2015 Lavaca Basin Highlights
Clean Rivers Program Report

Beautiful sunrise on tranquil Lake Texana

Prepared by the
Lavaca-Navidad River Authority (LNRA)
PO Box 429, Edna, TX 77957

The preparation of this report was financed through grants from and in cooperation with the Texas Commission on Environmental Quality (TCEQ)
CLEAN RIVERS PROGRAM
PO Box 13087, Austin, TX 78711

LAVACA BASIN HIGHLIGHTS REPORT 2015

TABLE OF CONTENTS

Acronyms

AU	Assessment Unit
CRP	Clean Rivers Program
D.O.	Dissolved Oxygen (in water)
EPA	Environmental Protection Agency
LNRA	Lavaca Navidad River Authority
MPN	Most Probable Number
SWQM	Surface Water Quality Monitoring
TCEQ	Texas Commission on Environmental Quality
UAA	Use Attainability Analysis
W.Q.S.	Water Quality Standards
IR	Integrated Report

2014 Highlights:

Since the historically low rainfall year of 2011 the region has seen rainfall numbers closer to normal. In 2014 area rainfall started out below average but ended the year stronger with average rainfall falling on the region during the last few months of the year. The area ended the year with 32 inches of rain, 9 inches below the 41-inch average. One streambed, the Navidad River at Strane Park, was dry almost half of the year. The Lavaca Basin had not seen a substantial flood that inundates the riparian areas surrounding these streams in eight years. Other streams, the East Mustang Creek and Rocky Creek were also periodically dry throughout the year.

Zebra Mussels

Zebra mussels are an invasive species that was discovered in the Great Lakes in the late 1980's; they have since traveled southward and now inhabit numerous lakes and waterways in Texas. The rapidly reproducing mussels, originally from Eurasia, can have a serious economic, environmental and recreational impact on Texas reservoirs. This year the Texas Parks and Wildlife Commission passed a new statewide regulation that went into effect July 1 requiring persons leaving or approaching public water to drain all water from their vessels and on-board receptacles. This applies to all types and sizes of boats whether powered or not, personal watercraft, sailboats, kayaks/canoes, or any other vessel used on public waters. The regulation also requires the draining of live wells, bilges, motors, and any other receptacles or water-intake systems coming into contact with public waters.

Live bait presents another challenge to containing zebra mussels since the water transporting the live bait may contain zebra mussel larvae, often called veligers. Parks and Wildlife officials have addressed this issue: “Live fish, including personally caught live bait, cannot be transported in a vessel in water that comes from the water body where they were caught. Personally caught live bait can be used in the water body where it was caught. Anglers are allowed to transport and use commercially purchased live bait provided persons in possession of the bait have a receipt that identifies the source of the bait. Any live bait purchased from a location on or adjacent to a public water body that is transported in water from that water body could only be used as bait on that same water body.” A video news report about zebra mussels and new regulations to control their spread can be viewed on YouTube at **http://youtu.be/eL3kbkGfYjM**.

Without any known native predators, the main weapon against this invasive parasite is education. Boaters are the number one transporter of the organism. The LNRA has passed out pamphlets explaining zebra mussels and their destructive nature to all known bait stands and boat shops in the vicinity of Lake Texana. In cooperation with TPWD, metal signs with information on how to clean and drain water craft to prevent further infestation have been posted at all boat ramps around the lake (see figure 2). A large stencil was purchased this year by LNRA and painted at the beginning of all boat ramps stating “Stop Zebra Mussels. Clean,

Drain, and Dry your boat, it's the LAW". Personnel from LNRA performed a visual inspection of all boat ramps and found zero evidence of zebra mussels in Lake Texana. More information about zebra mussels in Texas waterways may be found at **www.texasinvasives.org/zebramussels**.

Figure 1 – Invading zebra mussels on crawfish (not from Lake Texana)

Figure 2 – Zebra mussel/boaters warning stencil work at public boat ramps.

INVASIVE MUSSELS

Zebra Mussel (*Dreissena polymorpha*)

Zebra Mussels are a real "foreign" threat! They kill fishing, clog pipes that supply drinking water, and have sharp edges that make water recreation hazardous. They cling to boat hulls, piers and docks, and you can spread them when you enter other lakes.

