



Assessment Decision Report

Little Wills Creek

Assessment Unit ID: AL03150106-0102-300

Organic Enrichment (CBOD, NBOD)

Alabama Department of Environmental Management
Water Quality Branch
Water Division
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1.0 Executive Summary

Little Wills Creek, from Big Wills Creek to its source, is within DeKalb County and is a part of the Coosa River basin. It was placed on the State of Alabama's §303(d) impaired waterbodies list in 1996 for organic enrichment/low dissolved oxygen (OE/DO). Its use classification is Fish and Wildlife. Location reference can be found in Figure 1.1.

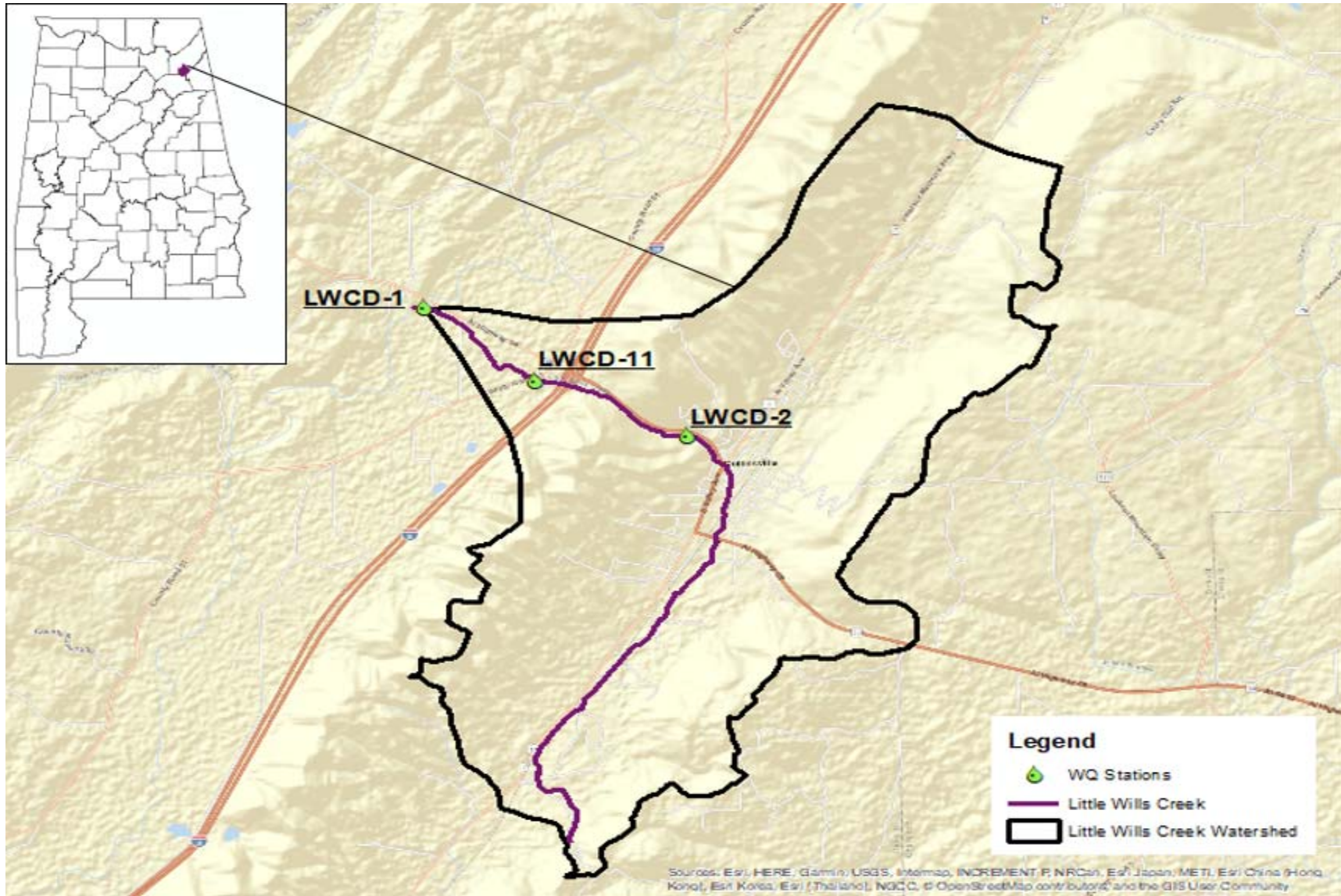
Little Wills Creek was placed in Category 4A after a TMDL for Low Dissolved Oxygen/Organic Loading was developed and approved by EPA in 1997. In the TMDL, nothing is noted about any OE/DO violations.

No justification can be found on the original listing for OE/DO. Some data prior to 1996 can be found for Little Wills Creek in the Final Delisting Decision document for nutrients dated 2004, but by using the current Alabama's Water Quality Assessment and Listing Methodology (WQALM), the data would not justify a listing.

