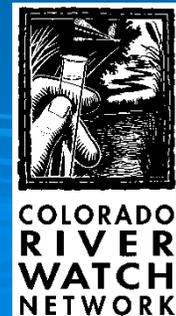




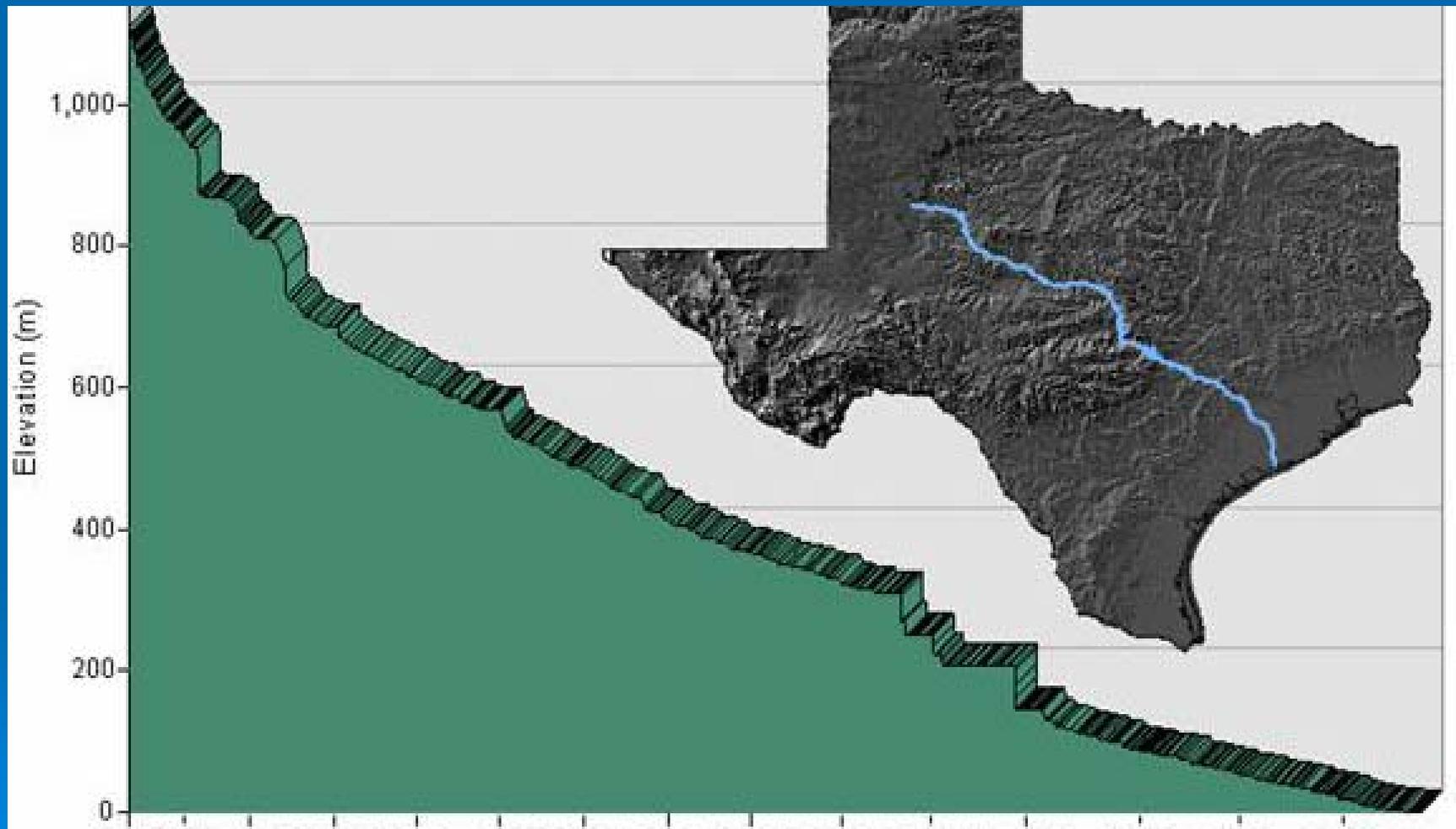
The Poop Stops Here: E. coli Sampling for Volunteer Water Quality Monitors

Jacob Daniel Apodaca
Lower Colorado River Authority

National Water Quality Monitoring Council
May 3, 2012



Texas Colorado River



Colorado River Watch Network (CRWN)

- Volunteer water quality monitoring program became part of Lower Colorado River Authority (LCRA) in 1992
- Creates early warning system that alerts LCRA to potential water quality threats
- Encourages and supports community-based stewardship
- Provides citizens, teachers, and students with the resources necessary to monitor and protect the waterways of the lower Colorado River watershed

Water quality is determined by the *physical, chemical, and biological* characteristics of water.



