

***Decision Document of the United States Environmental Protection Agency
Determination Under Section 303(c) of the Clean Water Act Review of
Georgia’s Water Quality Regulations at Chapter 391-3-6-.03***

Georgia transmitted revisions to its water quality standards (WQS) to the Environmental Protection Agency by letter dated April 1, 2022. These revisions were adopted as a result of Georgia’s 2019-2022 triennial review of WQS, as required by Section 303(c) of the Clean Water Act (CWA or Act). As described more fully below, the EPA has reviewed and is approving the 2019-2022 revisions pursuant to section 303(c) of the CWA. The EPA Region 4, pursuant to section 7 of the Endangered Species Act (ESA), made a determination that the WQS being approved by the EPA would have “no effect” on threatened and endangered species or their designated critical habitat, under the jurisdiction of the United States Fish and Wildlife Service (USFWS); therefore, no further consultation is needed. The EPA determined the WQS “may affect, but were not likely to adversely affect,” threatened and endangered species or their designated critical habitat, under the jurisdiction of the National Marine Fisheries Services (NMFS), and the EPA received concurrence with that conclusion from NMFS on June 1, 2022.

In addition to addressing the provisions Georgia submitted for the 2019-2022 triennial review, this decision document will also address the remaining provisions in the previous 2016-2018 triennial review and a separate 2018 submittal sent to the EPA for which the EPA had not yet issued a final action. These include a 2018 revision to the “free from” narrative criteria (“2018 narrative submission”), submitted on August 8, 2018, and two portions of Georgia’s previous 2016-2018 triennial review of WQS submitted on December 4, 2018 (“2016-2018 triennial review”). With the exception of the two portions in the 2016-2018 triennial review, the EPA took action on the remainder of the 2016-2018 WQS revisions on January 20, 2021. The EPA has now completed a review of each of these prior submissions. The cumulative effect of today’s approval of the current 2019-2022 triennial review also resolves the 2018 narrative submission and the 2016-2018 triennial review.

Part I – Overview of State and Federal Information

Background

This document summarizes the EPA’s review of the state of Georgia’s WQS found in Chapter 391-3-6-.03. These revisions were adopted as a result of Georgia’s WQS rulemaking process. Section 303 of the CWA requires states to establish WQS and to submit any new or revised WQS to the EPA for approval or disapproval.

The state submitted the 2019-2022 WQS revisions by letter dated April 1, 2022, from Anna Truszczynski, Watershed Protection Branch Chief, Georgia Environmental Protection Division (GAEPD) to Jeananne M. Gettle, Director, Water Protection Division, EPA Region 4. The EPA received the revisions on April 1, 2022. The submittal to the EPA was accompanied by certification from Christopher M. Carr, Georgia Attorney General, dated March 16, 2022, that the WQS revisions were duly adopted pursuant to the state law of Georgia. The public comment period for the rulemaking began on October 27, 2021, and ended on December 17, 2021, and a public hearing was held on December 19, 2021. In response to the public comments received, the state prepared a

Response to Comments dated December 30, 2021. The revisions were adopted by the Board of Natural Resources on January 28, 2022 and became effective February 27, 2022.

The state previously submitted the 2016-2018 WQS revisions by letter dated December 4, 2018, from James A. Capp, Watershed Protection Branch Chief, GAEPD to Jeaneanne M. Gettle, Director, Water Protection Division, EPA Region 4. The EPA received the revisions on December 6, 2018. The submittal to the EPA was accompanied by certification from Christopher M. Carr, Georgia Attorney General, dated October 26, 2018, that the WQS were duly adopted pursuant to the state law of Georgia. The public comment period for the rulemaking began on April 6, 2018, and ended on May 25, 2018, and a public hearing was held on May 22, 2018. In response to the public comments received, the state prepared a Response to Comments dated June 7, 2018. The revisions were adopted by the Board of Natural Resources on June 27, 2018 and became effective July 23, 2018. With the exception of the revisions to the bacteria and numeric nutrient criteria¹, which will be addressed in more detail below, the EPA took action on the remainder of the 2016-2018 WQS revisions on January 20, 2021.

Georgia also previously submitted the revisions related to its narrative provision at Rule 391-3-6-.03(5)(b)&(c) by letter dated August 8, 2018, from James A. Capp, Watershed Protection Branch Chief, GAEPD to Jeaneanne M. Gettle, Director, Water Protection Division, EPA Region 4. The EPA received the revisions on August 14, 2018. The submittal to the EPA was accompanied by certification from Christopher M. Carr, Georgia Attorney General, dated July 2, 2018, that the WQS revisions were duly adopted pursuant to the state law of Georgia. The public comment period for the rulemaking began on December 6, 2017, and ended on January 31, 2018, and a public hearing was held on January 25, 2018. In response to the public comments received, the state prepared a Response to Comments dated March 8, 2018. The revisions were adopted by the Board of Natural Resources on March 27, 2018 and became effective April 23, 2018.

On October 5, 2018, the EPA notified GAEPD by letter that the 2018 narrative submission did not include the underlying background and supporting analysis required to complete the review. The state was asked to provide the required information under 40 C.F.R. sections 131.6 and 131.11 as well as any other general information that would assist in completing the review. On November 2, 2018, the EPA received a memo dated October 29, 2018, with additional information for consideration. The EPA used information from both the initial and subsequent submission in its final review.

Clean Water Act Requirements

Under section 303(c) of the CWA and federal implementing regulations at 40 C.F.R. Part 131, states and authorized tribes (states) have the primary responsibility for reviewing, establishing, and revising WQS, which consist of the designated uses of a waterbody or waterbody segment, the water quality criteria necessary to protect those designated uses, and an antidegradation policy. Section 303(c) of the CWA also requires states to establish WQS and to submit any new or revised standards to the EPA. Under section 303(c) of the CWA, the EPA must conduct a review and approve or disapprove those provisions for use under the CWA. When the EPA approves a state or tribal WQS, it becomes the applicable WQS for purposes of the CWA.

¹ Rule 391-3-6-.03(6) and Rule 391-3-6-.03(12) for bacteria and Rule 391-3-6-.03(17) for numeric nutrient criteria

40 C.F.R. Part 131 was amended to require states to provide an explanation for not adopting new or revised criteria for parameters for which the EPA has published new or updated CWA section 304(a) criteria recommendations (40 C.F.R. section 131.20(a)). This change was made to foster meaningful and transparent involvement of the public and intergovernmental coordination with local, state, federal, and tribal entities in light of recent science provided by the EPA through its criteria recommendations. The EPA does not approve or disapprove this explanation. For the 2019-2022 triennial review, Georgia explained its decision to not adopt new or revised criteria for aluminum, selenium, cyanotoxins, or the 94 human health criteria. These parameters are currently under review by the state for the next triennial review.

Endangered Species Act Requirements

In addition to the EPA's review under section 303 of the CWA, section 7(a)(2) of the ESA requires federal agencies, in consultation with the NMFS and USFWS, 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. Therefore, the EPA has the obligation to ensure that its approval of new and revised WQS as related to the protection of fish and aquatic life as adopted by the state is not likely to jeopardize the continued existence of threatened and endangered species and their critical habitat. The EPA Region 4 concluded that the WQS being approved by the EPA would either have "no effect" or "may affect, but were not likely to adversely affect," threatened and endangered species or their designated critical habitat. The EPA has no discretion to consult for some provisions of the approved WQS because they were derived to protect human health and the EPA has no discretion to revise an otherwise approvable human health criterion which meets the minimum regulatory requirements to benefit listed species.

On February 7, 2022, the EPA initiated consultation under section 7(a)(2) of the ESA with NMFS regarding the effects of the EPA's potential approval of newly adopted/revised fish and aquatic life WQS in Georgia on marine species and anadromous fish. In the biological evaluation (BE) submitted to NMFS under the informal consultation provisions of the ESA regulations at 50 C.F.R. section 402.13, a determination of "may affect, but not likely to adversely affect" was made for all marine aquatic and aquatic dependent species, anadromous fish, and their designated critical habitats in the state of Georgia. On April 6, 2022, the EPA submitted the BE to NMFS for review under the informal consultation provision of the ESA regulations at 50 C.F.R. section 402.13. In a letter dated June 1, 2022, NMFS concurred with the EPA's determinations that the EPA's approval of the revisions and additions to the state of Georgia's Rules "may affect, but [were] not likely to adversely affect" federally listed species or result in adverse modifications to critical habitats in the state. This concurrence from the NMFS concluded the consultation requirements under Section 7(a)(2) of the ESA for Chapter 391-3-6-.03 revisions.

On February 7, 2022, the EPA also initiated consultation under ESA section 7(a)(2) of the ESA with the USFWS regarding the effects of the EPA's potential approval of newly adopted/revised freshwater fish and aquatic life WQS in Georgia. The EPA made a determination of "no effect" for all freshwater aquatic and aquatic dependent species and their designated critical habitats in the state of Georgia. No consultation or concurrence is required by the USFWS for the EPA's

determinations that its approval of newly adopted/revised WQS would have no effect on federally listed species or designated critical habitat.

