



LCRA WATER QUALITY ADVISORY COMMITTEE MEETING

August 25, 2020

Online - Microsoft Teams Meeting

Welcome and Introductions

The Middle Basin meeting of the Clean Rivers Program (CRP) Colorado River Basin Water Quality Advisory Committee (WQAC) was held August 25 at 10:00 a.m. via Microsoft Teams. Lisa Benton, LCRA CRP coordinator, welcomed the 36 attendees.

Clean Rivers Program Updates for Colorado River Basin – Lisa Benton, LCRA

Benton provided historical background information on the Clean Rivers Program and the roles of the various stakeholders, including the Upper Colorado River Authority (UCRA) and the City of Austin (CoA). She stressed the importance of data collection, quality assurance, and data management, and how the Water Quality Advisory Committee helps guide resources to gather and assess water quality information to identify and address water quality issues throughout the basin.

The Colorado River basin CRP program has \$816,694 allotted for the fiscal year (FY) 2020-2021 budget cycle. All of these funds are state dollars this contract cycle and no federal dollars have been allocated. Approximately 49% of the funds in the contract with Texas Commission on Environmental Quality (TCEQ) are used for monitoring water quality. 26% of the funds are contracted to UCRA for water quality monitoring in the upper basin, 24% towards personnel/labor, and approximately 1% for supplies and travel.

Benton then provided some updates to activities in the LCRA Water Quality Protection Department. In the wake of the 2019 harmful algal bloom (HAB) in Lady Bird Lake, LCRA created a new webpage dedicated HABs. It contains information on freshwater algal blooms and cyanobacteria, current HAB status in the Highland Lakes, a form for reporting suspected HABs, tips for minimizing risk of exposure to HAB, common symptoms that can occur after exposure, and how to help minimize growth and spread of HABs. The page also includes helpful links to additional resources. LCRA has the ability to test for cyanotoxins and will investigate any suspected blooms within the LCRA jurisdiction.

Another update that Benton provided was that the zebra mussel infestation status of O.H. Ivie has been elevated to “infested” by the Texas Parks and Wildlife Department (TPWD). This means that zebra mussels have been documented as actively reproducing in the reservoir. The infested reservoirs in the Colorado River basin (as of August 2020) are the following from upstream to downstream: O.H. Ivie, LBJ, Marble Falls, Travis, Austin, and Lady Bird Lake. Note that Lake Buchanan, Inks Lake, Lake Bastrop and Lake Fayette are not known to have zebra mussels. LCRA has also been monitoring and documenting the spread of zebra mussels in the Colorado River below Austin. Recently, live adult zebra mussels were reported to be in the Colorado River in Colorado County, a surprising distance from Lady Bird Lake, which is believed to be the closest infested reservoir in the basin. Monitoring for zebra mussels is ongoing.

Benton then provided a list of online LCRA water quality resources that included waterquality.lcra.org, cms.lcra.org, crwn.lcra.org, and hydromet.lcra.org.



Integrated Report Update – Lisa Benton, LCRA

On behalf of Robin Cypher, the TCEQ water quality assessor for the Colorado River basin, Benton provided an update to the Integrated Reporting process at TCEQ.

The Texas Integrated Report (IR) describes the status of Texas' natural waters based on historical data and the degree to which they attain the Texas Water Quality Standards (TWQS). The TCEQ uses data collected during a recent seven to ten-year period. The data are gathered by many different organizations all of which operate according to approved quality control guidelines and sample collection procedures. The quality of waters described in the IR represents a snapshot of conditions during the specific time period considered in the assessment.