Colorado River Watch Network Water Quality Monitoring Sites

CRWN Water Quality Data

Retrieve water quality information collected by trained volunteer water quality monitors

Move your cursor over the map on the right to locate sites within the Colorado River basin where volunteer monitors collect data. Click on a red or gray icon to retrieve detailed water quality information for the site. Or you can skip the map and go directly to the [table listing stream segments and sites](#). The information on CRWN's water quality data site is principally designed for use by volunteer water quality monitors.

Default Map Areas

Lower Colorado River Basin

Toggle map data below

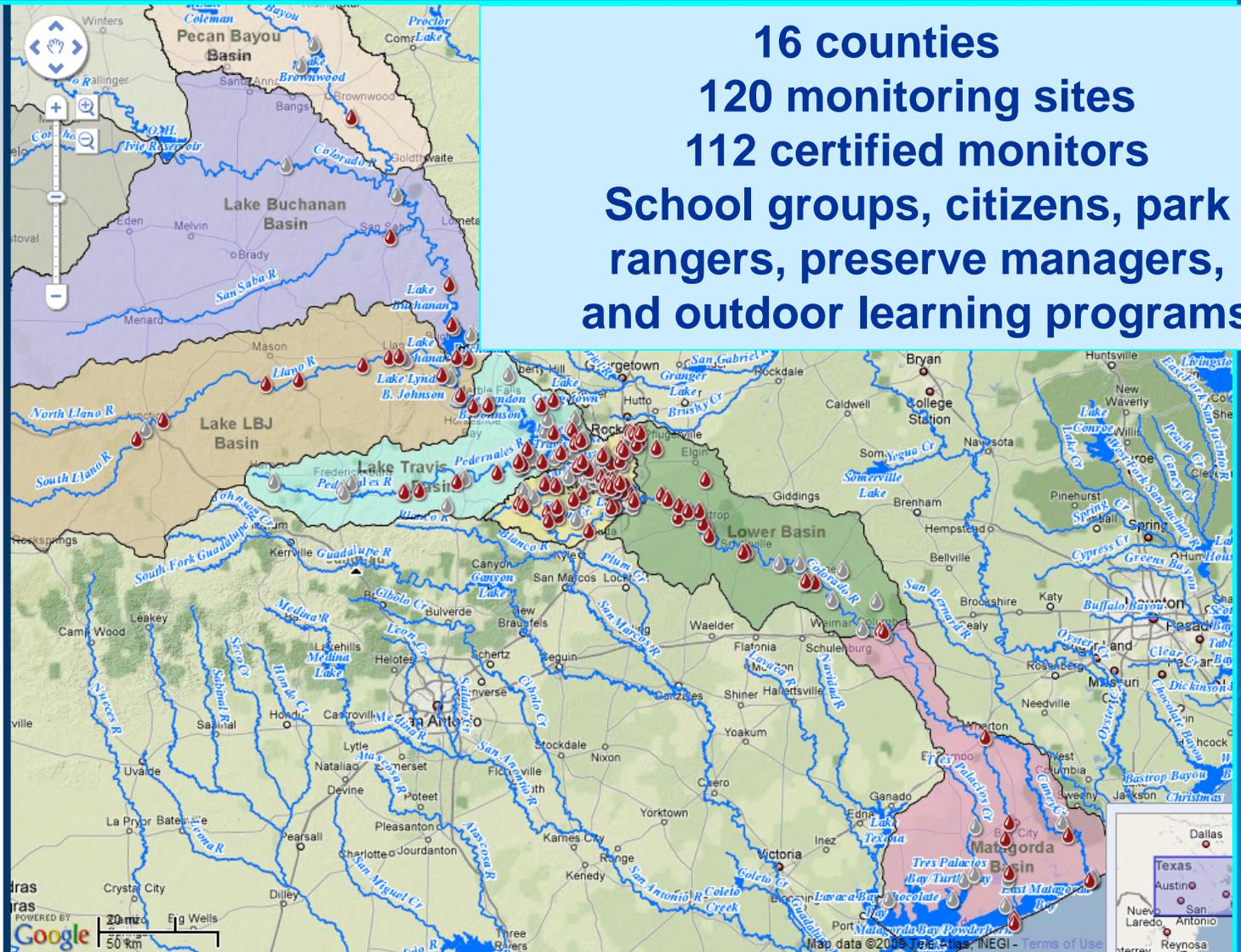
Monitoring Stations

-  Currently Monitored
-  Not Currently Monitored

Base Map Data

- Stream Overlay
- Watershed Overlay
- County Boundaries

- ▶ Data Entry
- ▶ Stream Standards
- ▶ FAQs
- ▶ Map Help



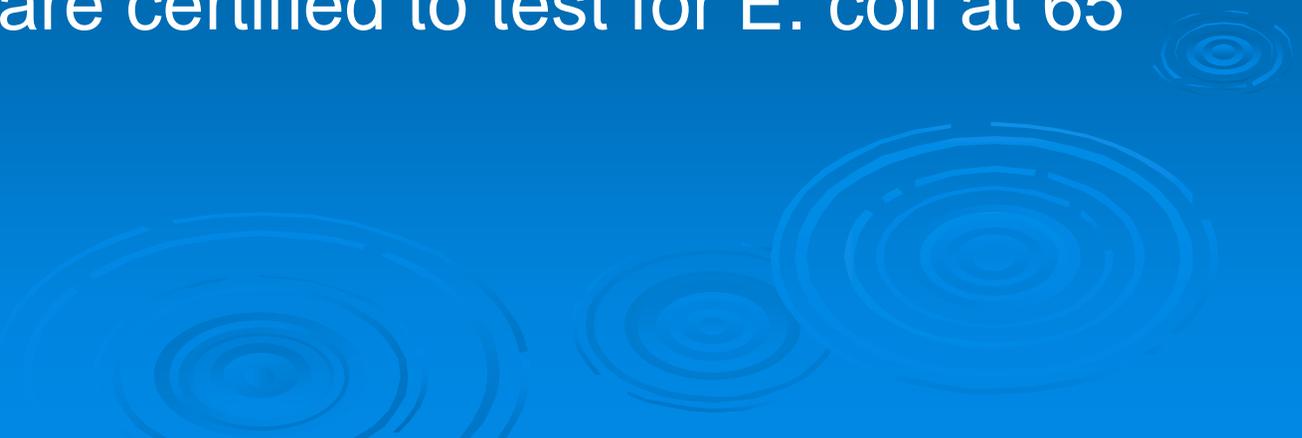
CRWN Indicators of Water Quality

- Water temperature
- Air temperature
- pH
- Specific conductance (dissolved solids)
- Dissolved oxygen
- Nitrate nitrogen
- Field observations
- Transparency / Secchi (optional)
- *Escherichia coli* (*E. coli*) (optional)



Elisabeth Welsh and Austin Youth River Watch students

E. coli Sites

- E. coli is monitored at locations where water contact recreation takes place – locations that are popular for swimming and wading
 - Water Quality Index Sites: State of the River Report
 - Gilleland Creek: listed for bacteria
 - 54 monitors are certified to test for E. coli at 65 sites
- 
- The bottom right portion of the slide features a decorative graphic of several concentric, light blue circles that resemble ripples on water, set against the dark blue background.

Barton Creek



Water contact recreation locations are priority sites.

Education Campaign

Sponsored by the State Natural Resource Conservation Commission and the U.S. Environmental Projects



**IF YOU THINK
PICKING UP
DOG POOP
IS UNPLEASANT,
TRY DRINKING IT.**

Pet waste washes into storm drains, polluting our rivers, lakes and drinking water sources. Get the scoop.