Summary of EPA Approval Actions and No Actions

Each of the state's WQS revisions are addressed in detail within Part II, along with the EPA's analysis and conclusions. The EPA has determined that the new and revised WQS included in the 2019-2022 submission, listed below, are consistent with 40 C.F.R. Part 131 and section 303(c) of the CWA, and approves them.

- Revisions to Rule 391-3-6-.03(3) to update primary and secondary contact recreation definitions;
- Revisions to Rule 391-3-6-.03(5)(b) and (c) to update "free from" narrative criteria;
- Revisions to Rule 391-3-6-.03(5)(e)(ii) to add water effects ratio (WER) multiplier to the metal freshwater aquatic life criteria equations;
- Revisions to Rule 391-3-6-.03(5)(e)(iii) to adopt the EPA's 2016 recommended aquatic life acrolein and carbaryl criteria;
- Revisions to Rule 391-3-6-.03(6) to revise the primary and secondary recreation bacteria criteria;
- Revisions to Rule 391-3-6-.03(14) to update and revise/correct specific water use classifications;
- Revisions to Rule 391-3-6-.03(17) to update site-specific criteria for Lakes Oconee and Sinclair;
- Revisions to Rule 391-3-6-.03(18) to allow use of site-specific metal criteria based on the Biotic Ligand Model (BLM) or a WER;

The EPA is not acting on the revisions listed below because the EPA determined they are not a new or revised WQS subject to the EPA's review and approval under CWA section 303(c).

- Revisions to Rule 391-3-6-.03(6) to revise sampling frequency and duration
- Revisions to Rule 391-3-6-.03(6)(a)(i) and Rule 391-3-6-.03(6)(c)(iii) to apply an effective date of certain criteria pending the EPA's final approval

Part II – EPA's Analysis of the Triennial Review Revisions

Each of Georgia's WQS revisions are addressed in detail below along with the EPA's analysis and conclusions. The revisions are shown below with additions to rule language presented with underlined text and removals from the rule language presented with strikethrough text.

Revision to Rule 391-3-6-.03(3)

- (1) "Primary contact recreation" is full immersion contact with water where there is significant risk of ingestion that includes, but is not limited to, swimming, diving, whitewater boating (Class III and above), water skiing, and surfing.

- (~~mn~~) “Secondary contact recreation” is incidental contact with the water not involving a significant risk of water ingestion such as canoeing, fishing, kayaking, motor boating, rowing, tubing, splashing, wading, and occasional swimming.

Georgia added a definition for “primary contact recreation” to describe activities that may result in a significant risk of water ingestion and to be consistent with updated bacteria criteria for Recreation and Fishing designated uses in subparagraph 391-3-6-.03(6) discussed in more detail below. Georgia also updated the definition for “secondary contact recreation” to further identify activities that may result in incidental water ingestion and to be consistent with updated bacteria criteria for Recreation and Fishing designated uses in subparagraphs 391-3-6-.03(6) discussed in more detail below. These revisions are consistent with the CWA and the implementing regulations at 40 C.F.R. Part 131 and therefore approved.

Revision to Rule 391-3-6-.03(5)

Discussion of 2018 Narrative Submission

- (b) All waters shall be free from oil, scum and floating debris associated with municipal or domestic sewage, industrial waste or other discharges in amounts sufficient to be unsightly or to unreasonably interfere with the designated use of the water body ~~legitimate water uses.~~
- (c) All waters shall be free from material related to municipal, industrial or other discharges which produce turbidity, color, odor or other objectionable conditions which unreasonably interfere with the designated use of the water body.

In the 2018 narrative submission, Georgia made revisions to the “free from” narrative provision within Rule 391-3-6-.03(5). The amendments of Rule 391-3-6-.03(5) include two revisions: (1) the substitution of the phrase “designated use of the water body” in place of “legitimate water uses,” and (2) the addition of the phrase “unreasonably” immediately before the word “interfere.”

For its review of the first revision, the EPA considered the available information that Georgia provided to support the narrative revision and whether the information is consistent with the 40 C.F.R. Part 131 and section 303(c) of the CWA. Specifically, GAEPD submitted the following justification:

“The term “legitimate water uses” is not defined in the rules or the statute. By contrast, the term, “designated uses” is defined in federal regulation at 40 CFR 131.3 and reflected in the water use classifications and water quality standards promulgated in Georgia rules. GAEPD interprets the narrative criteria in the context of the designated use since the narrative criteria exists to support, or protect, the designated use.”

Based on the review of the state’s submittal, the EPA has determined the first revision to the narrative provision that substitutes the phrase “designated use of the water body” in place of “legitimate water uses” is consistent with the CWA and the implementing regulations at 40 C.F.R. Part 131, as water quality criteria are applicable to protect the designated uses of the state waters, and therefore approved.

For its review of the second revision, the EPA considered the available information that Georgia provided to support the narrative revision and whether the information is consistent with the 40 C.F.R. Part 131 and section 303(c) of the CWA. 40 C.F.R. section 131.5(a)(8) provides that EPA's review of a state's submission involves, among other things, a determination of "whether the state submission meets the requirements included in section 131.6." Based on its review of the state's submittal, the EPA determined that the submittal was not consistent with the EPA's implementing regulations because it did not include the methods used and analyses conducted to support the revision. Therefore, the EPA concluded that the requirements at 40 C.F.R. section 131.6 were not met for this revision, and the EPA would not have approved the two instances where the addition of the phrase "unreasonably" immediately before the word "interfere" had been added within Rule 391-3-6-.03(5). However, the state subsequently deleted the language, which was not effective for CWA purposes, within the 2019-2022 revisions.

Discussion of 2019-2022 Triennial Review Revisions

- (b) All waters shall be free from oil, scum and floating debris associated with municipal or domestic sewage, industrial waste or other discharges in amounts sufficient to be unsightly or to ~~unreasonably~~ interfere with the designated use of the water body.
- (c) All waters shall be free from material related to municipal, industrial or other discharges which produce turbidity, color, odor or other objectionable conditions which ~~unreasonably~~ interfere with the designated use of the water body.

The EPA has concluded the 2019-2022 revisions now make the state regulations consistent with the EPA approved provisions within Rule 391-3-6-.03(5). These updated revisions are consistent with the CWA and the implementing regulations at 40 C.F.R. Part 131 and therefore approved. This approval closes out the open action on the 2018 narrative submission.

Revision to Rule 391-3-6-.03(5)(e)(ii)

³ The freshwater aquatic life criteria for these metals are expressed as a function of total hardness (mg/L) in a water body and a water effect ratio (WER). Values in the table above assume a hardness of 50 mg/L CaCO₃ and a WER of 1. For other hardness values, the following equations from the EPA document – National Recommended Water Quality Criteria – EPA 2006 should be used. For site-specific criteria with WER values other than 1, see 391-3-6-.03(18)(b).

⁴ This pollutant is addressed in 391-3-6-.06.

⁵ For applicable site-specific criteria, see 391-3-6-.03(18)(a).

Cadmium

acute criteria = $\text{WER} * (e^{(0.9789[\ln(\text{hardness})] - 3.866)}) (1.136672 - [(\ln \text{hardness})(0.041838)]) \mu\text{g/L}$

chronic criteria = $\text{WER} * (e^{(0.7977[\ln(\text{hardness})] - 3.909)}) (1.101672 - [(\ln \text{hardness})(0.041838)]) \mu\text{g/L}$

Chromium III

acute criteria = WER* (e^{(0.8190[ln(hardness)] + 3.7256)})(0.316) µg/L

chronic criteria = WER* (e^{(0.8190[ln(hardness)] + 0.6848)})(0.860) µg/L

Copper

acute criteria = WER* (e^{(0.9422[ln(hardness)] - 1.700)})(0.96) µg/L

chronic criteria = WER* (e^{(0.8545[ln(hardness)] - 1.702)})(0.96) µg/L

~~Site-specific Copper criteria developed using the biotic ligand model (BLM):~~

~~Buffalo Creek (Richards Lake Dam to confluence with Little Tallapoosa River):~~

~~Acute criteria = 4.9X10⁸ e^{(-0.5((ln(pH)-2.316)² / -0.1816 + (ln(DOC)-32.18)² / -5.453))}~~

~~Chronic criteria = 3.043X10⁸ e^{(-0.5((ln(pH)-2.316)² / -0.1816 + (ln(DOC)-32.18)² / -5.453))}~~

Lead

acute criteria = WER* (e^{(1.273[ln(hardness)] - 1.460)})(1.46203 - [(ln hardness)(0.145712)]) µg/L

chronic criteria = WER* (e^{(1.273[ln(hardness)] - 4.705)})(1.46203 - [(ln hardness)(0.145712)]) µg/L

Nickel

acute criteria = WER* (e^{(0.8460[ln(hardness)] + 2.255)})(0.998) µg/L

chronic criteria = WER* (e^{(0.8460[ln(hardness)] + 0.0584)})(0.997) µg/L

Zinc

acute criteria = WER* (e^{(0.8473[ln(hardness)] + 0.884)})(0.978) µg/L

chronic criteria = WER* (e^{(0.8473[ln(hardness)] + 0.884)})(0.986) µg/L

To be consistent with the addition of Rule 391-3-6-.03(18), discussed in more detail later in this document, Georgia added a WER multiplier to the metal freshwater aquatic life criteria equations in paragraph 391-3-6-.03(5), which will enable site-specific criteria where studies have been conducted and approved and a default WER of 1 if no studies have been conducted and approved. These

revisions are consistent with the CWA and the implementing regulations at 40 C.F.R. Part 131 and therefore approved.

