



The Life Cycle of a Water Sample

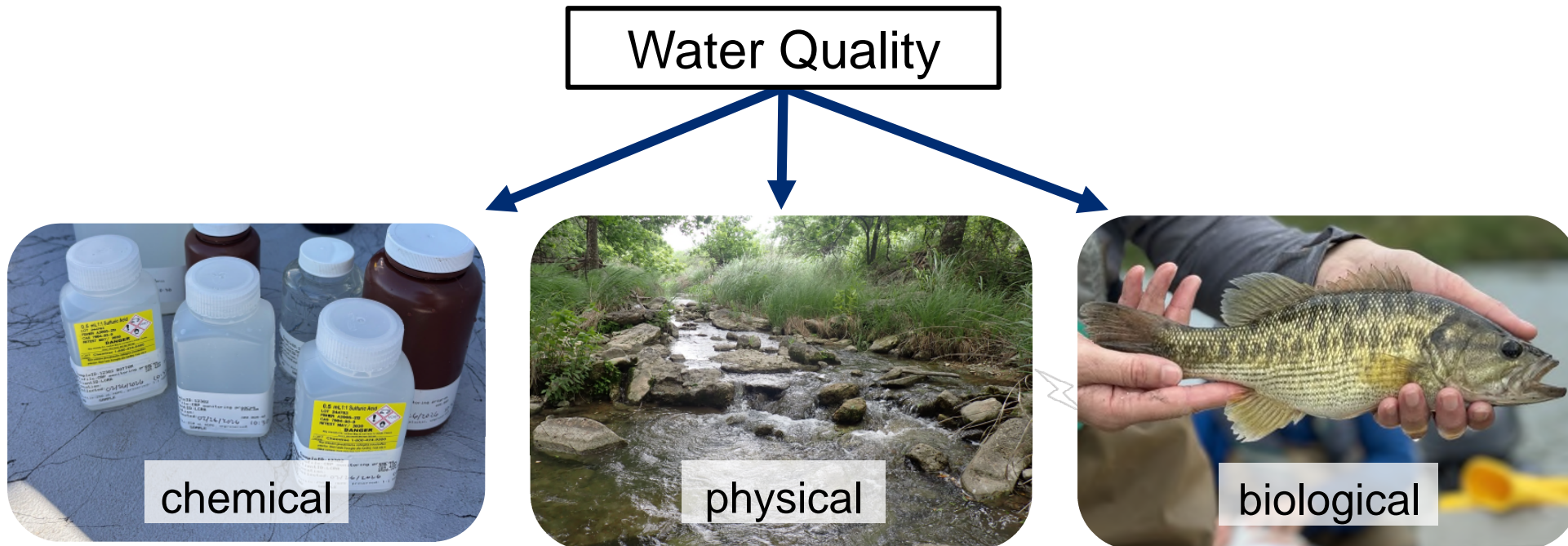
Water Quality Advisory Committee Meeting

Zoe Nichols



Water Quality Components

- **Water quality** = chemical, physical, and biological characteristics of water with respect to its suitability for a particular purpose or designated use



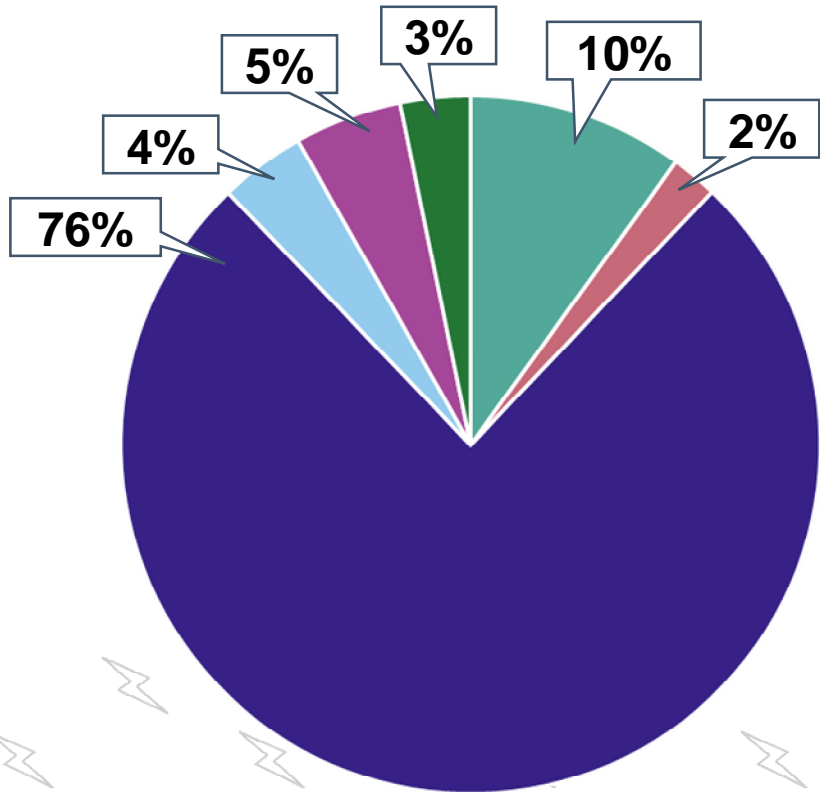
Texas Clean Rivers Program

- Texas Clean Rivers Act passed in 1991
 - Administered by Texas Commission on Environmental Quality (TCEQ)
- Texas Clean Rivers Program (CRP)
 - Funded by state fees
 - Goal: to maintain and improve the quality of water within each river basin in Texas



