FIREWHEEL PARKWAY NEAR ROWLETT (H1)</td>
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<td>MUDDY CREEK AT LIBERTY GROVE ROAD 0.65KM UPSTREAM OF LAKE RAY HUBBARD (H5)</td>
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Dataset Qualifier Codes:
- AD-Adequate Date (10 or more samples)
- CN-Use concern
- CS-Screening level concern
- CS*-Screening level concern carried forward from previous assessments
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<td>Final</td>
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</table>
East Fork Subwatershed

0819 – East Fork Trinity River

SEGMENT DESCRIPTION
Segment 0819 begins at the confluence with the Trinity River in Kaufman County and continues up to Rockwall-Forney Dam in Kaufman County. There is one assessment unit in this segment, 0819_01, that covers the entire segment. Sites in this assessment unit include 10987, 10990, 10991, 10992, 10996, 13612, 10993, 20286, 20285, 20284, 10989, and 10997.

Unclassified water bodies in this segment include those listed below.

0819A—Duck Creek—a perennial stream from the confluence with the East Fork Trinity River in Kaufman county to the confluence of an unnamed tributary 0.6 km upstream of Jupiter Road in Dallas County. This segment includes site 18558.

0819B—Buffalo Creek—a perennial stream from the confluence with the East Fork Trinity River up to 0.6 km above the confluence of Little Buffalo Creek. This segment includes sites 10824 and 18576.

Figure 0819.1 shows the locations of assessment units, monitoring stations, dischargers, landfills, and confined animal feeding operations (CAFOs).

HYDROLOGIC CHARACTERISTICS
The median annual flow of 0819 is 49.0 cubic feet per second (cfs) based on historic values at the USGS flow gage at East Fork Trinity River near Crandall (08062000). Over the past year, flow at the USGS gage decreased to a low flow of 16 cfs only once during the month of August 2013. There were six events in 2013 of flow values over 100 cfs, with May 2013 seeing a pulse of over 2000 cfs. Peak flows in this area of the East Fork generally returned to normal within two weeks.

IMPAIRMENT/AREA OF INTEREST DESCRIPTION
Based on the 2012 Texas Water Quality Integrated Report, there are impairments in assessment units 0819_01 and 0819B_01. Details of the assessment are located in Table 0819.1.

LAND USE AND NATURAL CHARACTERISTICS
Land cover in the 0819 watershed is a base of crop and agriculture land, with a large area of urban development to the west and northwest. A tract of forest riparian buffers the river nominally. 0819 is in the ecoregion category of floodplains and low terraces, and beyond that, is surrounded on all sides by the Northern Blackland Prairie.

POTENTIAL CAUSES OF IMPAIRMENT OR INTEREST
High nutrient levels in assessment units 0819_01 and 0819B_01 may be the result of the intense urban area of Dallas that 0819 flows near: possibly including runoff from construction and public and private landscaping. Also, the runoff from fertilized cropland in the immediate floodplain and to the east might be contribution runoff from fertilizers and stock animal waste.

POTENTIAL STAKEHOLDERS
Cities of Crandall, Dallas, Forney, Seagoville, Rosser
Bosque Utilities Corporation
Aqua Utilities
Land Advisors, LTD

RECOMMENDATIONS FOR IMPROVING WATER QUALITY
Water quality education
Education of safe urban and farm fertilization practices
Stream-friendly management of stock animal wastes
Promotion of safe disposal of pet waste

ONGOING PROJECTS
The post-diversion sampling phase of the North Texas Municipal Water East Fork Monitoring Program was completed in FY 2013. This project monitored water quality and biological populations in the river after the return flows from wastewater treatment plants were diverted. Data is currently being processed for inclusion in the statewide TCEQ database.

MAJOR WATERSHED EVENTS (PRESENT AND FUTURE)
There are no known or anticipated events that would affect water quality in this segment. Four dischargers in 2012 and two in 2013 renewed their water quality permits. See Table 0819.2 for details.

IMAGES
See Figures 0819.5 to 0819.8 for images of this segment.
## TABLE 0819.1: 2012 Water Quality Integrated Report

<table>
<thead>
<tr>
<th>Segment and Assessment Unit</th>
<th>Use</th>
<th>Method</th>
<th>Parameter Description</th>
<th>Criteria</th>
<th>Number of samples assessed</th>
<th>Number of samples exceed criteria</th>
<th>Mean of samples assessed (avg or geomean)</th>
<th>Mean of samples that exceed criteria</th>
<th>Dataset Qualifier</th>
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**Dataset Qualifier Codes**
- AD-Adequate Date (10 or more samples)
- CS-Screening level concern
- LD-Limited Data (between 4 and 9 samples)
- NS-Nonsupport
- 5c-Additional data and information will be collected before a TMDL is scheduled
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Cedar Creek Subwatershed

0818 – Cedar Creek Reservoir

SEGMENT DESCRIPTION
Segment 0818 begins at Joe B. Hoggsett Dam in Henderson County and continues up to the normal pool elevation of 322 feet, impounding Cedar Creek. There are 14 assessment units in this segment. 0818_01 is the lowermost portion of the reservoir, adjacent to the dam. Sites in this assessment unit include 13845, 16745, and 16748. 0818_02 is Caney Creek cove. Sites in this assessment unit include 16744. 0818_03 is Clear Creek cove. Sites in this assessment unit include 16743. 0818_04 is the lower portion of the reservoir east of Key Ranch Estates. Sites in this assessment unit include 13848 and 16749. 0818_05 is the cove off the lower portion of the reservoir adjacent to Clearview Estates. Sites in this assessment unit include 16746. 0818_06 is the middle portion of the reservoir downstream of Twin Creeks cove. Sites in this assessment unit include 15812, 16741, 16747, 16750, 17090, 18472, and 18473. 0818_07 is Twin Creeks cove. Sites in this assessment unit include 16739. 0818_08 is Prairie Creek cove. Sites in this assessment unit include 16751 and 16752. 0818_09 is the upper portion of the reservoir adjacent to Lacy Fork cove. Sites in this assessment unit include 13854, 16753, and 18471. 0818_10 is Lacy Fork cove. Sites in this assessment unit include 16771. 0818_11 is the upper portion of the reservoir east of Tolosa. Sites in this assessment unit include 16772. 0818_12 is the uppermost portion of the reservoir downstream of Kings Creek. Sites in this assessment unit include 16774, 18469, and 18470. 0818_13 is Cedar Creek cove. Sites in this assessment unit include 16773. 0818_14 is the remainder of reservoir.

Unclassified water bodies in this segment include those listed below.

- 0818A—One Mile Creek—A perennial stream from the confluence with Valley View Reservoir upstream to the confluence with an unnamed tributary 0.8 km upstream of SH 19.

Figure 0818.1 shows the locations of assessment units, monitoring stations, dischargers, landfills, and confined animal feeding operations (CAFOs). Table 0818.1 lists the stations being monitored in fiscal year 2014 as well as the parameters being collected and the frequency of sampling.

HYDROLOGIC CHARACTERISTICS
Cedar Creek Reservoir has a conservation pool elevation of 322 feet and is fed by Cedar Creek. This reservoir is used for water supply and recreational activities. At the time of this writing, the reservoir has been below the conservation pool elevation by up to 6.73 feet since April 21, 2012.

IMPAIRED/AREA OF INTEREST DESCRIPTION
Based on the 2012 Texas Water Quality Integrated Report, there are impairments in assessment units 0818_01, 0818_02, 0818_03, 0818_04, 0818_05, 0818_06, 0818_07, 0818_08, 0818_09, 0818_10, 0818_11, 0818_12, 0818_13. Details of the assessment are located in Table 0818.2.

LAND USE AND NATURAL CHARACTERISTICS
Land cover in the 0819 area is a base of mainly crop and agriculture land, with a large area of urban development to the west and northwest. There is also a relative abundance of forest class land cover near the Lake, particularly near the southern end of Cedar Creek. 0818 is entirely in the Northern Post Oak Savanna ecoregion, but is very near the Northern Blackland Prairie to the North and the Flood plains and Low Terraces to the South.

POTENTIAL CAUSES OF IMPAIRMENT OR INTEREST
A likely cause of elevated nutrients throughout 0818 is the runoff from fertilized cropland in the immediate floodplain and the contribution runoff from fertilizers and stock animal waste. These nutrients may lead to the growth of chlorophyll-a (algae), seen in 0818. High (basic) pH in much of 0818 might be a result excessive amounts of photosynthetically active algae and macrophytes which can increase consumption of carbon dioxide during the day; increasing pH in the water column.