- The Texas Integrated Report satisfies the requirements of the federal Clean Water Act Sections 305(b) and 303(d).
- The TCEQ produces a new report every two years in even-numbered years, as required by law. The 303(d) List must be approved by the EPA before it is final.
- Each cycle of the Texas Integrated Report (IR) and 303(d) List begins with a request from TCEQ for data from water quality monitors, like participants in the Clean Rivers Program. The submitted data are subject to a validation process and loaded into the Surface Water Quality Monitoring Information System (SWQMIS) database.
- When all available data are loaded into the database, the assessment begins by comparing the data in the period of record (7-10 years' worth) to the Texas Water Quality Standards (TWQS) to determine if water bodies are meeting their designated uses described in the TWQS. Other data and information that are evaluated include:
 - Fish consumption advisories, aquatic life closures, and oyster waters closures issued by the Department of State Health Services (DSHS).
 - Recreational beach advisory information provided by the Texas General Land Office (GLO).
 - Drought information from the National Drought Mitigation Center (NDMC).
- After completing the "number crunching" and undergoing extensive quality assurance checks, the draft IR and 303(d) List is sent to data providers for review and comment. Adjustments may be made based on comments.
- The TCEQ holds a public comment period to solicit input from the public and stakeholders. The IR and 303 (d) List may be revised and finalized based on new information and comments from the EPA and the public.
- The draft IR and 303(d) List is presented at a TCEQ Agenda for Commission approval.
- The draft IR and 303(d) List is then submitted to EPA for review and approval.

Data from December 1, 2011 through November 30, 2018 were used to develop the 2020 IR. Statewide, there were 1,485 water bodies evaluated. These are water bodies that had at least 1 data point or summary info (ex: DSHS fish advisory). Descriptions of these water bodies may be found on the TCEQ website here: [2020 Water Bodies Evaluated](#). There were 1,090 water bodies with enough data or information to assess at least one use support. Of the water bodies assessed, 556 had enough data or information that were assessed as not meeting the state water quality standards.

In the Colorado River Basin, there were 137 water bodies evaluated, and 89 of these that had enough data to assess a Use support resulting in 20 impaired water bodies.



- Lake J.B. Thomas and Onion Creek meet the criterion for sulfate, and Upper Pecan Bayou meets the criterion for Contact Recreation Use. These water bodies are no longer impaired for these parameters.
- However, OH Ivie (chlorophyll) and Alum Creek (bacteria) were added to the 303(d) List.

Matagorda Bay Ecosystem Assessment – Chelsea Jones, Texas Comptroller’s Office

Chelsea Jones began the presentation by giving a brief overview of the Natural Resources Program at the office of the Texas Comptroller of Public Accounts (CPA). Chelsea and her colleagues in the Natural Resources Program work to collaborate with communities and stakeholders to identify knowledge gaps and support ecological research that will contribute to the Endangered Species Act (ESA) listing process and long-term conservation strategies. The program has funded 24 research projects for 12 species and their associated habitats. One of these projects is the Matagorda Bay Ecosystem Assessment (MBEA) project, which Jones focused on for the remainder of her presentation.

The project goals of the MBEA include:

- 1) Inform the development of conservation strategies for endangered sea turtles
- 2) Explore potential conservation strategies and priority areas for bird species of interest concerning potential impacts from flooding and sea level rise

The project has many components, including habitat mapping, sea turtle movement tracking, biological sampling, water quality, trophic ecology analysis and query of datasets. For this presentation, Jones focused primarily on the water quality aspect of the project.

The water quality goals for MBEA include an evaluation of how habitat arrangement and water quality can influence habitat suitability for the target species, collection of monthly, seasonal and weather-related samples, and a long-term trend analysis of the available data. Monthly sampling focuses on collecting temperature, salinity, dissolved oxygen, pH, chlorophyll, nutrients, and dissolved organic matter data at 11 sites in Matagorda Bay. The long-term trend analysis will include both TCEQ and TPWD data sets.

The project is currently underway with ongoing updates. For more information, sign up to receive CPA updates at <https://public.govdelivery.com/accounts/TXCOMPT/subscriber/new?preferences=true#tab1>, and check out the project webpage at <https://comptroller.texas.gov/programs/natural-resources/research/ongoing-studies/matagorda/>.

