2020 Georgia 305(b)/303(d) Integrated List and Supporting Documentation
Response to Public Comments

- The Table of Changes between the Final 2018 and Draft 2020 Lists

    1. There is a typographical error for GAR031300050405 - Flint River (Flat Shoals Road to Red Oak Creek). In the final line of the "Change" column it says (The Fishing Use "if") instead of "The Fishing Use is").

Response: The typographical error has been fixed.

- Comments regarding Walter F. George Lake (AUIDs: GAR031300031601 & GAR031300031304)

    1. The standard that limits chlorophyll *a* at the dam-pool and mid-lake stations is biased low. The Clean Lakes Study that was used to determine the chlorophyll *a* standard was based on data that were acquired from 1991 to 1993 when chlorophyll *a* values were lower than longer term, representative conditions. Higher chlorophyll *a* values occurred in subsequent years even though the total phosphorus concentration were consistent with or lower than those that occurred during the Clean Lake Study. The criteria should be revised.

Response: The chlorophyll *a* criteria adopted for Lake Walter F. George are protective of the lake's designated use. The fact that chlorophyll levels have increased since lake criteria were adopted is irrelative. The cause of the increasing chlorophyll levels will be determined when the TMDL is developed and appropriate allocations will be provided to ensure that the chlorophyll criteria is met in the future. As the model is being developed for the TMDL, it may become evident that the lake criteria need to be revised. If this is the case it will be done under a Water Quality Standard revision process. GA EPD is required to make 305(b)/303(d) assessments using current criteria. Therefore, the mid-lake portion of Walter F. George is being assessed as impaired since the chlorophyll *a* criterion was exceeded 3 times in the last 5 years.

    2. Further reductions in total phosphorus loads will have an insignificant impact on chlorophyll *a* concentrations. Even if phosphorus concentration were consistently less than or equal to 20 ug/L there would still be periodic exceedance of the chlorophyll criteria.

Response: The cause of the elevated chlorophyll levels will be determined when the Total Maximum Daily Load (TMDL) is developed for Walter F George. GA EPD intends to develop an appropriate set of models that can be used to understand the sources and sinks of nutrients and their effect on chlorophyll *a* levels in the Chattahoochee River Basin chain of lakes from Lake Lanier to Lake Seminole.

    3. Further reductions in total phosphorus loads from point sources will have minimal impact on chlorophyll *a* concentrations in Walter F. George. Nonpoint sources provide the majority of the total phosphorus load to the lake.

Response: A TMDL is the amount of a pollutant that can be assimilated by the receiving waterbody without exceeding the applicable water quality standard. In the case for Walter F. Georgie, it is the

growing seasonal average chlorophyll standard. The cause of the elevated chlorophyll levels will be determined when the TMDL is developed for Walter F George and appropriate allocations will be provided in the TMDL. As outlined in the Federal Register (40 CFR 130.2), the TMDL is the sum of the individual wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources, as well as natural background for a given waterbody. The TMDL must also include a margin of safety (MOS), either implicitly or explicitly, that accounts for the uncertainty in the relationship between pollutant loads and the water quality response of the receiving waterbody. GA EPD will provide protective WLAs including those for permitted stormwater, LAs, and an MOS in the TMDL.

4. Chlorophyll is not trending upward but is rather highly variable and not well correlated to phosphorus concentrations.

Response: The data shows that the chlorophyll *a* levels in Walter F. George were trending downward until 2010-2011 and then started trending upward as shown in Figures 2 and 3 from the report titled *Review of the Chlorophyll a Standard for the Walter F. George Reservoir* (May 2020) that was submitted with the Columbus Water Works comments. These figures are shown below with blue lines depicting our general observation of downward followed by upward trend.