POTENTIAL STAKEHOLDERS
Cities of Dallas, Kemp, Wills Point, Terrell, Athens, Eustace, Kaufman
Sentry Title Co.
Omega Healthcare Investors
Monarch Utilities ILP

RECOMMENDATIONS FOR IMPROVING WATER QUALITY
Water quality education
Education of safe urban and farm fertilization practices
Stream-friendly management of stock animal wastes
Promotion of safe disposal of pet waste

ONGOING PROJECTS
The Agricultural Non-Point Source Remediation in the Cedar Creek Reservoir Watershed project is ongoing in this segment. This project’s goal is to reduce nutrient and sediment loading into the reservoir through the use of Best Management Practices on surrounding agricultural lands. Currently, there are agreements in place with the Kaufman-VanZandt Soil and Water Conservation District (SWCD) and Texas AgriLife Extension provide for matching funds. The SWCD will provide matching funds for Water Quality Management Plans while the Extension will provide public outreach and education assistance.

MAJOR WATERSHED EVENTS (PRESENT AND FUTURE)
There are no known or anticipated events that would affect water quality in this segment. Eight dischargers in 2012 and four in 2013 renewed their water quality permits. See Table 0818.3 for details.

IMAGES
See Figures 0818.5 to 0818.8 for images of this segment.
<table>
<thead>
<tr>
<th>Monitoring Entity</th>
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<th>Site ID</th>
<th>Site Description</th>
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<th>Metals Water</th>
<th>Conventional</th>
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<td>16748</td>
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<td>5 (Water Temp, Secchi Depth, Specific Conductance, DO, pH)</td>
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<td>16747</td>
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<td>BS</td>
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**Dataset Qualifier Codes**
- **AD**: Adequate Date (10 or more samples)
- **ID**: Inadequate data (less than 4 samples)
- **LD**: Limited Data (between 4 and 9 samples)
- **CS**: Screening level concern
- **CS***: Screening level concern carried forward from previous assessments
- **NS**: Nonsupport
- **NS***: Nonsupport carried forward from previous assessments
- **5c**: Additional data and information will be collected before a TMDL is scheduled

**Impairment Level**
- **AD**: Adequate Date
- **ID**: Inadequate data
- **LD**: Limited Data

**Impairment Category**
- **5c**: Additional data and information will be collected before a TMDL is scheduled
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SEGMENT DESCRIPTION
Segment 0816 begins at South Prong Dam in Ellis County and continues up to the normal pool elevation of 531.5 feet, impounding South Prong Creek. There is one assessment unit in this segment, 0816_01, that covers the entire reservoir. Sites in this assessment unit include 10980.

Unclassified water bodies in this segment include those listed below.

0816A—South Prong Creek—A 12.2 mile stretch of South Prong Creek running upstream from the confluence with Segment 0816 (Lake Waxahachie) up to the upper end of the creek in Midlothian in Ellis County. This segment includes site 18571.

HYDROLOGIC CHARACTERISTICS
Lake Waxahachie has a conservation pool elevation of 531 feet and is fed by South Prong Creek. This reservoir is used for water supply and recreational activities. At the time of this writing, the reservoir has been below the conservation pool elevation by up to 5.04 feet since May 25, 2012.

IMPAIRMENT/AREA OF INTEREST DESCRIPTION
There are no impairments or concerns in this segment.

LAND USE AND NATURAL CHARACTERISTICS
This segment and its watershed are entirely within the Northern Blackland Prairie ecoregion with the land use being nearly all classified as agriculture and pasture. There is some urbanization to the north of the lake in the City of Waxahachie.

POTENTIAL CAUSES OF IMPAIRMENT OR INTEREST
There are no impairments or concerns in this segment.

POTENTIAL STAKEHOLDERS
City of Waxahachie
Tarrant Regional Water District

RECOMMENDATIONS FOR IMPROVING WATER QUALITY
There are no impairments or concerns in this segment.

ONGOING PROJECTS
There are no ongoing projects in this segment.
FIGURE 0816.1

Discharger-Flow (mgd)

- Monitoring Sites
- CAFO
- Landfill

Discharge Flow Categories:
- 0.0 - 3.5
- 3.6 - 18.0
- 18.1 - 64.0
- 64.1 - 200.0

Legend:
- Diamonds: Monitoring Sites
- Asterisks: CAFO
- Squares: Landfill

Map Features:
- Lake Waxahachie
- Waxahachie
- Roads

Scale: 2 Miles

Compass Orientation:
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Richland Chambers Subwatershed

0815 – Bardwell Reservoir

SEGMENT DESCRIPTION
Segment 0815 begins at Bardwell Dam in Ellis County and continues up to the normal pool elevation of 421 feet, impounding Waxahachie Creek. There is one assessment unit in this segment, 0815_01, that covers the entire reservoir. Sites in this assessment unit include 10979, 16700, 17582, 18437, 18549, and 18550.

Unclassified water bodies in this segment include those listed below.

8015A—Waxahachie Creek—A perennial stream from the confluence with Bardwell Reservoir at a normal pool elevation of 421 feet up to the headwaters west of Waxahachie in Ellis County. This segment includes sites 13686 and 18519.

Figure 0815.1 shows the locations of assessment units, monitoring stations, dischargers, landfills, and confined animal feeding operations (CAFOs). Table 0815.1 lists the stations being monitored in fiscal year 2014 as well as the parameters being collected and the frequency of sampling.

HYDROLOGIC CHARACTERISTICS
Bardwell Reservoir has a conservation pool elevation of 421 feet and is fed by Waxahachie Creek. This reservoir is used for flood control, water supply, and recreational activities. At the time of this writing, the reservoir has been below the conservation pool elevation by up to 5.16 feet since June 14, 2012. In Waxahachie Creek above Lake Bardwell, the median annual average flow is 20.9 cfs based on the past 5 years of data available at the USGS Gage station at Waxahachie (08063590). Over the past year, post-rainfall peak flows have returned to normal in less than a week for short duration rain events. Zero flow was reported for more than a month during the summer.

IMPAIRED/AREA OF INTEREST DESCRIPTION
Based on the 2012 Texas Water Quality Integrated Report, there are impairments in assessment units 0815_01 and 0815A_01. Details of the assessment are located in Table 0815.2.

LAND USE AND NATURAL CHARACTERISTICS
This segment and its watershed are entirely within the Northern Blackland Prairie ecoregion with the land use being nearly all classified as agriculture and pasture. There are small areas of forest and rangeland scattered throughout the watershed. There is some urbanization to the east of the lake in the City of Ennis. On the west side of the lake lies the smaller City of Bardwell.

POTENTIAL CAUSES OF IMPAIRMENT OR INTEREST
Nitrate concerns in this segment are likely due to agricultural fertilizer runoff. Chlorophyll-a concerns may also be related to the fertilizer runoff into the reservoir.

Runoff may be compounding the issues of increasing eutrophication of reservoirs as they age and the hypereutrophic status of the reservoir as noted in the TCEQ Trophic Classification of Texas Reservoirs report. Additionally, the 2010 TRA Basin Summary Report noted that high chlorophyll-a levels tended to occur during extended periods of low lake elevation indicating that algal blooms and lack of dilution from inflows may be contributing to these concerns.

POTENTIAL STAKEHOLDERS
City of Ennis
City of Bardwell
City of Waxahachie
Tarrant Regional Water District

RECOMMENDATIONS FOR IMPROVING WATER QUALITY
Landowner education and implementation of best management practices (BMPs) may help reduce nitrate and chlorophyll-a levels in this segment.

ONGOING PROJECTS
There are no ongoing projects in this segment.

MAJOR WATERSHED EVENTS (PRESENT AND FUTURE)
There are no known or anticipated events that would affect water quality in this segment. Four dischargers renewed their water quality permits in 2012. See Table 0815.3 for details.

IMAGES
See Figures 0815.5 to 0815.8 for images of this segment.
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- **AD**: Adequate Data (10 or more samples)
- **ID**: Inadequate data (less than 4 samples)

**Impairment Level**

- **CS**: Screening level concern
- **CS***: Screening level concern carried forward from previous assessments
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Richland Chambers Subwatershed

0814 – Chambers Creek Above Richland-Chambers Reservoir

SEGMENT DESCRIPTION
Segment 0814 begins at a point 4.0 km (2.5 miles) downstream of Tupelo Branch in Navarro County and continues up to the confluence of North Fork Chambers Creek and South Fork Chambers Creek. There are four assessment units in this segment. 0814_01 is from the lower end of the segment up to just above the confluence with Cummins Creek. Sites in this assessment unit include 10975. 0814_02 is from just above the confluence with Cummins Creek up to just above the confluence with Waxahachie Creek. Sites in this assessment unit include 10977 and 20000. 0814_03 is from just above the confluence with Waxahachie Creek up to just above the confluence with Mill Branch. 0814_04 is from just above the confluence with Mill Branch to the upper end of the segment. Sites in this assessment unit include 10978.