Texas Parks & Wildlife Department (TPWD) is asking anyone transporting a vessel that has been used on one of the North Texas Lakes: Texoma, Ray Roberts, Lavon or Lewisville to another water body to take the following precautions (invasive Zebra Mussels have been found in these lakes plus Lake Ray Hubbard). These are the easiest preventive measures that boat owners can perform to help prevent the spread of Zebra Mussels into our state's surface waters.

(1) Clean all vegetation, mud, algae and other debris from the boat and trailer.

(2) Drain all water from the motor as well as the live-well, bilge, bait buckets and any other compartments or systems that hold water.

(3) Dry the vessel and associated equipment for a week to 10 days during the months of May through October or for 15 to 20 days from November through April. These drying times are approximate, and conditions such as cooler air temperatures, higher humidity and whether or not the vessel is kept in dry storage should be considered. If you can't wait for the boat to dry, it is recommended that the aforementioned vessel and associated equipment be thoroughly washed using a strong bleach solution and soap.

Under the Texas Parks & Wildlife Department and Texas Penal Codes, possession or transporting of Zebra Mussels in Texas is a Class C misdemeanor punishable by a fine of not less than $25 nor more than $500 for the first offense. Repeat offenses can be elevated to a Class B or a Class A misdemeanor with higher fines and jail time.

INVASIVE AQUATIC VEGETATION

Giant Salvinia (*Salvinia molesta*)

Invasive aquatic vegetation has been found in Lake Texana in recent years. The most dangerous is **Giant Salvinia** (*Salvinia molesta*) which can block light, kill fish, rob lakes of dissolved oxygen, and rapidly spread if not aggressively controlled. LNRA conducts an ongoing program working to keep Salvinia and other invasive aquatic vegetation (e.g. **water hyacinth**) from proliferating in the Lake. But the best way to prevent the spread of this obnoxious vegetation is to always clear your boat and boat trailer of any clinging vegetation before leaving the boat ramp. Trash containers are available at boat ramps for depositing removed vegetation. Your cooperation will be appreciated by LNRA and people who love fishing and boating in Texas lakes. Thank you.

Water hyacinth (*Eichhornia spp.*)

Salvinia clinging to a boat trailer

LAVACA - NAVIDAD RIVER AUTHORITY

Texas lake covered in Salvinia

Figure 3 – Signs posted by LNRA at Lake Texana boat ramps.

UAA

After years of delays and back and forth communications, the EPA has made a final ruling in a letter dated September 23, 2014, on that agency's acceptance of revised Dissolved Oxygen (DO) criteria for the unclassified upper portion of the Lavaca River. The upper portion of the Lavaca River is approved for a seasonal change in dissolved Oxygen criteria for the period of March 15 through October 15 to (greater than or equal to) 3.0 mg/L average and (greater than or equal to) 2.0 mg/L for minimum 24-hour oxygen content.

This ruling is in response to the Use Attainability Analysis (UAA) conducted in the Lavaca River above Hallettsville by TCEQ, TPWD, and LNRA back in 2005-2006. Based on the information obtained via the UAA, TCEQ had requested that EPA approve site specific DO criteria for the upper Lavaca at 2.0 mg/L average and 1.0 mg/L as a minimum to apply during the annual period of March 15 through October15 (the hotter months of the year). This upper portion of the Lavaca is usually very low and often (especially during drought years) dry and is therefore not capable of meeting the higher DO criteria of 5.0 mg/L average and 3.0 mg/L minimum that applies to the lower portion of the river. However, the EPA would not approve this change and requested that the standing criteria for intermittent streams with pools be applied to this portion of the river (3.0 mg/L average & 2.0 mg/L minimum).

Spills

On December 12, 2014 the Authority was contacted by Mr. Roades, a local land owner, about a ruptured oil tank located on his property and in close proximity with Devers Creek, a creek that flows into Lake Texana. The Authority met with the Railroad Commission at the site to assist with containment and recovery of any contaminants. The owner of the lease, Premier Natural Resources, had a knock out tank rupture and release approximately 100 barrels of produce water and 10 barrels of free oil. Liquids breached the firewall and flowed into a pasture and down a ditch that led to Devers Creek, a small tributary of Lake Texana. A temporary berm was constructed across the ditch containing the contaminants to a small area preventing defilement of the lake. A local vacuum truck service picked up and disposed of the liquids.