LCRA Clean Rivers Program Tasks

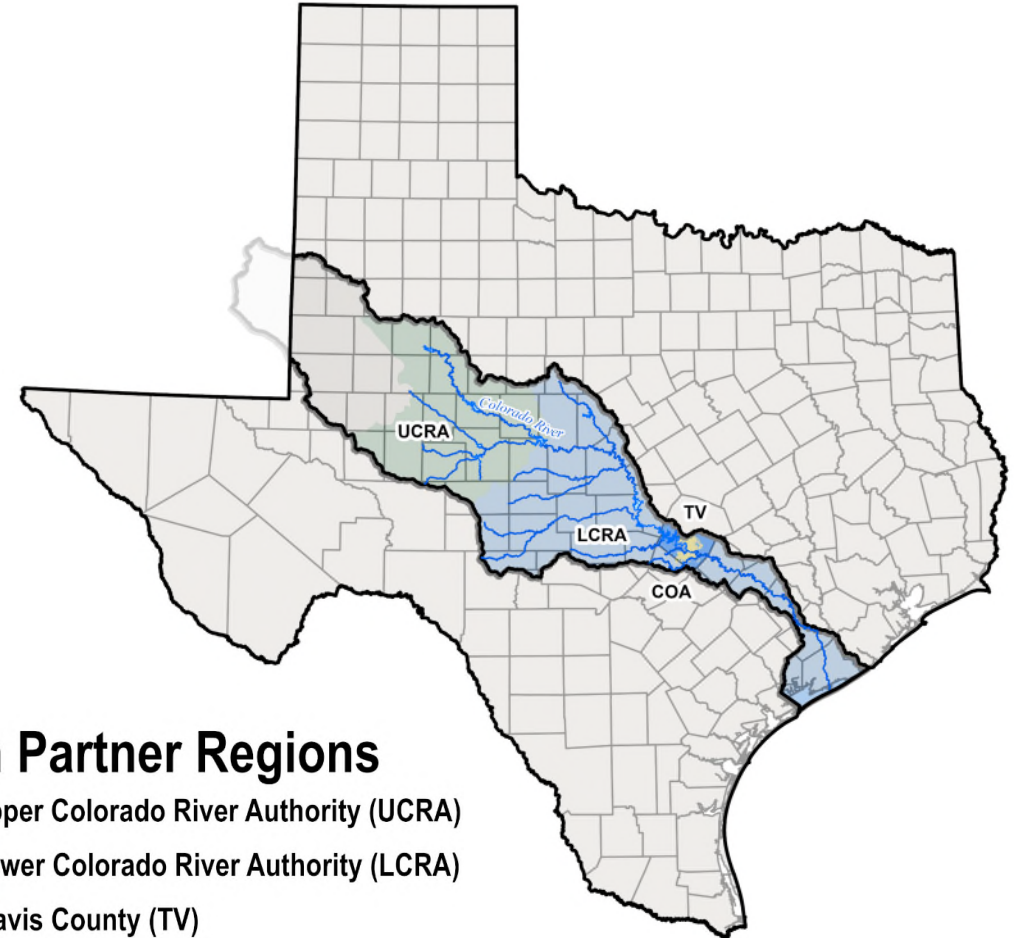
**LCRA CRP Grant: \$909,212
(2-year cycle)**



- Administration**
- Quality Assurance**
 - Quality Assurance Project Plan
- Monitoring**
 - Water quality collection
 - Laboratory analyses
 - Coordinated Monitoring Meetings
- Data Administration**
- Reporting**
 - Basin Highlights and Summary Reports
- Outreach**
 - WQAC Meetings

Colorado River Basin CRP Partners

- Lower Colorado River Authority (LCRA)
 - Upper Colorado River Authority (UCRA)
 - City of Austin
 - Travis County
- TCEQ
- US Geological Services
- 160 – 170 stations monitored/ year