Unclassified water bodies in this segment include those listed below.

- **0814A—Mill Creek**—A twenty-five mile stretch of Mill Creek running upstream from the confluence with Chambers Creek in Navarro County up to the Union Pacific Railroad in Milford in Ellis County. This segment includes site 18566.
- **0814B—South Fork Chambers Creek**—A twenty-nine mile stretch of the South Fork of Chambers creek stretching from the confluence with Chambers Creek (Segment 0814) to the upper end of the South Fork Chambers Creek. This segment includes site 18570.

Figure 0814.1 shows the locations of assessment units, monitoring stations, dischargers, landfills, and confined animal feeding operations (CAFOs). Table 0814.1 lists the stations being monitored in fiscal year 2014 as well as the parameters being collected and the frequency of sampling.

HYDROLOGIC CHARACTERISTICS
The median annual average flow is 77.75 cfs based on historical values at the USGS flow gage on Waxahachie Creek near Bardwell (08063800). Based on the gage on Chambers Creek near Rice (08064100), the median annual average flow is 447.35 cfs. Over the past year, flow in Waxahachie Creek exceeded 3 cfs only once in the winter of 2013. Flow was below 1.3 cfs for the remainder of the year with zero flow being reported for much of the summer and early fall. Flows in Chambers Creek were below 10 cfs for much of the past year with zero flow for almost two months in the late summer. There were several high flow events in the spring, fall, and winter. Some of those events exceeded 500 cfs. Peak flows in Chambers Creek generally returned to normal within two weeks.

IMPAIRMENT/AREA OF INTEREST DESCRIPTION
Based on the 2012 Texas Water Quality Integrated Report, there are impairments in assessment units 0814_01 and 0814_03. Details of the assessment are located in Table 0814.2.

LAND USE AND NATURAL CHARACTERISTICS
This segment’s watershed lies entirely within the Northern Blackland Prairie ecoregion and is nearly all classified as agriculture and pasture land. There are small areas of forest and rangeland scattered throughout the watershed. In addition, there are several small areas of urbanization.

POSSIBLE CAUSES OF IMPAIRMENT OR INTEREST
As noted in the 2010 TRA Basin Summary Report, concerns for low dissolved oxygen and elevated chlorophyll-a levels may be related to low flows and high water temperatures. Concerns for nutrients may be caused by runoff from agricultural fields during elevated flows and, to a lesser degree, wastewater treatment plants during low flows.

POSSIBLE STAKEHOLDERS
City of Midlothian
City of Waxahachie
City of Ennis
City of Corsicana
Tarrant Regional Water District

RECOMMENDATIONS FOR IMPROVING WATER QUALITY
Landowner education and implementation of best management practices (BMPs) may help reduce nutrient levels in this segment. Additional monitoring is suggested to determine if the low dissolved oxygen and elevated chlorophyll-a concerns are natural or anthropogenic.

ONGOING PROJECTS
There are no ongoing projects in this segment.

MAJOR WATERSHED EVENTS (PRESENT AND FUTURE)
There are no known or anticipated events that would affect water quality in this segment. Ten dischargers renewed their water quality permits in 2012. See Table 0814.3 for details.

IMAGES
See Figures 0814.5 to 0814.8 for images of this segment.
FIGURE 0814.1

Discharger-Flow (mgd)

- 0.0 - 3.5
- 3.6 - 18.0
- 18.1 - 64.0
- 64.1 - 200.0
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- **ID**-Inadequate data (less than 4 samples)

Impairment Level
- **CS**-Screening level concern
- **CS*”Screening level concern carried forward from previous assessments**
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SEGMENT DESCRIPTION
Segment 0817 begins at Navarro Mills Dam in Navarro County and continues up to the normal pool elevation of 424.5 feet, impounding Richland Creek. There is one assessment unit in this segment, 0817_01, that covers the entire reservoir. Sites in this assessment unit include 10981, 17442, 18545, 18546, 18547, 18548, and 20633.

Unclassified water bodies in this segment include those listed below.
- 0817A—Richland Creek—A ten mile stretch of Richland Creek running upstream from 0.5 miles downstream of FM 744 in Navarro County up to FM 308 south of Mertens in Hill County. This segment includes site 18518.

Figure 0817.1 shows the locations of assessment units, monitoring stations, dischargers, landfills, and confined animal feeding operations (CAFOs).

HYDROLOGIC CHARACTERISTICS
Navarro Mills Lake has a conservation pool elevation of 424.5 feet and is fed by Richland Creek. This reservoir is used for flood control, water supply, and recreational activities. At the time of this writing, the reservoir has recently filled to the conservation pool elevation after being up to 3.34 feet low between July 2, 2012 and November 5, 2013.

IMPAIRMENT/AREA OF INTEREST DESCRIPTION
Based on the 2012 Texas Water Quality Integrated Report, there is an impairment in assessment unit 0817_01. Details of the assessment are located in Table 0817.1.

LAND USE AND NATURAL CHARACTERISTICS
This segment’s watershed is located entirely within the Northern Blackland Prairie ecoregion and is largely rural with agricultural and rangeland uses. There are several small residential communities around the lake.

POTENTIAL CAUSES OF IMPAIRMENT OR INTEREST
The agricultural nature of this watershed indicates that nitrate concerns may be related to runoff from fields. This lake has also been noted as being eutrophic in the TCEQ Trophic Classification of Texas Reservoir report.

POTENTIAL STAKEHOLDERS
Town of Emmett
Town of Pelham
Town of Malone
Town of Navarro Mills
Tarrant Regional Water District

RECOMMENDATIONS FOR IMPROVING WATER QUALITY
Landowner education and implementation of best management practices (BMPs) may help reduce nitrate levels in this segment.

ONGOING PROJECTS
There are no ongoing projects in this segment.

MAJOR WATERSHED EVENTS (PRESENT AND FUTURE)
There are no known or anticipated events that would affect water quality in this segment. Two dischargers in 2012 and one in 2013 received new water quality permits. See Table 0817.2 for details.

IMAGES
See Figure 0817.5 for an image of this segment.
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Dataset Qualifier Codes
AD-Adequate Date (10 or more samples)
CS-Screening level concern

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Richland Chambers Subwatershed

0837 – Richland Creek Above Richland-Chambers Reservoir

SEGMENT DESCRIPTION
Segment 0837 begins at the confluence of Pin Oak Creek in Navarro County and continues up to Navarro Mills Dam in Navarro County. There is one assessment unit in this segment, 0837_01, that covers the entire segment. Sites in this assessment unit include 18344 and 11070.

Figure 0837.1 shows the locations of assessment units, monitoring stations, dischargers, landfills, and confined animal feeding operations (CAFOs).

HYDROLOGIC CHARACTERISTICS
The median annual average flow in this segment is 117.5 cfs based on historic values at the USGS flow gage near Dawson (08063100). Over the past year, drought conditions have persisted with flows only exceeding 20 cfs in the fall and winter of 2013.

IMPAIRMENT/AREA OF INTEREST DESCRIPTION
Based on the 2012 Texas Water Quality Integrated Report, there is an impairment in assessment unit 0837_01. Details of the assessment are located in Table 0837.1.

LAND USE AND NATURAL CHARACTERISTICS
This watershed lies entirely within the Northern Blackland Prairie ecoregion and is largely rural with agricultural and rangeland uses. There are several forested areas along the creek and small residential communities scattered throughout the watershed.

POTENTIAL CAUSES OF IMPAIRMENT OR INTEREST
Low flow conditions in this segment are the most likely cause of low dissolved oxygen concerns in this segment. In the summer months, flows are regularly below 1 cfs and the USGS gage frequently reports zero flow during these times.

POTENTIAL STAKEHOLDERS
Community of Purdon
Community of Spring Hill
Town of Richland
Tarrant Regional Water District

RECOMMENDATIONS FOR IMPROVING WATER QUALITY
Additional monitoring is suggested to determine if the low dissolved oxygen concerns are natural or anthropogenic.

ONGOING PROJECTS
There are no ongoing projects in this segment.

MAJOR WATERSHED EVENTS (PRESENT AND FUTURE)
There are no known or anticipated events that would affect water quality in this segment. One discharger renewed their water quality permit in 2012. See Table 0837.2 for details.