Georgia also moved the site-specific metal criteria based on the Biotic Ligand Model for Buffalo Creek (Richards Lake Dam to confluence with Little Tallapoosa River) from subparagraph (5)(e)(ii) to subparagraph (18)(a)(i). The EPA determined this change within Rule 391-3-6-.03(5) is an editorial change to Georgia's EPA-approved WQS. Such changes include punctuation, re-lettering, and spelling changes which are considered minor revisions. This revision does not alter the meaning or intent of the previously approved corresponding provisions. The EPA approves the editorial change as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approvals of this editorial change do not re-open the EPA's prior approvals of the underlying WQS.

Revisions to Rule 391-3-6-.03(5)(e)(iii)

1.	<u>Acrolein (CAS RN¹ 107-02-8)</u>	
	<u>(a) Freshwater</u>	<u>3.0 µg/L</u>
2.	<u>Carbaryl (CAS RN¹ 63-25-2)</u>	
	<u>(a) Freshwater</u>	<u>2.1 µg/L*</u>
	<u>(b) Coastal and Estuarine Waters</u>	<u>1.6 µg/L*</u>

Prior to the 2019-2022 revisions, the state did not have numeric criteria for acrolein and carbaryl. The state adopted the EPA's national recommended criteria for acrolein and carbaryl and these values are consistent with the EPA's latest CWA Section 304(a) guidance: *Aquatic Life Ambient Water Quality Criteria for Carbaryl*² and *Aquatic Life Ambient Water Quality Criteria Recommendations for Acrolein*³. The criteria are consistent with the CWA and the implementing regulations at 40 C.F.R. Part 131 and therefore approved.

Revision to Rule 391-3-6-.03(6)

Discussion of 2016-2018 Triennial Review Revisions

The following paragraphs, contained in the 2016-2018 revisions, were not acted on as part of the EPA's January 20, 2021 action. The first paragraph (located within the Drinking Water use section) and the last two paragraphs (located within the Fishing use section) are comprised of three parts. The three parts address *Escherichia coli* (*E. coli*) criteria for the months of May through October, non-human sources, and *E. coli* criteria for the months of November through April. The discussion will address each of these parts individually but applies to all three of the paragraphs. All of the text in the three paragraphs shown below represent new text as submitted in 2018, but for clarity of the EPA's actions, the approved and open actions are shown with underline and strikeout, respectively, as detailed further in the discussion of the three parts.

² U.S. Environmental Protection Agency. 2012. *Aquatic Life Ambient Water Quality Criteria for Carbaryl*. Office of Water. Washington, DC820-R-12-007

³ U.S. Environmental Protection Agency. 2009. *Ambient Aquatic Life Water Quality Criteria for Acrolein*. CAS Registry Number 107-02-8

Designated Use: Drinking Water Supplies

For the months of May through October, when water contact recreation activities are expected to occur, culturable E. coli not to exceed a geometric mean of 126 counts per 100 mL. The geometric mean duration shall not be greater than 30 days. There shall be no greater than a ten percent excursion frequency of an E. coli statistical threshold value (STV) of 410 counts per 100 mL in the same 30-day interval. *Should water quality and sanitary studies show E. coli levels from non human sources exceed 126 counts per 100 mL (geometric mean) occasionally, then the allowable geometric mean E. coli shall not exceed 189 counts per 100 mL in lakes and reservoirs and 315 counts per 100 mL in free flowing freshwater streams.* For the months of November through April, culturable E. coli not to exceed a geometric mean of 630 counts per 100 mL. The geometric mean duration shall not be greater than 30 days. There shall be no greater than a ten percent excursion frequency of an E. coli statistical threshold value (STV) of 2050 counts per 100 mL in the same 30-day interval.

Designated Use: Fishing

Estuarine waters: For the months of May through October, when water contact recreation activities are expected to occur, culturable enterococci not to exceed a geometric mean of 35 counts per 100 mL. The geometric mean duration shall not be greater than 30 days. There shall be no greater than a ten percent excursion frequency of an enterococci statistical threshold value (STV) of 130 counts per 100 mL the same 30-day interval. *Should water quality and sanitary studies show enterococci levels from non human sources exceed 35 counts per 100 mL (geometric mean) occasionally, then the allowable geometric mean enterococci shall not exceed 53 counts per 100 mL in lakes and reservoirs and 88 counts per 100 mL in free flowing freshwater streams.* For the months of November through April, culturable enterococci not to exceed a geometric mean of 175 counts per 100 mL. The geometric mean duration shall not be greater than 30 days. There shall be no greater than a ten percent excursion frequency of an enterococci statistical threshold value (STV) of 650 counts per 100 mL the same 30-day interval.

All other fishing waters: For the months of May through October, when water contact recreation activities are expected to occur, culturable E. coli not to exceed a geometric mean of 126 counts per 100 mL. The geometric mean duration shall not be greater than 30 days. There shall be no greater than a ten percent excursion frequency of an E. coli statistical threshold value (STV) of 410 counts per 100 mL in the same 30-day interval. *Should water quality and sanitary studies show E. coli levels from non human sources exceed 126 counts per 100 mL (geometric mean) occasionally, then the allowable geometric mean E. coli shall not exceed 189 counts per 100 mL in lakes and reservoirs and 315 counts per 100 mL in free flowing freshwater streams.* For the months of November through April, culturable E. coli not to exceed a geometric mean of 630 counts per 100 mL. The geometric mean duration shall not be greater than 30 days. There shall be no greater than a ten percent excursion frequency of an E. coli statistical threshold value (STV) of 2050 counts per 100 mL in the same 30-day interval.

Part 1: Discussion of *E. coli* Criteria for the Months of May through October

In the 2016-2018 triennial review, Georgia made revisions to primary recreational bacteria WQS within Rule 391-3-6-.03(6) to revise the state's existing bacteria criteria by replacing the previous fecal coliform-based criteria with criteria for *E. coli* or *Enterococci* for the months of May through October, to be consistent with the EPA's latest CWA section 304(a) guidance, *Recreational Water Quality Criteria*⁴ (EPA 2012). The criteria are consistent with the CWA and the implementing regulations at 40 C.F.R. Part 131 and therefore approved. The approved portions are shown as bold, underlined font in the three paragraphs above.

Part 2: Discussion of Non-human Sources

In the 2016-2018 triennial review, Georgia made additional revisions to primary recreational bacteria WQS within Rule 391-3-6-.03(6) to revise the state's existing bacteria criteria by replacing the previous fecal coliform-based criteria with criteria for *E. coli* and to allow for higher bacteria criteria if water quality and sanitary studies show that the bacteria is from a non-human source. The language in the above paragraphs, "[s]hould water quality and sanitary studies show *E. coli* levels from non-human sources exceed [the adopted geometric mean for primary recreational bacteria, the revised geometric mean is] 189 counts per 100 mL in lakes and reservoirs and 315 counts per 100 mL in free-flowing freshwater streams" and "[s]hould water quality and sanitary studies show enterococci levels from non-human sources exceed [the adopted geometric mean for primary recreational bacteria, the revised geometric mean is] 53 counts per 100 mL in lakes and reservoirs and 88 counts per 100 mL in free-flowing freshwater streams" was reviewed against the EPA's section 304(a) recommendations. The EPA 2012 guidance utilizes more recent scientific studies associated with pathogens and human health for primary recreation and specifically included information to assist states in the development of alternative water quality criteria that are scientifically defensible and protective of the primary contact recreational use, including the use of epidemiological studies or quantitative microbial risk assessments. GAEPD did not provide epidemiological studies or a quantitative microbial risk assessment that show how non-human sources criteria are protective of designated uses of Recreation. Pursuant to 40 C.F.R. sections 131.6(b) and (c), a state's WQS submission must include "methods used and analyses conducted to support WQS revisions" and "water quality criteria sufficient to protect the designated uses." Based on the EPA's analysis, the Agency concluded that the submission was not consistent with the requirements at 40 C.F.R. sections 131.6 and 131.11, and CWA section 303(c). The non-human source portions are shown as underlined, italicized font with a single strikeout line through the text in the three paragraphs above.

In support of the 2019-2022 revisions, Georgia developed a *Technical Support Document for the Proposed Criteria to Protect Secondary Recreators*, dated October 26, 2021 (Bacteria TSD). This additional information will be discussed further in the analysis of the 2019-2022 revisions.