Figure 4 – Google map of spill site in relation to Lake Texana

Figure 5 – Oil spill off of FM 2982 out of Ganado

Water Quality Monitoring:

Field data can include: dissolved oxygen, pH, temperature, specific conductivity, flow, salinity, secchi disk to measure water clarity, depth.

Conventional water analyses include: Total alkalinity, chloride, ammonia, total organic carbon, turbidity, total hardness, sulfate, nitrate-nitrogen, total kjeldahl nitrogen (TKN), total suspended solids, total phosphorus, and chlorophyll-a at the reservoir sites.

Bacterial analysis is conducted for *E. coli* with the IDEXX Colilert system. More details on monitoring parameters follow at the end of this section.

Figure 5, Table 1, and the lists that follow show the water quality sites monitored for FY 2015 along with the parameter sets and frequency. A detailed coordinated monitoring schedule with aerial maps for Lavaca Basin can be accessed from www.lnra.org as follows: from the "Programs" pull-down menu choose "Water Quality" and click on “FY 2015 Coordinated Monitoring Schedule".

Figure 6 – Brown pelican on Lake Texana

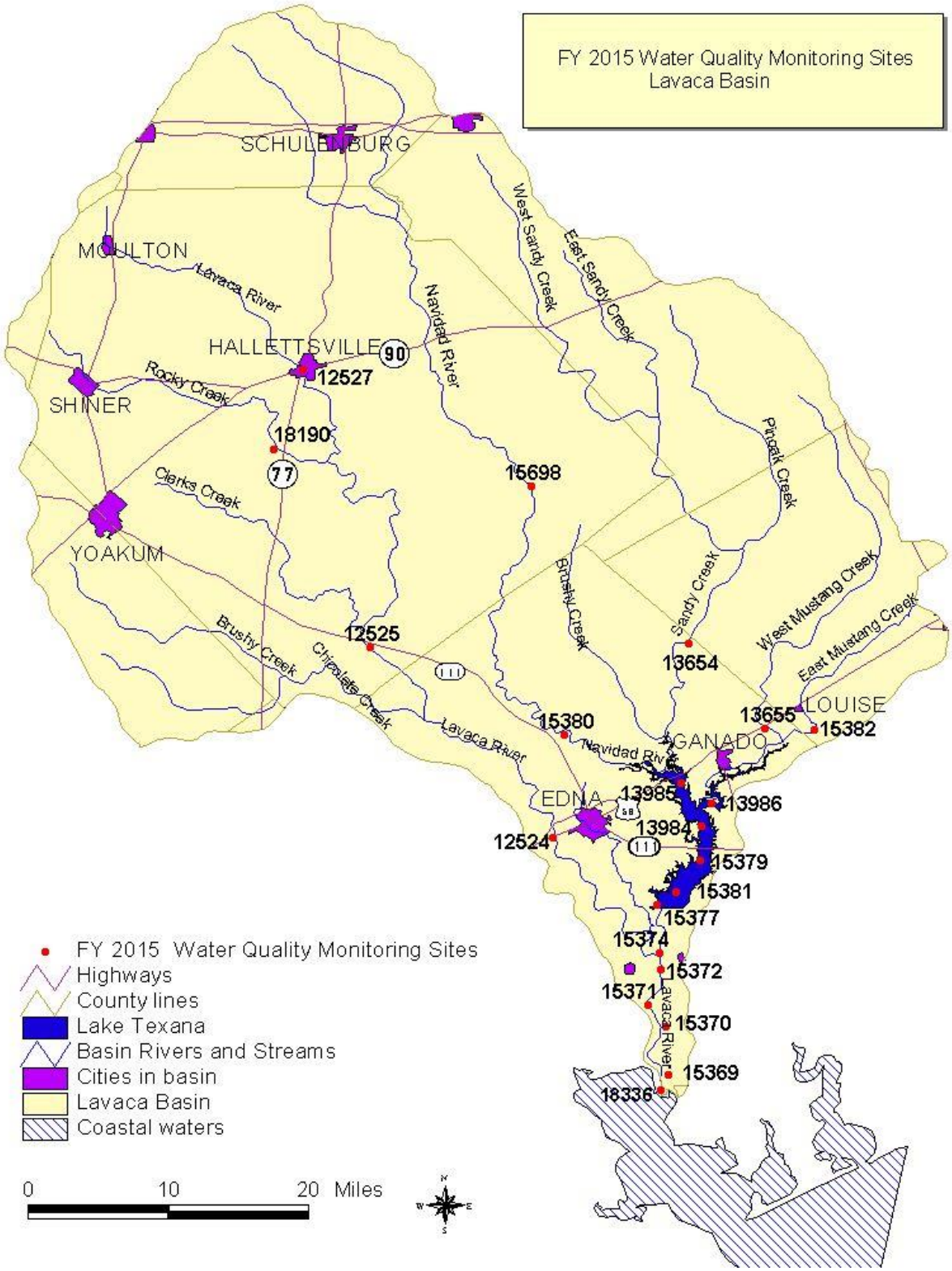

Figure 7 -- FY 2015 Lavaca Basin Monitoring Sites

Table 1 -- Monitoring Sites for FY 2015

Segment	Latitude	Longitude	Long Description	Station Id	Monitoring Resp	Monitoring Type	24 HR	Aq Hab	Benthics	Nekton	Metals Water	Org Water	Metals Sediment	Org Sed	Conventional	Amb Tox Wat	Amb Tox Sed	Bacteria	Flow	Fish Tissue	Field
1601	28.8233	96.5752	Lavaca River @ Frels Landing	15372	LN/LN	RT															12
1601	28.7876	96.5891	Lavaca River @ Mobil Dock	15371	LN/LN	RT															12