IMAGES
See Figures 0837.5 to 0837.8 for images of this segment.
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Richland Chambers Subwatershed

0836 – Richland-Chambers Reservoir

SEGMENT DESCRIPTION
Segment 0836 begins at Richland-Chambers Dam in Freestone County and continues up to a point immediately upstream of the confluence of Pin Oak Creek on the Richland Creek Arm in Navarro County and to a point 4.0 kilometers (2.5 miles) downstream of Tupelo Branch on the Chambers Creek Arm in Navarro County. It impounds Richland and Chambers Creeks up to the normal pool elevation of 315 feet. There are eight assessment units in this segment. 0836_01 is the lowermost portion of reservoir, adjacent to dam. Sites in this assessment unit include 11065 and 15168. 0836_02 is the confluence of Richland and Chambers Creek arms. Sites in this assessment unit include 15169. 0836_03 is the lower portion of Chambers Creek arm. Sites in this assessment unit include 15170 and 18720. 0836_04 is the upper portion of Chambers Creek arm. Sites in this assessment unit include 15199 and 18724. 0836_05 is the lower portion of Richland Creek arm. Sites in this assessment unit include 11068. 0836_06 is the upper portion of Richland Creek arm. Sites in this assessment unit include 15172 and 18727. 0836_07 is the remainder of reservoir. 0836_08 is the Post Oak Creek Arm off of Chambers Creek Arm of Richland Chambers Reservoir. Sites in this assessment unit include 18723.

Unclassified water bodies in this segment include those listed below.

- **0836A—Pin Oak Creek** — A perennial stream from the confluence with the North Fork of Pin Oak Creek in Limestone County upstream to the confluence with Pin Oak Creek and an unnamed tributary approximately 8.0 km upstream of SH 171.
- **0836B—Cedar Creek** — From the confluence with Richland Chambers Reservoir to the upper end of the creek. This segment includes sites 18716, 18718, and 18719.
- **0836C—Grape Creek** — From the confluence with Richland Chambers Reservoir to the upper end of the creek southwest of Corsicana in Navarro County. This segment includes site 18721.
- **0836D—Post Oak Creek** — From the confluence with Richland Chambers Reservoir to the upper end of the creek. This segment includes site 18722.

Figure 0836.1 shows the locations of assessment units, monitoring stations, dischargers, landfills, and confined animal feeding operations (CAFOs). Table 0836.1 lists the stations being monitored in fiscal year 2014 as well as the parameters being collected and the frequency of sampling.

HYDROLOGIC CHARACTERISTICS
Richland-Chambers Reservoir has a conservation pool elevation of 314 feet and is fed by Chambers Creek in the northern arm and Richland Creek in the southern arm. This reservoir is used for water supply and recreational activities. At the time of this writing, the reservoir has been below the conservation pool elevation by up to 9.21 feet since July 8, 2012.

IMPAIRMENT/AREA OF INTEREST DESCRIPTION
Based on the 2012 Texas Water Quality Integrated Report, there are impairments in assessment units 0836_01, 0836_04, 0836_05, 0836B_01, 0836C_01, and 0836D_01. Details of the assessment are located in Table 0836.2.

LAND USE AND NATURAL CHARACTERISTICS
The upper reaches of this watershed and the upstream half of the lake lie within the Northern Blackland Prairie ecoregion while the downstream half of the lake lies within the Southern Post Oak Savanna. A majority of this watershed is rural with agriculture being the predominant land use. There are small forested and rangeland areas scattered throughout the watershed as well as several small communities. The City of Corsicana is the largest urbanized area in this watershed.

POTENTIAL CAUSES OF IMPAIRMENT OR INTEREST
Low dissolved oxygen and elevated chlorophyll-a concerns may be related to the eutrophic status of the reservoir as noted in the TCEQ Trophic Classification of Texas Reservoirs report. Nutrient concerns may be due to runoff from the agricultural fields in the watershed. Elevated nutrients could affect the chlorophyll-a levels in the reservoir as well.

POTENTIAL STAKEHOLDERS
City of Corsicana
Town of Richland
Town of Navarro
Town of Mildred
Town of Eureka
Tarrant Regional Water District

RECOMMENDATIONS FOR IMPROVING WATER QUALITY
Landowner education and implementation of best management practices (BMPs) may help reduce nutrient and chlorophyll-a levels in this segment.

ONGOING PROJECTS
The Richland Chambers Reservoir Transition Zones project is underway in this segment. The goal of this project is to develop site specific standards for the transition zones within the reservoir. The project is currently in the planning phase and is managed by the Water Quality Standards team of the TCEQ.

MAJOR WATERSHED EVENTS (PRESENT AND FUTURE)
There are no known or anticipated events that would affect water quality in this segment. Three dischargers renewed their water quality permits in 2012. See Table 0836.3 for details.

IMAGES
See Figures 0836.5 to 0836.8 for images of this segment.
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**Dataset Qualifier Codes**
- AD-Adequate Date (10 or more samples)
- ID-Inadequate data (less than 4 samples)
- CS-Screening level concern
- CS*-Screening level concern carried forward from previous assessments
- NS*-Non-support carried forward from previous assessments
- AD*-Adequate Date
- CS*-Screening level concern carried forward from previous assessments
- NS*-Non-support carried forward from previous assessments
- ID*-Inadequate data

**Impairment Level**
- CN*-Use concern carried forward from previous assessments

**Impairment Category**
- 5b-A review of the water quality standards for this water body will be conducted before a TMDL is scheduled.
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13845—CEDAR CREEK RESERVOIR USGS SITE AC 53 METERS SOUTH AND 1.80 KM WEST OF INTERSECTION OF JUPITER ROAD AND FM 3062

13848—CEDAR CREEK RESERVOIR USGS SITE CC 477 METERS SOUTH AND 2.49 KM WEST OF INTERSECTION OF CR 2830 AND CAROLYNN ROAD

13854—CEDAR CREEK RESERVOIR USGS SITE GR 522 METERS SOUTH AND 3.33 KM WEST OF INTERSECTION OF CR 4006 AND HARBOR POINT ROAD

15812—CEDAR CREEK RESERVOIR MID LAKE 1.61 KM NORTH AND 108 METERS EAST OF INTERSECTION OF DEER RUN ROAD AND FOREHAND DRIVE

16739—CEDAR CREEK RESERVOIR TWIN CREEK COVE AT SH 198 BRIDGE 926 METERS SOUTH AND 131 METERS EAST OF INTERSECTION OF HARMON ROAD AND SH 198

16741—CEDAR CREEK RESERVOIR OUTER CEDAR BRANCH COVE 268 METERS SOUTH AND 189 METERS EAST OF INTERSECTION OF ROYALWOOD DRIVE AND ENCHANTED DR

16743—CEDAR CREEK RESERVOIR CLEAR CREEK COVE AT SH198 BRIDGE 453 METERS SOUTH AND 202 METERS EAST OF INTERSECTION OF IMPERIAL DR AND SH 198

16744—CEDAR CREEK RESERVOIR CANEY CREEK COVE AT SH 198 BRIDGE 530 METERS SOUTH AND 185 METERS EAST OF INTERSECTION OF FM 1214 AND SH 198

16745—CEDAR CREEK RESERVOIR NEAR DAM 704 METERS NORTH AND 1.61 KM EAST OF INTERSECTION OF LAKESHORE DRIVE AND FOREHAND DRIVE

16746—CEDAR CREEK RESERVOIR 284 METERS SOUTH AND 484 METERS WEST OF INTERSECTION OF OAKVIEW TRAIL AND CAROLYNN ROAD

16747—CEDAR CREEK RESERVOIR 12 METERS NORTH AND 586 METERS EAST OF INTERSECTION OF ASHBY LANE AND BURLEY LOOP

16748—CEDAR CREEK RESERVOIR 710 M W AND 1.01 M W OF INTERSECTION OF WOODLAWN WAY AND SUNSET BLVD AT CONFLUENCE OF CANEY CK AND CLEAR CK COVES

16749—CEDAR CREEK RESERVOIR 1.01 KM SOUTH AND 1.34 KM WEST OF INTERSECTION OF CAROLYNN ROAD AND OAKVIEW TRAIL

16750—CEDAR CREEK RESERVOIR 121 METERS SOUTH AND 719 METERS EAST OF INTERSECTION OF OAK SHORE DRIVE AND CHEROKEE TRAIL

16751—CEDAR CREEK RESERVOIR PRAIRIE CREEK COVE 10 METERS SOUTH AND 189 METERS EAST OF INTERSECTION OF FOREST LANE AND DOGWOOD TRAIL

16752—CEDAR CREEK RESERVOIR PRAIRIE CREEK COVE 22 METERS SOUTH AND 293 METERS EAST OF INTERSECTION OF LAKEVIEW DRIVE AND VETERANS LANE

16753—CEDAR CREEK RESERVOIR 1.42 KM NORTH AND 1.37 KM EAST OF INTERSECTION OF NOB HILL ROAD AND SH 334

16771—CEDAR CREEK RESERVOIR 1.53 KM S AND 531 M E OF INTERSECTION OF KAUFMAN CR 402 AND SH 175 AT NORTH END OF RESERVOIR LACY CREEK COVE