From 1996 through 2022, the Alabama Department of Environmental Management (ADEM) conducted sampling at four stations on Little Wills Creek. During this time no violations of the DO criteria of 5 mg/l occurred.

Based on the analysis of all available water quality data and information collected on the 6.08-mile segment of Little Wills Creek from Big Wills Creek to its source, it has been determined that DO impairment on Little Wills Creek no longer exists.

Figure 1.1: Little Wills Creek Watershed Map



2.0 Water Quality Target Identification

According to ADEM’s Water Quality Criteria (Administrative Code 335-6-10), the minimum dissolved oxygen concentration allowed in a stream classified as Fish and Wildlife is 5.0 mg/L. The target is established at a depth of 5 feet in water 10 feet or greater in depth. For waters less than 10 feet in depth, the dissolved oxygen criterion is applied at mid-depth.

The dissolved oxygen criteria for streams classified as Fish and Wildlife are described in ADEM Admin. Code R. 335-6-10-.09(5)(e)4.(i) through (iv) as follows:

- (i) For a diversified warm water biota, including game fish, daily dissolved oxygen concentrations shall not be less than 5 mg/l at all times; except under extreme conditions due to natural causes, it may range between 5 mg/l and 4 mg/l, provided that the water quality is favorable in all other parameters. The normal seasonal and daily fluctuations shall be maintained above these levels. In no event shall the dissolved oxygen level be less than 4 mg/l due to discharges from existing hydroelectric generation impoundments. All new hydroelectric generation impoundments, including addition of new hydroelectric generation units to existing impoundments, shall be designed so that the discharge will contain at least 5 mg/l dissolved oxygen where practicable and technologically possible. The Environmental Protection Agency, in cooperation with the State of Alabama and parties responsible for impoundments, shall develop a program to improve the design of existing facilities.
- (ii) In coastal waters, surface dissolved oxygen concentrations shall not be less than 5 mg/l, except where natural phenomena cause the value to be depressed.
- (iii) In estuaries and tidal tributaries, dissolved oxygen concentrations shall not be less than 5 mg/l, except in dystrophic waters or where natural conditions cause the value to be depressed.
- (iv) In the application of dissolved oxygen criteria referred to above, dissolved oxygen shall be measured at a depth of 5 feet in waters 10 feet or greater in depth; and for those waters less than 10 feet in depth, dissolved oxygen criteria will be applied at mid-depth.

Table 2.1 Little Wills Creek Assessment Information

Assessment Unit ID	Waterbody Name	Downstream	Upstream	Size	Category	Use Classification
AL03150106-0102-300	Little Wills Creek	Big Wills Creek	Its Source	6.08 miles	4A	F&W

TMDL Listing	Action Identifier	Approval Date	Pollutants
AL/03150106-050_01	1550	08/01/1997	BOD, Carbonaceous BOD, Nitrogenous