1601	28.7651	96.5701	Lavaca River @ Mouth of Redfish Lake	15370	LN/LN	RT															12
1601	28.7150	96.5682	Lavaca River @ Mouth of Swan Lake	15369	LN/LN	RT															12
1601	28.6995	95.5758	Lavaca River near Lavaca Bay mouth	18336	LN/LN	RT									4						12
1602	29.1567	96.8750	Lavaca River @ SH 111 bridge	12525	LN/LN	RT									4			4	12		12
1602	28.9603	96.6864	Lavaca River @ Highway 59 bridge	12524	LN/LN	RT									4			4	12		12
1602	29.3609	96.9743	Rocky Creek at Lavaca CR 387	18190	LN/LN	RT									4			4			4
1602	29.4431	96.9442	Lavaca River at Hwy 90A Hallettsville	12527	LN/LN	RT									4			4	4		4
1603	28.8358	96.5800	Navidad River 30 m above confluence with Lavaca River	15374	LN/LN	RT									4						12
1604	28.8909	96.5794	Lake Texana near spillway	15377	LN/LN	RT									4						12
1604	28.9040	96.5595	Lake Texana near dam	15381	LN/LN	RT									4						12
1604	28.9362	96.5347	Lake Texana south of SH 111	15379	LN/LN	RT									4			4			12
1604	28.9715	96.5340	Lake Texana north of SH 111	13984	LN/LN	RT									4			4			12
1604	29.0163	96.5541	Lake Texana main body near highway 59	13985	LN/LN	RT									4			4			12
1604	28.9957	96.5239	Lake Texana Mustang Creek arm	13986	LN/LN	RT									4			4			12
1604	29.1595	96.5462	Sandy Creek @ FM 710	13654	LN/LN	RT									4				12		12
1604	29.0714	96.4172	East Mustang Creek @ FM 647	15382	LN/LN	RT									4				12		12
1604	29.0720	96.4676	West Mustang Creek @ highway 59	13655	LN/LN	RT									4				12		12
1605	29.0658	96.6745	Navidad River @ Strane Park bridge	15380	LN/LN	RT									4				12		12
1605	29.3220	96.7090	Navidad River @ Speaks bridge	15698	LN/LN	RT									4						4