Jones explained that the MBEA research collaboration included the Harte Research Institute for Gulf of Mexico Studies at Texas A&M University at Corpus Christi, Texas A&M University Galveston Campus and BIO-WEST, Inc.

Harmful Algal Bloom on Lady Bird Lake – Brent Bellinger, City of Austin Watershed Protection

Brent Bellinger began the presentation by providing some basic background information on harmful algal blooms (HABs). He stated that they can be defined as blooms of algae during which the individual algal cells start producing toxins. In freshwater ecosystems, HABs most commonly occur with cyanobacteria (blue-green algae), but there are many other types of algae that can also produce HABs.

Bellinger explained that there are primarily two HAB growth forms or types: planktonic/free floating algae known as phytoplankton, and cohesive mats that can be benthic and/or floating on the water’s



surface. The Lady Bird Lake HAB events of 2019 and 2020, Bellinger stated, have been benthic and floating growth forms of cyanobacteria.

There are several types of cyanotoxins, which include anatoxin-a (neurotoxin), cylindrospermopsin (cytotoxicity, liver/kidney toxicity), microcystin (hepatotoxin), and saxitoxin (neurotoxin). There are drinking water standards established by both the EPA and some states for these toxin levels, however there are a large amount of toxin variants—more research is needed in this field of study to fully understand toxin variants and establish more detailed standards, Bellinger stated.

Bellinger then provided details on the 2019 Lady Bird Lake HAB event. After receiving a report from a pet owner that their dog had passed away soon after swimming at Red Bud Isle, the City of Austin with help from LCRA quickly began investigation. Several other reports of dog deaths soon followed. Samples were collected the same weekend that the dog deaths were reported. The City of Austin worked swiftly to inform the public, close access points to the lake, and establish intensive monitoring.

It was determined that the HAB event was isolated to Red Bud Isle and Auditorium Shores and was identified to be coming primarily from a species of cyanobacteria algae in the Order Oscillatoriales (genus *Phormidium*). The cyanotoxin dihydroanatoxin was the neurotoxin being produced.

Bellinger went on to explain that to better understand the factors that allowed this bloom to happen, he looked at water quality data. He found that high water temperatures (above 30 degrees Celsius) and abundant nitrogen and phosphorus were present in the water quality samples taken close to the HAB initiation. Bellinger said that other factors that could have spurred HAB formation include low flows through the Colorado River system due to very dry weather patterns in the months preceding the HAB event, zebra mussels influence to the lake, large-scale flooding in the basin in the previous year that altered sediment and water chemistry, changes in climate, and dog waste.

Following the 2019 HAB bloom, the City of Austin developed a robust monitoring program that will take place mid-summer to mid-fall each year. It was during this monitoring over the summer of 2020 that Bellinger and his colleagues found that similar cyanobacteria appear to be present in Lady Bird Lake and that they are producing toxins at some level. The City of Austin had an established communication plan for HABs that had been developed in the preceding months and worked to place signage, engage key stakeholders and engage the media and social media to bring attention to the science and warnings about Lady Bird Lake HAB.

For up-to-date information about the Lady Bird Lake HAB visit austintexas.gov/algae. The LCRA also has a webpage devoted to HABs that can be found at lcra.org/water/quality/harmful-algal-blooms/.

Following the presentation, several comments and questions were discussed. Jessica Wilson (City of Austin) informed the group that any interested Austinites can volunteer to be a Bark Ranger to help spread the word to dog owners about the importance of scooping the poop, especially as it relates to increased risk of HABs. More information can be found at austintexas.gov/page/bark-rangers.