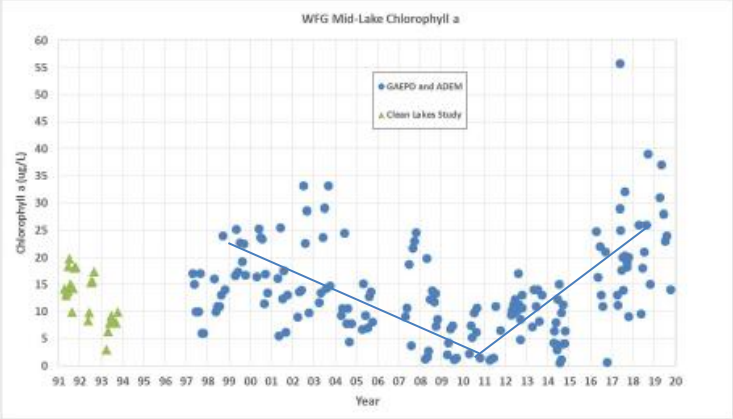


Figure 2 – Time Series of Chlorophyll *a* at the Mid-Lake Station

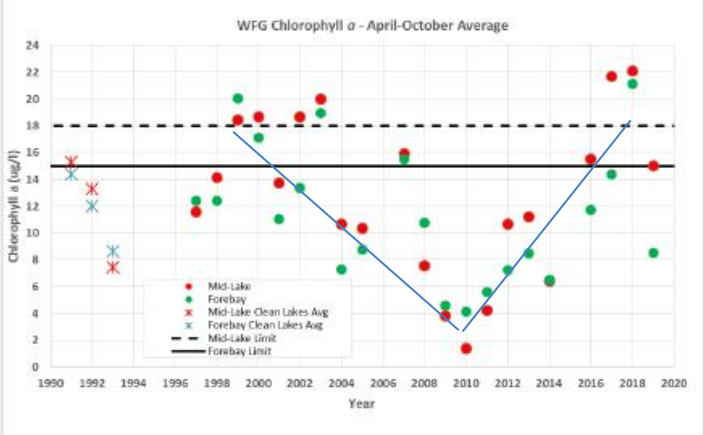


Figure 3 – Average Growing Season Chlorophyll *a* Concentrations at the Dam-Pool and Mid-Lake Stations

The growing season average chlorophyll *a* levels currently are not meeting the water quality criteria for the lake and therefore the lake is not supporting its designated use of "recreation" and is considered impaired. EPA has public noticed the *Draft Ambient Water Quality Criteria Recommendations for Lakes and Reservoirs of the Conterminous United States: Information Supporting the Development of Numeric Nutrient Criteria* that indicates that elevated chlorophyll *a* levels may demonstrate there is an imbalance in the phytoplankton biomass to zooplankton biomass ratio effect the lake aquatic life. It is unknown at this time if phosphorus is the cause for the increase in chlorophyll levels.

5. We encourage EPD to create a timely TMDL Implementation Plan for Lake Walter F. George and to include stakeholders in the development.

Response: The development of the TMDL for Walter F. George is a priority for GA EPD. We already have a contract to develop the watershed and lake models for the system. We will be looking at how the upstream lakes contribute to Walter F. George, and how Walter F. George contributes to the downstream lakes, including Lake Seminole. Stakeholders will be included in the TMDL development process as they were for the development of chlorophyll *a* TMDLs for other lakes including Lake Lanier, Lake Allatoona, and Carters Lake.

- Comments regarding stream segments listed in the Satilla River Basin.

1. Big Creek (GAR030702010712) Ware, Brantley – (Laura S. Walker Lake to South Prong Big River) should read Big Creek (GAR030702010712) Ware, Brantley – (Laura S. Walker Lake to South Prong Big Creek).

Response: The listing has been corrected.

2. Big Satilla Creek (GAR030702020101) Jeff Davis, Appling – (Headwaters near Hazlehurst to Sweetwater Creek near Baxley) is listed as not supporting due to dissolved oxygen and fecal coliform and the source is listed as Urban Runoff. This is a fairly rural agricultural area. What data does EPD have that suggests the source of the impairment is due to urban runoff?

Response: The source of the Big Satilla Creek impairment has been changed to Nonpoint Source.

3. Buffalo Creek (GAR030702011102) Brantley – (Little Buffalo Creek to Satilla River) is listed as not supporting due to fecal coliform and dissolved oxygen. Adopt-A-Stream volunteers have been monitoring this site for E. coli, dissolved oxygen, and other parameters since 2015.

Response: Comment noted. Adopt-A-Stream data may be used for screening purposes since it does not have an approved SQAP. As outlined in the Ga. Comp. R. & Regs. r. 391-3-6-.03(13), an approved site-specific sampling and quality assurance plan (SQAP) is required if the data is to be considered for 305(b)/303(d) listing purposes.

4. Colemans Creek (GAR030702020301) Appling, Wayne counties – (Dry Branch South of Surrency to Big Satilla Creek near Screven) is not supporting due to pH and fecal coliform and is Category 4a and 5. TMDLs were completed for DO in 2001 and fecal coliform in 2006. Is the creek now within criteria for DO, or is it being studied to determine the natural DO of the area?

This is a blackwater stream and could have naturally occurring low pH levels. Should this segment be listed as Category 3, while EPD studies the issue?

