Georgia's 2024 305(b)/303(d) Listing Assessment Methodology

Table of Contents

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The outline below provides the listing assessment methodology used for the solicitation, review, consideration, and assessment of data for Georgia's 2024 305(b)/303(d) List of Waters. Each biennial listing cycle, the Listing Assessment Methodology is updated to include needed changes and to reflect the most current Listing Guidance provided by the USEPA. Each listing cycle brings new challenges in the review and assessment of data. The information that follows is intended as a guide. The methodology does not cover all possible scenarios, so best professional judgment is used along with the Listing Assessment Methodology, as needed. A best professional judgment approach is also used where insufficient information or data were available to making listing decisions.

I. Data Solicitation

On February 1, 2023, a notice soliciting water quality data for use in the development of the 2024 305(b)/303(d) List of Waters was e-mailed to people that had requested to be notified regarding announcements on water quality standards, Total Maximum Daily Loads, 305(b)/303(d) issues, and grant opportunities. In addition, the announcement was placed on the Georgia Environmental Protection Division's (EPD) website. The notice was placed on the webpage for the State's 305(b)/303(d) List (https://epd.georgia.gov/water-quality-georgia) and on the webpage that contains public announcements for the Watershed Protection Branch (https://epd.georgia.gov/watershed-protection-branch-public-announcements). The notice stated EPD was gathering water quality data and information to be used in the development of Georgia's draft 2024 305(b)/303(d) List of Waters. Any comments, data, or other information were requested to be submitted to EPD by July 1, 2023. The notice included a link to a document on EPD's website that provides information as to the requirements for the submission and acceptance of water quality data for EPD's use in 305(b)/303(d) listing assessments.

II. Data Acceptability Requirements

In accordance with 40 CFR Part 130.7(b)(4), EPD is to evaluate all existing and readily available water quality data when assessing waters for the 305(b)/303(d) List of Waters. However, water quality data can vary in both quality and quantity. Data used for assessing waters can be placed into 3 Tiers based upon its quantity and quality.

Tier 1 data is high in both quality and quantity and is used for assessing whether a waterbody is meeting its designated uses or not. In regard to data quality, this data will have been collected and analyzed in accordance with the Quality Control/Quality Assurance requirements in EPD's Planning and Documentary Protocols for Water Quality Assessments and Quality Assurance Project Plan. In the case of data collected by our sister agencies (Wildlife Resources Division, Coastal Resources Division, Georgia's Parks, Recreation and Historic Sites Division, and USGS), the data will have been collected in accordance with their quality assurance/quality control guidelines. In the case of data collected by third parties, the data would have been collected in accordance with an EPD approved Sampling and Quality Assurance Plan (SQAP) as described in Chapter 391-3-6-.03(13) of Georgia Rules and Regulations for Water Quality Control. As for data quantity, Tier 1 data will meet or exceed the "preferred minimum data set" provided in Section VII below.

Tier 2 data is still of high quality (it meets the same quality standards as Tier 1 data), but does not meet the "preferred minimum data set." Tier 2 data are evaluated closely to determine whether the data quantity is sufficient to be used to assess the condition of the waterbody (i.e., determine if the designated use is being met or not) or if the waterbody needs to be placed in Category 3 (assessment pending) until additional data are collected. EPD needs to consider a number of factors when making this determination. These include evaluating: how close the data set is to the preferred minimum set; the reason the data set did not meet the preferred minimum (i.e. did the stream dry up part of the year making sampling impossible some months); the seasonality of the data with regards to the parameter being assessed; the data values in relation to the water quality criteria for that parameter; and results of other data including historical data at the site.

Tier 3 data is data that does not meet data quality requirements described under Tier 1. This data is not used for 305(b)/303(d) listing purposes but may be used for screening purposes to help EPD select sites for future sampling. Data collected by third parties that was not collected under an approved SQAP and who do not show their data was collected and analyzed in such a manner that it would have received SQAP approval fall into Tier 3. In addition, when EPD, USGS, or other agencies collect data and these data do not meet their respective quality guidelines, then these data are not used for listing purposes.