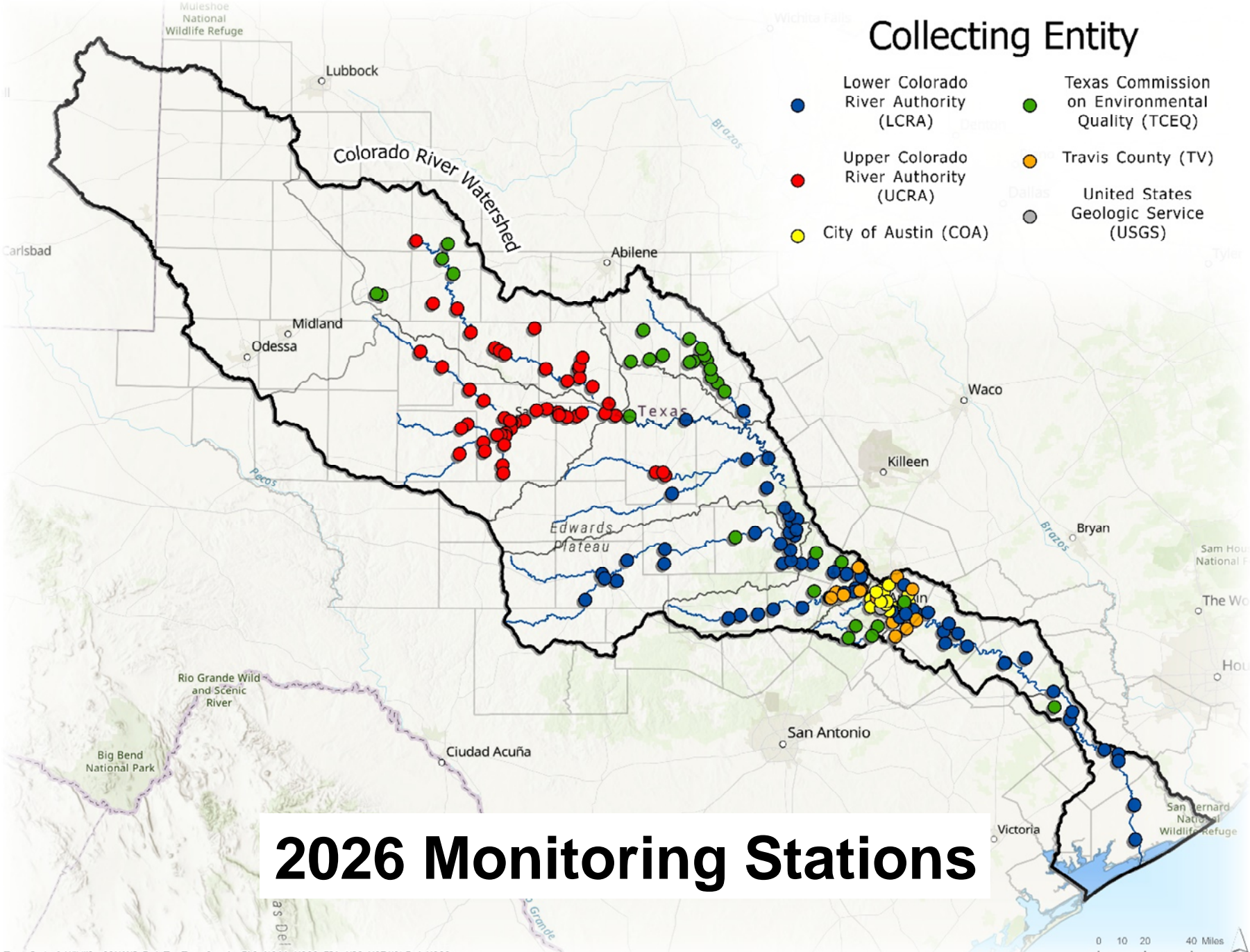


Basin Partner Regions

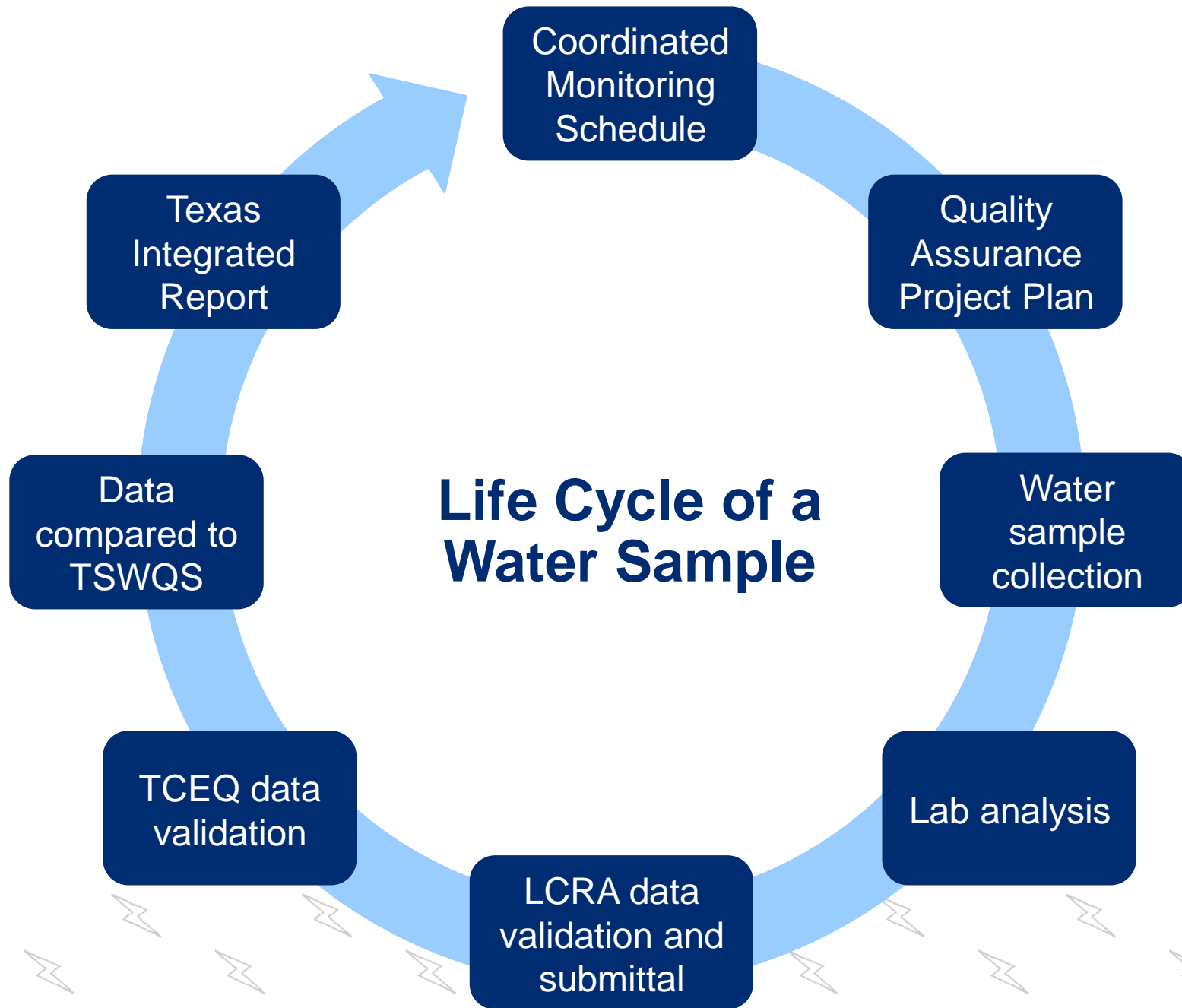
- Upper Colorado River Authority (UCRA)
- Lower Colorado River Authority (LCRA)
- Travis County (TV)
- City of Austin (COA)

Collecting Entity

- Lower Colorado River Authority (LCRA)
- Texas Commission on Environmental Quality (TCEQ)
- Upper Colorado River Authority (UCRA)
- Travis County (TV)
- City of Austin (COA)
- United States Geologic Service (USGS)



2026 Monitoring Stations



Coordinated Monitoring Schedule (CMS)

Colorado River Basin

The headwaters of the Colorado River are located in the western portion of the state in Dawson County and flow southeast approximately 900 miles to Matagorda Bay in the Gulf of America. The Colorado River basin includes 55 counties and covers approximately 40,000 square miles from eastern New Mexico to the Gulf of America. For water quality management purposes, the Colorado River Basin has been divided into 34 classified segments consisting of 1,525 stream miles. Fifteen major reservoirs are located throughout the basin, which cover 119,591 surface acres.

[Click here to view all sites.](#)

Choose Schedule FY:
(Fiscal Year is September 1-August 31)

