TMDLs for Fecal Coliform Bacteria for Selected Subsegments in the Red River Basin, Louisiana (100306, 100406, 100707, 100709, 100801, 100901, 101103, 101301)

Fact Sheet

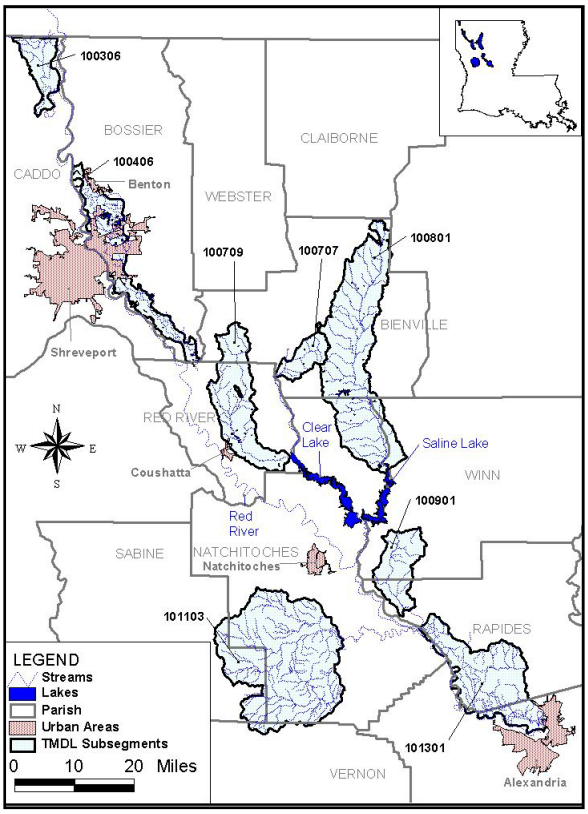

Figure 1. Location of impaired subsegments in the Red River Basin

Section 303(d) of the Clean Water Act and the U.S. Environmental Protection Agency's Water Quality Planning and Management Regulations require states to develop Total Maximum Daily Loads (TMDLs) for waterbodies that are not meeting water quality standards. A TMDL establishes the amount of a pollutant that a waterbody can assimilate without exceeding its water quality standard for that pollutant. TMDLs provide the scientific basis for a state to establish water quality-based controls to reduce pollution from both point and nonpoint sources to restore and maintain the quality of the state's water resources.

A TMDL for a given pollutant and waterbody is composed of the sum of individual wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and natural background levels. In addition, the TMDL must include an implicit or explicit margin of safety (MOS) to account for the uncertainty in the relationship between pollutant loads and the quality of the receiving waterbody and may include a future growth (FG) component.

This fact sheet presents a summary of the TMDLs that have been developed for fecal coliform bacteria for eight subsegments in the Red River Basin in northwestern Louisiana (Figure 1). All the subsegments flow to the Red River, which enters northwestern Louisiana from Arkansas and flows southward to Shreveport. These TMDLs address the portion of the river from the Arkansas state line to the city of Alexandria, Louisiana.

Louisiana Department of Environmental Quality (LDEQ) included the eight subsegments in the Red River Basin on the state's 2004 section 303(d) list for fecal coliform bacteria impairments (Table 1). The impaired designated uses for the eight subsegments are primary contact recreation and fish and wildlife propagation.

Table 1. Section 303(d) listing for subsegments in the Red River Basin

Subseg. number	Subseg. name	Impaired use[a]	Causes of impairment	Suspected sources of impairment
			Fecal coliform bacteria	
100306	Kelly Bayou	PCR	X	Managed pasture grazing
100406	Flat River	PCR, FWP	X	managed pasture grazing
100707	Castor Creek	PCR	X	Wildlife other than waterfowl
100709	Grand Bayou	PCR, FWP	X	Wildlife other than waterfowl
100801	Saline Bayou	PCR, FWP	X	Natural sources
100901	Bayou Nantaches	PCR, FWP	X	On-site treatment systems, package plant, or other permitted small-flow discharges
101103	Bayou Kisatchie	PCR, FWP	X	managed pasture grazing
101301	Rigolette Bayou	PCR, FWP	X	Package plant or other permitted small flows discharges