Response: Coleman Creek is a blackwater stream. However, in 2014 the pH measured at RV_07_3017 was below the minimum criteria twice and over the maximum criteria twice in February. The water is listed as impaired for pH based on the high pH readings. Our Brunswick office has measured high pH values especially in the winter months at several sites in Southeast Georgia. There were no dissolved oxygen, temperature, or fecal coliform violations observed in 2014. Please note that the low DO impairments were removed in 2006 based on the 2003 data and the natural DO of 1.57 mg/L established by the DO TMDL water quality model.

5. Big Creek (GAR030702010704) Brantley County – (South Prong Big Creek to Satilla River) is listed in Category 4a. This segment should be re-evaluated to determine if the levels are "natural DO" for the area before it is determined whether the DO criteria is being met. (This segment is adjacent to GAR030702010712, for which EPD needs to determine the "natural DO.")

Response: The latest data collected in Big Creek at station RV_07_2987 was from 2008 and is provide in the Table below. The water quality model used to develop the Dissolved Oxygen TMDLs for the Satilla River Basin established the natural DO as 3.23 mg/L at station RV_07_2987. Of 21 DO readings in 2008 given in the last column of table below, 7 were below the natural, so the water has been listed as impaired.

RV_07_2987	Big Creek at SR 520 / U.S. Hwy 82 near H	01/22/2008	14:00:00	8.7
RV_07_2987	Big Creek at SR 520 / U.S. Hwy 82 near H	01/28/2008	13:50:00	8.87
RV_07_2987	Big Creek at SR 520 / U.S. Hwy 82 near H	02/05/2008	14:00:00	6.49
RV_07_2987	Big Creek at SR 520 / U.S. Hwy 82 near H	02/12/2008	15:00:00	7.32
RV_07_2987	Big Creek at SR 520 / U.S. Hwy 82 near H	03/17/2008	13:00:00	6.12
RV_07_2987	Big Creek at SR 520 / U.S. Hwy 82 near H	04/10/2008	12:00:00	5.56
RV_07_2987	Big Creek at SR 520 / U.S. Hwy 82 near H	04/15/2008	13:50:00	5.85
RV_07_2987	Big Creek at SR 520 / U.S. Hwy 82 near H	04/23/2008	13:00:00	3.9
RV_07_2987	Big Creek at SR 520 / U.S. Hwy 82 near H	04/30/2008	13:15:00	3.87
RV_07_2987	Big Creek at SR 520 / U.S. Hwy 82 near H	05/07/2008	13:30:00	1.04
RV_07_2987	Big Creek at SR 520 / U.S. Hwy 82 near H	06/23/2008	12:45:00	1.08
RV_07_2987	Big Creek at SR 520 / U.S. Hwy 82 near H	07/15/2008	12:40:00	1.86
RV_07_2987	Big Creek at SR 520 / U.S. Hwy 82 near H	07/29/2008	13:00:00	3.45
RV_07_2987	Big Creek at SR 520 / U.S. Hwy 82 near H	08/06/2008	11:35:00	1.56
RV_07_2987	Big Creek at SR 520 / U.S. Hwy 82 near H	08/13/2008	12:50:00	3.74
RV_07_2987	Big Creek at SR 520 / U.S. Hwy 82 near H	09/16/2008	12:30:00	1.08
RV_07_2987	Big Creek at SR 520 / U.S. Hwy 82 near H	10/07/2008	13:20:00	1.15
RV_07_2987	Big Creek at SR 520 / U.S. Hwy 82 near H	10/15/2008	12:30:00	3.27
RV_07_2987	Big Creek at SR 520 / U.S. Hwy 82 near H	10/28/2008	12:00:00	6.81
RV_07_2987	Big Creek at SR 520 / U.S. Hwy 82 near H	10/30/2008	12:30:00	
RV_07_2987	Big Creek at SR 520 / U.S. Hwy 82 near H	11/13/2008	14:00:00	2.55
RV_07_2987	Big Creek at SR 520 / U.S. Hwy 82 near H	12/18/2008	14:00:00	5.44

6. Little Satilla River (GAR030702020502) Pierce, Wayne, Brantley Counties – (Big Satilla Creek to Sixty Food Branch) is not supporting due to dissolved oxygen and is in Category 4a. Should this segment be moved to Category 3 while EPD determines the "natural DO" for the area?

