2011 Update to Lavaca Basin Highlights Report

Moon over Lake Texana
(photo by Patricia Kontak)

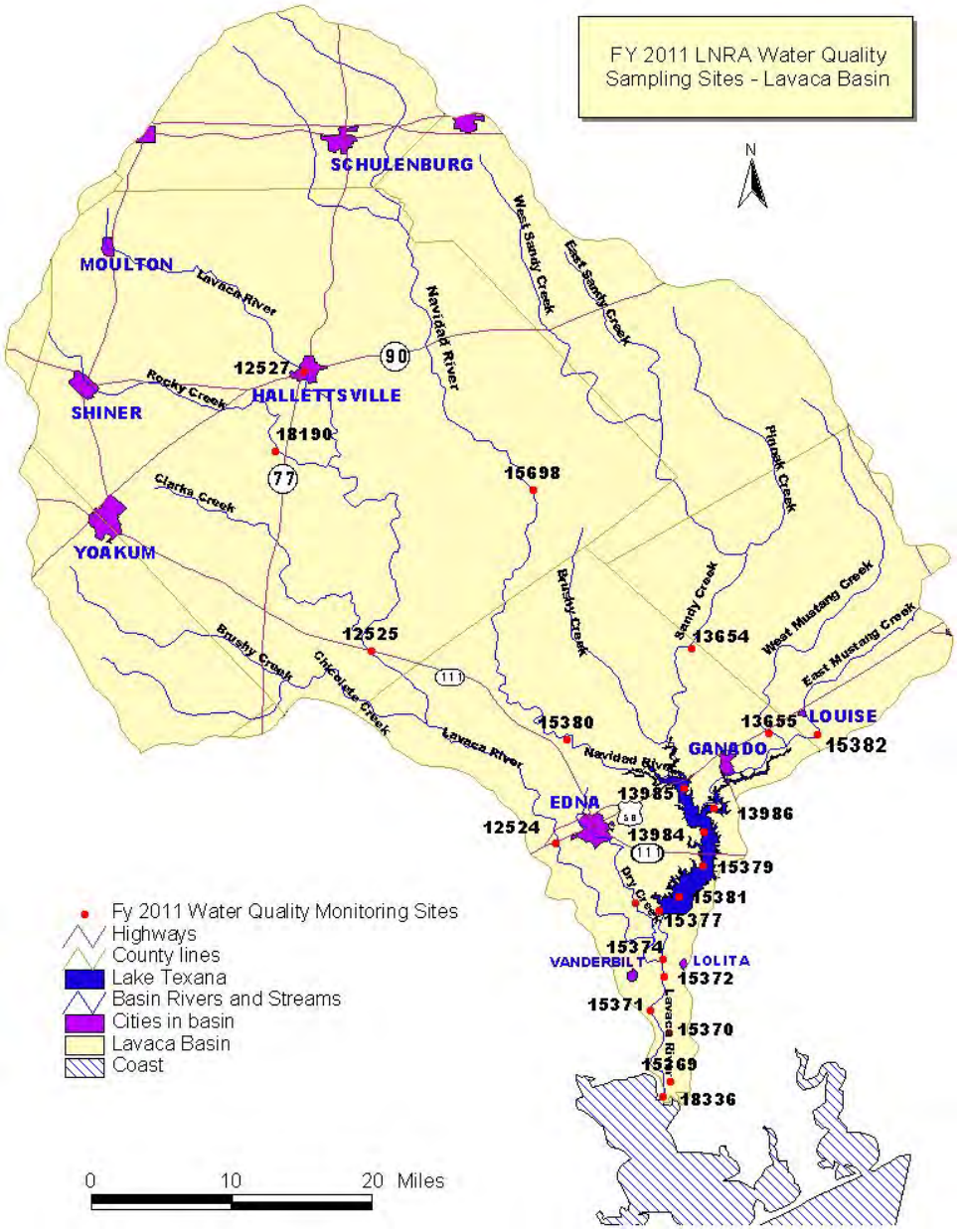
Prepared by the
Lavaca-Navidad River Authority (LNRA)
PO Box 429, Edna, TX 77957

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

The Year's Highlights:

In 2010 Lavaca Basin received more rainfall (as compared to 2008 and 2009) with a total of 50.6 inches, but in 2011 the Basin has not received any significant precipitation since January. Now in April 2011 the reservoir is reaching drought conditions once again. Water quality, however, remains in a relatively good state throughout the Basin. (See Addendum at end of this update.)