⁴ U.S. Environmental Protection Agency. 2012. *Recreational Water Quality Criteria*. Office of Water. Washington, DC. 820-F-12-058

Part 3: Discussion of *E. coli* Criteria for the Months of November through April

In the 2016-2018 triennial review, Georgia made revisions to secondary contact bacteria WQS within Rule 391-3-6-.03(6) to revise the state's existing secondary recreation bacteria criteria by replacing the previous fecal coliform-based criteria with criteria for *E. coli* or *Enterococci* for the months of November through April. The adopted bacteria criteria for secondary contact recreation were five times the geometric mean of the primary recreational bacteria criteria. As indicated in GA's 2016-2018 documentation, GAEPD's secondary contact seasonal *E. coli* and *Enterococci* criteria were based on the EPA's 2002 draft document *Implementation Guidance for Ambient Water Quality Criteria for Bacteria*⁵. This document suggested adopting bacteria criteria for secondary recreation that are five times the geometric mean of the primary recreational bacteria criteria. However, this document is draft guidance and applied to the EPA's 1986 bacteria criteria *Ambient Water Quality Criteria for Bacteria: 1986*⁶ (EPA). The EPA 2012 guidance, which replaced the 1986 bacteria criteria, did not include the use of the five times multiplier as a scientifically defensible method to derive secondary recreational criteria. Pursuant to 40 C.F.R. sections 131.6(b) and (c), a state's WQS submission must include "methods used and analyses conducted to support WQS revisions." Since the state criteria solely relied on draft guidance that that has been superseded with updated recommendations that do not include this as a scientifically defensible approach, the EPA concluded that the submission was not consistent with the requirements at 40 C.F.R. section 131.6 and CWA section 303(c). The secondary recreation criteria portions are shown as underlined font with a double underline in the three paragraphs above. However, Georgia provided additional, updated information on the use of secondary recreation criteria within its Bacteria TSD, which will be discussed further in the analysis of the 2019-2022 revisions.

Discussion of 2019-2022 Triennial Review Revisions

The 2019-2022 triennial review revisions are contained in ten paragraphs of regulatory text and are shown below with corresponding underline and strikeout. The first and sixth paragraphs are specific to the removal of the fecal criteria language and the removal of the non-human source language. The second, seventh, and ninth paragraphs add the term "primary," add a description related to sampling, remove a duration statement, and remove a non-human source provision. The third, eighth, and tenth paragraphs revise the *E. coli* geometric mean for the months of November through April, add a description related to sampling, remove a duration statement, and revise the *E. coli* STV. The fourth and fifth paragraphs add a description related to sampling and remove a duration statement. The discussion will address each of these categories of revisions individually, but the discussion applies to any of the applicable paragraph(s). In Appendix A: Proposed Amendments to Chapter 391-3-6-.03, the net result of the EPA's actions are provided to clearly articulate what is in effect for CWA purposes relative to the bacteria criteria in Georgia.

Designated Use: Drinking Water Supplies

⁵ U.S. Environmental Protection Agency. 2002 Draft. *Implementation Guidance for Ambient Water Quality Criteria for Bacteria*. Office of Water. Washington, DC. EPA-823-B-02-003

⁶ U.S. Environmental Protection Agency. 1986. *Ambient Water Quality Criteria for Bacteria: 1986*. Office of Water. Washington, DC. 440-5-84-002

~~For the months of May through October, when water contact recreation activities are expected to occur, fecal coliform not to exceed a geometric mean of 200 counts per 100 mL based on at least four samples collected from a given sampling site over a 30-day period at intervals not less than 24 hours. Should water quality and sanitary studies show fecal coliform levels from non-human sources exceed 200 counts per 100 mL (geometric mean) occasionally, then the allowable geometric mean fecal coliform shall not exceed 300 counts per 100 mL in lakes and reservoirs and 500 counts per 100 mL in free flowing freshwater streams. For the months of November through April, fecal coliform not to exceed a geometric mean of 1,000 counts per 100 mL based on at least four samples collected from a given sampling site over a 30-day period at intervals not less than 24 hours and not to exceed a maximum of 4,000 counts per 100 mL for any sample.~~

~~For the months of May through October, when primary water contact recreation activities are expected to occur, culturable E. coli not to exceed a geometric mean of 126 counts per 100 mL based on at least four samples collected from a given sampling site over a 30-day period at intervals not less than 24 hours. The geometric mean duration shall not be greater than 30 days. There shall be no greater than a ten percent excursion frequency of an E. coli statistical threshold value (STV) of 410 counts per 100 mL in the same 30-day interval. ~~Should water quality and sanitary studies show E. coli levels from non-human sources exceed 126 counts per 100 mL (geometric mean) occasionally, then the allowable geometric mean E. coli shall not exceed 189 counts per 100 mL in lakes and reservoirs and 315 counts per 100 mL in free flowing freshwater streams.~~~~

~~For the months of November through April, culturable E. coli not to exceed a geometric mean of ~~630~~265 counts per 100 mL based on at least four samples collected from a given sampling site over a 30-day period at intervals not less than 24 hours. The geometric mean duration shall not be greater than 30 days. There shall be no greater than a ten percent excursion frequency of an E. coli statistical threshold value (STV) of ~~2050~~861 counts per 100 mL in the same 30-day interval.~~

Designated Use: Recreation

Coastal and estuarine waters: Culturable enterococci not to exceed a geometric mean of 35 counts per 100 mL based on at least four samples collected from a given sampling site over a 30-day period at intervals not less than 24 hours. ~~The geometric mean duration shall not be greater than 30 days.~~ There shall be no greater than a ten percent excursion frequency of an enterococci statistical threshold value (STV) of 130 counts per 100 mL in the same 30-day interval.

All other recreational waters: Culturable E. coli not to exceed a geometric mean of 126 counts per 100 mL based on at least four samples collected from a given sampling site over a 30-day period at intervals not less than 24 hours. ~~The geometric mean duration shall not be greater than 30 days.~~ There shall be no greater than a ten percent excursion frequency of an E. coli statistical threshold value (STV) of 410 counts per 100 mL in the same 30-day interval.

Designated Use: Fishing

~~For the months of May through October, when water contact recreation activities are expected to occur, fecal coliform not to exceed a geometric mean of 200 counts per 100 mL based on at least four samples collected from a given sampling site over a 30-day period at intervals not less than 24 hours. Should water quality and sanitary studies show fecal coliform levels from non-human sources exceed 200 counts per /100 mL (geometric mean) occasionally, then the allowable geometric mean fecal coliform shall not exceed 300 counts per 100 mL in lakes and reservoirs and 500 counts per 100 mL in free flowing freshwater streams. For the months of November through April, fecal coliform not to exceed a geometric mean of 1,000 counts per 100 mL based on at least four samples collected from a given sampling site over a 30-day period at intervals not less than 24 hours and not to exceed a maximum of 4,000 counts per 100 mL for any sample.~~

Estuarine waters:

~~For the months of May through October, when primary water contact recreation activities are expected to occur, culturable enterococci not to exceed a geometric mean of 35 counts per 100 mL based on at least four samples collected from a given sampling site over a 30-day period at intervals not less than 24 hours. The geometric mean duration shall not be greater than 30 days. There shall be no greater than a ten percent excursion frequency of an enterococci statistical threshold value (STV) of 130 counts per 100 mL the same 30-day interval. ~~Should water quality and sanitary studies show enterococci levels from non-human sources exceed 35 counts per 100 mL (geometric mean) occasionally, then the allowable geometric mean enterococci shall not exceed 53 counts per 100 mL in lakes and reservoirs and 88 counts per 100 mL in free flowing freshwater streams.~~~~

~~For the months of November through April, culturable enterococci not to exceed a geometric mean of 17574 counts per 100 mL based on at least four samples collected from a given sampling site over a 30-day period at intervals not less than 24 hours. The geometric mean duration shall not be greater than 30 days. There shall be no greater than a ten percent excursion frequency of an enterococci statistical threshold value (STV) of 650273 counts per 100 mL in the same 30-day interval.~~

All other fishing waters:

~~For the months of May through October, when primary water contact recreation activities are expected to occur, culturable E. coli not to exceed a geometric mean of 126 counts per 100 mL based on at least four samples collected from a given sampling site over a 30-day period at intervals not less than 24 hours. The geometric mean duration shall not be greater than 30 days. There shall be no greater than a ten percent excursion frequency of an E. coli statistical threshold value (STV) of 410 counts per 100 mL in the same 30-day interval. ~~Should water quality and sanitary studies show E. coli levels from non-human sources exceed 126 counts per 100 mL (geometric mean) occasionally, then the allowable geometric mean E. coli shall not exceed 189 counts per 100 mL in lakes and reservoirs and 315 counts per 100 mL in free flowing freshwater streams.~~~~

For the months of November through April, culturable *E. coli* not to exceed a geometric mean of ~~630~~265 counts per 100 mL based on at least four samples collected from a given sampling site over a 30-day period at intervals not less than 24 hours. The geometric mean duration shall not be greater than 30 days. There shall be no greater than a ten percent excursion frequency of an *E. coli* statistical threshold value (STV) of ~~2050~~861 counts per 100 mL in the same 30-day interval.