Lonnie Moore (Protect Lake Travis Association) asked if the toxins have a negative effect on other aquatic life. Bellinger responded that because this particular HAB in Lady Bird Lake is a neurotoxin, that any organism with a nervous system could be impacted if they came into contact (ingestion being the most concerning) with the toxins. Moore followed up to ask if there is any practical means



of reducing the algal mats. Bellinger responded by saying that ultimately, the solution is a holistic watershed health approach. Keeping as many nutrients out of the lake as possible is an important goal to help prevent future HAB events. But given the current HAB situation in Lady Bird Lake, there is not a lot that can be done. Higher flows following rainfall upstream is the best hope for effectively reducing or eliminating the HAB in the short-term. Cooler temperatures in the fall will also help decrease the amount of cyanobacteria in the lake.

Rain Catcher Pilot Program – *Jessica Wilson, City of Austin Watershed Education*

Jessica Wilson then took the screen to talk about the City of Austin Rain Catcher Pilot Program (RCPP). Wilson explained that the RCPP began with the simple question: “what happens if we retrofit a highly developed area to get water to soak into the ground?”

Wilson explained that the RCPP effort aims to work with and leverage existing stormwater infrastructure programs at the City, while also incorporating existing Watershed Protection and Austin Water discounts, rebates, capital funding and education programs. The program has the goal of increasing cisterns and rain gardens within the city limits to achieve both stormwater management and water conservation objectives.

The pilot program area for the RCPP is the upper part of the Waller Creek watershed. There are several demonstration projects for the program throughout the city, as well: Reilly Elementary School, Highland Park Reznicek Field (water quality retrofit), West Skyview Neighborhood Partnering Program, and traffic calming triangles at two different locations. These demonstration sites show how installations of rain gardens, cisterns, and water retention areas with native landscaping can be both beautiful and functional for stormwater management and water quality protection.

Residential Incentives Program is also a part of the RCPP. The residential program offers a site assessment and design recommendation; help with the design, installation and payment processes; and financial incentives of a reduced drainage charge and rebates. Phase 1 of the residential program focused on a small number of homes – just 25 – but had 32% of homeowners express interest in the cost-share program. Phase 2 was offered to 448 properties and had 8.9% of homeowners express interest.

A city-wide behavioral study is being informed by the smaller scale Rain Catcher Pilot Program, as well, Wilson explained. The goal of the study is to examine attitudes about pro-environmental behavior based upon demographics across the city.

Becca DuPont with TCEQ asked if the RCPP was focused just on single family homes or if multi-family properties are included. Mateo Scoggins and Jessica Wilson responded that the program is focused on single family homes for now, but there are plans to expand beyond that in the future.

Benton asked Wilson what the anticipated average cost for homeowners is to install a residential system under the program. Wilson explained that the costs vary widely depending upon the specific design, equipment and scale of the residential projects.

Roundtable



Benton then opened up the meeting for stakeholders to discuss any additional topics, announcements or ask further questions to the presenters. The following items were discussed and announced:

- Lonnie Moore of Protect Lake Travis Association asked if there was talk of any changes to discharge permits or rulemaking in the basin that would affect Lake Travis. Bryan Cook and Susan Meckel of LCRA responded saying that there are no changes at this time but Meckel pointed out that TCEQ adopted new rules for the disposal of treated wastewater effluent by land application in December of 2019. This incentivizes beneficial reuse of wastewater effluent by giving an applicant the option to reduce the acreage required for land application of treated domestic wastewater by obtaining a “beneficial reuse credit” that accounts for offsite reuse.
- Nathan Glavy of the Texas Water Resources Institute provided an update to the Tres Palacios Watershed Protection Plan and Implementation Plan. The plan works to bridge the data gap on the E. coli impairment and work with stakeholders in the area to implement strategies that protect water quality in the watershed. For more information visit matagordabasin.tamu.edu/tres-palacios.
- Melinda Chow of Austin Youth River Watch (AYRW) gave an update on AYRW collaborations and upcoming plans to further engage AYRW students in environmental stewardship throughout the City of Austin even amidst the challenges of the COVID pandemic. For more information about AYRW, visit <https://riverwatchers.org/>

The meeting concluded at 12:30 p.m.