[a] PCR = primary contact recreation; FWP = fish and wildlife propagation

The numeric water quality criteria that apply to the impaired subsegments in the Red River Basin and that were used to calculate the total allowable pollutant loads are the primary contact water quality criteria for fecal coliform bacteria. The primary contact recreation criteria are applicable from May 1 through October 31. During the remainder of the year (November 1 through April 30), secondary contact criteria are applicable. For primary contact recreation, no more than 25 percent of the total samples may exceed a fecal coliform bacteria density of 400 colonies/100 mL. The samples should be collected on a monthly or near-monthly basis. Secondary contact criteria are similar to primary contact criteria in that no more than 25 percent of the total samples collected on a monthly or near-monthly basis may exceed a fecal coliform bacteria density of 2,000 colonies/100 mL.

The TMDLs for fecal coliform bacteria were developed using the load duration curve methodology. This method illustrates allowable loading at a wide range of streamflow conditions. The steps for applying this methodology were (1) developing a flow duration curve; (2) converting the flow duration curve to load duration curves; (3) plotting observed loads with load duration curves; (4) calculating the TMDL, MOS, FG, WLA and LA; and (5) calculating percent reductions. The seasonal fecal coliform bacteria TMDLs were developed on the basis of analyses of the applicable water quality criteria (i.e., calculating allowable loads and percent reductions for both summer and winter).

In TMDL development, allowable loadings from all pollutant sources that cumulatively amount to no more than the TMDL must be established and thereby provide the basis for establishing water quality-based controls. WLAs were given to permitted point source discharges. The LAs include background loadings and human-induced nonpoint sources. An explicit MOS of 10 percent and an FG component of 10 percent were included. None of the subsegments require fecal coliform bacteria reductions in the winter months, and the summer month reductions range from 0 to 78 percent. A summary of the TMDLs for each of the subsegments is presented in Table 2.

Table 2. Summary of fecal coliform bacteria TMDLs, MOS, FG, WLAs and LAs for the Red River Basin

Subsegment	Station	Season	Percent reduction	Total allowable load	Explicit MOS (10%)	Future growth (10%)	Σ WLA	Σ LA
				1×10^9 cfu/day				
100306	56	Summer	54.4	21.76	2.18	2.18	0.00	17.40
100306	56	Winter	0.0	372.30	37.23	37.23	0.00	297.84
100406	272	Summer	48.6	62.32	6.23	6.23	5.90	43.95
100406	272	Winter	0.0	602.60	60.26	60.26	5.90	476.18
100707	1189	Summer	55.0	17.52	1.75	1.75	0.00	14.02
100707	1189	Winter	0.0	291.16	29.12	29.12	0.00	232.93
100709	1190	Summer	28.0	64.88	6.49	6.49	0.79	51.11
100709	1190	Winter	0.0	1,083.34	108.33	108.33	0.79	865.89
100801	75	Summer	0.0	144.65	14.47	14.47	0.86	114.86
100801	75	Winter	0.0	2,415.52	241.55	241.55	0.86	1,931.55
100901	1215	Summer	77.5	56.33	5.63	5.63	0.76	44.30
100901	1215	Winter	0.0	632.08	63.21	63.21	0.76	504.91
101103	1218	Summer	77.5	205.84	20.58	20.58	0.00	164.67
101103	1218	Winter	0.0	2,991.37	299.14	299.14	0.00	2,393.09
101301	1220	Summer	0.0	129.85	12.98	12.98	4.12	99.76
101301	1220	Winter	0.0	1,457.13	145.71	145.71	4.12	1,161.58

For More Information

EPA seeks input on this proposed TMDL, including comments, information, and data from the general and affected public. For additional information on this TMDL project, please contact the EPA staff member listed below:

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