III. Data Assessment Period

All readily available data and information for the calendar years 2021-2023 were considered in development of Georgia's 2024 305(b)/303(d) List of Waters. For data collected in 2023, typically only data from January through June were available for assessment. Currently, Georgia has over 3,000 waterbodies on its 305(b)/303(d) List of Waters. It is not possible to obtain new data for all these waters every two years. In cases where no new data have been collected between 2021 and 2023, EPD continued to use the older available data for the waterbodies to make the assessments. In addition, data from 2018 through 2020 were considered along with the 2021 through 2023 data, when assessing a waterbody, if the data set were continuous. For instance, if data were collected every year from 2018-2023, then the data from all these years were used in the assessment. On the other hand, if data were collected in 2018, but not again until 2022, then only the 2022 data were used in the assessment, since conditions may have changed in the intervening years. There are instances where EPD may choose not to use all years of consecutive data in the assessment of a waterbody. For example, where a local government or group has conducted specific water quality improvement efforts in the watershed of a waterbody and the data collected before and after the improvement projects provide a clear indication the project has succeeded in improving water quality, EPD may choose only to use data collected after implementation of the water quality improvements. It is the responsibility of the local government or group to submit specific documentation to EPD including a description of the improvement project, its location, and the date of implementation, along with the water quality data supporting the assertion the project has been successful.

IV. Data Collection and Areas of Focus

Section 305(b) of the Clean Water Act requires States to assess the quality of their waters. To meet this goal, Georgia collects water quality data for a number of physical/chemical parameters such as dissolved oxygen, pH, temperature, bacteria, metals, pesticides, etc. Biological data is also collected at some sites (fish or macroinvertebrates) to assess the health

of the aquatic community. Fish tissue data is collected at some sites to enable the State to detect concentrations of toxic chemicals in fish that may be harmful to consumers and guide appropriate future actions to protect public health and the environment. The goal of the State's monitoring program is to collect data that accurately represents the condition of the waterbody that can vary throughout the year. The State's monitoring program is designed to collect data in different seasons to capture the impact of seasonality on the data. In addition, water quality samples are collected in a random fashion such that we are likely to obtain samples in both wet and dry weather. Samples are not taken if conditions are dangerous to personnel or if there is no visible water flow in a stream to be sampled.

EPD used data collected from across the state to develop its 2024 305(b)/303(d) List of Waters. EPD currently has monitoring staff located in five offices (Atlanta, Cartersville, Brunswick, Tifton, and Augusta). By spreading its monitoring staff out in different regions, EPD is better able to monitor waters throughout the State each year. In addition, EPD receives data from other GA DNR Divisions such as Georgia's Wildlife Resources Division, Georgia's Parks, Recreation and Historic Sites Division, and Georgia's Coastal Resources Division. EPD also accepts data from outside groups. This data may have been taken from anywhere in the State. Finally, EPD may conduct special projects and the data from these special projects can also be used for assessment purposes.

V. Data Rounding and Use of Replicate Data

When assessing waters, EPD compares water quality data with their respective water quality criteria. Water quality data for a given parameter will be rounded to the same number of significant digits as the criterion for that parameter before the two are compared for the purpose of making listing determinations. Should it be necessary to perform mathematical operations with the data before comparison with the appropriate criterion (such as the calculation of an average of a number of data points), EPD will keep extra decimal places throughout the calculations and then round to the appropriate number of decimal places at the end. This practice prevents the propagation of rounding errors throughout the calculation.

In accordance with the Georgia Quality Assurance Project Plan (QAPP) section B5.2, Georgia EPD associates will collect replicate samples at 10% of all sample events (this is subject to change based on the project plan and/or lab constraints). Results of replicate sampling are not used directly for assessment of waters. Instead, replicate data are used as part of our Quality Assurance/Quality Control Procedures to help quantify precision of data.

VI. Assessment of Waters Using the 5-Part Categorization System

USEPA developed a five-part categorization system for all states and tribes to use when developing their 305(b)/303(d) Lists of Waters. EPD first adopted the five-part categorization system with the 2008 305(b)/303(d) report. Assessed waters are placed into one or more of five categories as described below:

Category 1 – Data indicate waters are meeting their designated use(s).
Category 2 – A waterbody has more than one designated use and data indicate at least one designated use is being met, but there is insufficient evidence to determine whether all uses are being met.
Category 3 – There is insufficient data/information to make a determination as to whether or not the designated use(s) is being met.