2027



Coordinated Monitoring Schedule

River Basin: 14
FY: 2026

Description (key word)	Station	Region	SE	CE	MT	24 hr
Segment 1401 Colorado River Tidal Map						
COLORADO RIVER TIDAL AT SELKIRK ISLAND 2 MI DOWNSTREAM FROM FM 521 SW OF WADSWORTH Map		12	LC	LC	RT	
Segment 1402 Colorado River Below La Grange Map						
COLORADO RIVER AT SH 35 BRIDGE AT BAY CITY Map	12284	1402	12	LC	LC	RT
COLORADO RIVER APPROXIMATELY 267 METERS DOWNSTREAM OF SH 183 IN WHARTON Map	12286	1402	12	LC	LC	RT
COLORADO RIVER AT OLD HWY 71 IN COLUMBUS Map	12290	1402	12	LC	LC	RT
COLORADO RIVER APPROXIMATELY 15 M OFF EAST BANK IMMEDIATELY DOWNSTREAM OF US ALT 90 NEAR ALTAIR Map	18351	1402	12	LC	LC	RT
FAYETTE RESERVOIR AT THE MID POINT OF THE LAKE OVER CEDAR CREEK CHANNEL APPROX 150 YDS NORTH OF THE BAFFLE DIKE Map	17017	1402G	11	LC	LC	RT
SKULL CREEK AT COLORADO CR16 SOUTH OF ALTAIR Map	16805	1402H	12	WC	FO	RT
SKULL CREEK 20 METERS UPSTREAM OF COLORADO CR103 NORTHWEST OF ALTAIR Map	21177	1402H	12	WC	FO	RT
Segment 1403 Lake Austin Map						
LAKE AUSTIN NEAR TOM MILLER DAM TO THE WEST OF LAKE AUSTIN BLVD Map	12204	1403	11	LC	AU	RT
LAKE AUSTIN NEAR TOM MILLER DAM TO THE WEST OF LAKE AUSTIN BLVD Map	12294	1403	11	LC	LC	RT
LAKE AUSTIN NEAR METROPOLITAN PARK TO THE SOUTH OF CITY PARK RD AND TO THE EAST OF WESTON RD Map	12287	1403	11	LC	AU	RT
LAKE AUSTIN NEAR METROPOLITAN PARK TO THE SOUTH OF CITY PARK RD AND TO THE EAST OF WESTON RD Map	12287	1403	11	LC	LC	RT
BULL CREEK AT LOOP 360 1 MILE NORTH OF FM 2222 INTERSECTION WEST OF AUSTIN Map	12216	1403A	11	LC	AU	RT
WEST BULL CREEK 70 METERS WEST OF INTERSECTION OF JESTER BLVD AND RR 2222 AND 2900 DOWNSTREAM OF THE CONFLUENCE WITH COW FORK BULL CREEK Map	17468	1403B	11	LC	AU	RT
SPICEWOOD TRIBUTARY OF SHOAL CREEK APPROX 13 METERS DOWNSTREAM OF CEBERRY DR IN AUSTIN Map	16316	1403J	11	LC	AU	RT
TAYLOR SLOUGH SOUTH 20 M DOWNSTREAM OF PECOS STREET SOUTH OF RIVER ROAD IN AUSTIN Map	17294	1403K	11	LC	AU	RT
DEER CREEK AT RUNNING DEER TRAIL 0.35 KM WEST AND 90 M NORTH FROM CONFLUENCE WITH LAKE AUSTIN Map	22490	1403L	11	LC	TV	RT
BEAR CREEK IMMEDIATELY DOWNSTREAM OF FRITZ HUGHES PARK ROAD DOWNSTREAM MANSFIELD DAM NORTHWEST OF AUSTIN Map	17269	1403Q	11	LC	TV	RT
UNNAMED TRIB TO LAKE AUSTIN IMMEDIATELY DOWNSTREAM OF WESTLAKE DR Map	16310	1403R	11	LC	TV	RT
Segment 1404 Lake Travis Map						
LAKE TRAVIS NEAR DAM AT LORA TRAVIS COUNTY PARK Map	12302	1404	11	LC	LC	RT
LAKE TRAVIS AT SANDY CREEK IMMEDIATELY WEST OF SANDY CREEK PARK Map	12307	1404	11	LC	LC	RT
LAKE TRAVIS AT ARKANSAS BEND TO THE WEST OF RANCH ROAD 820 Map	12300	1404	11	LC	LC	RT
LAKE TRAVIS MID LAKE AT CONFLUENCE WITH COW CREEK ARM AT PACE BEND APPROXIMATELY 2.02 KILOMETERS TO THE SOUTH OF FM 1431 Map	12313	1404	11	LC	LC	RT
LAKE TRAVIS NEAR SPICEWOOD EAST OF SHAW RD AND NORTH OF MULE SHOE BEND RD Map	12316	1404	11	LC	LC	RT
LAKE TRAVIS IN THE HURST CREEK ARM APPROX 200 YDS UPSTREAM OF HURST HARBOR NEAR LADIN LANE IN LAKEWAY SUBDIVISION Map	19428	1404	11	LC	LC	RT
LAKE TRAVIS IN BEE CREEK COVE 191 M NORTH AND 443 M WEST OF THE INTERSECTION OF BEE CREEK ROAD AND CORY LANE Map	20070	1404	11	LC	LC	RT
BIG SANDY CREEK IMMEDIATELY UPSTREAM OF NAMELESS ROAD 0.27 KM NORTH FROM NAMELESS RD AND LINDEMAN LANE INTERSECTION Map	22488	1404	11	LC	TV	RT
BEE CREEK UPSTREAM OF LAKE TRAVIS 160 M SOUTH AND 120 M WEST FROM BEE CREEK ROAD AND						

Quality Assurance Project Plan

- Provides the level of consistency and scientific validity of data needed for decision-making across the state.
- Crucial for documenting how CRP partners plan, implement and assess quality assurance/quality control activities related to water quality monitoring.
- Document available on LCRA's CRP webpage



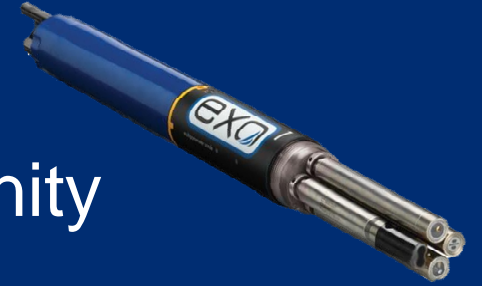
Collection of Water Samples

- TCEQ Surface Water Quality Monitoring (SWQM) Procedures
- LCRA Environmental Laboratory Services (ELS)
- Water samples collected in containers and delivered to ELS



Collection of Field Parameters

- Instantaneous water quality parameters
 - Dissolved oxygen, pH, temperature, conductivity, salinity
 - Secchi-disk (water clarity)
- Field Parameters
 - Flow severity
 - Weather conditions
- Flow measurements
 - Gauge or FlowTracker



