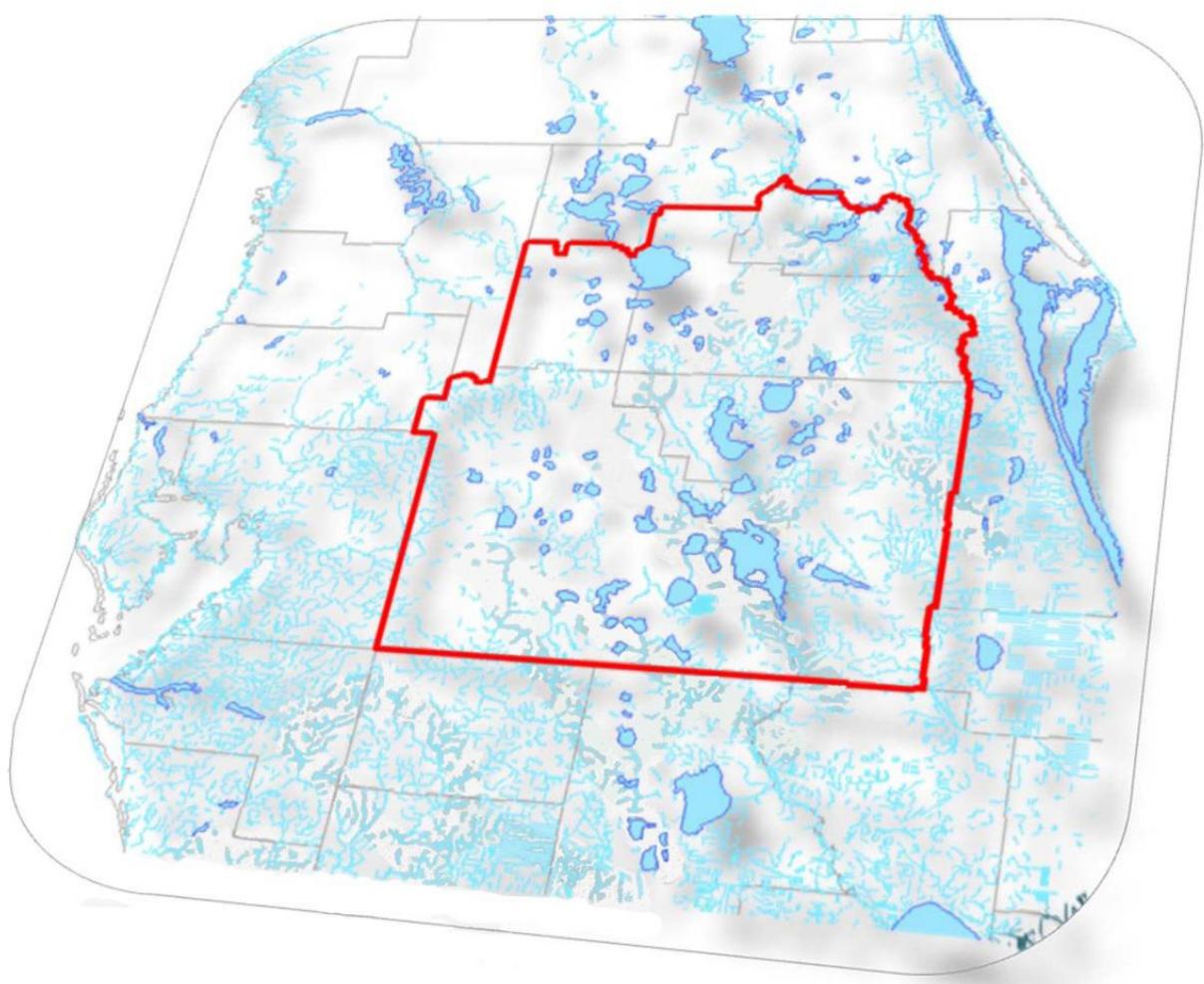


Central Florida Water Initiative Area Minimum Flows and Levels Water Body Status Assessment



