

## Marmaton River

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### Water Body Segment at a Glance:

**County:** Vernon  
**Nearby City:** Nevada  
**Length of Impairment<sup>1</sup>:** 49.5 miles  
**Pollutant:** Low Dissolved Oxygen (DO)  
**Sources:** Unidentified/Fort Scott Wastewater Treatment Plant  
**Water Body ID:** 1308



State map showing location of watershed

**TMDL Priority Ranking:** High

**Scheduled for TMDL Development:** Approved by U.S. EPA October 26, 2010

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### Description of the Problem

#### Designated Beneficial Uses:

- Irrigation
- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life
- Protection of Human Health (Fish Consumption)
- Whole Body Contact Recreation – Category B

#### Use that is impaired:

- Protection of Warm Water Aquatic Life

#### Standards that apply:

- The Missouri Water Quality Standards, or WQS, are found in 10 CSR 20-7.031. The chronic criterion for dissolved oxygen, or DO, in streams, found in Table A of this section, is 5 mg/L (milligrams per liter, or parts per million). Dissolved oxygen criteria are related to total nitrogen, total phosphorus, total suspended solids and biochemical oxygen demand in the TMDL.

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<sup>1</sup> Listed as impaired on the 2008 303(d) List for the full classified water body length of 49.5 miles. The length of the water body segment has been revised in 10 CSR 20-7.031 Table H to 35.7 miles, effective October 2009. The revised location is Section 11, T37N, R31W to Kansas state line. This revision reflects location and length of the Marmaton River as it appears in the National Hydrography Dataset created by the U.S. Geological Survey. Revisions to 10 CSR 20-7.031 have not been approved by the U.S. Environmental Protection Agency at the time of TMDL submittal. The revised length will be incorporated into the TMDL.

## Background information

The Marmaton River originates in southeastern Kansas and flows east into Missouri. The 1,148 square mile watershed includes parts of three counties in Kansas, and Vernon and Barton Counties in Missouri. In Missouri, the Marmaton River is approximately 36 miles long with a watershed of 535 square miles. The Marmaton River is a major tributary to the Little Osage River just north of the city of Nevada, Mo.

The Marmaton River was first placed on Missouri's 303(d) List of impaired waters in 1998 by the EPA, citing "natural background" conditions. The impairment was changed to low dissolved oxygen on the 2002 303(d) List. The Marmaton River is currently on the EPA-approved 2008 303(d) List because it does not meet the minimum dissolved oxygen criterion of 5 mg/L. The source of impairment for two miles of the Marmaton River downstream of the Kansas-Missouri state line is identified as the Fort Scott (Kansas) Wastewater Treatment Plant. The source of the impairment for the remainder of the Marmaton River remains unidentified.

The Marmaton River has also appeared on the Kansas 303(d) List of impaired waters since at least 1998, where it was listed for violation of the state's water quality criterion for dissolved oxygen. TMDLs to address dissolved oxygen and biological impairments have been completed by Kansas for the portion of the Marmaton River watershed in that state. Other impairments for ammonia and bacteria have been cited as resolved on the Kansas 2010 303(d) List, and the Marmaton River is currently not listed as impaired and requiring a TMDL in Kansas.

## Water quality data

Water quality data were collected during low-flow periods for the Marmaton River and Little Drywood Creek (a major tributary to the Marmaton River) between 2001 – 20009 and 2003 – 2008, respectively. The data are presented in the tables below.

For additional background information and a complete discussion of water quality data, modeling, allocations and implementation strategies, please refer to the Marmaton River TMDL document. The Marmaton River TMDL was approved by EPA on October 26, 2010.