Laboratory Process and Results

- Samples arrive on ice at ELS
- Login and tracking
- Quality assurance and quality control measures
- Results:
 - Nutrients, bacteria, metal concentrations
 - Data qualifiers
 - Detection limits





Laboratory Analyses

- Conventionals
 - Nutrients
 - Chlorophyll-a and pheophytin
 - Anions
 - Total suspended solids
 - Alkalinity
- Bacteria: *E. coli* (freshwater) or *Enterococci* (high salts)
- Metals in water/ sediment
- Organics in water/ sediment

Data Validation and Screening

- **LCRA CRP Data Manager**
 - Quarterly data deliverables to TCEQ
 - CRP data from LCRA, UCRA, Travis County and City of Austin
 - Data Summary Reports providing overview of sample results
 - Field audits
 - Updating LCRA Water Quality Data portal with most current data

- **TCEQ data validation**
 - Outcomes: accept, qualify, or reject data
 - Only usable data move forward into assessment



LCRA Water Quality Data

Site ID: 12486
Site Name: TOWN LAKE AT REDBUD RD
Segment ID: 1429
Segment Name: Lady Bird Lake (formerly Town Lake)
Monitoring Entity: COA, LCRA, TCEQ

Parameters available for this site

Include profile data

Note: Parameters marked with a ◆ have a very limited number of data points available. Some parameters may only be visible when profile data is included.

- Bacteria**
 - [31700] E COLI,NA+MUG OR EA+MUG,24HRS, 35 DEGREE (#/100M
 - [31699] E. COLI, COLILERT, IDEXX METHOD, MPN/100ML
 - [31648] E. COLI, MTEC, MF, #/100 ML
 - [31704] E.COLI, COLILERT, IDEXX, HOLDING TIME
 - [31616] FECAL COLIFORM,MEMBR FILTER,M-FC BROTH, #/100ML
- Conventional Chemistry**
 - [00410] ALKALINITY, TOTAL (MG/L AS CaCO3)

Data for selected parameter(s)