Central Florida Water Initiative
Minimum Flows and Levels and Reservations Team

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Section 1

CFWI Area MFL Water Body Status Assessment

Introduction

As part of the Central Florida Water Initiative (CFWI), the Minimum Flows and Levels and Reservations Team was tasked (Task C3 in the CFWI Guiding Document) with developing options for consistently evaluating the status of Minimum Flows and Levels (MFLs) in the CFWI Area to provide to the Management Oversight Committee for consideration. The purpose of this document, is to provide the approach to determine whether the flow(s) and/or level(s) of a specific MFL water body is/are below or projected to fall below the rule-specified MFL criteria (along with the associated evaluations necessary to make such a determination). This status assessment is independent from and not a determination of water use permit compliance. Permit compliance is a regulatory function that is not considered to be within the charge of this task.

Florida statutes include guidance for establishing MFLs and associated prevention/recovery strategies, however, there is no such guidance on the frequency or methods used to determine whether the flow(s) and/or water level(s) of an MFL water body is/are below or projected to fall below the applicable established MFL. The following is an option for consistently evaluating the status of an MFL water body located within the CFWI Area. Objectives of determining MFL water body status include:

- Provide information on the relationship between water availability and adopted MFLs for specific water bodies to existing legal users, stakeholders, water use regulators, and water managers;
- Determine causal relationships between MFL water body hydrology and influencing factors such as withdrawals, rainfall, watershed changes, etc., to assess the need to reevaluate or revise the MFLs per Section 373.0421(3), F.S.;
- Gauge effectiveness of existing recovery and prevention strategies implemented per Section 373.0421(2), F.S., in recovery from or preventing significant harm to the water body;

- Support short and long range water management decisions related to MFL water body status; (e.g., declarations of water shortage per Section 373.246, F.S., operations of water resource development projects, implementation of water reservations, etc.); and
- Aid in the water supply planning process per Section 373.709, F.S.

Based on consideration of water users and other stakeholders, the evaluations for determination of MFL status should be transparent, easy to conduct and available to everyone. Given these factors and considerations, the following two tiered option for assessing MFL water body status is proposed.

Tiered Approach to MFL Water Body Status Assessment

The tiered approach for MFL water body status assessment in the CFWI Area outlined in this document begins with evaluations directed toward determining if water levels or flows in an MFL water body are above adopted MFL criteria, trending toward the criteria, or are below or projected to fall below the adopted MFL criteria. The second tier evaluation is applied to MFL water bodies where flows/levels are trending toward, below, or projected to fall below MFL criteria as determined by the tier one assessment. Tier two evaluations consist of analyses capable of independently assessing the impacts of withdrawals, rainfall, and watershed changes on MFL water bodies in order to determine the contributing factors causing flows/levels to fall below applicable MFLs. It also provides a basis for continued use of or the potential need to reevaluate the adopted MFL criteria and associated recovery and prevention strategies.

Because each MFL water body is unique with regard to hydrology, ecology, and relevant environmental values, the outlined approach relies on the results of individual MFL technical studies to identify the parameters and the frequencies for MFL status assessments. Therefore it is the intent of this document to describe a general approach for MFL water body status assessment, but to not be prescriptive on parameters and timing of the assessments.