16772—CEDAR CREEK RESERVOIR NORTH MID LAKE 800 M NORTH AND 2.59 KM EAST OF INTERSECTION OF KAUFMAN CR 4042 AND KAUFMAN CR 4043

16773—CEDAR CREEK RESERVOIR NEAR CEDAR CREEK COVE 1.20 KM SOUTH AND 99 METERS EAST OF INTERSECTION OF KAUFMAN CR 4023 AND US 175

16774—CEDAR CREEK RESERVOIR NEAR KINGS CREEK COVE 786 METERS SOUTH AND 1.97 KM EAST OF INTERSECTION OF SH 274 AND FM 148

17090—CEDAR CREEK RESERVOIR NEAR CHEROKEE SHORES RAW WATER INTAKE IN CEDAR BR ARM 99 M S AND 416 M W OF INTERSECTION OF CEDAR DR AND BIRCH RD

18469—CEDAR CREEK RESERVOIR IN KINGS CREEK COVE 1.15 KM DOWNSTREAM OF SH 274 AND 1.01 KM E OF SH 274/FM 148 INTERSECTION

18470—CEDAR CREEK RESERVOIR IN KINGS CREEK COVE 2.73 KM E AND 1.58 KM S OF SH 274/FM 148 INTERSECTION

18471—CEDAR CREEK RESERVOIR IN KINGS CREEK COVE 3.74 KM E AND 2.29 KM S OF SH 274/FM 148 INTERSECTION
Site Glossary

0814
10975—CHAMBERS CREEK AT FM 3041
10977—CHAMBERS CREEK AT FM 1126
10978—CHAMBERS CREEK AT FM 876 NEAR ITALY
20000—CHAMBERS CREEK IMMEDIATELY UPSTREAM OF ENSIGN ROAD

0814A
18566—MILL CREEK 7 M UPSTREAM OF LOWELL ROAD NEAR MILFORD TX

0814B
18570—SOUTH FORK CHAMBERS CREEK 15 M DOWNSTREAM OF JOHN-SON CR 102 IMMEDIATELY NE OF MARTHA LANE NEAR MAYPEARL TX

0815
10979—BARDWELL RESERVOIR 1.91 KM EAST AND 787 METERS NORTH OF INTERSECTION OF BARDWELL DAM RD AND FM 985 MID LAKE NEAR DAM USGS SITE AC
16700—BARDWELL RESERVOIR MUSTANG CREEK ARM AT W ENNIS PKWY 180 M N AND 472 M E OF INTERSECTION OF OLD WAXAHACHIE RD AND W ENNIS RD SW OF ENNIS
17582—BARDWELL RESERVOIR AT PUMP INTAKE 313 METERS NORTH AND 167 METERS EAST OF INTERSECTION OF SH 34 AND HILLTOP DRIVE
18437—BARDWELL LAKE AT MOTT PARK BETWEEN SWIM BEACH AND HIGH VIEW MARINA 745 M E AND 220 M N OF FM 985 AT CANE RD
18549—BARDWELL RESERVOIR 12 M UPSTREAM OF SH 34 BRIDGE 600 M ALONG BRIDGE FROM NE SHORE USGS SITE BC 321704096393501
18550—BARDWELL RESERVOIR NORTH WAXAHACHIE CREEK ARM 628 M NORTH AND 13 M EAST OF THE END OF BOZAK LN USGS SITE DC 321758096412901

0815A
13686—WAXAHACHIE CREEK AT GELZENDANER ROAD
18519—WAXAHACHIE CREEK IMMEDIATELY UPSTREAM OF BARDWELL DAM RD NEAR BARDWELL TX

0816
10980—LAKE WAXAHACHIE 474 METERS NORTH AND 143 METERS EAST OF INTERSECTION OF OLD HOWARD LANE AND PENN ROAD MID LAKE NEAR DAM

0816A
18571—SOUTH PRONG CREEK 35 M DOWNSTREAM OF FM 876 NEAR WAXAHACHIE TX

0817
10981—NAVARRO MILLS RESERVOIR 1.94 KM WEST AND 202 METERS SOUTH OF INTERSECTION OF NW 3050 RD AND FM 667 MID LAKE NEAR DAM USGS SITE AR
17442—NAVARRO MILLS LAKE AT CITY OF CORSICANA WWTP INTAKE STRUCTURE 402 M N AND 246 M E OF INTERSECTION OF FM 667 AND NAVARRO MILLS LK DAM RD
18545—NAVARRO MILLS LAKE NEAR RICHLAND CREEK 677 M NORTH AND 1.50 KM WEST OF NW 3246 AT NW 3245 USGS SITE DC 315602096470001
18546—NAVARRO MILLS LAKE 705 M NORTH AND 409 M WEST OF RR 709 AT NW 3201 USGS SITE CC 315642096444401
18547—NAVARRO MILLS LAKE NORTHWEST END 677 M NORTH AND 1.50 KM EAST OF THE END OF NW 3270 USGS SITE EC 31570696463201
18548—NAVARRO MILLS LAKE 820 M NORTH AND 60 M EAST OF RR 709 AT NW 3208 USGS SITE BC 315710096431301
20633—NAVARRO MILLS LAKE 335 METERS SOUTH AND 410 METERS WEST TO THE INTERSECTION OF FM 667 AND NAVARRO MILLS LAKE DAM ROAD USGS SITE AC

0817A
18518—RICHLAND CREEK AT FM 744 NEAR IRENE TX
18472—CEDAR CREEK RESERVOIR IN CEDAR BRANCH COVE 140 M W AND 248 M N OF WESTERN LYNNE CIRCLE/LYNNE ST INTERSECTION

18473—CEDAR CREEK RESERVOIR IN CEDAR BRANCH COVE 502 M S AND 294 M W OF WESTERN LYNNE CIRCLE/LYNNE ST INTERSECTION

0819
10987—EAST FORK TRINITY RIVER ON VALLEY RANCH 6.32 KM UPSTREAM OF CONFLUENCE WITH TRINITY RIVER SSE OF CRANDALL RIVER KM 7.3

10989—EAST FORK TRINITY RIVER AT THE END OF POLE BRIDGE ROAD 2.22 KM DOWNSTREAM OF FM 3039

10990—EAST FORK TRINITY RIVER AT FM 3039 RIVER KM 15.2

10991—EAST FORK TRINITY RIVER AT US 175 NW OF CRANDALL RIVER KM 20.3

10992—EAST FORK TRINITY RIVER 57 METERS DOWNSTREAM OF MALLOY BRIDGE ROAD RIVER KM 26.9

10993—EAST FORK TRINITY RIVER 2.52 KM DOWNSTREAM OF IH 20 ON FERGUSON PROPERTY 5.2 KM NNE OF SEAGOVILLE RIVER KM 30.1

10996—EAST FORK TRINITY RIVER AT US 80 NORTHWEST OF FORNEY

10997—LAKE RAY HUBBARD 300 METERS DOWNSTREAM OF DAM EAST OF DALLAS

13612—EAST FORK TRINITY RIVER IMMEDIATELY UPSTREAM OF IH 20 3.7 MI NORTH OF SEAGOVILLE

20284—EAST FORK TRINITY RIVER APPROXIMATELY 828 METERS DOWNSTREAM OF CONFLUENCE WITH DUCK CREEK EAST OF SOUTHERN EDGE OF GARLAND WWTP

20285—EAST FORK TRINITY RIVER 593 M DOWNSTREAM OF US 175 LOCATED AT A RIFFLE

20286—EAST FORK TRINITY RIVER APPROXIMATELY 2.02 KM UPSTREAM OF FM 3039 AND IMMEDIATELY UPSTREAM OF A SHEETPILE DAM

0819A
18558—DUCK CREEK 93 M DOWNSTREAM OF TOWN EAST BOULEVARD SOUTHWEST OF LAKE RAY HUBBARD NEAR MESQUITE TX

0819B
10824—BUFFALO CREEK 1.41 KILOMETERS UPSTREAM OF CONFLUENCE WITH EAST FORK TRINITY RIVER AT CITY OF FORNEY LANDFILL

18576—BUFFALO CREEK IMMEDIATELY UPSTREAM OF S FM 148 NEAR CRANDALL TX

0820
10998—LAKE RAY HUBBARD 1.79 KM E AND 193 METERS S OF INTERSECT GLORIA RD AND E FORK RD NEAR DALLAS WATER INTAKE STRUCTURE AT WEST END OF DAM

16809—LAKE RAY HUBBARD AT I 30 BRIDGE 766 METERS NORTH AND 1.26 KM EAST OF INTERSECTION OF CHAHA ROAD AND I 30

16829—LAKE RAY HUBBARD EAST FORK ARM AT US 66 494 M NORTH AND 1.83 KM EAST OF INTERSECTION OF US 66 AND SCENIC DRIVE WEST OF ROCKWALL