Removal of Fecal Coliform

Based on the documentation provided by the state in the Bacteria TSD, GAEPD believes “*E. coli* and Enterococci are better indicators for gastrointestinal illness than our previous indicator (fecal coliform).” The EPA has concluded the revisions now make the state regulations consistent with the EPA approved provisions within Rule 391-3-6-.03(6). The revisions are consistent with the CWA and the implementing regulations at 40 C.F.R. Part 131 and therefore approved.

Revision of the *E. coli* Geometric Mean for the Months of November through April

The state revised the language, which was not effective for CWA purposes, and also revised the documentation within the 2019-2022 revisions to ensure that methods used and analyses conducted to support WQS revisions were scientifically defensible. Based on the documentation provided by the state in the Bacteria TSD for the proposed criteria, GAEPD utilized the EPA’s update to the Exposure Factors Handbook, *Update for Chapter 3 of the Exposure Factors Handbook Ingestion of Water and Other Select Liquids*⁷ (2019). This update included a study on water ingestion rates for various recreational activities in and on the water (Dorevitch et al. 2011⁸). The activities were divided into two groups, “limited contact scenarios,” and “full contact scenarios.” The activities in this study were also used to help determine which activities fall under primary and secondary recreation. The state’s definition of secondary contact recreation is based on the activities listed as “limited contact scenarios” in this study. These activities include boating, canoeing (with and without capsizing), fishing, kayaking (with and without capsizing), rowing (with and without capsizing), wading/splashing, and walking. The “full contact scenario” activities in this study were immersion and swimming. GAEPD used values from the EPA’s Exposure Factors Handbook to derive a secondary contact recreation translator using the data provided on Table 3-96 of the Dorevitch et al. study and the state’s calculation of the ingestion rate ratio of limited contact to full contact scenarios. This ratio was determined using weighted ingestion rate averages based on the number of individuals engaging in each activity. The median weighted ratio of primary contact to secondary contact water ingestion is 2.1, indicating that full (primary) contact recreators ingested 2.1 times more water than limited (secondary) contact recreators. Thus, a secondary contact recreation bacteria criteria 2.1 times higher than the primary contact recreation bacteria criteria should be equally protective of human health. Pursuant to 40 C.F.R. sections 131.6(b) and (c), a state’s WQS submission must include “methods used and analyses conducted to support WQS revisions” and “water quality criteria sufficient to protect the designated uses. The 2019-2022 triennial review revisions are consistent with the CWA and the implementing regulations at 40 C.F.R. Part 131 and

⁷ U.S. Environmental Protection Agency. 2019. *Update for Chapter 3 of the Exposure Factors Handbook Ingestion of Water and Other Select Liquids*. Office of Water. Washington, DC. 600/R-18/259F

⁸ Dorevitch, S; Panthi, S; Huang, Y; Li, H; Michalek, AM; Pratap, P; Wroblewski, M; Lui, L; Scheff, PA; Li, A. (2011) Water ingestion during water recreation. *Water Res* 45(5):2020–2028.

therefore approved. This approval closes out the open action on the secondary recreation criteria review for the 2016-2018 and 2019-2022 triennial review submissions.

Add the term Primary for recreation in the months of May through October

The EPA determined that the revisions to add the term “primary,” to water contact recreation activities that occur within months of May through October is consistent with the “primary contact recreation” definition in paragraph 391-3-6-.03(3). These revisions are consistent with the CWA and the implementing regulations at 40 C.F.R. Part 131 and therefore approved.

Removal of Non-Human Source Provision

The State deleted the language, which was not effective for CWA purposes, that allowed for higher bacteria criteria if water quality and sanitary studies show that the bacteria is from a non-human source in the current Fishing and Drinking Water uses within the 2019-2022 revisions. Based on the documentation provided by the state in the Bacteria TSD, GAEPD believes “the source of the bacteria (human or non-human) is no longer relevant and therefore is not an appropriate justification for allowing higher bacteria criteria.” The EPA has concluded the revisions now make the state regulations consistent with the EPA approved provisions within Rule 391-3-6-.03(6). The revisions are consistent with the CWA and the implementing regulations at 40 C.F.R. Part 131 and therefore approved. This approval closes out the open action on the non-human source recreation criteria review for the 2016-2018 and 2019-2022 triennial review submissions.

Revision of the *E. coli* STV

As with the *E. coli* geometric mean, Georgia also revised the “ten percent excursion frequency of an *E. coli* statistical threshold value (STV)” values that apply during November through April for *E. coli* bacteria criteria for Drinking Water and Fishing designated uses to be consistent with the Bacteria TSD as submitted by the state, which recommends a smaller multiplier be used to translate from the STV protective of primary contact recreation to one protective of secondary contact recreation. The criteria are consistent with the CWA and the implementing regulations at 40 C.F.R. Part 131 and therefore approved.

Description Related to Sampling and Removal of Duration Statement

Georgia revised the sampling frequency with the same duration of 30 days for bacteria criteria in the 2019-2022 triennial review. The phrase “based on at least four samples collected from a given sampling site over a 30-day period at intervals not less than 24 hours” was added to replace the prior adopted sentence “[t]he geometric mean duration shall not be greater than 30 days” was included in numerous paragraphs within the bacteria revisions. The number of samples, to be collected by a state in determining if WQS have been exceeded, is not an actionable element of a WQS package. This revision does not establish or change a level of protection related to magnitude, frequency or duration of water quality criteria nor establish designated uses. Pursuant to Section 303(c) of the CWA, the EPA is not required to act on provisions that are not new or revised WQS. This additional language is outside the scope of CWA Section 303(c). While this provision is not reviewed by EPA as a new or revised WQS, it may be considered by the EPA in reviewing the lists of impaired waters

submitted by the state under Section 303(d) of the CWA. The decision to not review this provision in no way confers agreement with the use of this provision for identification of impaired waters under sections 303(d) and 305(b) of the CWA.

Revisions to Recreation and Fishing Descriptions in Rule 391-3-6-.03(6)

- (b) Recreation: ~~General~~Primary contact recreational activities that occur year round such as ~~water skiing, boating, and swimming, diving, whitewater boating (class III and above), water skiing, and surfing,~~ or for any other use requiring water of a lower quality, such as recreational fishing. These criteria are not to be interpreted as encouraging water contact sports in proximity to sewage or industrial waste discharges regardless of treatment requirements:

Georgia revised paragraph 391-3-6-.03(6)(b) to update the description of the Recreation designated use for consistency with the “primary contact recreation” definition in paragraph 391-3-6-.03(3). These revisions are consistent with the CWA and the implementing regulations at 40 C.F.R. Part 131 and therefore approved.

- (c) Fishing: Propagation of Fish, Shellfish, Game and Other Aquatic Life; primary contact recreation in and on the water for the months of May – October, secondary contact recreation in and on the water for the months of November – April; or for any other use requiring water of a lower quality.

Georgia revised paragraph 391-3-6-.03(6)(c) to update the description of the Fishing designated use to make it clear that the applicable bacteria criteria are specific to primary contact recreation and secondary contact recreation in certain seasons of the year as described above. This revision is consistent with the CWA and the implementing regulations at 40 C.F.R. Part 131 and therefore approved.

Revisions to Rule 391-3-6-.03(6)(d)-(f)

- (d) Wild River: For all waters designated in 391-3-6-.03(13~~4~~) as "Wild River," there shall be no alteration of natural water quality from any source.
- (e) Scenic River: For all waters designated in 391-3-6-.03(13~~4~~) as "Scenic River," there shall be no alteration of natural water quality from any source.
- (f) Coastal Fishing: ~~This classification will be applicable to specific sites when so designated by the Environmental Protection Division.~~ For waters designated in 391-3-6-.03(14) as "Coastal Fishing," site specific criteria for dissolved oxygen will be assigned. All other criteria and uses for the fishing designated use ~~classification~~ will apply for coastal fishing.

Georgia revised paragraphs 391-3-6-.03(6)(d) and (e) to correctly renumber the waters designated as “Wild River” and “Scenic River” as being listed under paragraph (14) Specific Water Use Classifications instead of paragraph 391-3-6-.03(13) Acceptance of Data. Georgia also revised

paragraph 391-3-6-.03(6)(f) to remove unnecessary language to specify that waters designated as “Coastal Fishing” are listed under paragraph (14) Specific Water Use Classifications. These revisions are consistent with the CWA and the implementing regulations at 40 C.F.R. Part 131 and therefore approved.