LNRA continues its monthly field monitoring and quarterly water quality sampling at the sites shown below. For details of Segment descriptions and monitoring protocols please see the 2010 Lavaca Basin Highlights Report (available on-line at http://www.lnra.org/education_and_programs/2010_BHR.pdf)



The Coordinated Monitoring Schedule for the Lavaca Basin for FY 2011 is available on-line at http://cms.lcra.org/schedule.aspx?basin=16&fy=2011. There one can access maps (both road and satellite) of the Segments that make up the Lavaca Basin and maps of the individual monitoring sites. The schedule lists the parameters that are monitored at each site and the frequency of this monitoring.

Draft 2010 Texas Water Quality Integrated Report

As of this writing LNRA has not received from the Texas Commission on Environmental Quality (TCEQ) any notice of final approval by the Environmental Protection Agency (EPA) for any of the following:

- The Draft 2010 Texas Water Quality Integrated Report
- The Draft 2010 Updates to Texas Surface Water Quality Standards (TSWQS)
- The UAA of the upper Lavaca River conducted in 2005-2006 that proposed a segment boundary shift to acknowledge the intermittent nature of the upper portion of the river with more appropriate dissolved oxygen (DO) criteria for that section (1602-01). If approved by the EPA this section will be reassessed and will likely meet the site-specific DO criteria and then be removed from the 303d list for depressed DO.

The Draft 2010 Texas Water Quality Integrated Report erroneously included a listing for depressed 24-hour dissolved oxygen levels in the middle section of Segment 1602, Lavaca River above tidal (1602-02). There is no 24 hour dissolved oxygen monitoring done in that section of the river, but LNRA has extensive grab sample data for dissolved oxygen---all above criteria and 100% fully supporting for high Aquatic Life Use. So this was just a mistake, and the information has been corrected in the state database and in the report submitted to EPA for approval. Once this document is approved, the final Integrated Report will not include the error.

Over the years of developing the Draft 2010 updates to Texas Water Quality Standards there was much discussion of creating a tiered approach to contact recreation which would have included revised criteria for evaluating the indicator bacteria. After review of the significant public comments received, TCEQ did not revise the primary contact recreation criteria. The freshwater geometric mean standard remains 126 colonies per 100 mL. As a result, portions of 1602 remain impaired for indicator bacteria (see attached Addendum). Nutrient screening levels remain at previous levels for both streams and reservoirs, as no new direct measurement standards for ammonia, total phosphorus and nitrate were developed. Segment 1604 - Lake Texana remains listed as a concern for sometimes exceeding screening levels of total phosphorus (<0.2 mg/L) and nitrate (<0.37 mg/L). Ammonia levels are within screening levels. There are no nutrient criteria for streams, but they will be developed for the next TSWQS revision. Streams and reservoirs still maintain screening levels though.

In the Draft 2010 Texas Surface Water Quality Standards, TCEQ also proposed nutrient criteria for select Texas reservoirs. At one time there was a chlorophyll-a standard proposed specifically for Lake Texana reservoir of <4.78 µg/L, but when the draft standards were published Lake Texana was not included. Upon inquiry, we were told that there were not enough data points to establish a standard at this time, but there will most likely be one in the future. This proposed standard would have applied only to the Lake sampling site closest to the spillway (#15377). Below is a table showing chlorophyll-a results in Lake Texana since 2004:

Chlorophyll-a Results in Lake Texana	**Site #**			**All results in ug/L**		
Date	**13986**	**13985**	**13984**	**15379**	**15381**	**15377**
Statewide Reservoir Screen Level = <26.7 ug/L						
April 2004	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
July 2004	38.3	75.7	19.8	5.8	5.9	2.7
Oct 2004	4.6	4.3	5.3	2.2	5.6	4.8
Jan 2005	7	9.0	3.3	1.6	3.2	<1.0
April 2005	<1.0	11.1	<1.0	<1.0	2.9	4.1
July 2005	4.1	23.7	7.5	11.9	4.8	1.2
Oct 2005	16.2	3.8	10.9	12	7.7	4.8
Jan 2006	3	9.5	5.9	2.7	2.8	2.3
April 2006	3.3	5.0	3.3	3.2	1.2	4.1
July 2006	10.3	8.1	7.7	3.4	3.3	3.6
Oct 2006	9	13.9	7.2	5.1	2.7	5.4
Jan 2007	<1.0	1.9	1.6	1.2	1.5	1.8
April 2007	<1.0	4.0	<1.0	<1.0	<1.0	<1.0
July 2007	1.3	9.9	10.1	4.6	16.6	20.7
Oct 2007	5.1	4.5	3.3	2.6	2.1	1.9
Jan 2008	6.5	4.7	3.1	2	1.9	1.4
April 2008	<1.0	2.0	1.1	1.1	1.2	1.5
July 2008	10.6	30.4	5.3	4.9	8.7	2
Oct 2008	1.2	5.6	2.5	2.1	2.2	5.3
Jan 2009	4	too dry	3.7	2.1	2.9	2.5
April 2009	<1.0	4.7	1	<1.0	1.1	1.3
July 2009	18.7	too dry	4.9	4.5	3.2	1.3
Oct 2009	1.9	5.3	1.2	1.4	1.4	1.8
Jan 2010	2.2	4.4	3.1	1.5	1.2	<1.0
April 2010	2.2	28.3	4.2	1.4	1.4	1.3
July 2010	9.4	3.1	5.3	3.6	3	1.6
Oct 2010	5.5	10.5	5.1	7.3	5.6	5
Jan 2011	3.6	4.7	3.4	2.1	2.1	1.5
Average:	7.6	11.5	5.2	3.8	3.7	3.5
			Only at site nearest dam shown in blue			

Previously proposed chlorophyll-a criteria for Lake Texana was <4.78 ug/L

Addendum to 2011 Interim Basin Highlights Report update showing results of Draft 2010 Texas Water Quality Integrated Report and 303(d) List

Segments Assessed

Segment ID	Description	Concerns	Support Status
1601	Lavaca River Tidal	-	Fully supporting *
1601A	Catfish Bayou	-	Fully supporting *
1601B	Redfish Bayou	-	Fully supporting *
1602	Lavaca River above tidal Upper 29 miles of segment	-	Non-supporting for dissolved oxygen
1602	Middle 34 miles of segment	-	Non-supporting for *E. coli*
1602	Lower 31 miles of segment	-	Non-supporting for *E. coli*
1603	Navidad River Tidal	-	Fully supporting *
1604	Lake Texana reservoir	Nitrate, phosphorus & orthophosphorus above screening level	Fully supporting *
1604A	East Mustang Creek	-	Fully supporting *
1604B	West Mustang Creek	-	Fully supporting *
1604C	Sandy Creek	-	Fully supporting *
1605	Navidad River above Lake	-	Fully supporting *

*** Fully supporting of general use and aquatic life use (ALU)**

303(d) Listings

Water Body and location	Flow Status	Parameter(s)	Possible Sources in the Watershed	Possible Reasons for Impairment and/or Concern	Special Study Y/N
Lavaca River upstream of Hallettsville	**Intermittent with pools**	**Dissolved oxygen**	**Moulton, town of <2000 pop. with small WWTP, <0.242 MGD Poultry operations Range land**	**Insufficient flow during summer months, especially during drought years**	**Y-UAA 2005-2006 by TCEQ to assess suitability of standards and flow status**
Middle 34 miles of segment between US 90 and SH 111	**Perennial, but low flow**	***E. coli***	**Hallettsville WWTP <0.8 MGD Livestock and wildlife in stream**	**Overflow of WWTP, feral hogs, birds and livestock in stream**	**N**
Lower 31 miles of segment between SH 111 and to tidal segment	**Perennial flow**	***E. coli***	**Livestock and wildlife in stream and possible septic system problems?**	**Livestock and feral hogs High bacterial counts only after significant rainfall**	**N**

Concerns

Water Body and location	Flow Status	Parameter(s)	Possible Sources in the Watershed	Possible Reasons for Impairment and/or Concern	Special Study Y/N
Lake Texana reservoir	**n/a**	**Nitrate, orthophosphorus, and phosphorus**	**Small WWTPs at Ganado (<0.35 MGD) & Louise (<0.15 MGD) , septic systems, nutrients from livestock & wildlife feces**	**Agricultural run-off, WWTPs, faulty septic systems, livestock & wildlife**	**N**