17829—LAKE RAY HUBBARD MID LAKE 1.13 KM SOUTH AND 165 METERS EAST OF INTERSECTION OF DALROCK ROAD AND COOKE DRIVE

17846—LAKE RAY HUBBARD/EAST FORK TRINITY RIVER 200 METERS DOWNSTREAM OF LAKE LAVON OUTFALL AT COLLIN CR 384

20194—LAKE RAY HUBBARD NEAR YANKEE CREEK 209 M SOUTH AND 1.50 KM EAST OF HEATH DRIVE AT DREW LANE NEAR CONROE TEXAS USGS SITE PS

0820B
10753—ROWLETT CREEK 75 METERS DOWNSTREAM OF SH 66 RIVER KM 1.7

17845—ROWLETT/COTTONWOOD CREEK AT SH 78 1.06 KM NORTH OF SH 190 SOUTHWEST OF SACHSE

0820C
16828—MUDDY CREEK AT LIBERTY GROVE ROAD 0.65KM UPSTREAM OF LAKE RAY HUBBARD
20110—MUDDY CREEK IMMEDIATELY UPSTREAM OF SACHSE ROAD APPROXIMATELY 8.3 KM UPSTREAM OF LAKE RAY HUBBARD NORMAL POOL ELEVATION IN SACHSE IN NORTHEAST DALLAS COUNTY

0821
15684—LAVON LAKE USGS SITE AL 1.39 KM NORTH AND 995 KM WEST OF INTERSECTION OF SH 78 AND SH 205
15685—LAVON LAKE USGS SITE AC 1.01 KM NORTH AND 927 METERS EAST OF INTERSECTION OF SH 78 AND SKYVIEW DRIVE NEAR DAM
15686—LAVON LAKE USGS SITE EC 1.69 KM EAST OF INTERSECTION OF BROCKDALE PARK AND COLLIN CR 967
15687—LAVON LAKE USGS SITE BC 194 METERS NORTH AND 719 METERS WEST OF INTERSECTION OF COLLIN CR 1047 AND COLLIN CR 1055

0821B
13613—SISTER GROVE CREEK IMMEDIATELY DOWNSTREAM OF FM 545 4.8 MI W OF BLUE RIDGE 3.5 MI UPSTREAM OF HATLER

0821C
10777—WILSON CREEK 45 METERS DOWNSTREAM OF US 380 WEST OF MCKINNEY
15041—WILSON CREEK 67 METERS UPSTREAM OF COLLIN CR 158

0821D
13740—EAST FORK TRINITY RIVER AT SH 5 3.3 MI NORTH OF MCKINNEY 1.7 MI UPSTREAM OF CLEMONS CREEK 750 FT DOWNSTREAM OF HONEY CREEK

0822
T1024—ELM FORK TRINITY RIVER AT CARROLLTON DAM 16 METERS UPSTREAM OF SANDY LAKE ROAD
13615—ELM FORK TRINITY RIVER IMMEDIATELY DOWNSTREAM OF SH 121 1.8 MI EAST OF LEWISVILLE 1.9 MI DOWNSTREAM FROM LEWISVILLE LAKE
15252—ELM FORK TRINITY RIVER AT LEWISVILLE LAKE SPILLWAY 3 MI NORTHEAST OF LEWISVILLE

16436—ELM FORK TRINITY RIVER 46 METERS UPSTREAM OF FRASIER DAM 0.8 KM DOWNSTREAM OF SH 482 IN DALLAS TX
16437—ELM FORK TRINITY RIVER 307 METERS DOWNSTREAM OF LAKE LEWISVILLE SPILLWAY NEAR CITY OF LEWISVILLE TX
16438—ELM FORK TRINITY RIVER AT INTAKE OF DALLAS WATER UTILITIES ELM FK TREATMENT PLANT 738 M DOWNSTREAM OF CONFLUENCE WITH DENTON CK IN CARROLLTON
17162—ELM FORK TRINITY RIVER AT VALLEY VIEW LANE FROM KEE-NAN BRIDGE IN IRVING
17163—ELM FORK TRINITY RIVER IMMEDIATELY UPSTREAM OF STATE SPUR 348/NORTHWEST HIGHWAY IN IRVING
17164—ELM FORK TRINITY RIVER AT PROCTOR STREET 143 METERS UPSTREAM OF SH 183 IN DALLAS
18310—ELM FORK TRINITY RIVER IMMEDIATELY DOWNSTREAM OF EAST IRVING BOULEVARD 502 M DOWNSTREAM OF SH 356 IN IRVING
18358—ELM FORK TRINITY RIVER IMMEDIATELY DOWNSTREAM OF HEBRON PARKWAY SOUTHEAST OF LEWISVILLE TR255
18648—ELM FORK TRINITY RIVER EAST BANK IMMEDIATELY UP-STREAM OF SH 482 SPUR/STOREY LANE IN DALLAS
20287—ELM FORK TRINITY RIVER AT WILDWOOD DRIVE-TOM BRANIFF DRIVE IN DALLAS

0822A
17165—COTTONWOOD BRANCH IMMEDIATELY UPSTREAM OF NORTH BELTLINE ROAD IN IRVING
17166—COTTONWOOD BRANCH AT NORTH STORY ROAD IN IRVING
17167—COTTONWOOD BRANCH 71 METERS UPSTREAM OF NORTH MACARTHUR BOULEVARD IN IRVING
17168—COTTONWOOD BRANCH AT SH SPUR 348/NORTHWEST HIGH-WAY IN IRVING
18359—COTTONWOOD BRANCH 433 M UPSTREAM OF NORTH MACAR-THUR BLVD AT CONCRETE COVERED PIPE CROSSING
0822B
17169—GRAPEVINE CREEK 30 METERS DOWNSTREAM OF EAST BELT-LINE ROAD IN IRVING
17531—GRAPEVINE CREEK AT NORTH AIRFIELD DRIVE IMMEDIATELY DOWNSTREAM OF BRIDGE IN GRAPEVINE
17939—GRAPEVINE CREEK 210 METERS UPSTREAM OF REGENT BOULE-VARD AND 535 M UPSTREAM OF IH 635 IN IRVING

0822C
17170—HACKBERRY CREEK AT COLWELL BOULEVARD IN IRVING
17171—HACKBERRY CREEK AT VALLEY VIEW LANE/SH 161 IN IRVING
17172—HACKBERRY CREEK AT CABELL ROAD IN IRVING
17532—HACKBERRY CREEK AT NORTH BELTLINE ROAD IMMEDIATELY DOWNSTREAM OF BRIDGE AND NORTH OF CABELL DRIVE IN IRVING
17938—HACKBERRY CREEK AT PARKRIDGE BOULEVARD 330 M UP-STREAM OF SH 161 IN IRVING

0822D
17849—SKI LAKE NEAR BARCHMAN TREATMENT PLANT INTAKE 543 METERS SOUTH AND 99 METERS WEST OF INTERSECTION OF SH 482 AND I 35 EAST

