Florida Numeric Interpretations of the Narrative Nutrient Water Quality Criterion Through Total Maximum Daily Loads (TMDLs) to Establish a Hierarchy 1 (H1): Water Quality Standards (WQS) Decision Document

H1: Nutrient TMDLs for Lake Gem (**w**ater**b**ody **id**entification (WBID) 2997V)

Location: Orange County, Florida

Status: Final

Criteria Parameter(s): The site-specific numeric criteria for Lake Gem are 1,130 pounds/year (lbs/yr) for total nitrogen (TN) and 68 lbs/yr for total phosphorus (TP), both expressed as three-year rolling average loads, not to be exceeded.

Background: The Florida Department of Environmental Protection (FDEP) submitted the final H1 for the *Nutrient TMDLs for Lake Gem (Orange County) (WBID 2997V) and Documentation in Support of the Development of Site-Specific Numeric Interpretations of the Narrative Nutrient Criterion* (the report) by letter dated September 3, 2020. The draft report for Lake Gem is dated April 2019 and was received by the EPA on April 5, 2019. The final report dated January 2020 includes H1 target concentrations and loads.

The submission included:

- Submittal letter
- Nutrient TMDLs for Lake Gem and Documentation in Support of the Development of Site-Specific Numeric Interpretations of the Narrative Nutrient Criterion
- Documents related to Public Workshop
- Documents related to Public Hearing
- Documents related to Public Notice for Rulemaking and Rule Adoption
- Public Comments Received

This document explains how the submission meets the Clean Water Act (CWA) statutory requirements for the approval of WQS under section 303(c) and the EPA's implementing regulations in Title 40 of the Code of Federal Regulations (40 C.F.R.) part 131. The EPA's decision document memorializes the EPA's review and approval of the WQS, in accordance with section 303(c) of the CWA; nothing herein should be construed to constitute a review or approval of the TMDL submitted pursuant to section 303(d) of the CWA. The EPA will conduct its review of the TMDL following this approval of the WQS.

WQS REVIEWER: Lauren Petter, Environmental Scientist, petter.lauren@epa.gov

This document contains the EPA's review of the above-referenced H1. This review document includes WQS review guidelines that state or summarize currently effective statutory and regulatory requirements applicable to this approval action. Review guidelines are not themselves regulations. Any differences between review guidelines and the EPA's implementing regulations should be resolved in favor of the regulations themselves. The italicized sections of this document describe the EPA's statutory and regulatory requirements for approvable H1s. The sections in regular type reflect the EPA's analysis of the state's compliance with these requirements.

I. WQS Decision – Supporting Rationale

Section 303(c) of the CWA and the EPA's implementing regulations at 40 C.F.R. part 131 describe the statutory and regulatory requirements for approvable WQS. Set out below are the requirements for WQS submissions, under the CWA and the regulations. The information identified below is necessary for the EPA to determine if a submitted WQS meets the requirements of the CWA and, therefore, may be approved by the EPA.

1. Use Designations

Section 131.10(a) provides that each state must specify appropriate water uses to be achieved and protected. The classification of the waters of the state must take into consideration the use and value of water for public water supplies, protection and propagation of fish, shellfish and wildlife, recreation in and on the water, agricultural, industrial, and other purposes including navigation. In no case shall a state adopt waste transport or waste assimilation as a designated use for any waters of the United States.

Assessment: Lake Gem is classified as Class III Freshwater (fish consumption; recreation; and propagation and maintenance of a healthy, well-balanced population of fish and wildlife).

2. Protection of Downstream Uses

Section 131.10(b) provides that in designating uses of a waterbody and the appropriate criteria for those uses, the state shall take into consideration the WQS of downstream waters and shall ensure that its WQS provide for the attainment and maintenance of the WQS of downstream waters.

Rule 62-302.531(4) of the Florida Administrative Code (F.A.C.) requires that downstream uses be protected. Lake Gem is connected to a larger lake, Park Lake (WBID 2997U), which connects to Lake Maitland (WBID 2997C) via Park Lake Outlet (WBID 2997T). These downstream waterbodies do not have water quality impairments for nutrients or dissolved oxygen (DO). Therefore, Lake Gem's nutrient load reductions will likely further protect these downstream waterbodies by decreasing algal biomass and the associated nutrients.

Assessment: The H1 is providing use protection for the downstream waters.

3. Water Quality Criteria

Section 131.11(a) provides that states must adopt those water quality criteria that protect the designated use. Such criteria must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use. For waters with multiple use designations, the criteria shall support the most sensitive use.

During the Cycle 3, Group 2 assessment, the state's lake numeric nutrient criteria (NNC) were used to assess Lake Gem during the verified period (January 1, 2007–June 30, 2014) based on data from IWR Run 50. Lake Gem was found to be verified impaired for chlorophyll *a* and TP.

There is no information suggesting that Lake Gem differs from the reference lakes used to develop the NNC. Therefore, FDEP has determined that the generally applicable chlorophyll *a* criterion for low-color, high-alkalinity lakes is the most appropriate TMDL target for the lake (and will remain the applicable water quality criterion).

FDEP established the site-specific TN and TP loadings using the calibrated models to achieve an in-lake chlorophyll *a* AGM concentration of 20 µg/L. The maximum of the three-year rolling averages of TN and TP loadings for Lake Gem, to achieve the chlorophyll *a* target, was determined by decreasing TN and TP loads from anthropogenic sources into the lake until the chlorophyll *a* target was achieved.