### Water Quality Data in the Marmaton River, 2001 – 2009

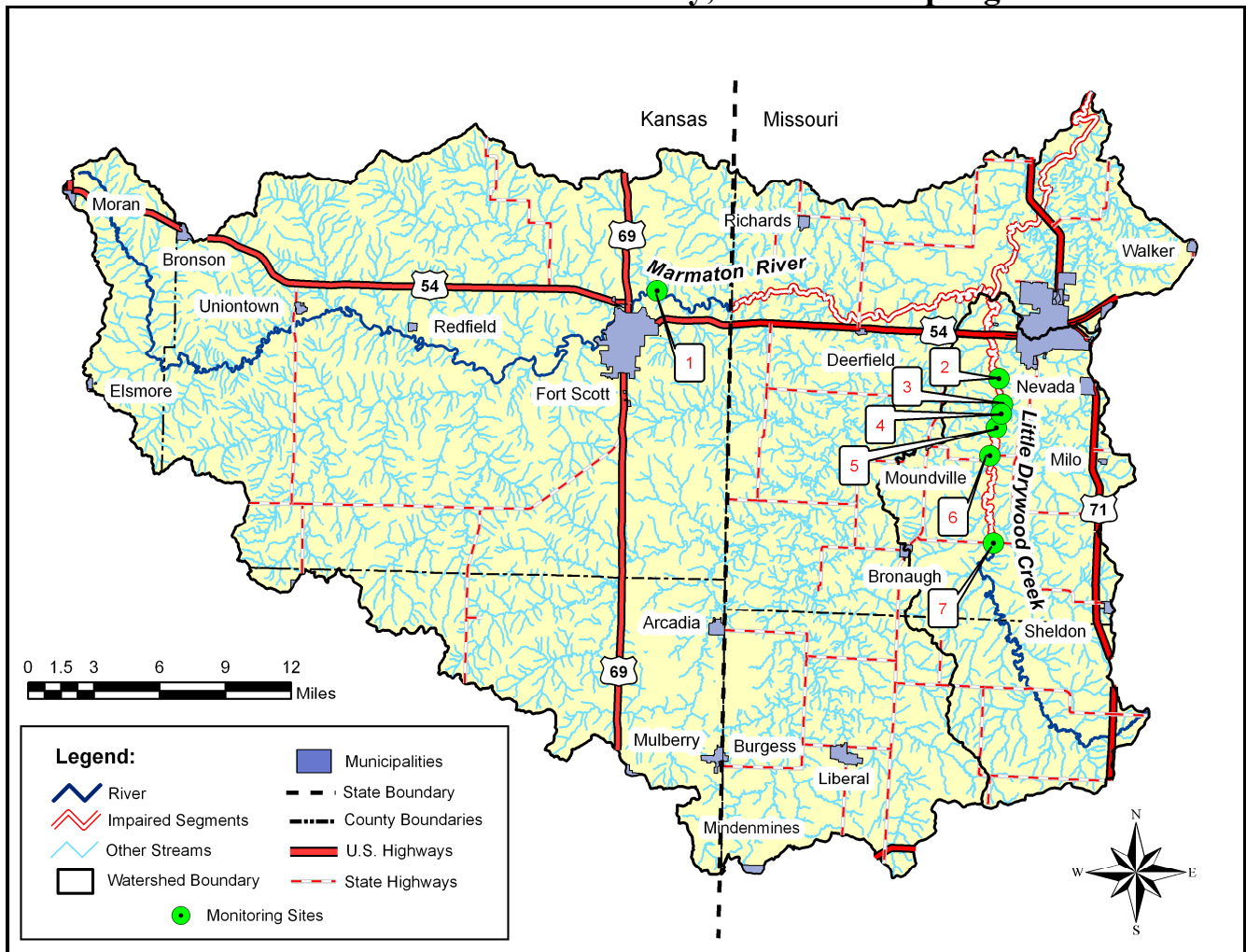
Organization	Site	Site Name	Year	Month	Day	C	DO mg/L	pH	NH3N mg/L
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2001	1	4	0	6.4	7.5	11.15
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2001	3	7	5	11.6	7.8	0.25
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2001	5	2	21	6.1	7.6	0.109
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2001	7	11	28	4.3	7.6	0.0099
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2001	9	6	25	4	7.5	0.033
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2001	10	31	13	6.8	7.5	0.0099
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2002	2	6	4	12	7.7	0.276
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2002	4	3	10	7.9	7.9	0.344
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2002	6	5	24	6.3	7.5	0.269
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2002	8	7	27	3.7	7.2	0.0499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2002	10	9	16	2.8	7	0.292
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2003	1	8	4	8.8	7.5	3.456
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2003	3	5	3	11.1	7.8	0.707
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2003	5	7	18	7	7.4	0.0499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2003	7	9	28	4.1	7.2	0.0499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2003		10	22	5.1	7.9	0.0499

