

Appendix D

Minimum Flows and Levels (MFLs) Assessment

Introduction

Minimum Flows and Levels (MFLs) are the minimum water flows and/or minimum water levels adopted by water management district Governing Boards or the Florida Department of Environmental Protection (DEP). MFLs are set to prevent significant harm to the water resources or the ecological structure and function of an area resulting from groundwater or surface water withdrawals. MFLs characterize water resource values (WRVs) for individual waterbodies and define the critical flows and levels necessary to protect these WRVs from significant harm. MFLs inform decisions regarding water use permitting, water shortages, assessments of water supply sources, and development of water resource and water supply projects.

Establishing MFLs is required pursuant to section (s.) 373.042(3), Florida Statutes (F.S.). Adoption is typically a four- to six-month process that involves public workshops, review by DEP and publication in the *Florida Administrative Register*. MFLs are to be reviewed periodically and revised as necessary under s. 373.0421(5), F.S. As of June 2023, the Suwannee River Water Management District (District), and DEP have established 31 MFLs in the Western Water Supply Planning (WWSP) region, including six rivers (six river gages) and 25 springs (Table D1 and Figure D1). There are no lakes in the WWSP region with an adopted MFL. The full list of adopted MFLs within the District can be found in chapters 40C-8 and 40B-8, respectively, and rule 62-42.300, Florida Administrative Code (F.A.C.).

Minimum Flows and Levels (MFLs) were evaluated during the WWSP process to determine whether adopted river or spring flows would be achieved if all projected withdrawals were met with fresh groundwater during the planning horizon (2045). This document includes a review of the basic methodology and results used to assess the influence of current and projected future pumping on MFL waterbodies.

Methodology

The North Florida-Southeast Georgia groundwater flow model (NFSEG) was used to simulate changes in aquifer potentiometric surfaces based on differences between pumps off (PO), 2014 to 2018 average groundwater withdrawals, which is referred to as current pumping (CP), and 2045 projected withdrawal scenarios. River flow, spring flow, and UFA levels were extracted and analyzed.

The impact of demand projections within the WWSP region through the planning horizon were evaluated by comparing the PO condition to CP, and PO to the 2045 projection. These percentages were then compared to the MFL screening criteria, specific to the waterbody of interest, to determine if a waterbody was meeting or exceeding the screening criteria. Nutall Rise was assessed based on river gage 2326550, which is between Nutall Rise and the mouth of the Aucilla river. River gage 2326526 on the Wacissa River was used as the compliance point for springs in the Wacissa Springs Group. As outlined in rule 40B-8.091, F.A.C., the springs that are part of this group include Big Blue Spring, Buzzard Log Spring, Cassidy Spring, Garner

Spring, JEF63991, JEF63992, JEF63993, Jefferson Blue Spring, Little Blue Spring, Log Spring, Minnow Spring, Thomas Spring, and Wacissa Headspring. Falmouth Spring is not represented in the NFSEG model. Falmouth Spring has documented connections to Lime Spring, Lime Sink Rise, and Suwanacoochee Spring and was assessed based on the average of flow changes at those springs.

This water supply plan does not change the status of an MFL waterbody. Where current or projected future demands exceed the MFL screening criteria, this plan will identify project options that can be implemented to meet demands while sustaining natural systems.

Results

There were five springs, 20 Outstanding Florida Springs (OFS), and six river reaches assessed (Figure D1). The water resource evaluation determined that 12 waterbodies are meeting the screening criteria under CP and the 2045 projection, three waterbodies are meeting the screening criteria under CP but exceeding the screening criteria under the 2045 projection, and 16 waterbodies are exceeding the screening criteria under both CP and the 2045 projection (Table D1; Figure D2).

The waterbodies that are meeting the MFL screening criteria under CP and 2045 are the Econfina River near Perry, Fanning Springs, Little Fanning Spring, Manatee Spring, Nutall Rise, Peacock Springs, Steinhatchee River near Cross City, Steinhatchee River Rise, the Lower Suwannee River near Wilcox, Tay76992, Troy Spring, and the Waccasassa River at Gulf Hammock.