Assessment: The in-lake TN and TP AGM concentrations for Lake Gem at the allowable TMDL loading are 0.78 and 0.04 mg/L, respectively, not to be exceeded more than once in any consecutive three-year period. These restoration concentrations represent the in-lake concentrations that would still meet the target chlorophyll *a* concentration of 20 µg/L with a one-in-three-year exceedance rate. These target in-lake concentrations correspond to the loads being adopted as site-specific interpretations of the narrative nutrient criterion, which are 1,130 pounds/year (lbs/yr) for TN and 68 lbs/yr for TP, both expressed as three-year rolling average loads, not to be exceeded. The resulting water quality will protect the designated uses for this waterbody. The criteria are expressed as loads and the concentrations are provided for reference purposes only. Any other criteria applicable to this waterbody remain in effect, including the nutrient criteria for parameters set out in 62-302.531(2)(b) F.A.C.

4. Scientific Defensibility

Section 131.11(b) provides that, in establishing criteria, states should establish numerical values based on 304(a) guidance, 304(a) guidance modified to reflect site-specific conditions, or other scientifically defensible methods.

Lake Gem was verified for impairment for nutrients based upon the generally applicable nutrient criteria during the verified period. The report based the TN and TP targets on the generally applicable chlorophyll *a* criterion of 20 µg/l for low color and high alkalinity lakes including Lake Gem. The loads were derived from watershed model TN and TP in-lake targets of 0.78 mg/L for TN and 0.04 mg/L for TP not to be exceeded more than once in a three-year period. The concentrations are given for comparative purposes only. These values correspond to rolling three-year average loads of TN of 1,130 lbs/yr and TP of 68 lbs/yr, not to be exceeded. The resulting water quality is expected to protect the designated uses for this waterbody.

Assessment: The EPA determined that the selection of a chlorophyll *a* value of 20 µg/L as the response variable target is appropriate and the technical approach to calculate the total watershed nutrient loads results is scientifically sound. These approaches, which include the U.S. Army Corps of Engineers BATHTUB model and Pollution Load Simulation Model to calculate the total watershed nutrient loads, are described in the cited report.

5. Public Participation

Section 131.20(b) provides that states shall hold a public hearing when revising WQS, in accordance with provisions of state law and the EPA's public participation regulation (40 C.F.R. part 25). The proposed WQS revision and supporting analyses shall be made available to the public prior to the hearing.

A public workshop was conducted by the FDEP on May 6, 2019 in Maitland, Florida, to obtain comments on the draft nutrient TMDLs for Lake Gem. The workshop notice indicated that the nutrient TMDLs, if adopted, constitute site-specific numeric interpretations of the narrative criterion set forth in paragraph 62-302.530(48)(b), F.A.C., that would replace the otherwise applicable NNC in subsection 62-302.531(2), F.A.C., for these particular waters. The FDEP also held a public hearing on December 16, 2019 in Tallahassee, Florida.

Assessment: The FDEP has met the public participation requirements for this H1.

6. Certification by the State Attorney General

Section 131.6(e) requires that the state provide a certification by the state Attorney General or other appropriate legal authority within the state that the WQS were duly adopted pursuant to state law.

A letter from the FDEP General Counsel, Justin G. Wolfe, dated September 3, 2020, certified that the Lake Gem TMDLs were duly adopted as WQS pursuant to state law.

Assessment: The FDEP has met the requirement for Attorney General certification for this H1.

7. Endangered Species Act Section 7 Consultation

Section 7(a)(2) of the Endangered Species Act (ESA) requires federal agencies, in consultation with the Services, to ensure that their actions are not likely to jeopardize the continued existence of federally listed species or result in the destruction or adverse modification of designated critical habitat of such species.

The existing default NNC for the waterbody received concurrence by U.S. Fish and Wildlife Service (USFWS) on July 31, 2013. Because the site-specific criterion for TP in this report is within the default criteria, an additional ESA section 7 consultation for this standards action is not required.

USFWS provided concurrence with the EPA's programmatic consultation on site-specific nutrient criteria for the FDEP on July 21, 2015 for any site-specific nutrient criteria that are more stringent than the existing default nutrient criteria in place in the state of Florida for the waterbody. Because the site-specific criterion in this report for TN are more stringent than the default criteria, an additional ESA section 7 consultation for this standards action is not required.

Assessment: The EPA has met the ESA requirements for this action.

II. Conclusion

The EPA Region 4 Water Division Director is **APPROVING** the H1 NNC addressed by this decision document in accordance with section 303(c) of the CWA, as consistent with the CWA and 40 C.F.R. part 131.

The H1 NNC presented in this decision document will constitute the site-specific numeric interpretations of the narrative nutrient criterion set forth in paragraph 62-302.530(48)(b), F.A.C., that will replace the otherwise applicable numeric criteria for TN and TP in subsection 62-302.531(2) for this particular water, pursuant to paragraph 62-302.531(2)(a)1.b., F.A.C. Based on the chemical, physical, and biological data presented in the development of the H1 NNC outlined above, the EPA concludes that the revised NNC for TN and TP provide for and protect healthy, well-balanced, biological communities in the waters to which the NNC apply and are consistent with the CWA and its implementing regulations at 40 C.F.R. § 131.11.

Therefore, the revised nutrient criteria for TN and TP for Lake Gem are 1,130 lbs/yr for TN and 68 lbs/yr for TP, both expressed as three-year rolling average loads, not to be exceeded. All other criteria applicable to this waterbody remain in effect, including other applicable criteria at 62-302.531(2)(b), F.A.C. The requirements of paragraph 62-302.530(48)(a), F.A.C. also remain applicable.

The EPA's decision document memorializes the EPA's review and approval of the water quality standard, in accordance with 303(c); nothing herein should be construed to constitute a review or approval of a TMDL pursuant to 303(d).