Coliscan Easygel Method



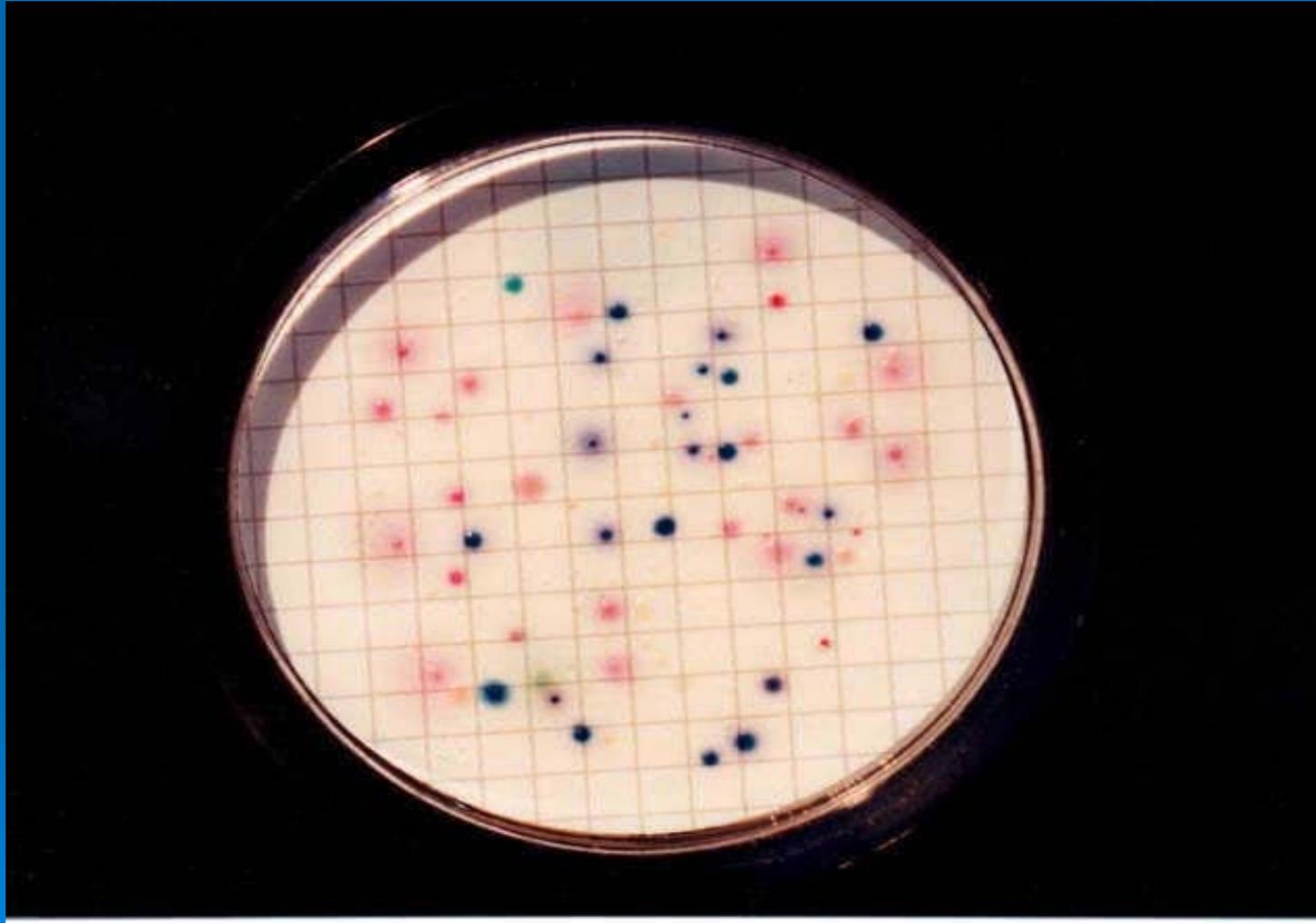
- Pipettes, whirl pak, petri dishes, and Coliscan Easygel

Hovabator Incubator

- Incubate samples in petri dishes for 24 hours at 35.5 degrees celsius



E. coli in Petri Dish



- Dark blue colonies with intense blue center are E. coli.

Gilleland Creek TMDL

CRWN Gilleland Creek volunteer monitors Colin Rice and April Rose, who monitor at Gilleland Creek @ Swenson Farm Road