Waterbodies that are meeting the MFL screening criteria under CP but are exceeding the criteria in 2045 are the Aucilla River at Lamont, Lafayette Blue Spring, and Falmouth Spring.

Waterbodies that are exceeding the MFL screening criteria under CP and the 2045 projection are Big Blue Spring, Buzzard Log Spring, Cassidy Spring, Garner Spring, JEF63991, JEF63992, JEF63993, Jefferson Blue Spring, Levy Blue Spring, Little Blue Spring, Log Spring, Madison Blue Spring, Minnow Spring, Thomas Spring, Wacissa Headspring, and the Wacissa River Near Wacissa.

There are four OFS on the Suwannee River that are currently under emergency rule (40BER 17-01). Of these, Lafayette Blue Spring and Falmouth Spring were identified in this analysis as exceeding the screening criteria. These OFS are on the District's 2023 MFL Priority List, and technical work is underway to establish the updated MFLs (SRWMD, 2023). Upon finalization of the updated MFLs, the status of the four OFS on the Suwannee River will be re-assessed.

Table D1: WWSP MFLs Assessment Summary

Waterbody Type	Waterbody Name	County/Basin	Exceeds Screening Criteria at CP	Exceeds Screening Criteria at 2045
River	Aucilla River at Lamont	Aucilla River	No	Yes
Spring	Big Blue Spring (OFS)	Wacissa Springs Group	Yes	Yes
Spring	Buzzard Log Spring (OFS)	Wacissa Springs Group	Yes	Yes
Spring	Cassidy Spring (OFS)	Wacissa Springs Group	Yes	Yes
River	Econfina River Near Perry	Econfina River	No	No
Spring	Falmouth Spring (OFS) ¹	Middle Suwannee River	No	Yes
Spring	Fanning Springs (OFS)	Lower Suwannee River	No	No
Spring	Garner Spring (OFS)	Wacissa Springs Group	Yes	Yes
Spring	JEF63991 (OFS)	Wacissa Springs Group	Yes	Yes
Spring	JEF63992 (OFS)	Wacissa Springs Group	Yes	Yes
Spring	JEF63993 (OFS)	Wacissa Springs Group	Yes	Yes
Spring	Jefferson Blue Spring (OFS)	Wacissa Springs Group	Yes	Yes
Spring	Lafayette Blue Spring (OFS) ¹	Middle Suwannee River	No	Yes
Spring	Levy Blue Spring ¹	Waccasassa River	Yes	Yes
Spring	Little Blue Spring (OFS)	Wacissa Springs Group	Yes	Yes
Spring	Little Fanning Spring	Lower Suwannee River	No	No
Spring	Log Spring (OFS)	Wacissa Springs Group	Yes	Yes
Spring	Madison Blue Spring (OFS) ¹	Withlacoochee River	Yes	Yes
Spring	Manatee Spring (OFS)	Lower Suwannee River	No	No
Spring	Minnow Spring (OFS)	Wacissa Springs Group	Yes	Yes
Spring	Nuttall Rise	Aucilla River	No	No
Spring	Peacock Springs (OFS) ¹	Middle Suwannee River	No	No
River	Steinhatchee River near Cross City	Steinhatchee River	No	No
Spring	Steinhatchee River Rise	Steinhatchee River	No	No
River	Suwannee River Near Wilcox	Lower Suwannee River	No	No
Spring	TAY76992	Steinhatchee River	No	No
Spring	Thomas Spring (OFS)	Wacissa Springs Group	Yes	Yes
Spring	Troy Spring (OFS) ¹	Middle Suwannee River	No	No
River	Waccasassa River at Gulf Hammock ¹	Waccasassa River	No	No
Spring	Wacissa Headspring (OFS)	Wacissa Springs Group	Yes	Yes
River	Wacissa River Near Wacissa	Wacissa River	Yes	Yes

¹Waterbodies on the District's 2022 MFL priority list scheduled for re-evaluation

