



Assessment Decision Report

Norton Creek

Assessment Unit ID: AL03160204-0402-502

Organic Enrichment/Dissolved Oxygen

Alabama Department of Environmental Management
Water Quality Branch
Water Division
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Table of Contents

1.0	Executive Summary	3
	Figure 1.1: Norton Creek Watershed Map	3
	Table 1.1: Norton Creek Assessment Information	4
2.0	Data Collection & Analysis	4
3.0	Conclusion	5
4.0	Appendix	6
	Table 4.1: Norton Creek Data	6

1.0 Executive Summary

Norton Creek is classified as *Fish and Wildlife (F&W)*. It is a tributary to Bayou Sara in Mobile County within the Mobile River basin. This segment of Norton Creek was placed on Alabama's 303(d) list of impaired waterbodies in 1994 for Organic Enrichment/Dissolved Oxygen (CBOD, NH₃-N) with surface runoff, municipal wastewater, and natural sources listed as the sources. Figure 1.1 shows a map of the Norton Creek watershed and Table 1.1 lists the Creek's assessment information.

Figure 1.1: Norton Creek Watershed Map

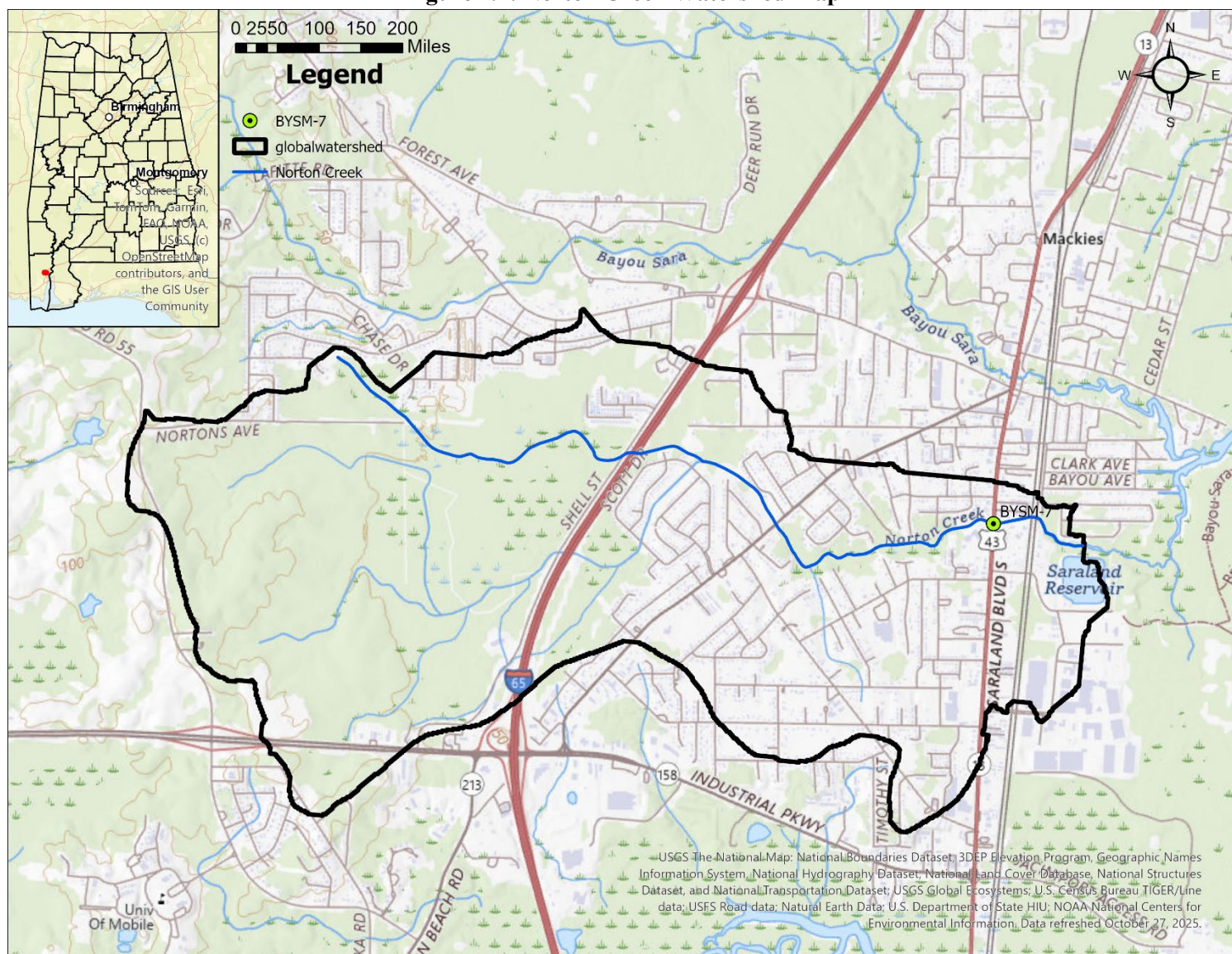


Table 1.1: Norton Creek Assessment Information

Assessment Unit ID	Waterbody Name	Downstream	Upstream	Size
AL03160204-0402-502	Norton Creek	Saraland WWTP	Its Source	3.74 miles

TMDL Listing	NTTS ID	Approval Date	Pollutants
AL/03160204-030_01	1420	8/1/1997	Organic Enrichment (CBOD, NBOD)

The Alabama Department of Environmental Management (ADEM) conducted sampling in 2019 and 2023 at station BYSM-7 located where the Creek crosses US Highway 43. Station BYSM-7 is the only station on this segment and sampling began in 2001.