Section 2

Two Tiered MFL Water Body Status Assessment Process

1) Tier I: MFL Water Body Status Assessment

a) Objectives

Assessment method should:

- i) Compare measured and/or modeled water level/flow records with MFL water level/flow exceedance criteria.
- ii) Be transparent, able to be independently conducted, and use data that is available to all.
- iii) Be conducted on a need-dependent time-scale.

b) Assessment Method

- i) Compare measured water level/flow data to MFL criteria in adopted MFL rule.
 - (1) May compare exceedance curve based on measured data set to MFL criteria. The duration of the measured data sets plotted in the exceedance curve should be consistent with the rule specified return frequency when practical. When there is an insufficient period of record to match or evaluate the MFL criteria, model-based estimated water level/flow data values may be used to augment the measured data to produce a sufficient period of record data set. Models used to estimate water level and flow data will be available for stakeholder use.
 - (2) May compare measured data set percentiles to specific MFL criteria. Percentiles may include standard values, e.g., a median or P50 and/or specific values associated with individual MFL thresholds/criteria.
 - (3) May compare measured real-time data to specific MFL criteria.

c) Frequency

Determined on a case-by-case basis considering MFL management and reporting needs.

d) Outcome and Actions

Case-specific recommended outcomes and actions include:

- i) Case 1: Flow or water level value(s) or percentile(s) above the MFL criteria.
No further actions are required beyond continued monitoring, periodic Tier I MFL water body assessments, and communication of Tier I assessment results.
- ii) Case 2: Flow or water level value(s) or percentile(s) are above but trending toward the MFL criteria. Proceed to Tier II assessment, as appropriate.
- iii) Case 3: Flow or water level value(s) or percentile(s) below the MFL criteria. Proceed to Tier II assessment.

2) Tier II: Assessments for MFL Water Bodies Where Flow/Levels are Trending Toward, Below or Projected to Fall Below MFL Criteria**a) Objectives**

- i) Determine the hydrologic impacts of withdrawals that affect the water levels/flows of the MFL water body being assessed.
- ii) Determine the hydrologic impacts of other non-withdrawal stressors that affect the water levels/flows of the MFL water body being assessed.
- iii) Provide technically based information regarding whether the existing MFL criteria and/or recovery and prevention strategies associated with the MFL water body are/will be effective in preventing significant harm in accordance with the timetable outlined in the RWSP prevention/recovery strategy.

b) Assessment

- i) Conduct cause and effect analyses capable of independently evaluating the impacts of various stressors on the MFL water body being assessed.
 - (1) Factors considered in the determination of causation may include, but are not limited to:
 - (a) rainfall or other climatic variables;
 - (b) consumptive use;
 - (c) land use changes or development;
 - (d) surface water drainage;
 - (e) geology/hydromorphology (e.g., sinkhole formation);

- (f) water levels/flows in other appropriate water resources (e.g., nearby wells, lakes, streams, wetlands); and
 - (g) ecological assessment information.
- (2) The types of tools/evaluations used in the analysis may include, but are not limited to:
- (a) double-mass analyses;
 - (b) rainfall/water level or flow regression;
 - (c) stage/duration/frequency analysis;
 - (d) modeling (regional, groundwater, ecological or water budget models); and
 - (e) ecological tools.
- ii) Assess existing MFL criteria and associated recovery and prevention strategies to determine the effectiveness of the strategies in recovering from or preventing significant harm to the water body in accordance with the timetable/schedule outlined in the Regional Water Supply Plan (RWSP).
- (1) In the event the existing MFL criteria are found to be in need of reevaluation, the water body is added to the priority water body list.
 - (2) If no change to the MFL criteria are needed but a prevention/recovery strategy is found to not be effective, the analysis is incorporated into the RWSP process for revision of the prevention/recovery strategy.
- iii) Evaluate impacts due to non-withdrawal factors.

c) Frequency

Determined by Tier I MFL Water Body Assessment status and management and reporting needs, but at a minimum is completed consistent with the water supply planning efforts.

d) Outcome and Actions

Results of Tier II assessments will be communicated to stakeholders and decision makers. Potential assessment outcomes and recommended actions include:

- i) Existing MFL and prevention/recovery strategy are appropriate; no changes needed;
- ii) The MFL criteria are appropriate, but the prevention/recovery strategy needs to be reassessed and incorporated into the RWSP; and

- iii) The MFL criteria needs to be reevaluated and the water body added to the priority water body list.