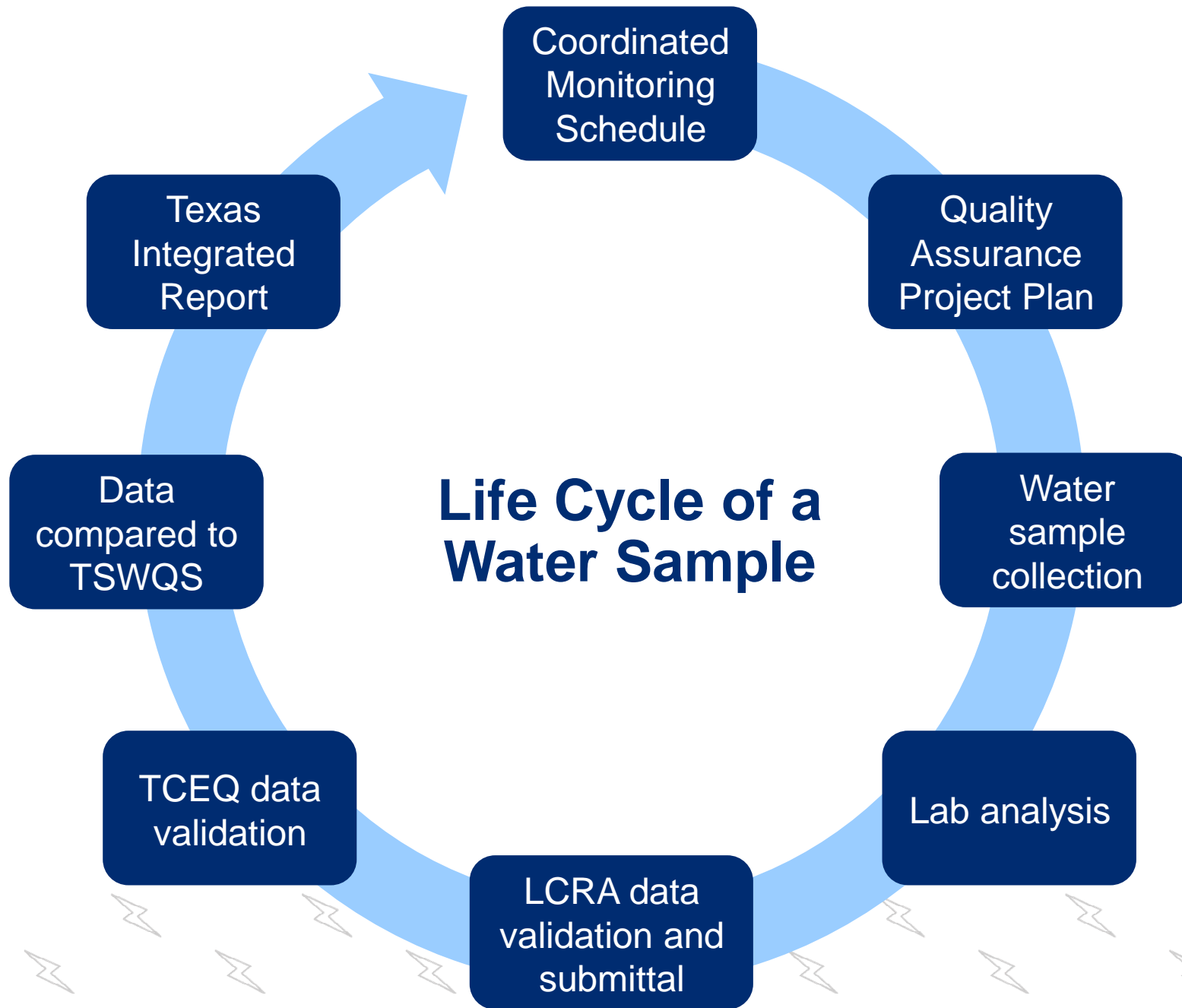
29 total rows

Bacteria: [31648] E. COLI, MTEC, MF, #/100 ML

Date	Count (#/100 ML)
06-23-1994	10
07-15-1994	68
08-15-1994	5
10-06-1995	5
11-15-1995	18
01-18-1997	75
03-15-1997	12
05-04-1998	45
07-15-1998	110
08-18-1999	75

<https://waterquality.lcra.org/>

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Texas Surface Water Quality Standards (TSWQS)

- Water quality standards establish explicit goals for the quality of streams, rivers, lakes, and bays throughout the state
 - Designated Uses: General, Recreation, and Aquatic Life Use
 - Criteria are numeric or narrative limits used to compare water quality data or conditions.



TSWQS – Recreation Use

- **Primary contact recreation 1** = Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.
- Assessment parameters:
 - *E. coli*
 - *Enterococci*



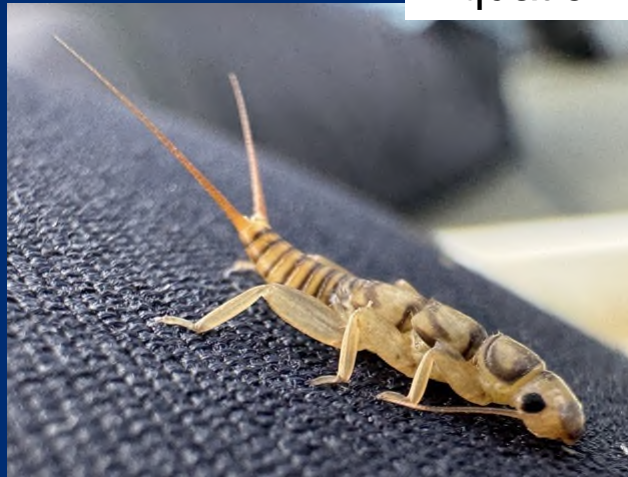
TSWQS – Aquatic Life Use

Assessment parameters:

- Dissolved oxygen
 - Aquatic habitat
 - Macrobenthic community
 - Fish community
 - Habitat
-
- Toxic substances in water/ sediment
 - Metals and organics

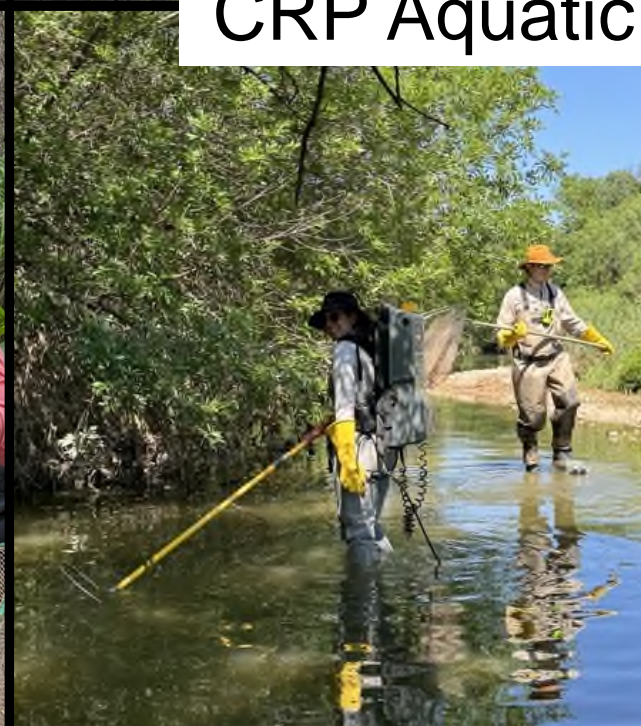


Aquatic Life Monitoring





CRP Aquatic Life Monitoring



TSWQS – General Uses

Assessment parameters:

- Temperature
- pH
- Dissolved solids (chloride, sulfate, total dissolved solids)
- Nutrients (reservoirs)
 - Secchi depth, dissolved oxygen, total nitrogen, total phosphorous, chlorophyll a
- Nutrient screening levels
 - Ammonia, total phosphorous, nitrate, chlorophyll a



Texas Integrated Report

- Texas Integrated Report of Surface Water Quality for Clean Water Act Sections 305(b) and 303(d)
- Texas Surface Water Quality Standards
- Integrated Report produced every two years
- Seven years of monitoring data assessed
 - 2026 IR: 12/1/2017 – 11/30/2024

Texas Integrated Report

- Each assessed water body is identified as:
 - **Fully supporting:** the water body meets TSWQS or supports designated uses
 - **Of concern:** **a)** there is concern for near nonattainment of the TSWQS based on numeric criteria or **b)** there is concern for water quality based on screening levels
 - **Impaired:** the water body does not meet standards. Impaired water bodies are placed on the 303(d) List.