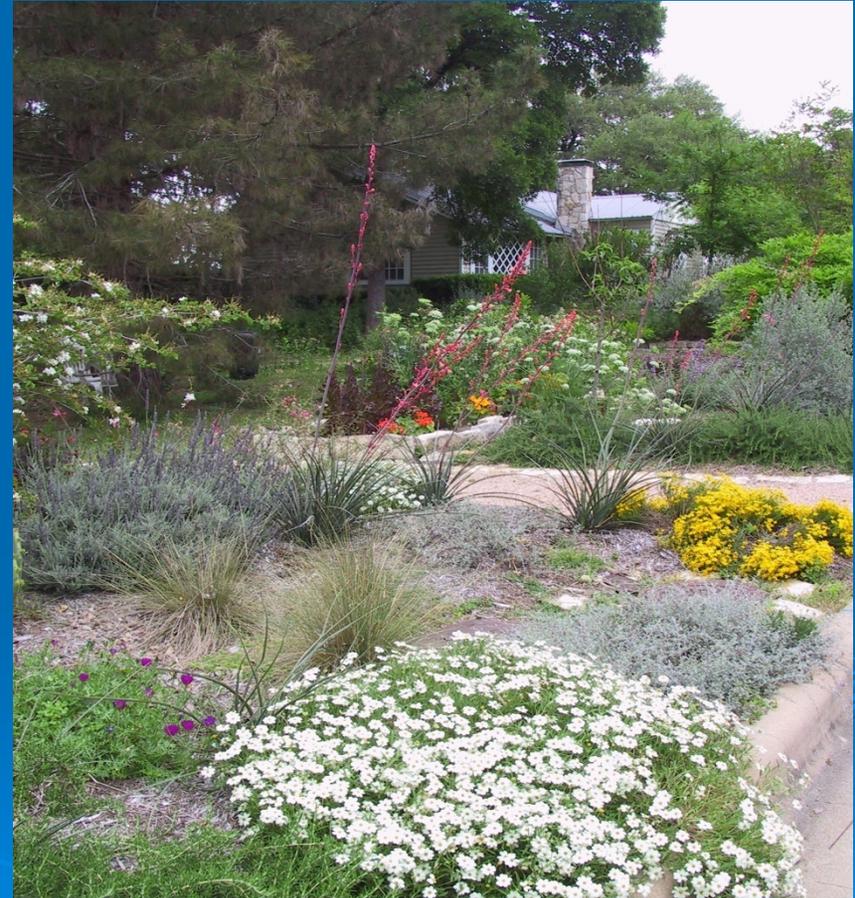


East Bouldin Creek



Easy choices for clean water

- Fight litter
- Practice least toxic landscaping
- Don't over-fertilize
- Dispose of household chemicals properly
- Scoop the poop...



Summary

- Volunteer monitors provide valuable data
- E. coli sampling can detect potentially dangerous levels of bacteria
- Education can help improve water quality



CRWN Website

<http://www.lcra.org/water/quality/crwn/index.html>



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Water quality monitoring
Colorado River Watch Network
Volunteers provide early warning system for pollutants

The Colorado River Watch Network (CRWN) began with a small group of citizens concerned about water quality. It has grown into a sophisticated system of more than 100 certified volunteer monitors at 100 sites along the Colorado River.

The River Watch Network supports volunteers who monitor the water quality of the Colorado River. The network collects data from these sites, and analyzes it, creating an early warning system that alerts LCRA to potential water quality threats.

See these pages for more information:

 - Volunteer monitors
 - Water quality indicators
 - Frequently asked questions
 - CRWN water quality data
 - CRWN Water Quality Monitoring Manual (79 pages; requires Adobe Acrobat)
 - Data Sheet (Adobe Acrobat)
 - Stream Survey (Adobe Acrobat)
 - CRWN Volunteers Blog

Volunteers conduct tests at strategically located sites throughout the Colorado River Basin.