Response: The natural DO established by the DO TMDL water quality model at RV_07_2957 is 3.13 mg/L. The most recent data from 2010, provided in the Table below, shows three out of eleven data are below this value. Therefore, this segment of the Little Satilla River is not supporting its designated use due to dissolved oxygen. Please note the Little Satilla River is a blackwater stream and six of eleven pH measurements were below the minimum criteria values as would be expected in a natural low pH blackwater stream.

RV_07_2957	Little Satilla River at SR32 near Hortense	01/12/2010	09:45:00	12.26
RV_07_2957	Little Satilla River at SR32 near Hortense	02/02/2010	09:45:00	9.02
RV_07_2957	Little Satilla River at SR32 near Hortense	02/03/2010	09:45:00	
RV_07_2957	Little Satilla River at SR32 near Hortense	03/04/2010	10:30:00	9.09
RV_07_2957	Little Satilla River at SR32 near Hortense	04/07/2010	08:25:00	5.61
RV_07_2957	Little Satilla River at SR32 near Hortense	05/13/2010	10:00:00	5.88
RV_07_2957	Little Satilla River at SR32 near Hortense	06/21/2010	10:15:00	2.78
RV_07_2957	Little Satilla River at SR32 near Hortense	07/08/2010	09:00:00	5.72
RV_07_2957	Little Satilla River at SR32 near Hortense	08/03/2010	09:00:00	2.79
RV_07_2957	Little Satilla River at SR32 near Hortense	09/08/2010	10:15:00	2.74
RV_07_2957	Little Satilla River at SR32 near Hortense	10/07/2010	09:45:00	4.78
RV_07_2957	Little Satilla River at SR32 near Hortense	11/01/2010	12:30:00	4.28

7. Satilla River (GAR030702010204) Coffee County – (Reedy Creek to Indian Creek). Assessment Pending. No cause or source is listed for this segment, but it is noted that a TMDL was completed for FC in 2011. Have the fecal coliform issues been corrected, and is the stream segment now supporting for FC, but not for DO?

Response: A Cause/Source is only provided if the stream is determined to be impaired. The stream is listed as assessment pending for DO and is no longer listed as impaired for fecal coliform. The fecal coliform impairment was removed in 2012 based on 2010-2011 data from RV_07_2961 that showed no 30-day geomean fecal coliform violations.

8. Tributary to Seventeen Mile Creek (GAR030702010506) Coffee County – (0.3 miles downstream East Baker Hwy to Seventeen Mile River) is not supporting due to fecal coliform, dissolved oxygen, and ammonia toxicity. Is the ammonia toxicity due to a municipal point source discharge? If so, can it be addressed more quickly than through a TMDL scheduled for 2030. Ten years is an exceptionally long time to wait to address a pollution issue.

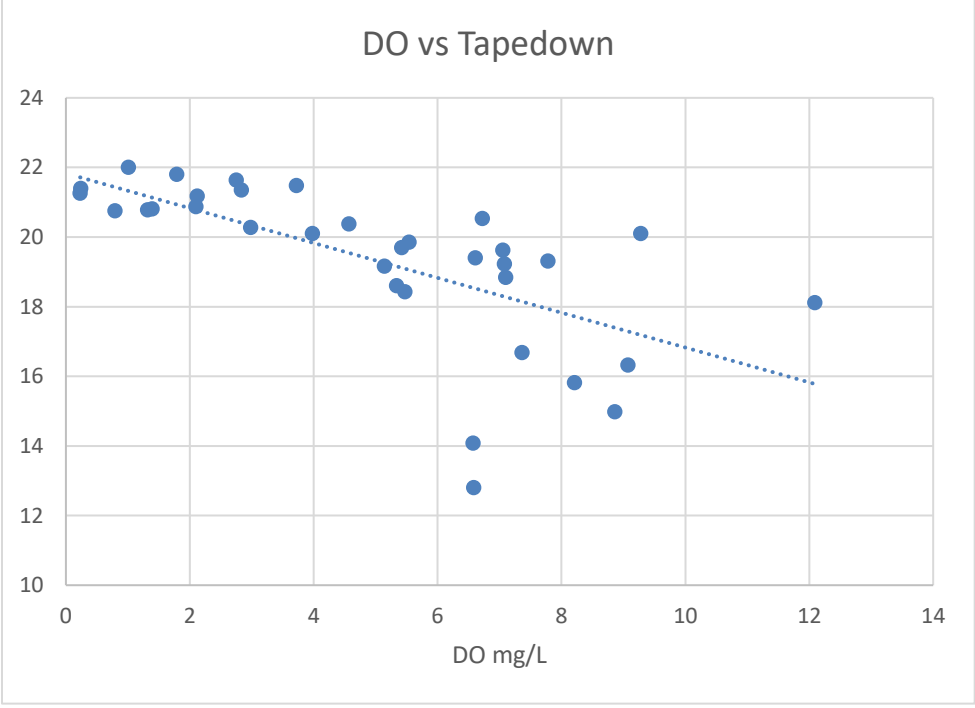
Response: GA EPD does not believe the source of the ammonia toxicity is due to a municipal wastewater treatment plant. If it was, the NPDES permit would be modified to provide ammonia limits to meet instream toxicity limits. The Watershed Planning and Monitoring Program of EPD is working with the EPD Brunswick District office to identify the source of ammonia. A TMDL will be done as soon as feasible, but no later than 2030.