Texas Integrated Report – 303(d) List

- Management measures for impaired water bodies
 - Total Maximum Daily Load (TMDL) Development
 - Implementation Plan (I-Plan)
 - Use Attainability Analysis (UAA)
 - Recreational Use Attainment Analysis (RUAA)

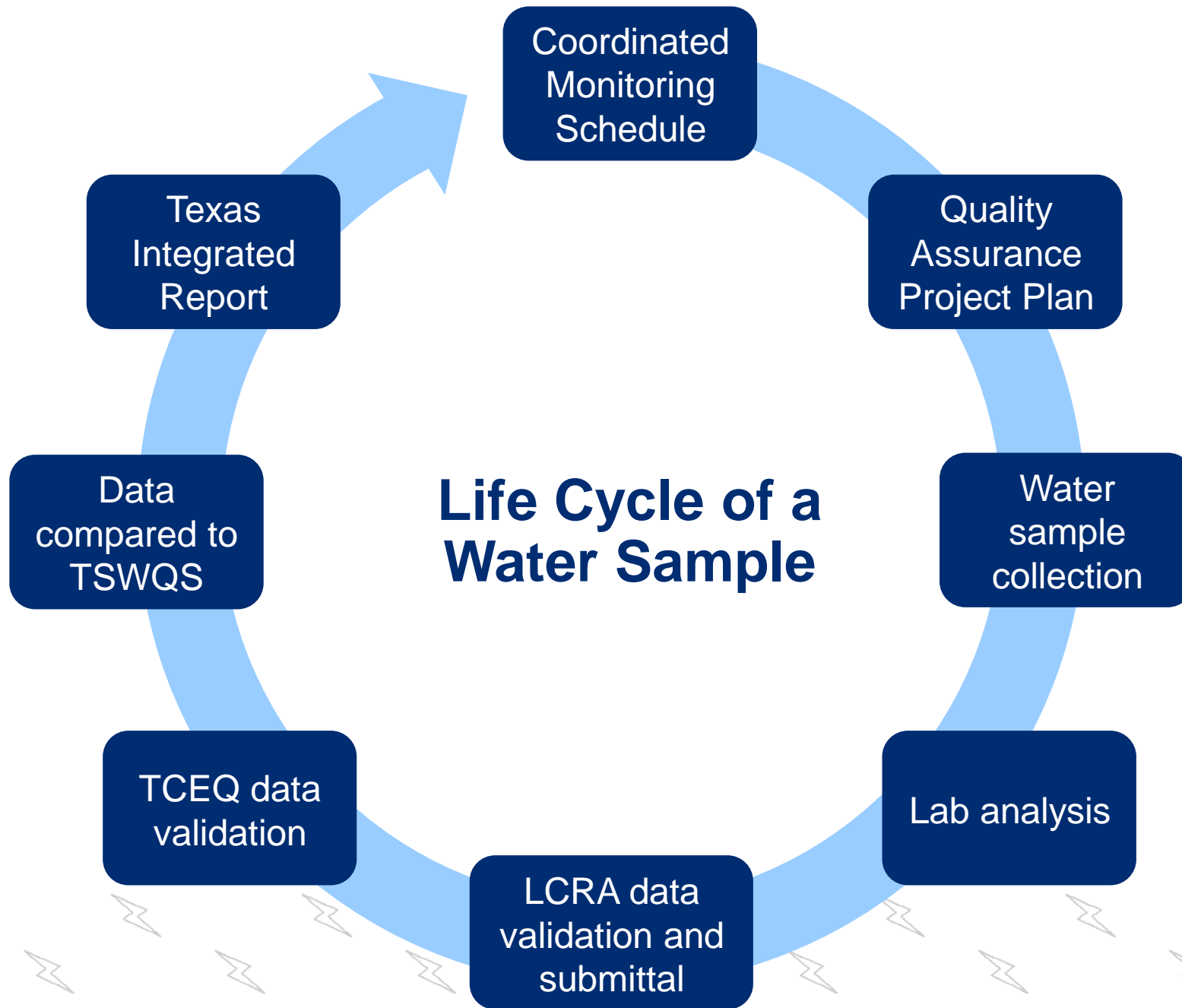


2025 Colorado River Basin Highlights Report

A Characterization of Impaired Water Bodies in the
Lake Lyndon B. Johnson Watershed

PREPARED IN COOPERATION WITH THE
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY







Questions?

CRP@lcra.org