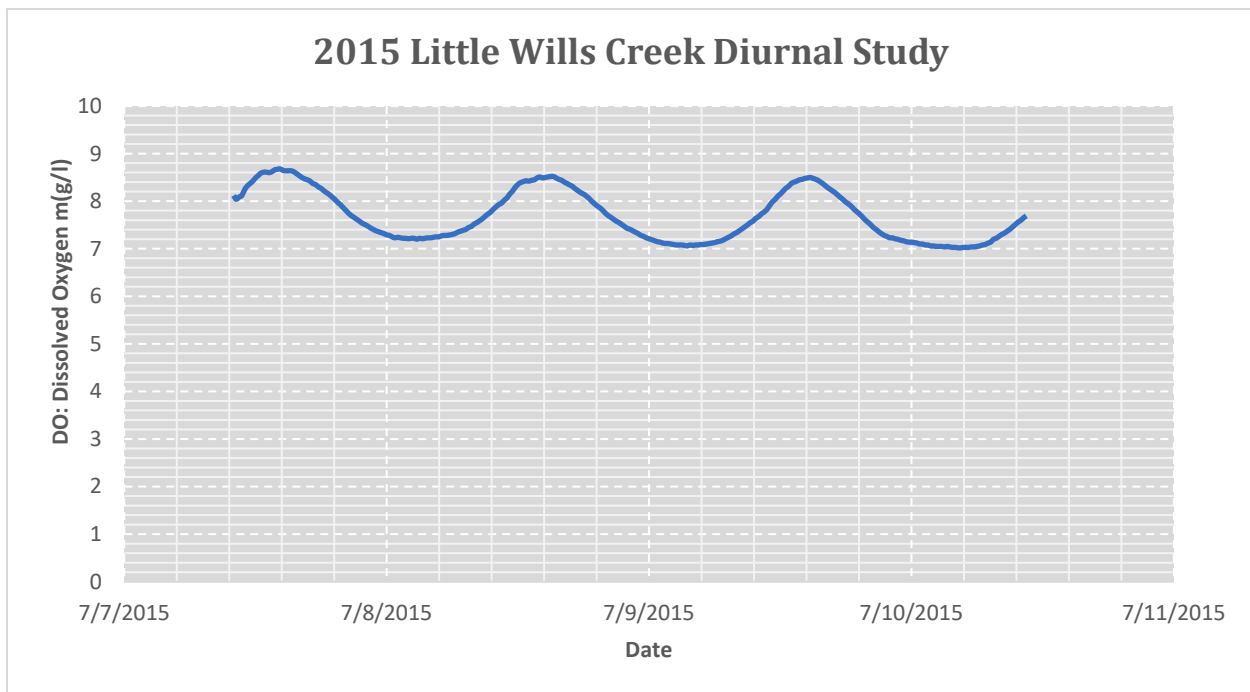
3.0 Data Collection & Analysis

The 1996-2019 data compiled in this report were collected at four stations along the 6.08-mile segment of Little Wills Creek from Big Wills Creek to its source (LWCD-1, LWCD-11, and LWCD-2). Figure 1.1 shows the location of these stations.

Figure 3.1 consists of dissolved oxygen (DO) data collected during a diurnal study conducted in 2015 by ADEM at station LWCD-1 on Little Wills Creek. The data shows no DO violations over a 4-day period with 15-minute readings from deployed data sondes during the month of July.

Most recently, Little Wills Creek was sampled in 2019 from the months March through October at one station (LWCD-1). Again, no DO data exceeded criteria from any of these samples. In addition, all samples in this sampling set had a CBOD result less than the method detection limit of 2.0 mg/l which indicates no issues with CBOD. This data is the primary basis used in determining that Little Wills Creek is no longer impaired for DO since it is within the six-year period for monitored assessments used in the WQALM. All other data presented in this report are supporting data to show ADEM does not have a DO criteria violation recorded in any readily available database. Therefore, it is unclear what the original listing for DO was based on. DO data in table form can be viewed in Table 5.1 of the Appendices.

Figure 3.1 Plot of DO Data Collected by ADEM on Little Wills Creek



4.0 Conclusion

Based on the analysis of all available water quality data and information collected on the 6.08-

mile segment of Little Wills Creek from Big Wills Creek to its source, there are no longer any issues related to DO. Consequently, ADEM has determined that the DO impairment on Little Wills Creek no longer exists

5.0 Appendices

Table 5.1 Dissolved Oxygen

STATION ID	Date	DO mg/l	STATION ID	Date	DO mg/l	STATION ID	Date	DO mg/l
LWCD-1	6/25/1996	6.7	LWCD-1	7/29/2015	7	LWCD-2	3/25/2003	10.5
LWCD-1	7/24/1996	6	LWCD-1	9/15/2015	8.4	LWCD-2	4/9/2003	9.4
LWCD-1	8/28/1996	6.5	LWCD-1	10/20/2015	9.3	LWCD-2	5/7/2003	8.3
LWCD-1	9/23/1996	8.4	LWCD-1	3/5/2019	10.7	LWCD-2	6/10/2003	8.8
LWCD-1	10/25/1996	5	LWCD-1	4/2/2019	13.2	LWCD-2	7/9/2003	9.1
LWCD-1	3/25/2003	11	LWCD-1	5/7/2019	9.1	LWCD-2	8/14/2003	8.5
LWCD-1	4/9/2003	9.2	LWCD-1	6/12/2019	9.2	LWCD-2	9/3/2003	10.5
LWCD-1	5/7/2003	6.4	LWCD-1	7/10/2019	7.6	LWCD-2	10/15/2003	10.7
LWCD-1	6/10/2003	8.6	LWCD-1	7/10/2019	8.2			
LWCD-1	6/23/2003	8.3	LWCD-1	7/11/2019	7.1			
LWCD-1	7/9/2003	8.9	LWCD-1	8/7/2019	8.3			
LWCD-1	8/14/2003	8.3	LWCD-1	9/11/2019	7.1			
LWCD-1	9/3/2003	7.1	LWCD-1	9/11/2019	7.8			
LWCD-1	10/15/2003	7.8	LWCD-1	9/12/2019	7.4			
LWCD-1	3/15/2005	10.5	LWCD-1	10/8/2019	7.8			
LWCD-1	3/23/2005	9.4						
LWCD-1	4/28/2005	9.7						
LWCD-1	5/19/2005	8.6						
LWCD-1	5/25/2005	9.2						
LWCD-1	6/27/2005	9.3	STATION ID	Date	DO mg/l			
LWCD-1	7/19/2005	9.7	LWCD-11	6/25/1996	8			
LWCD-1	8/31/2005	6.6	LWCD-11	7/24/1996	8			
LWCD-1	9/8/2005	5.7	LWCD-11	8/28/1996	7.9			
LWCD-1	11/1/2005	9.6	LWCD-11	9/23/1996	9.2			
LWCD-1	3/17/2015	10.7	LWCD-11	10/25/1996	5.6			
LWCD-1	4/8/2015	11.3						
LWCD-1	5/7/2015	9.4						
LWCD-1	5/28/2015	8.6						
LWCD-1	6/9/2015	7.3						
LWCD-1	7/9/2015	7.6						
LWCD-1	7/14/2015	7.6						