In 1991, the Water Quality Branch received a WLA request for a proposed discharge to Bayou Sara from a planned Satsuma wastewater treatment facility. Water quality data collected in 1988 by the Mobile Field Operations office indicated marginal dissolved oxygen resources in Bayou Sara in the vicinity of the planned discharge. In order to better define water quality conditions in Bayou Sara and obtain additional information with which to develop a WLA, two water quality studies were conducted in July and September of 1992.

Bayou Sara was placed on the State of Alabama's 1994 §303(d) list by the Alabama Department of Environmental Management (ADEM) for nutrient enrichment and OE/DO based on data acquired from two intensive field surveys performed by ADEM in July and September of 1992. In 1996, a Total Maximum Daily Load (TMDL) for Bayou Sara/Norton Creek was performed by the Water Quality Branch of ADEM for OE/DO and was approved in 1997 by the Environmental Protection Agency (EPA).

This report summarizes the results of the analysis of Organic Enrichment/Dissolved Oxygen contamination for Bayou Sara and Norton Creek.

2.0 Data Collection & Analysis

Analysis of the 1992 data revealed significant fluctuations in diurnal dissolved oxygen (DO) concentrations which are indicative of excessive algal activity, typically associated with nutrient over enrichment.

The 2019 and 2023 data compiled in this report were collected at station BYSM-7 located on Norton Creek. Figure 1.1 shows the location of the station. According to the 2024 Alabama's Water Quality Assessment and Listing Methodology, the minimum data requirement for assessment of a wadeable Fish & Wildlife classified coastal river/stream is eight conventional samples of dissolved oxygen, CBOD, and ammonia nitrogen. In 2019 and 2023, ADEM collected 15 dissolved oxygen, 16 ammonia nitrogen, and 16 CBOD samples at the station.

Norton Creek is located in sub-ecoregion 75i. Currently, there are no ecoregional reference guideline benchmarks with which to compare data.

3.0 Conclusion

Based on a review of the 2019 and 2023 water quality data and information related to Norton Creek, there have been no criteria exceedances for dissolved oxygen, ammonia nitrogen, and CBOD. According to Section 5.0 of Alabama's Water Quality Assessment and Listing Methodology, a water quality data sample size between eight and twenty-one must demonstrate zero criteria exceedances for the parameters listed above. The supporting data is shown below in Table 4.1. Consequently, ADEM has determined that the organic enrichment/dissolved oxygen impairment does not currently exist.

4.0 Appendix

Table 4.1: Norton Creek Data

Station	Date	DO (mg/l)	DO F&W Criterion (mg/l)	NH3-N (mg/l)	NH3-N Detect Condition (mg/l)	CBOD-5 (mg/l)	CBOD-5 Detect Condition (mg/l)
BYSM-7	3/12/2019	8.1	5.0	0.029	< MDL .029	2	< MDL 2, JQ1
BYSM-7	4/2/2019	9.8	5.0	0.029	< MDL .029, JQ	2	< MDL 2, JQ1
BYSM-7	5/15/2019	8.6	5.0	0.029	< MDL .029, JQ	2	< MDL 2, JQ1
BYSM-7	6/10/2019	7.2	5.0	0.09	< MDL .09	2	< MDL 2, JQ1
BYSM-7	7/8/2019	5.7	5.0	0.09	< MDL .09	2	< MDL 2, JQ1
BYSM-7	8/6/2019	7.4	5.0	0.09	< MDL .09	2	< MDL 2, JQ1
BYSM-7	9/9/2019	7	5.0	0.09	< MDL .09	2	< MDL 2, JQ1
BYSM-7	10/15/2019	8.8	5.0	0.09	< MDL .09	2	< MDL 2
BYSM-7	3/6/2023	9.4	5.0	0.112	< MDL .112, JQ	2	< MDL 2, JQ1
BYSM-7	4/12/2023	8.9	5.0	0.112	< MDL .112	2	< MDL 2
BYSM-7	5/16/2023	10.4	5.0	0.112	< MDL .112	2	< MDL 2, JQ
BYSM-7	6/28/2023		5.0	0.112	< MDL .112	2	< MDL 2, JQ
BYSM-7	7/18/2023	7.6	5.0	0.112	< MDL .112	2	< MDL 2
BYSM-7	8/8/2023	7.5	5.0	0.112	< MDL .112	2	< MDL 2, JQ1
BYSM-7	9/5/2023	7.3	5.0	0.112	< MDL .112	2	< MDL 2
BYSM-7	10/3/2023	8.8	5.0	0.112	< MDL .112	2	< MDL 2, JQ1