Georgia revised the order of criteria for Fishing designated use in paragraph (6)(c) for consistency with order used under the Drinking Water and Recreation designated uses. The revision includes moving subparagraphs (6)(c)(i) and (6)(c)(ii) to (6)(c)(ii) and (6)(c)(iii), respectively, and moving the bacteria criteria to subparagraph (6)(c)(i). The EPA determined this change within Rule 391-3-6-.03(6) is an editorial change to Georgia’s EPA-approved WQS. Such changes include punctuation, re-lettering, and spelling changes which are considered minor editorial revisions. These revisions do not alter the meaning or intent of the previously approved corresponding provisions. The EPA approves the editorial changes as being consistent with the CWA and the EPA’s implementing regulations. The EPA notes, however, that its approvals of these editorial changes do not re-open the EPA’s prior approvals of the underlying WQS.

Revisions to Rule 391-3-6-.03(12)

- (12) **Bacteria Criteria.** The criteria for bacteria provide the regulatory framework to support the USEPA requirement that States protect all waters for recreational use. The bacterial indicators for primary and secondary contact recreational waters are E. coli and enterococci. ~~The bacterial indicator for secondary contact recreational waters is fecal coliform, E. coli or enterococci.~~

Georgia revised paragraph 391-3-6-.03(12) to be consistent with the revision of Rule 391-3-6-.03(6), updating the bacteriological criteria to protect human health in freshwater and coastal and estuarine waters discussed in more detail above. These revisions are consistent with the CWA and the implementing regulations at 40 C.F.R. Part 131 and therefore approved.

Revisions to Rule 391-3-6-.03(14)

<u>Altamaha River</u>	<u>Doctors Creek to Butler River</u>	<u>Recreation</u>
<u>South River</u>	<u>Honey Creek (Henry County) to Lake Jackson at Georgia Hwy. 36</u>	<u>Recreation</u>
Oconee River	<u>Oochee Creek to Long Branch Flat Creek</u>	<u>Recreation and Drinking Water</u>
<u>Oconee River</u>	<u>Flat Creek to Long Branch</u>	<u>Drinking Water</u>
<u>Wassaw Sound</u>	<u>All littoral waters including the waters on the ocean side of Little Tybee and Wassaw Islands</u>	<u>Recreation</u>
<u>Satilla River</u>	<u>Alabaha River to Woodbine Boat Ramp Hwy. 17</u>	<u>Recreation</u>
<u>Broad River</u>	<u>Comer Carlton Rd (Athens Hwy) to Mill Branch</u>	<u>Recreation</u>
<u>Broad River</u>	<u>Wildcat Bridge Rd. to Scull Shoal Creek</u>	<u>Recreation</u>

Chattooga River	Georgia-North Carolina State Line to Tugalo <u>Reservoir confluence with West Fork Chattooga River</u>	Wild and Scenic
<u>Chattooga River</u>	<u>Confluence with West Fork Chattooga River to Tugalo Reservoir</u>	<u>Recreation and Wild and Scenic</u>
<u>St. Marys River</u>	<u>Deep Creek to Boone Creek</u>	<u>Recreation</u>
<u>St. Marys River</u>	<u>Prospect Landing Rd. to Little St. Marys River</u>	<u>Recreation</u>
<u>Alapaha River</u>	<u>Willacoochee River to Dampier Branch</u>	<u>Recreation</u>
<u>Alapaha River</u>	<u>Cherry Creek to State Line</u>	<u>Recreation</u>
<u>Withlacoochee River</u>	<u>Tiger Creek to State Line</u>	<u>Recreation</u>

The addition of the Recreation use to these segments recognizes current use of this water for full immersion contact with water where there is significant risk of ingestion that includes, but is not limited to, swimming, diving, whitewater boating (Class III and above), water skiing, and surfing. Due to the provisions of 391-3-6-.03(6)(b) that uses for the Recreation use include “[p]rimary contact recreational activities that occur year round, such as swimming, diving, whitewater boating (class III and above), water skiing and surfing, or for any other use requiring water of a lower water quality, such as recreational fishing,” the assignment of the Recreation use also incorporates protective criteria for the aquatic life uses of the Fishing use. Therefore, the assignment of the Recreation use for these segments provides for the protection of the CWA section 101(a) use goals. The revision is consistent with the CWA and the implementing regulations at 40 C.F.R. Part 131 and therefore approved.

All littoral waters on the ocean side of Sea and Sapelo Islands, and on the ocean and sound side of St. Simons Island		<u>Recreation</u>
<u>Altamaha and Doboy Sounds</u>	<u>All littoral waters including the waters on the ocean side of Sapelo and Little St. Simons Islands</u>	<u>Recreation</u>
Little Ogeechee River	South end of White Bluff Road near Carmelite Monastery to Open Sea <u>open sea and littoral waters of Skidaway and Ossabaw Islands</u>	Recreation
Ogeechee River	U.S. Hwy. 17 Bridge to Open Sea <u>open sea and littoral waters of Skidaway, Ossabaw, Sapelo, and St. Catherines Islands</u>	Recreation
<u>Ossabaw Sound</u>	<u>All littoral waters including the waters on the ocean side of Wassaw and Ossabaw Islands</u>	<u>Recreation</u>
<u>Sapelo Sound</u>	<u>All littoral waters including the waters on the ocean side of St. Catherines and Sapelo Islands</u>	<u>Recreation</u>

<u>St. Catherines Sound</u>	<u>All littoral waters including the waters on the ocean side of Ossabaw and St. Catherines Islands</u>	<u>Recreation</u>
All littoral waters on the ocean side of Cumberland Island		Recreation
All littoral waters on the ocean and sound side of Jekyll Island		Recreation
<u>St. Andrews Sound</u>	<u>All littoral waters including the waters on the ocean side of Jekyll and Cumberland Islands</u>	<u>Recreation</u>
<u>St. Simons Sound</u>	<u>The littoral waters on the ocean side of Sea Island, and all littoral waters including the waters on the ocean side of St. Simons and Jekyll Islands</u>	<u>Recreation</u>
<u>Savannah River</u>	<u>Fort Pulaski (Mile 0) to Open Sea open sea and all littoral waters including those on the ocean side of Tybee Island</u>	<u>Recreation</u>
St. Marys River All littoral waters on the ocean side of Cumberland Island	<u>All littoral waters including the waters on the ocean side of Cumberland Island</u>	<u>Recreation</u>
Notley Nottely River/Lake	Confluence with Fortenberry Creek to Lake Notley <u>Nottely</u> Dam	Recreation and Drinking Water
Notley Nottely River	Lake Notley <u>Nottely</u> Dam to Georgia - North Carolina State Line	Recreation

The revisions to Rule 391-3-6-.03(14) include the clarification of the boundaries of coastal recreation waterbodies by incorporating various sounds to the coastal recreation designations and the correction of the river basin in which Big Creek is located (updated from the Suwannee River to the Satilla River Basin). These revisions are consistent with the CWA and the implementing regulations at 40 C.F.R. Part 131 and therefore approved.

The revisions to Rule 391-3-6-.03(14) also include the correction of the spelling of Nottely River and Lake Nottely in the Tennessee River Basin. This is an editorial change to Georgia's EPA-approved WQS. Such changes include punctuation, re-lettering, and spelling changes which are considered minor editorial revisions. These revisions do not alter the meaning or intent of the previously approved corresponding provisions. The EPA approves the editorial changes as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approvals of these editorial changes do not re-open the EPA's prior approvals of the underlying WQS.

Revisions to Rule 391-3-6-.03(17)

Clarification of application specific criteria for Lakes and Major Lake Tributaries

- (17) Specific Criteria for Lakes and Major Lake Tributaries.** In addition to the general criteria, the following lake specific criteria are ~~deemed necessary and shall be required for the specific water usage as shown:~~

Georgia revised paragraph 391-3-6-.03(17) to delete the unnecessary phrases “deemed necessary and shall be” and “for the specific water usage as shown.” This revision is consistent with the CWA and the implementing regulations at 40 C.F.R. Part 131 and therefore approved.

Clarification of Applicable Temperature Criteria

1. U.S. 27 at Franklin to New River: Water temperature shall not exceed the Fishing criterion as presented in 391-3-6-.03(6)(c)(iv).
2. New River to West Point Dam: Water temperature shall not exceed the Recreation criterion as presented in 391-3-6-.03(6)(b)(iv).
1. Georgia Highway 39 to Cowikee Creek: Water temperature shall not exceed the Fishing criterion as presented in 391-3-6-.03(6)(c)(iv).
2. Cowikee Creek to Walter F. George Dam: Water temperature shall not exceed the Recreation criterion as presented in 391-3-6-.03(6)(b)(iv).

Georgia clarified the applicable temperature criteria for the arms of West Point Lake and Lake Walter F. George, which is a restatement of the existing criteria that already apply to these lakes as consistent with Rule 391-3-6-.03(14) and the appropriate designated uses for each waterbody. These revisions are consistent with the CWA and the implementing regulations at 40 C.F.R. Part 131 and therefore approved.