9. What is the time frame to complete the study of naturally occurring levels of DO and pH in blackwater streams? When can we expect to see the updated criteria? What will be the process for stakeholder and public input?

Response: This is a water quality standards issue. The study will be done as resources are available. Currently, we are in the process of installing continuous water quality monitors in both clear and blackwater streams in South Georgia to help determine typical DO and pH ranges. Once this study is complete, we will share the results and work with stakeholders and the public to develop appropriate criteria.

10. Where a stream is impaired for both fecal coliform and dissolved oxygen it is likely that the low DO is caused by pollution rather than naturally occurring. We encourage EPD to do a careful study, and not remove impairments without justification.

Response: This would affect the listings of two streams:
Alabaha River (GAR030702011003) Pierce County– (Hurricane Creek to Tan Trough Creek) and Big Creek (GAR030702010712) Ware, Brantley – (Laura S. Walker Lake to South Prong Big River). Both of these streams are in Category 3, assessment pending, for dissolved oxygen. At this time, there is there is no evidence that the low DO is caused by pollution. There are no point sources nearby. The area around these two streams is mainly agricultural. There could be nutrient enrichment, but we cannot determine from the data if the low DO is due to natural conditions versus nutrient loadings. The fecal data from these sites is generally not very high. In 2009, there was one high reading of >16,000 on the Alabaha River, but based on the tapedown measurements, the stream appeared to be running very high (i.e., the water level was 6 feet higher than in the previous measurement). The low DO in these two streams seems to be correlated to tapedown (e.g. stream flow) as shown in the plot below. Please note that a high tapedown corresponds to low streamflow.



11. All the Satilla stream segments' uses are listed as Fishing. EPD should *add* Recreation as a designated use on the segments where recreation regularly occurs, mainly from the Jamestown Landing in Ware County to the Woodbine Boat Ramp.

Response: This is a water quality standards issue and will be addressed during the Triennial Review. Draft Guidance for Changing a Designated Use can be found on the GA EPD website at: https://epd.georgia.gov/watershed-protection-branch/georgia-water-quality-standards GA EPD has received the March 8, 2019 package from the Satilla Riverkeeper requesting the changes in designated use.

- Comments regarding Clear Creek
  1. We support the removal of dissolved oxygen as a cause for impairment of Clear Creek in Fulton County.

Response: Comment noted.

- Comments regarding Anneewakee Creek

  1. GAR031300020304 - Anneewakee Creek (Lake Monroe to Chattahoochee River) was previously listed in 2018 as supporting. Now it is shown as category 5, FC impaired. The note says that the EPD believes there is a possibility that EPD pH probes may be giving false low readings, and that therefore such water should be "placed in Category 3 while EPD determines" the cause of the low pH readings. I don't understand, therefore, why this segment of the creek is shown as a Category 5?

Response: GAR031300020304 - Anneewakee Creek (Lake Monroe to Chattahoochee River) is being listed as impaired for Fecal coliform in 2020 based on sampling conducted in 2017 at RV_12_3949 (Anneewakee Creek at State Road 166 near Douglasville, GA). A TMDL has not been done for Fecal coliform for this section of the creek, so the water is being put in Category 5. While the water itself is in Category 5, pH is being put into Category 3 because there are concerns about the validity of the pH data. The note on Anneewakee Creek was a bit confusing. It has been revised to clarify that pH is being put in Category 3, not the whole water.

- Comments regarding Chandler's Branch

  1. GAR030601080503 - Chandler's Branch (Headwaters to pond 0.4 miles downstream Charles Perry Avenue) is listed as being in the Chattahoochee River Basin, but it is in the Savannah River Basin.

Response: The report has been updated to reflect that this water is in the Savannah River Basin.