Monitoring Frequency by Site

- **East Mustang Creek** -- monthly field data and quarterly conventional.
- **West Mustang Creek** -- monthly field data and quarterly conventional.
- **Sandy Creek** -- monthly field data and quarterly conventional.
- **Dry Creek** -- monitored 1 time annually (USGS) for metals and field and 2 times annually for organics.
- **Navidad River at Speaks** -- quarterly field and conventional.
- **Navidad River at Strane Park** -- monthly field data and quarterly conventional.
- **Lake Texana** -- 6 sites monitored for field data monthly and quarterly for conventional and chlorophyll a. Four (4) Lake Sites are sampled quarterly for *E.coli* bacteria.
- **Navidad River below spillway and above confluence with Lavaca** -- monthly field data and quarterly conventional.
- **Rocky Creek** -- quarterly field, conventional, and bacterial.
- **Lavaca River at Hallettsville** -- quarterly field, conventional, flow and bacterial.
- **Lavaca River at Hwy 59 and at SH 111** -- monthly field data and quarterly conventional and bacterial.
- **Lavaca River at 5 sites between confluence with Navidad River below spillway and Lavaca Bay** -- monthly field data at 5 sites and quarterly conventional data at one site.
- **In addition, Lake Texana and its inflows** -- Navidad River and Sandy and East and West Mustang Creeks are monitored by contract with USGS (United States Geological Survey) for pesticides, herbicides, and metals.

Field parameters:

Secchi disk -- physical measurement of water clarity via visibility.

Water temperature -- the degree of heat in a body of water. For CRP purposes water temperature is measured in degrees Celsius.

Dissolved oxygen -- oxygen dissolved in water column readily available to aquatic organisms.

Specific conductance -- measure of electrical current carrying capacity of water. This indicates the amount of dissolved solids and salts in the water. Total Dissolved Solids (TDS) can be derived from specific conductance by multiplying its μS/cm value by 0.65 to obtain mg/L TDS.

pH -- measure of whether water is acidic, basic or neutral.

Salinity -- the amount of dissolved salts in a body of water. Salinity is usually low in fresh water and higher in tidally influenced water, bays, and oceans. Usually measured in parts per thousand (ppt). Average ocean water is ~35 ppt.

Depth -- depth of water column where measurement occurs.

Flow -- The volume of water flowing through a point in a stream -- measured in cubic feet per second (cfs).

Conventional parameters:

Total Suspended Solids (TSS) -- all particles suspended in water which will not pass through a filter -- commonly results from erosion of soils, run-off, and sediment**.**

Sulfate -- an abundant water soluble sulfur-containing compound.

Chloride -- can be defined as a chemical compound in which one or more chlorine atoms are covalently bonded in the molecule. Chlorides can be either inorganic or organic compounds. Also the salts of hydrochloric acid are called chlorides. Chlorides can be high from salt water intrusion near the coast or from gas and oil drilling operations where brine water is not contained properly.

Ammonia -- a compound of nitrogen and hydrogen in the formula NH3 that occurs naturally in surface waters through decomposition of organic nitrogen, but may be elevated from agricultural runoff, human and/or animal wastes. Ammonia occurs in trace amounts in the atmosphere and in rainwater. The kidneys secrete ammonia to neutralize excess acid; thus it can be found in urine.

Total Hardness -- a measurement of the amount of calcium and magnesium in association with carbonates.

Nitrate-Nitrogen -- Nitrate is the compound of nitrogen and oxygen in the formula of NO3. Too much nitrate in water can be harmful to both fish and humans. Elevated levels can be the result of agricultural and/or feedlot runoff or improperly treated wastewaters or septic tanks. Nitrate is highly soluble and can be transported to surface and groundwater during precipitation events.

Total Phosphorous -- a measure of all chemical forms of phosphorus in the water. Phosphorus can be the limiting factor to plant growth, and elevated levels can lead to eutrophication of surface waters via increased algal growth resulting in depleted dissolved oxygen when the plant material is decomposed by bacterial activity.

Total Alkalinity -- measure of the buffering capacity (ability to resist changes in pH when acids or bases are added) of water.

Total Organic Carbon -- measured by the amount of carbon dioxide produced when a water sample is atomized in a combustion chamber--gives indication of the amount of carbon covalently bound in organic compounds in the water. Important to drinking water treatment planning. Only sampled at site 15377.

Turbidity -- laboratory measurement of suspended particles in water affecting clarity.

Chlorophyll-a -- photosynthetic pigment found in all green plants, algae and cyanobacteria -- concentration used to estimate phytoplankton biomass in surface water.

Water Quality Conditions:

Water quality remains good in Lavaca Basin. A few defining attributes that contribute to the lack of segment violations are size and work force. The basin is the smallest and least industrialized in the state, and has a rural landscape and agricultural background. These are big factors which help water quality issues remain low. The 2014 Draft Assessment, which is currently open for public comment, removed one site from the 303d list and added another.