Lakes Oconee and Sinclair Revisions

The state adopted criteria for Lakes Oconee and Sinclair in the 2016-2018 triennial review and then revised certain portions of the criteria in the 2019-2022 triennial review. Following the receipt of an updated TSD, *Lakes Oconee and Sinclair Proposed Criteria Technical Support Document*, dated October 26, 2021 (2021 NNC TSD), the EPA can now complete its review of the criteria submitted in 2018. The substance of the 2021 NNC TSD focuses on the nutrient criteria provisions. All other provisions added in 2018 specific to these two lakes, such as bacteria, temperature, etc. are restatements of existing criteria and were provided for clarity as to what applies to these lakes. Given the new information and, in some circumstances additional regulatory changes, EPA’s analysis will cover its review of the 2018 and 2022 provisions in three sections: chlorophyll *a*, other nutrient related criteria, and all other criteria.

The following shows the entirety of the new language adopted for these two lakes in 2018:

(g) Lake Oconee: Those waters impounded by Wallace Dam and upstream on the Oconee River as well as other impounded tributaries to an elevation of 436 feet mean sea level corresponding to the normal pool elevation of Lake Oconee.

(i) Chlorophyll a: For the months of April through October, the average of monthly mid-channel photic zone composite samples shall not exceed the chlorophyll a concentrations at the locations listed below more than once in a five-year period:

- | | |
|--|----------------|
| <u>1. Oconee Arm at Highway 44:</u> | <u>26 µg/L</u> |
| <u>2. Richland Creek Arm:</u> | <u>15 µg/L</u> |
| <u>3. Upstream from the Wallace Dam Forebay:</u> | <u>18 µg/L</u> |

(ii) pH: within the range of 6.0 – 9.5 standard units.

(iii) Total Nitrogen: Not to exceed a growing season average of 2 mg/L in the photic zone.

(iv) Total Phosphorous: Not to exceed a growing season average of 0.2 mg/L in the photic zone.

(v) Bacteria: E. coli shall not exceed the Recreation criterion as presented in 391-3-6-.03(6)(b)(i).

(vi) Dissolved Oxygen: A daily average of 5.0 mg/L and no less than 4.0 mg/L at all times at the depth specified in 391-3-6-.03(5)(g).

(vii) Temperature: Water temperature shall not exceed the Recreation criterion as presented in 391-3-6-.03(6)(b)(iv).

(h) Lake Sinclair: Those waters impounded by Sinclair Dam and upstream on the Oconee River as well as other impounded tributaries to an elevation of 340 feet mean sea level corresponding to the normal pool elevation of Lake Sinclair.

(i) Chlorophyll a: For the months of April through October, the average of monthly mid-channel photic zone composite samples shall not exceed the chlorophyll a concentrations at the locations listed below more than once in a five-year period:

- | | |
|--|----------------|
| <u>1. Oconee River Arm Midlake:</u> | <u>14 µg/L</u> |
| <u>2. Little River and Murder Creek Arm Upstream from Highway 441:</u> | <u>14 µg/L</u> |
| <u>3. Upstream from the Sinclair Dam Forebay:</u> | <u>10 µg/L</u> |

(ii) pH: within the range of 6.0 – 9.5 standard units.

(iii) Total Nitrogen: Not to exceed a growing season average of 2 mg/L in the photic zone.

(iv) Total Phosphorous: Not to exceed a growing season average of 0.2 mg/L in the photic zone.

(v) Bacteria: E. coli shall not exceed the Recreation criterion as presented in 391-3-6-.03(6)(b)(i).

(vi) Dissolved Oxygen: A daily average of 5.0 mg/L and no less than 4.0 mg/L at all times at the depth specified in 391-3-6-.03(5)(g).

(vii) Temperature: Water temperature shall not exceed the Recreation criterion as presented in 391-3-6-.03(6)(b)(iv).

The following shows the revised language adopted for these two lakes in the 2019-2022 triennial review:

(g) Lake Oconee: Those waters impounded by Wallace Dam and upstream on the Oconee River as well as other impounded tributaries to an elevation of 436 feet mean sea level corresponding to the normal pool elevation of Lake Oconee.

NO CHANGE to (i)

(ii) pH: within the range of 6.0 – ~~9.59~~9.0 standard units.

~~(iii) Total Nitrogen: Not to exceed a growing season average of 2 mg/L in the photic zone.~~

~~(iv) Total Phosphorous: Not to exceed a growing season average of 0.2 mg/L in the photic zone.~~

NO CHANGE to (v) through (vii)

(h) Lake Sinclair: Those waters impounded by Sinclair Dam and upstream on the Oconee River as well as other impounded tributaries to an elevation of 340 feet mean sea level corresponding to the normal pool elevation of Lake Sinclair.

NO CHANGE to (i)

(ii) pH: within the range of 6.0 – ~~9.59~~9.0 standard units.

~~(iii) Total Nitrogen: Not to exceed a growing season average of 2 mg/L in the photic zone.~~

~~(iv) Total Phosphorous: Not to exceed a growing season average of 0.2 mg/L in the photic zone.~~

NO CHANGE to (v) through (vii)

Chlorophyll *a* Criteria

The 2021 NNC TSD was created by the state to provide further information and transparency in how the numeric nutrient criteria were developed to derive scientifically defensible criteria protective of the applicable designated uses.

As summarized in the 2021 NNC TSD, the site-specific criteria for chlorophyll *a* are based on water quality samples collected quarterly once every five years and monthly during the growing season, from April through October beginning in 2009. This data was used to calibrate water quality models and develop numeric water quality criteria for the lakes. This culminated in the following chlorophyll *a* criteria for Lakes Oconee and Sinclair:

Lake	Duration	Magnitude by Lake Location	Frequency
Lake Oconee	For the months of April through October, the average of monthly mid-channel photic zone composite samples shall not exceed...	26 µg/L at the Oconee Arm at Highway 44 15 µg/L at the Richland Creek Arm 18 µg/L upstream from the Wallace Dam Forebay	...more than once in a five-year period.
Lake Sinclair	For the months of April through October, the average of monthly mid-channel photic zone composite samples shall not exceed...	14 µg/L at the Oconee River Arm Midlake Little River 14 µg/L at the Murder Creek Arm Upstream from Highway 441 10 µg/L at the upstream from the Sinclair Dam Forebay	...more than once in a five-year period.

The process of developing the growing season chlorophyll *a* for Lakes Oconee and Sinclair included using 2001-2012 model results from LSPC watersheds models and EFDC three dimensional lake models. Five scenarios were run using the models to explain the sources and contributions of chlorophyll *a* levels observed. The models included all major point sources of nutrients. The watershed models simulated the effects of surface runoff on both water quality and flow and were calibrated to available data. Aside from the calibration and forested scenarios, the state's permitting strategy is considered a part of the other scenarios. GAEPD plans to implement a nutrient NPDES permitting strategy to reduce the limits (or for facilities without limits, put limits in place) to amounts less than the current strategy daily load of 542 lbs/day. The newer values that GAEPD will put in place are 278 and 32 lbs/day for Lake Oconee and Lake Sinclair, respectively. According to

the modeling, the scenarios utilizing this approximately 50% reduction are indicating lower levels than the calibration scenario, which is to be expected with modeling reductions to the existing condition.

Additionally, the range of chlorophyll *a* criteria are typical of Piedmont lakes. Lakes Oconee and Sinclair have designated uses of Recreation and Drinking water, which also support Fishing. The criteria were selected to protect the established designated uses for both lakes. While there are past instances of elevated cyanobacteria cell counts, bloom events that produce toxins are rare in Georgia and cell count alone is not a predictor of toxin production. There have been no recreational closures due to harmful algal blooms (HAB) at any of the Georgia Power operated beaches. Finally, the criteria are expected to benefit the drinking water use, as the reductions should help reduce the potential for taste and odor problems at the drinking water intakes.

The magnitude for the six criteria segments, expressed as a growing season average, best reflects the modeled data and the sampling period that was used to generate the data. This in combination with a frequency of not to be exceeded more than once in a five year period. The frequency of exceedance of once in five years is appropriate, based on consideration of climatic and hydrologic factors, as well as to ensure adequate recovery times for natural assimilation processes to occur subsequent to events where an exceedance of the criteria has occurred in a water body.

As shown in Figures 5-2 and 5-3 of the 2021 NNC TSD, the models generally show that the reduction scenarios result in justification that the criteria in each of the six segments will be met in conditions that mirror the period of record represented by the historical data. Therefore, water quality modeling shows that the proposed criteria coupled with the point source nutrient management strategy will protect existing designated uses. GAEPD expects algal blooms will decrease as nutrient levels in discharges decrease, which will be required as part of the implementation of the point source nutrient management strategy. Since the proposed lake criteria were derived based partially on historical data, and because both the lakes and the waterbodies downstream have historically met their designated uses, the criteria are not expected to impact downstream uses.