0823
11025—LEWISVILLE LAKE MID LAKE NEAR DAM
11026—LEWISVILLE LAKE ELM FORK ARM 170 METERS NORTH AND 1.58 KM EAST OF INTERSECTION OF HUNDLEY AND MARINA DRIVE
11027—LEWISVILLE LAKE AT I 35E IN THE HICKORY CREEK ARM 681 METERS NORTH OF INTERSECTION OF I 35E AND COPPERAS BRANCH ROAD
13995—LEWISVILLE LAKE USGS SITE AL 638 METERS NORTH AND 1.21 KM EAST OF INTERSECTION OF JONES STREET AND KEALY STREET
13996—LEWISVILLE LAKE USGS SITE AC 948 METERS NORTH AND 2.53 KM EAST OF INTERSECTION OF JONES STREET AND KEALY STREET
13997—LEWISVILLE LAKE USGS SITE BC 1.71 KM NORTH AND 1.68 KM WEST OF INTERSECTION OF HILLPARK ROAD AND KINE PAC ROAD
13998—LEWISVILLE LAKE USGS SITE CC 895 METERS NORTH AND 499 METERS WEST OF INTERSECTION OF HIGHLAND VILLAGE ROAD AND SELLMEYER LANE
13999—LEWISVILLE LAKE USGS SITE FC 1.16 KM SOUTH AND 235 ME-TERS WEST OF INTERSECTION OF SHADY LANE AND GARZA LANE
14001—LEWISVILLE LAKE USGS SITE GC 780 METERS NORTH AND 782 METERS EAST OF INTERSECTION OF PENINSULA BOULEVARD AND PARADISE COVE
16808—LAKE LEWISVILLE IN STEWART CREEK ARM AT FM 423 BRIDGE 389 METERS NORTH OF INTERSECTION OF OVERLAKE DRIVE AND FM 423/MAIN STREET
17830—LEWISVILLE LAKE NEAR LITTLE ELM CREEK ARM 1.82 KM SOUTH AND 2.85 KM WEST OF INTERSECTION OF HIDDEN COVE AND HACKBERRY CREEK PARK
18475—LAKE LEWISVILLE IN HICKORY CREEK IMMEDIATELY UP-STREAM OF OLD ALTON ROAD SOUTH OF DENTON
18476—LAKE LEWISVILLE IN HICKORY CREEK CHANNEL 260 M N OF THE END OF BISHOP LANE AND APPROXIMATELY 6.2 KM UPSTREAM OF IH35
18477—LAKE LEWISVILLE IN HICKORY CREEK ARM 685 M N AND 240 M W OF THE END OF HIDDEN HILLS ROAD AND APPROXIMATELY 5.3 KM UPSTREAM OF IH35
18478—LAKE LEWISVILLE IN HICKORY CREEK ARM 272 M S AND 198 M W OF THE END OF HIDDEN HILLS ROAD AND APPROXIMATELY 4.3 KM UPSTREAM OF IH35
18479—LAKE LEWISVILLE IN HICKORY CREEK ARM 2.9 KM W OF IH35E CENTER BRIDGE
18480—LAKE LEWISVILLE IN PECAN CREEK SLOUGH 550 M W AND 415 M N OF THE END OF NORTH GARZA ROAD
18481—LAKE LEWISVILLE IN PECAN CREEK SLOUGH 337 N AND 362 M E OF THE END OF NORTH GARZA ROAD
20893—LEWISVILLE LAKE HICKORY CREEK ARM APPROX 1.96 KM DOWNSTREAM OF OLD ALTON ROAD
0823A
13617—LITTLE ELM CREEK AT FM 1385 5.5 MI EAST OF AUBREY 1.5 MI UPSTREAM FROM MUSTANG CREEK

16826—LITTLE ELM CREEK AT UPPER BRANCH CROSSING OF FM 1385 APPROX 12 KM UPSTREAM OF LEWISVILLE LAKE

0823B
10860—STEWART CREEK AT FOURTH ARMY MEMORIAL DRIVE WEST OF FRISCO

0823C
16827—CLEAR CREEK AT I 35 WEST OF US 377 APPROX 24.7 KM UPSTREAM OF LEWISVILLE LAKE SOUTH OF SANGER

0823D
18560—DOE BRANCH AT FISHTRAP ROAD NEAR PROSPER TX

20291—DOE BRANCH AT US 380 NEAR PROSPER

0824
11029—ELM FORK TRINITY RIVER NEAR TERRAPIN HILL 3.05 KM DOWNSTREAM FROM CONFLUENCE WITH UNNAMED TRIBUTARY SOUTH OF GAINESVILLE

11031—ELM FORK TRINITY RIVER IMMEDIATELY DOWNSTREAM OF FM 2071 SOUTH OF GAINESVILLE

11033—ELM FORK TRINITY RIVER AT COOKE CR 239 1.38 KM DOWNSTREAM OF GAINESVILLE WWTP

15635—ELM FORK TRINITY RIVER 59 METERS DOWNSTREAM OF FM 51 IN GAINESVILLE

16432—ELM FORK TRINITY RIVER AT FM 3108 1.2KM SOUTH OF INTERSECTION OF FM 3108 AND SH 82 IN LINDSAY TX

17670—ELM FORK TRINITY RIVER AT IH 35 DOWNSTREAM OF FM 51 IN GAINESVILLE

0825
11034—DENTON CREEK IMMEDIATELY DOWNSTREAM OF SH 121 SOUTH OF LEWISVILLE

14244—DENTON CREEK 41 METERS UPSTREAM OF DENTON TAP ROAD 2 MI NORTH OF COPPELL

0826
11036—GRAPEVINE RESERVOIR AT MOREHEAD CREEK COVE 443 METERS NORTH AND 120 METERS EAST OF INTERSECTION OF PARK ROAD 8 AND DOOLEY STREET

11037—GRAPEVINE RESERVOIR AT MOREHEAD CREEK COVE 177 METERS WEST OF INTERSECTION OF PARK ROAD 9 AND MURRELL DRIVE

13873—GRAPEVINE LAKE USGS SITE AR 957 METERS NORTH AND 953 METERS WEST OF INTERSECTION OF SH 26 AND BASS PRO ROAD

13874—GRAPEVINE LK SITE AC USGS 325822097030401 LOCATION MATCHES USGS SITE MAP 598 M S AND 645 M E INTERSECTION OF DALTONS RD AND FAIRWAY DR

13875—GRAPEVINE LAKE USGS SITE BC 753 METERS SOUTH AND 484 METERS WEST OF INTERSECTION OF WEST MURREL PARK ROAD AND SIMMONS ROAD

13876—GRAPEVINE LK SITE CC USGS 325933097081401 LOCATION MATCHES USGS SITE MAP 997 M S AND 32 M E OF INTERSECT OF HARBOR HAVEN AND BURYNE LN

13877—GRAPEVINE LAKE USGS SITE DC 305 METERS SOUTH AND 1.21 KM WEST OF INTERSECTION OF HIGH ROAD AND BOLO LANE

13878—GRAPEVINE LAKE USGS SITE EC 381 METERS SOUTH AND 211 METERS WEST OF INTERSECTION OF CHEYENNE ROAD AND POCOHONTAS DRIVE

16111—GRAPEVINE LAKE MID LAKE BETWEEN SAM BASS CAVE AND MARSHALL CREEK PARK 16 METERS S AND 597 M W OF INTERSECTION OF BOLO LN AND HIGH ROAD

16112—GRAPEVINE LAKE MID LAKE BETWEEN WALNUT GROVE PARK AND RED BUD PT 882 M N AND 1.39 KM E OF INTERSECTION OF BOB JONES RD AND SADDLE RIDGE
16113—GRAPEVINE LAKE NEAR INTAKE STRUCTURE AT NORTH END OF DAM 548 METERS NORTH AND 99 METERS EAST OF INTERSECTION OF FAIRWAY DR AND DALTONS DR

16114—GRAPEVINE LAKE MID LAKE NORTH OF OAK GROVE PARK 1.26 KM NORTH AND 269 METERS EAST OF INTERSECTION OF MESQUITE BEND AND PARK ROAD

16115—GRAPEVINE LAKE MID LAKE BETWEEN MEADOWMERE PARK TWIN COVES PARK 1.29 KM NORTH AND 80 METERS EAST OF INTERSECTION OF PARK ROADS 16 AND 17

16116—GRAPEVINE LAKE AT MOUTH OF NORTH MAIN SLOUGH COVE 749 METERS NORTH AND 149 METERS WEST OF INTERSECTION OF OAK GROVE PARK RD AND DOVE LOOP RD

16117—GRAPEVINE LAKE AT UPSTREAM END OF NORTH MAIN SLOUGH COVE 104 METERS NORTH AND 674 M W OF INTERSECTION OF OAK GROVE PARK RD AND DOVE LOOP RD

16118—GRAPEVINE LAKE IN MCPHERSON SLOUGH COVE SOUTH OF OAK GROVE PARK 320 METERS NORTH AND 132 METERS WEST OF PARK ROADS 8 AND 9

17827—GRAPEVINE LAKE AT DALLAS WATER UTILITIES INTAKE 349 METERS NORTH AND 328 METERS EAST OF INTERSECTION OF SILVER-SIDE DR AND PARK ROAD 7

17828—GRAPEVINE LAKE AT LITTLE PETES MARINA 392 METERS NORTH AND 136 METERS EAST OF INTERSECTION OF THOUSAND OAKS COURT AND CARMEL COURT

20880—GRAPEVINE LAKE CATES BRANCH COVE UPPER END OF COVE APPROX 1.0 KILOMETERS DOWNSTREAM OF WICHITA TRAIL AND APPROX 64 METERS NORTH AND 380 METERS WEST OF THE INTERSECTION OF BREAKER LANE AND PENINSULA DRIVE

20881—GRAPEVINE LAKE CATES BRANCH COVE MIDDLE OF COVE APPROX 1.72 KILOMETERS DOWNSTREAM OF WICHITA TRAIL AND APPROX 6 METERS SOUTH AND 227 METERS EAST OF THE INTERSECTION OF PRINCE LANE AND NOBLE WAY

20882—GRAPEVINE LAKE DENTON CREEK ARM WEST OF TROPHY PARK DRIVE APPROX 40 METERS NORTH OF THE TROPHY CREEK PARK DRIVE BOAT RAMP AND APPROX 5.84 KM DOWNSTREAM OF US 377