The Surface Water Quality Monitoring (SWQM) Team of TCEQ assesses water quality data using techniques appropriate for each of the various parameters measured. For more information on specific guidelines and methods for assessing water quality please visit: http://www.tceq.state.tx.us/compliance/monitoring/water/quality/data/wqm/mtr/index.html\

For water quality assessment purposes, TCEQ divides the Lavaca Basin into 5 main segments:

Segment 1601 – Lavaca River tidal portion (including Redfish and Swan Bays):
This 23 mile segment runs from the confluence with Lavaca Bay northwest to a point 8.6 km (5.3 miles) downstream of US 59 in Jackson County. Several small tributaries, the Menefee Lakes, Redfish Lake, Swan Lake, Redfish Bayou, and Catfish Bayou are included in this segment. The Redfish and Swan Lakes are important nursery grounds for marine organisms. Wastewater treatment plants include Vanderbilt at a flow not to exceed 45,000 gallons per day.

Assessment: The aquatic life and general uses are fully supported. The contact recreation and fish consumption uses were not assessed.

* * *

Segment 1602 – Lavaca River above tidal:
This segment runs from a point 8.6 km (5.3 miles) downstream of US 59 in Jackson County upstream to the confluence with the West Prong of the Lavaca River in Lavaca County. Assessment Unit (AU) 1602_01 is now considered intermittent with pools and runs from the confluence with Campbell Branch just above Hallettsville up to the end of the segment at the West Prong confluence. The small portion of the Lavaca above the West Prong confluence is considered intermittent with a DO criteria of 3.0 mg/L average and 2.0 mg/L minimum. This portion has been dry most of the time in recent years due to drought. Many tributaries drain into the Lavaca River. Wastewater effluent from Shiner drains into Rocky Creek, while Yoakum effluent flows into Big Brushy and Clarks Creeks. Moulton and Hallettsville dispose of their effluent directly into the Lavaca River.

Assessment: The public water supply and general uses are fully supported. The fish consumption uses were not assessed. Since the 2004 Texas Water Quality Inventory (TWQI), the upper portion of the Lavaca River (above Hallettsville) has been listed for non-support of the high Aquatic Life Use (ALU) classification's concomitant dissolved oxygen (DO) criteria due to depressed DO at times of low to no flow. It is listed as a Category 5b, meaning that the standards for this upper portion of the river were re-assessed via the Use Attainability Analysis (UAA). The UAA has determined that this long segment should be broken into 2 basic divisions: the lower perennial flow section and the upper intermittent with pools section with the division point being the confluence with Campbell Branch just northwest of Hallettsville.

Although the Environmental Protection Agency (EPA) did not approve the TCEQ seasonal dissolved oxygen (DO) standard change for AU 1602_1 they did give guidance for intermittent streams with perennial pools. "The seasonal site specific criteria in Appendix D will not protect a high aquatic life community from March 15th through October 15th because the spawning period occurs in early spring and higher levels of dissolved oxygen are needed for reproduction and survival of early life stages." Since the September 2014 ruling, the upper portion of the Lavaca River is approved for a seasonal change in dissolved Oxygen criteria for the period of March 15 through October 15 to (greater than or equal to) 3.0 mg/L average and (greater than or equal to) 2.0 mg/L for minimum 24-hour oxygen content. The 2014 Draft Integrated Report (IR) has 1602C_01 and 1602C_02 as new listings for depressed dissolved oxygen.

The freshwater bacterial geometric mean standard for Primary Contact Recreation streams remains at 126 colonies most probable number (mpn) per 100 milliliters of water. This Segment was listed for exceeding this bacterial geomean. Rural streams in most basins experience higher bacterial counts after heavy rains due to the organics picked up from pastureland and wildlife during overland flow, but these numbers recede after a short time. It only takes a couple of precipitation spikes to exceed the rather low geomean criteria. For the first time since its listing in 2008, the 2014 Draft IR found the bacterial geomean in AU 1602_02 to meet standards and this AU was removed from the 303(d) list. Segment 1602_03 is still listed for elevated bacterial levels. The lone new listing for this assessment period is segment

1602B_01, Rocky Creek, for elevated bacteria. It is listed as a category 5c which means more data and information will be collected before a TMDL is scheduled. This rural tributary receives wastewater from Shiner and meets the Lavaca River below Hallettsville. It is prone to flash floods followed by periods of low flow. In addition to the affect caused by overland flow, on numerous occasions cattle and feral hogs have been seen soaking in the shallow waters in this segment.