Based on the Agency's analysis, the EPA has determined that the adoption of site-specific chlorophyll *a* criteria for Lakes Oconee and Sinclair within Rule 391-3-6-.03(17) is consistent with the CWA section 303(c) and the implementing regulations at 40 C.F.R. Part 131 and therefore approved. This approval closes out the open action on the 2016-2018 triennial review submittal. The chlorophyll *a* criteria were not revised in the 2019-2022 revisions and therefore no further action by EPA is required in regards to chlorophyll *a* criteria.

Other Nutrient Related Criteria

pH

In the 2016-2018 triennial review, Georgia adopted a pH range of 6.0-9.5 for lakes Oconee and Sinclair, which reflected an increased upper bound from 8.5 to 9.5, as the lower bound of 6.0 is already an existing, approved lower bound of the pH range for freshwater. Data submitted from the state in the 2021 NNC TSD shows that most of the time the surface pH ranges between 5.5 and 9.0.

Extreme pH can kill adult fish and invertebrate life directly and can also damage developing juvenile fish. It will strip a fish of its slime coat and high pH level ‘chaps’ the skin of fish because of its alkalinity. When the pH of freshwater becomes highly alkaline (e.g. 9.6), the effects on fish may include: death, damage to outer surfaces like gills, eyes, and skin and an inability to dispose of metabolic wastes. High pH may also increase the toxicity of other substances. For example, the toxicity of ammonia is ten times more severe at a pH of 8 than it is at pH 7. It is directly toxic to aquatic life when it appears in alkaline conditions. Low concentrations of ammonia are generally permitted for discharge. Based on the review of the state’s submittal, the EPA concluded that the requirements at 40 C.F.R. section 131.6 were not met for the revision to increase the upper pH bound to 9.5.

However, in the 2019-2022 revisions, the state adopted a provision to reduce the upper pH bound from 9.5 to 9.0. The 9.0 value is consistent with the EPA’s criteria in *Quality Criteria for Water*⁹ (The Gold Book) which recommends a pH upper bound of 9.0 for freshwater aquatic life. Therefore, the revision to include an upper pH bound of 9.0 is consistent with the CWA and the implementing regulations at 40 C.F.R. Part 131 and therefore approved. The approval of the 9.0 upper bound means that the range of 6.0-9.0 is now in place for both lakes, is effective for CWA purposes and closes out the pH related review for the 2016-2018 and 2019-2022 triennial reviews.

Total Nitrogen and Total Phosphorus

In the 2016-2018 triennial review, the state adopted total nitrogen (TN) and total phosphorus (TP) criteria for the two lakes. Based on the Agency’s analysis of the 2021 NNC TSD, the EPA determined that the 2016-2018 triennial review adoption of site-specific TN and TP criteria for Lakes Oconee and Sinclair within Rule 391-3-6-.03(17) did not contain water quality criteria sufficient to protect the designated uses. Pursuant to 40 CFR sections 131.6(b) and (c), a state’s WQS submission must include “methods used and analyses conducted to support WQS revisions” and “water quality criteria sufficient to protect the designated uses.” Based on the EPA’s analysis, the Agency concluded that the revisions were inconsistent with the requirements at 40 CFR sections 131.6 and 131.11, and CWA section 303(c). However, the state subsequently deleted the additions of the TN and TP criteria, which were not effective for CWA purposes. The EPA has concluded the 2019-2022 revisions are consistent with the CWA and the implementing regulations at 40 C.F.R. Part 131 and therefore approved. The approval effect is that for CWA purposes, there are no TN or TP criteria in place for these lakes, and the TN and TP reviews for the 2016-2018 and 2019-2022 triennial reviews are closed out.

All Other Criteria

All that remains for the review of provisions added with the 2016-2018 triennial review addition of site-specific criteria for Lakes Oconee and Sinclair are bacteria, dissolved oxygen, and temperature, which are restatements of existing criteria and were provided for clarity as to what applies to these lakes. These revisions are consistent with the CWA and the implementing regulations at 40 C.F.R. Part 131 and therefore approved.

⁹ U.S. Environmental Protection Agency. 1986. *Quality Criteria for Water (The Gold Book)*. Washington, DC. EPA. 440/5-86-001

Revisions to Rule 391-3-6-.03(18)

(18) Site Specific Metal Criteria based on Biotic Ligand Models and Water Effect Ratio

(a) The Biotic Ligand Model (BLM) is a metal bioavailability model that uses receiving water body characteristics and monitoring data to develop site-specific water quality criteria. A study plan and findings shall be submitted and approved that conforms to the requirements outlined in the 2007 Aquatic Life Ambient Freshwater Quality Criteria-Copper 2007 Revision EPA-822-R-07-001.

(i) Site-specific Copper criteria developed using the BLM:

Buffalo Creek (Richards Lake Dam to confluence with Little Tallapoosa River):

$$\text{Acute Copper criteria} = 4.9 \times 10^8 e^{\left(-0.5 \left(\left(\frac{(\ln(pH) - 2.316)}{-0.1816} \right)^2 + \left(\frac{(\ln(DOC) - 32.18)}{-5.453} \right)^2 \right) \right)}$$

$$\text{Chronic Copper criteria} = 3.043 \times 10^8 e^{\left(-0.5 \left(\left(\frac{(\ln(pH) - 2.316)}{-0.1816} \right)^2 + \left(\frac{(\ln(DOC) - 32.18)}{-5.453} \right)^2 \right) \right)}$$

(b) A Water Effect Ratio (WER) is site specific and is the ratio of the toxicity of a metal in site water to the toxicity of the same metal in standard laboratory. A study plan and findings shall be submitted and approved that conforms to the requirements outlined in the 1994 Interim Guidance on Determination and Use of Water Effect Ratios for Metals EPA-823-B-94-001. If the WER is for Copper, the Interim Guidance may be complemented with the 2001 Streamline Water Effect Ratio Procedure for Discharges of Copper EPA-822-R-01-005.

Georgia inserted provisions allowing the use and development of site-specific metal criteria based on the BLM or a WER to protect aquatic life is consistent with 40 C.F.R. section 131.11(b)(1)(ii) and (iii). The EPA issued a revised national recommended freshwater aquatic life criterion for copper, *Aquatic Life Ambient Freshwater Quality Criteria – Copper*¹⁰ (2007). Adding “*Streamlined Water-effects Ratio Procedure for Discharges of Copper (EPA-822-R-01-005)*” codifies the EPA’s most recent guidance for streamlined water-effects ratio procedures. The use of the BLM and WER methods are bound by the provisions of this subparagraph, including that any criterion recalculated by this method would need to be promulgated as a revision to the rule and subsequently approved by the EPA before being used for CWA purposes. The EPA has determined that this change to Rule 391-3-6-.03(18) is consistent with the CWA section 303(c) and the implementing regulations at 40 C.F.R. Part 131 and therefore approved.

Term Revisions Not Specific to a Single Rule Location

¹⁰ U.S. Environmental Protection Agency. 2007 Revision. *Aquatic Life Ambient Freshwater Quality Criteria Copper*. Office of Water. Washington, DC. EPA. 822-R-07-001

Georgia revised one term during the 2019-2022 triennial review, incorporating the term “designated use(s)” to replace previous instances of the terms “classifications” “classified water usage” “water usage” “use classification” and “water use classifications.” These revisions are consistent with the CWA and the implementing regulations at 40 C.F.R. Part 131 and therefore approved.

Other Revisions Which are Not New or Revised Water Quality Standards

Revision to Rule 391-3-6-.03(6)(a)(i) and Rule 391-3-6-.03(6)(c)(iii)

- (i) Bacteria: ~~The provisions of paragraph 391-3-6-.03(6)(a)(i)1. shall apply until the effective date of EPA’s final approval of the criteria specified in paragraph 391-3-6-.03(6)(a)(i)2.~~
- (iii) Bacteria: ~~The provisions of paragraph 391-3-6-.03(6)(c)(iii)1. shall apply until the effective date of EPA’s final approval of the criteria specified in paragraphs 391-3-6-.03(6)(c)(iii)2. and 391-3-6-.03(6)(c)(iii)3.~~

In the 2016-2018 triennial review, Georgia added paragraphs 391-3-6-.03(6)(a)(i) and (c)(iii) and subsequently removed the paragraphs in the 2019-2022 triennial review regarding the application of certain criteria pending the EPA’s final approval. This provision does not establish or change a level of protection related to magnitude, frequency or duration of water quality criteria nor establish designated uses. The EPA has determined this provision does not constitute new or revised WQS that the EPA has the authority and duty to approve or disapprove under Section 303(c)(3) of the CWA.

Part III - EPA’s Conclusions

Based on the reasons outlined above, it is our conclusion that the requirements of the CWA and 40 C.F.R. Part 131 have been met for the new or revised WQS contained in Georgia’s 2019-2022 triennial review submission. Therefore, the approval of the new or revised criteria in the current 2019-2022 triennial review addressed in this Decision Document have the cumulative effect of resolving the 2018 narrative submission and the bacteria and nutrient provisions of the 2016-2018 triennial review.

Jeaneanne M. Gettle, Director
Water Division

Appendix A Proposed Amendments to Chapter 391-3-6-.03