Organization	Site	Site Name	Year	Month	Day	C	DO mg/L	pH	NH3N mg/L
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2003	11	5	12	2.7	7.1	0.39
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2004	4	7	14	9.1	7.3	0.0499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2004	6	9	24	4.5	7.5	0.0499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2004	8	4	26	6	7.4	0.0499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2004	10	6	15	6.7	7.5	0.0499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2004	12	8	8	10.5	7.3	0.0499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2005	3	9	8	10.8	7.7	0.0499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2005	5	4	13	8.3	7.8	0.0499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2005	7	13	25	4.5	7.3	0.0499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2005	9	14	23	4.6	7.2	0.0499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2005	11	9	16	2.8	7	0.0499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2006	2	1	8	9	7.3	0.0499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2006	4	5	15	7.1	7.4	0.0499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2006	6	7	25	5.4	7.5	0.0499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2006	8	9	28	4	7.3	0.12
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2006	10	4	23	4.6	7.2	0.499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2006	11	29	13	6.2	7	0.499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2007	1	10	4	11.2	7.5	0.499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2007	3	7	9	10.7	7.6	0.499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2007	5	9	20	7.1	7.3	0.499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2007	7	11	26	6.6	7.4	0.0499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2007	9	12	20	6.7	7.3	0.0499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2007	10	31	14	7.3	7.2	0.0499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2008	4	9	11	10.4	8	0.0499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2008	6	4	23	7.3	7.2	0.0499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2008	8	6	26	5.6	7.4	1.08
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2008	10	8	16	7.5	7.1	0.0499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2008	12	3	6	11.5	7.5	0.0499
KDHE	SC208	Marmaton R. nr. Ft. Scott, Kan.	2009	1	7	4	12.2	7.3	0.0499

### Summary of dissolved oxygen data for Little Drywood Creek, 2003-2008

Organization	Site Name	From	To	No. of samples	No. of samples <5 mg/L	Percent of samples <5 mg/L
DNR	3-5.5 miles SW Nevada	2003	2007	7	3	42.9
MoDNR	at State Hwy. N	7/15/2008	7/28/2008	1419	89	6.3
MEC	at State Highway N	7/18/2007	8/7/2007	2019	671	33.2
MEC	at State Highway. F	7/31/2006	8/14/2006	1336	1273	95.3
MEC	at State Highway. F	8/8/2007	8/23/2007	1428	1428	100
MoDNR	5 miles SW of Nevada	7/30/2008	8/26/2008	2551	548	21.5
MEC	5 miles SW of Nevada	8/14/2006	9/13/2006	2864	2864	100
MEC	5 miles SW of Nevada	8/23/2007	9/4/2007	1154	1153	99.9
Total				12778	8029	62.835

## Marmaton River in Vernon County, Mo. with sampling sites



### Sample Site Index for Marmaton River and Little Drywood Creek

- 1 – 1.5 miles northeast of Fort Scott, KS
- 2 – 3 miles southwest of Nevada, MO
- 3 – 4 miles southwest of Nevada, MO
- 4 – 5 miles southwest of Nevada, MO
- 5 – 5.5 miles southwest of Nevada, MO
- 6 – State Highway F
- 7 – State Highway N

**For more information call or write:**

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 1-800-361-4827 or 573-751-1300 office, or 573-522-9920 fax  
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