***

Segment 1603 – Navidad River (tidally influenced portion):
This 9 mile segment runs from the confluence with the Lavaca River in Jackson County north to Palmetto Bend Dam in Jackson County. Dry creek drains wastewater effluent from Edna into this segment. The east and west drains along the east and west dikes of Lake Texana also drain water into this segment.

Assessment: The aquatic life and general uses are fully supported. The contact recreation and fish consumption uses were not assessed.

***

Segment 1604 – Lake Texana and its proximate inflows:
From Palmetto Bend Dam in Jackson County to a point 100 meters (~110 yards) downstream of FM 530 in Jackson County, up to normal pool elevation of 44 feet. Lake Texana is a 161,085 acre foot reservoir with 9,727 surface acres impounding waters from the Navidad River, East and West Mustang Creek, and Sandy Creek. Wastewater effluent from Ganado drains into Lake Texana, the city of Louise waste water drains into East Mustang creek, and two parks discharge treated effluent directly into Lake Texana.

Assessment: The aquatic life, contact recreation, general uses and public water supply uses are fully supported. The fish consumption use was not assessed.

***

Segment 1605 – Navidad River above Lake Texana:

This 62 mile segment runs from above Lake Texana north to the confluence of the East Navidad River and the West Navidad River just southeast of the City of Schulenburg. Wastewater treatment plants discharging into unnamed tributaries in this segment include the communities of Schulenburg and Sheridan.

Assessment: The aquatic life, public water supply and general uses are fully supported. The contact recreation and fish consumption uses were not assessed.

Stakeholder Participation and Public Outreach

Public outreach efforts by LNRA include seeking guidance for water quality issues and activities from the Lavaca Basin Steering Committee, education and assistance in water conservation and drought contingency planning, news releases, public meetings, attendance at water quality issues meetings, providing water education materials (*Major Rivers*) to elementary schools throughout and near the Basin, presentations to groups, and support of the Texas Stream Team volunteer water quality monitoring program. LNRA staff members are available to answer questions or give assistance with water quality information to Basin students, stakeholders, members of the public and to respond to calls from concerned citizens. LNRA staff investigate information provided by citizens and contact the appropriate regulatory agency to address the issue. This cooperation between citizens, LNRA, and regulatory agencies has resulted in effective response to potential water quality problems in the Basin. In addition, LNRA retained the former TPWD Nature Interpreter, Cindy Baker, from the previous Lake Texana State Park to provide public outreach services for LNRA. Cindy Baker teaches nature crafts and programs at Texana Park and is also available to travel to schools and libraries to present various environmental education programs. LNRA covers the cost of these programs. Her cell phone is 361-308-0153, and she can be reached via e-mail at cbaker@lnra.org.

Major Rivers: The *Major Rivers* water education program for Texas fourth-grade classrooms was revised and updated with additional activities and learning opportunities to better correlate with Texas Essential Knowledge and Skills (TEKS) and Texas Assessment of Knowledge and Skills (TAKS) standards. LNRA provides these new materials (which include student workbooks, water conservation take-home information brochures, pre- and post-tests, teacher workbooks with color overhead transparencies, and an introductory video) to schools in Lavaca Basin.

CRP Steering Committee: LNRA works with the Clean Rivers Program (CRP) Steering Committee to seek public input, disseminate water quality information, and set priorities for water quality monitoring in the Lavaca Basin. Membership in the Committee is open to staff from state and local governments, private landowners, representatives of industry and agriculture, and interested citizens. Anyone interested in participating as a member of the Steering Committee may contact the offices of LNRA and speak to General Manager Patrick Brzozowski or Water Quality personnel, Sylvia Balentine or Chad Kinsfather.