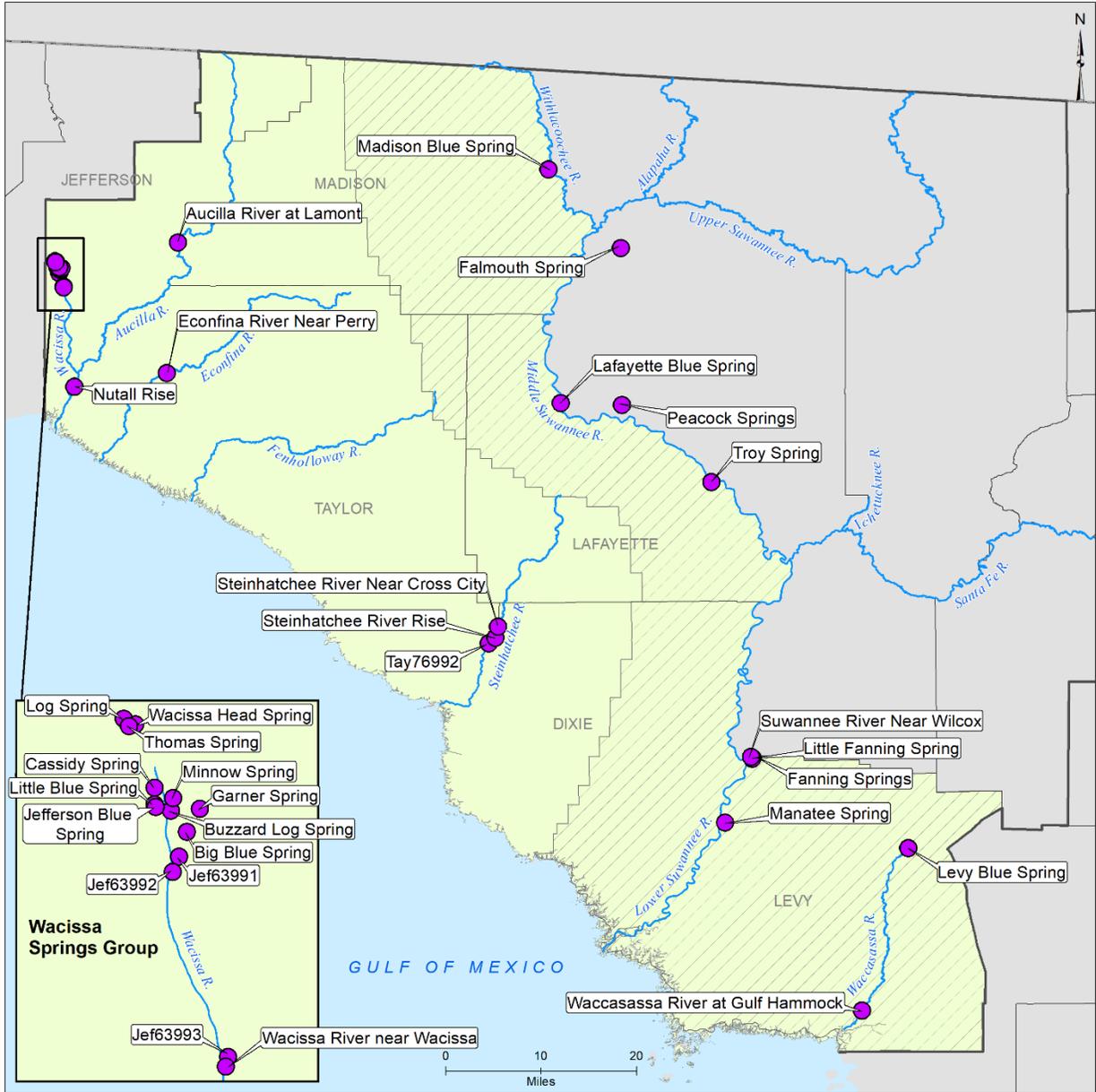


Figure D1. Names and locations of rivers and springs with adopted MFLs in the WWSP region