History

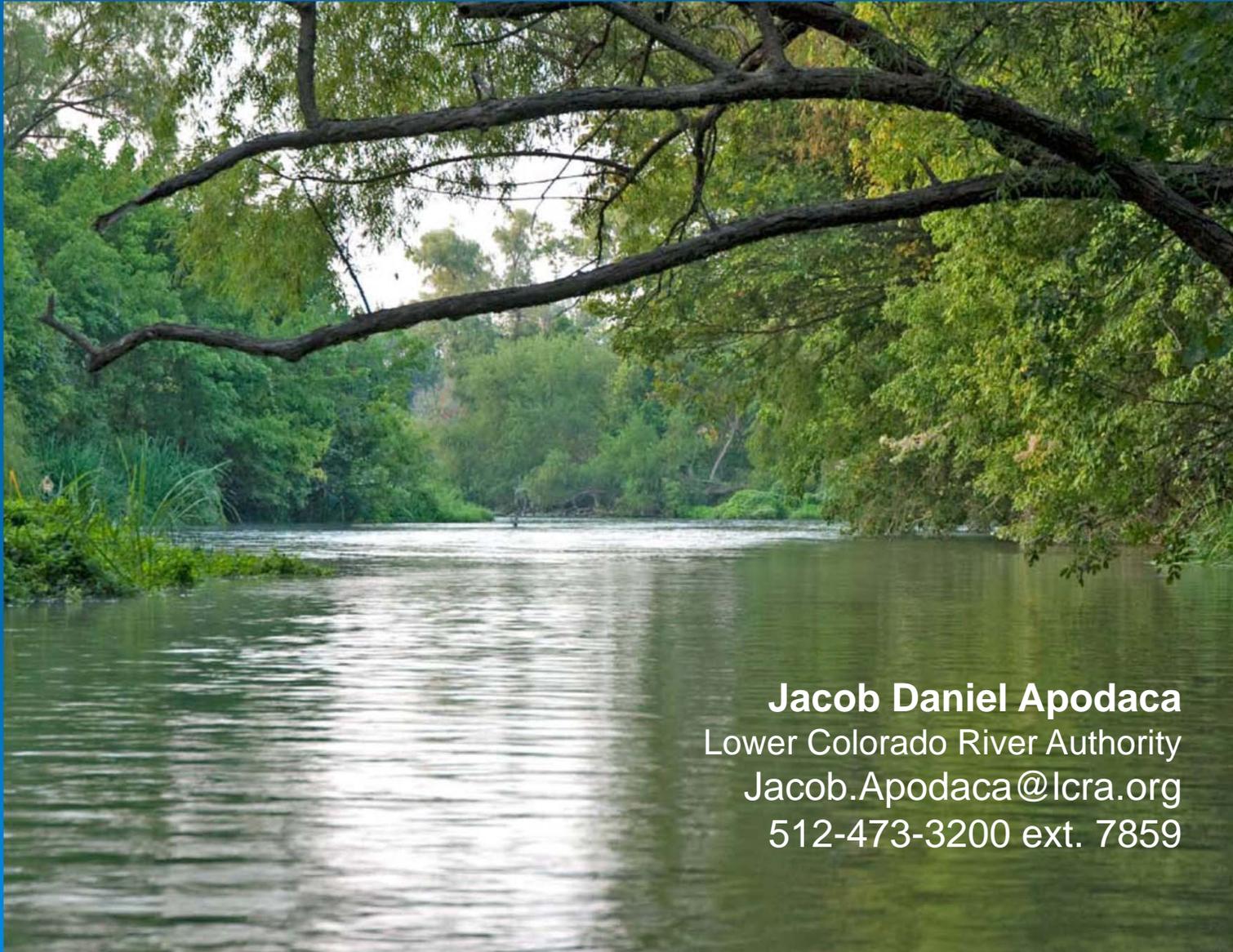
In 1988, a handful of Austin citizens, teachers, and students began sampling water along a tributary of the Colorado River. Within two years, their program had expanded to about 20 sites along the Colorado. The students' work turned up potentially problematic levels of phosphate, a water pollutant – then commonly found in laundry detergents. Phosphates encourage algae to grow, robbing the water of oxygen. In 1991, the group presented their findings to the Austin City Council, and the city passed the first ban in Texas of detergents containing more than 0.5 percent phosphates. By December of the same year, river watch monitors in Smithville, La Grange and Wharton successfully lobbied their city councils for similar ordinances.

In 1992, LCRA began to manage the Colorado River Watch Network program, and helped expand monitoring sites along the river from Brownwood to the Gulf of Mexico. The success of the program has earned grants from the National Science Foundation and the Environmental Protection Agency. The Colorado River Watch Network has been honored by the EPA, the State of Texas, the City of Austin and many other organizations.

Monitoring milestones

 - **1994:** City of Austin wastewater treatment facility corrects problems associated with high levels of nitrates detected by River Watch monitors.
 - **1995:** Students' report stops raw sewage seepage from Bastrop wastewater treatment plant.
 - **1997:** CRWN wins Texas Water Utilities Association's Leadership Award.
 - **1998:** Awarded Texas Natural Resource Conservation Commission's (now TCEQ) Outstanding Lead Partner Award.
 - **2000:** US EPA's 6th National Volunteer Monitoring Conference co-hosted by LCRA in Austin.

Questions?



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