Contact information

Lavaca-Navidad River Authority
PO Box 429
Edna, Texas 77957

Telephone: 361-782-5229
Fax: 361-782-5310

E-mail addresses:

General Manager Patrick Brzozowski pbrzozowski@LNRA.org

Water Quality Department:

Sylvia Balentine sbalentine@LNRA.org
Chad Kinsfather ckinsfather@LNRA.org

The Lavaca Basin Steering Committee provides guidance on the use of resources from the Clean Rivers Program. The Steering Committee allows LNRA to gain insight from local stakeholders and expertise from such members as Texas Parks and Wildlife (TPWD), Texas Commission on Environmental Quality (TCEQ), United States Geological Survey (USGS), Natural Resources Conservation Service (NRCS), Texas Stream Team, Texas Department of Agriculture, Texas State Soil and Water Conservation Board, and the County Agricultural Extension Service. Input from the Committee allows LNRA to prioritize water quality issues and to determine the most effective water quality monitoring program.

CRP Steering Committee Meetings are held annually in the summer. Meeting notices are mailed out three weeks in advance to Committee members, and notices of the meetings are posted on the LNRA home page calendar at www.lnra.org. Contact information and a map to the meeting site are found under the "Programs" tab then choose "Clean Rivers". Agendas and minutes of the meetings are also posted on-line. In addition, LNRA places notices of the meetings in all the Basin newspapers (Edna, Hallettsville, Moulton, Schulenburg, Shiner, Yoakum) inviting the public to attend.

Texas Stream Team (formerly named Texas Watch): LNRA provides support to the Texas Stream Team volunteer water quality monitoring program by providing equipment, monitoring supplies and reagents, quality assurance, and environmental data to the volunteers. The Texas Stream Team Program is a statewide network of concerned volunteers, partners, and institutions collaborating to promote a healthy and safe environment through environmental education, data collection, and community action.

A long-time Texas Stream Team volunteer, Ken Barton, is the former science teacher at the Edna High School and still uses Texas Stream Team monitoring as a tool for environmental education.

Anyone wishing to become involved with Texas Stream Team monitoring may contact Sylvia Balentine at LNRA or contact Texas Stream Team directly by calling toll-free 1-877-506-1401, or by visiting the LNRA Web site www.lnra.org and clicking on the Stream Team link, or by visiting the Texas Stream Team Web site at http://txstreamteam.meadowscenter.txstate.edu/

LNRA web site:

Extensive water quality information for the Lavaca Basin is available via the Lavaca-Navidad web site at www.lnra.org. The LNRA home page provides links to TCEQ, to information about the Clean Rivers Program, to Stream Flow information and much more. Under the "Programs" pull-down menu at the top of the LNRA home page are links to the "Clean Rivers", "Major Rivers", and the "Water Quality" pages. Here is how the links on the "Water Quality" page will appear:

LNRA Water Quality Database

SWQMIS Data Viewer

Annual Water Quality Reports

2014 Lavaca Basin Highlights Report

2013 Lavaca Basin Highlights Update Report

2012 Lavaca Basin Summary Report

2011 Lavaca Basin Highlights Update Report

2010 Lavaca Basin Highlights Report

Water Quality Links

FY 2016 Coordinated Monitoring Schedule

FY 2016 Water Quality Monitoring Site Map

FY 2014-2015 Work Plan

FY 2014-2015 Quality Assurance Project Plan (QAPP)

FY 2015 Coordinated Monitoring Schedule

Texas Water Quality Inventory and 303(d) List

The **"LNRA Water Quality Database"** link (listed first) connects to a dedicated server storing all state-approved water quality data for the Lavaca Basin, both historical and recent. The data may be accessed by entering a Station ID or site number (shown on map). These Station ID numbers are assigned by TCEQ and are called Surface Water Quality Monitoring (SWQM) site numbers. The sites are described under the "County" and "Segment" listings.

Water quality data can be displayed as an HTML page or as an ASCII delimited text file that can be imported into a spreadsheet or database. Once a sampling site is chosen, data can be retrieved either by sampling date or by parameter—both of which are displayed in pull-down menus. Water quality parameters, e.g. dissolved oxygen, pH, salinity, etc. are posted with a storet code, but since the names of the parameters are listed one does not need to know the storet code in order to access the data. Also available in the pull-down parameter menu are the metals, herbicides and pesticides analyzed by contract with the United States Geological Survey (USGS). Once a parameter is chosen, a date range can be entered, as instructed. If no date range is entered the query will produce all available data for that site and parameter. This is an excellent tool for students or anyone needing to access historical or current water quality information for the Lavaca Basin.