20883—GRAPEVINE LAKE DOVE CREEK COVE UPPER END OF COVE APPROX 190 METERS UPSTREAM OF SOUTHERNMOST BOAT DOCK ON EAST SIDE OF COVE WEST OF PENINSULA DRIVE AND APPROX 670 METERS NORTH AND 115 METERS EAST OF THE INTERSECTION OF W KIMBALL AVENUE AND MEADOWMERE LANE

20886—GRAPEVINE LAKE MOREHEAD CREEK COVE MIDDLE OF COVE APPROX 370 METERS SOUTH AND 90 METERS EAST OF THE INTERSECTION OF FARRIS BRANCH DRIVE AND OAK GROVE LOOP S

20887—GRAPEVINE LAKE MCPHERSON SLOUGH COVE UPPER END OF COVE NEAR CREEK MOUTH APPROX 790 METERS UPSTREAM OF NEAREST BOAT DOCKS ON EAST SIDE OF COVE OFF OF BOATHOUSE DRIVE AND APPROX 270 METERS SOUTH AND 230 METERS EAST OF THE INTERSECTION OF WHITE OAK DRIVE AND

20889—GRAPEVINE LAKE SILVER CREEK COVE UPPER END OF COVE APPROX 270 METERS UPSTREAM OF GAYLORD TRAIL AND APPROX 165 METERS NORTH AND 210 METERS EAST OF THE INTERSECTION OF WILDWOOD DRIVE AND RUTH WALL ROAD

20890—GRAPEVINE LAKE SILVER CREEK COVE MID-UPPER END OF COVE JUST UPSTREAM OF GAYLORD TRAIL

20891—GRAPEVINE LAKE SILVER CREEK COVE MIDDLE OF COVE APPROX 160 METERS DOWNSTREAM OF GAYLORD TRAIL AND APPROX 560 METERS NORTH AND 355 METERS EAST OF THE INTERSECTION OF WILDWOOD DRIVE AND RUTH WALL ROAD

0826A
14483—DENTON CREEK AT FM 156 2.4 MILES NORTH OF JUSTIN

14485—DENTON CREEK AT US 377 WEST OF LAKE GRAPEVINE

0826C
16825—HENRIETTA/ELIZABETH CREEK 114 METERS UPSTREAM OF SH 114 UPSTREAM LAKE GRAPEVINE NORTHWEST OF ROANOKE

0836
11065—RICHLAND-CHAMBERS RESERVOIR MID LAKE AT DAM 1.36 KM WEST AND 1.57 KM SOUTH OF INTERSECTION OF US 287 AND FM 488

11068—RICHLAND-CHAMBERS RESERVOIR RICHLAND CREEK ARM MID LAKE 2.24 KM SOUTH AND 276 METERS EAST OF INTERSECTION OF PETTY RD AND SE 2230 RD
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<tr>
<th>ID</th>
<th>Description</th>
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<tbody>
<tr>
<td>15168</td>
<td>RICHLAND-CHAMBERS RESERVOIR AT NORTH END OF DAM 332 METERS SOUTH AND 555 METERS WEST OF INTERSECTION OF US 287 AND RR 488</td>
</tr>
<tr>
<td>15169</td>
<td>RICHLAND-CHAMBERS RESERVOIR 1.95 KM NORTH AND 2.26 KM WEST OF INTERSECTION OF SE 3190 ROAD AND OLD HIGHWAY 287</td>
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<td>15170</td>
<td>RICHLAND-CHAMBERS RESERVOIR CHAMBERS CREEK ARM NEAR TCWCID 1 PUMP STATION 570 M S AND 1.16 KM W OF INTERSECTION OF SE 3240 AND SE 3250</td>
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<td>15172</td>
<td>RICHLAND-CHAMBERS RESERVOIR IN UPPER END OF RICHLAND CREEK ARM 2.01 KM S AND 150 METERS E OF INTERSECTION OF NAVARRO SLAB AND SE 1095</td>
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<td>15199</td>
<td>RICHLAND-CHAMBERS RESERVOIR UPPER END OF CHAMBERS CREEK ARM 2.52 KM NORTH AND 329 METERS WEST OF INTERSECTION OF WICHITA TRL AND FM 637</td>
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<td>18720</td>
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<tr>
<td>18723</td>
<td>RICHLAND-CHAMBERS RESERVOIR IN POST OAK CREEK CHANNEL 515 M S AND 1.43 KM E OF S END OF SE 0070</td>
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<td>18724</td>
<td>RICHLAND-CHAMBERS RESERVOIR 154 M S AND 72 M W OF S END OF SE 0070 AT N SIDE OF SMALL UNNAMED ISLAND</td>
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<td>18727</td>
<td>RICHLAND-CHAMBERS RESERVOIR 1.62 KM S AND 2.59 KM E OF IH 45 AT FM 1394 AND 150 M E OF RICHLAND CREEK MOUTH</td>
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<tr>
<td>0836B</td>
<td>CEDAR CREEK 1.06 MI UPSTREAM OF SE 3130</td>
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<td>18716</td>
<td>CEDAR CREEK 340 M UPSTREAM OF SE 3130</td>
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<td>18719</td>
<td>CEDAR CREEK AT SE 3130 BRIDGE WEST OF THE BOAT RAMP</td>
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<tr>
<td>0836C</td>
<td>GRAPE CREEK AT SE 1090 BRIDGE APPROXIMATELY 1 MI UPSTREAM OF THE MOUTH OF COVE NORTH OF CHENEYBORO</td>
</tr>
<tr>
<td>18721</td>
<td>GRAPE CREEK AT SE 1090 BRIDGE APPROXIMATELY 1 MI UPSTREAM OF THE MOUTH OF COVE NORTH OF CHENEYBORO</td>
</tr>
<tr>
<td>0836D</td>
<td>POST OAK CREEK 1.25 KM DOWNSTREAM OF SE 0050 45 M DOWNSTREAM OF SMALL UNNAMED STREAM CONFLUENCE AND UPSTREAM OF PIPELINE</td>
</tr>
<tr>
<td>0837</td>
<td>RICHLAND CREEK 60 METERS DOWNSTREAM OF FM 709 2.8 KM UPSTREAM OF RICHLAND CHAMBERS RESERVOIR</td>
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<tr>
<td>13619</td>
<td>ELM FORK TRINITY RIVER 336 METERS DOWNSTREAM OF RAY ROBERTS DAM 5.7 MI SW OF PILOT POINT 3.3 MI UPSTREAM FROM BRAY BRANCH</td>
</tr>
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<td>CLEAR CREEK 80 METERS UPSTREAM OF FM 455 WEST OF SANGER</td>
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<td>13618</td>
<td>CLEAR CREEK AT COWLING ROAD 1.8 MI SOUTH OF SANGER 1350 FT DOWNSTREAM OF DUCK CREEK</td>
</tr>
<tr>
<td>0840</td>
<td>RAY ROBERTS LAKE ISLE DU BOIS CREEK ARM WEST OF JORDAN PARK 2.84 KM N AND 599 M W OF INTERSECTION OF ISLE DU BOIS PARK RD AND QUAIL RUN</td>
</tr>
<tr>
<td>14039</td>
<td>RAY ROBERTS LAKE USGS SITE AC 98 METERS NORTH AND 1.26 KM WEST OF INTERSECTION OF FM 455 AND LAKE RAY ROBERTS ROAD</td>
</tr>
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<td>16822</td>
<td>RAY ROBERTS LAKE BUCK CREEK COVE AT US377 BRIDGE 1.06 KM N AND 428 M E OF INTERSECTION OF US 377 AND EMBERSON CHAPEL RD SW OF SHERMAN</td>
</tr>
<tr>
<td>16823</td>
<td>RAY ROBERTS LAKE IN RANGE CREEK COVE AT US 377 BRIDGE 600 M SOUTH AND 57 M WEST OF INTERSECTION OF PATTON RD AND US 377 SW OF SHERMAN</td>
</tr>
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16824—RAY ROBERTS LAKE AT FM 3002 377 METERS NORTH AND 1.25 KM EAST OF INTERSECTION OF FM 3002 AND MANN ROAD 13 MI SOUTH OF GAINESVILLE

17834—RAY ROBERTS LAKE AT DALLAS WATER UTILITIES INTAKE W SIDE OF DAM 1.02 KM N AND 232 METERS E OF INTERSECTION OF BURGER RD AND FM 2153

20897—RAY ROBERTS LAKE LICK CREEK COVE MID-UPPER END OF COVE APPROX 430 METERS SOUTH AND 485 METERS EAST OF THE INTERSECTION OF UNION GROVE ROAD AND COUNTY ROAD 3002/E LONE OAK ROAD

20899—RAY ROBERTS LAKE WALNUT CREEK COVE MID-UPPER END OF COVE JUST UPSTREAM OF FM 372
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