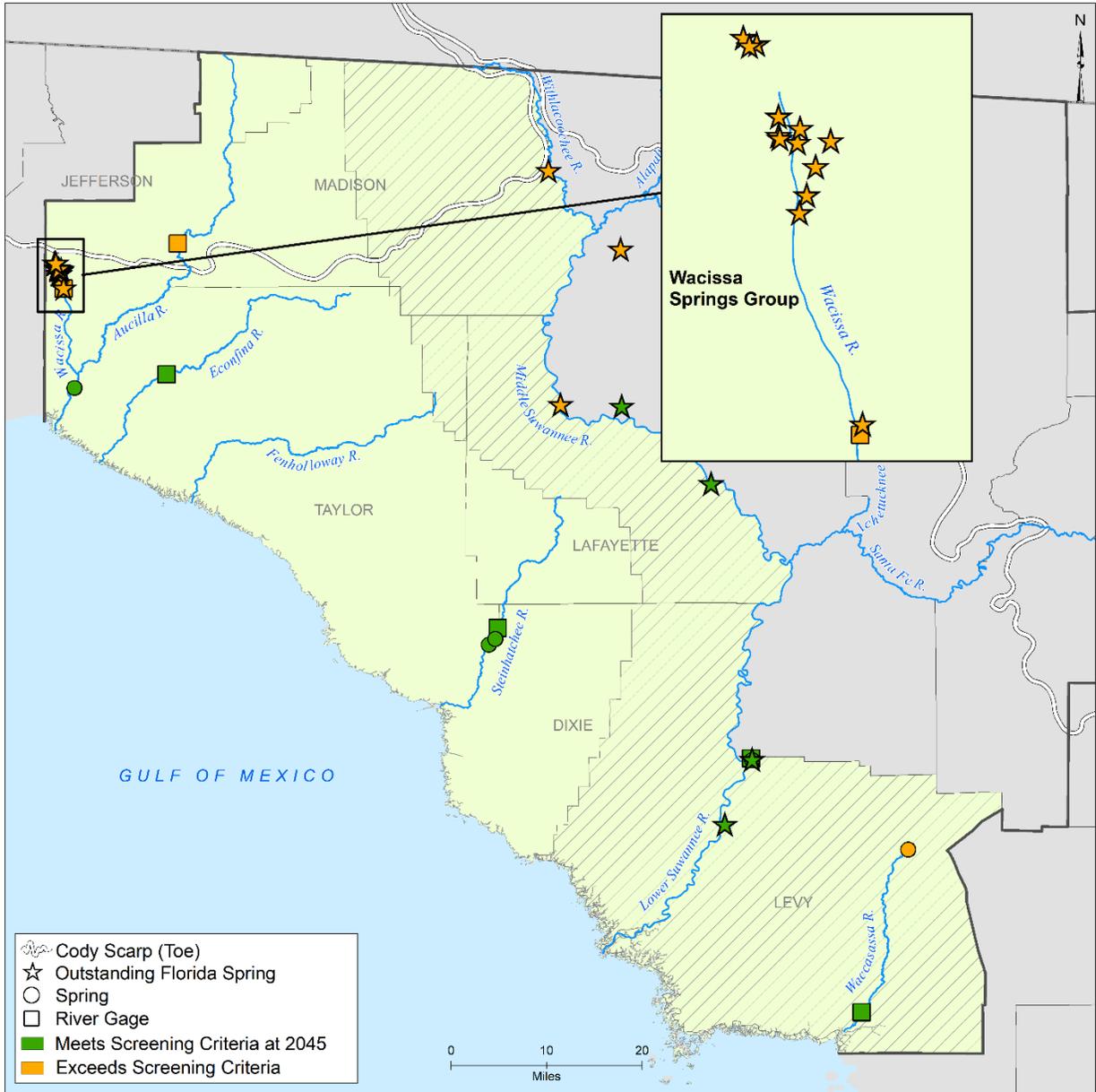


Figure D2. Results of the MFL assessment

References

SRWMD. 2023. Suwannee River Water Management District 2023 MFL Priority List and Schedule. SRWMD, Live Oak, FL.
<https://www.mysuwanneeriver.com/DocumentCenter/View/18942/2023-MFL-Priority-List-Table-Attachment-10252023?bidId=>