Category 3N – Additional data/information is needed to determine if violations of water quality criteria are due to Natural Conditions.
Category 4a – Data indicate at least one designated use is not being met, but a Total Maximum Daily Load (TMDL) has been completed for the pollutant(s) causing a waterbody not to meet its use(s).
Category 4b - Data indicate at least one designated use is not being met, but there are actions in place (other than a TMDL) that are predicted to lead to compliance with water quality standards.
Category 4c - Data indicate at least one designated use is not being met, but the impairment is not caused by a pollutant.
Category 5 - Data indicate at least one designated use is not being met and TMDL(s) need to be completed for one or more pollutants.
Category 5R - Data indicate at least one designated use is not being met; however, TMDL development is deferred while an advanced restoration plan is pursued. If the advanced restoration plan is not successful, then the water will be placed back in Category 5 and a TMDL will be developed.

A waterbody will be assessed as supporting its designated use (Category 1); not supporting its use (Category 4 or 5); or assessment pending (Category 2 or 3). Waters in Category 5 or 5R are considered to be on the State's 303(d) list since the 303(d) list is a list of impaired waters that still need to have a TMDL completed. It is possible for a waterbody to be in category 4 and 5 at the same time if it is impaired by more than one pollutant. For instance, if a waterbody were impaired for copper and dissolved oxygen and a TMDL had been completed only for dissolved oxygen, then the waterbody will be placed in category 4a for dissolved oxygen and category 5 for copper.

VII. Assessment Methodology for Making Use Support Decisions (Listing/Delisting Strategies)

The following provides an outline of the assessment methodology employed during the 2024 Listing Cycle. The conditions under the header "listing" describe what data are needed to place a waterbody on the "not supporting" list for a specific parameter. The conditions under the header "delisting" describe what data are needed to remove a specific parameter from the "not supporting" list. Generally, the data required to "delist" a parameter are the same as would be required to assess a waterbody as "supporting" its use for the parameter in question. The methodology below also describes a number of situations that would result in a waterbody being placed in Category 3 "assessment pending."

A "preferred minimum data set" is provided for a number of the parameters below. If the quantity of data available is less than the "preferred minimum set," EPD uses best professional judgment to determine if there are sufficient data available to make an assessment of use support or if the waterbody should be placed in Category 3 until more data are collected. Best professional judgment is also used in cases where data are determined to be suspect.

A. Fecal Coliform Bacteria: Beginning with the 2024 Listing Cycle, Fecal Coliform Bacteria data are only used to assess waters located within Shellfish Growing areas on the coast. This is because *E coli* and enterococci were adopted as bacteria indicators in place of Fecal Coliform bacteria for the Fishing and Drinking Water uses as part of the 2019 Triennial Review. *E coli* and enterococci had previously been adopted as the bacteria indicators for waters with a Recreation use as part of

the 2013 Triennial Review. Preferred minimum data set for assessing FC in shellfish growing areas: at least 30 samples of FC.

1. Listing –

    a. Waters within "shellfish growing areas": Georgia's Coastal Resources Division (CRD) designates certain waters of the State as being shellfish growing areas. CRD designates shellfish harvesting areas within the growing areas. CRD monitors these waters for fecal coliform contamination in accordance with FDA requirements. A geometric mean using the most recent 30 data points is calculated and this mean is compared against FDA's criterion of 14 MPN/100 mL. In addition, the 90th percentile of the 30 samples is calculated and compared with FDA's criteria of 43 MPN/100 mL for a five-tube decimal dilution test; 49 MPN/100 mL for a three-tube decimal dilution test or 31 CFU/100 mL for a MF (mTEC) test.

        1. Waterbodies are determined **not** to be supporting their designated use if the geometric mean of the most recent 30 samples is greater than 14/100 mL MPN or if the 90th percentile exceeds the values provided above based upon the testing method used.

2. Delisting –

    a. Waters within "shellfish growing areas"

        1. Waters are eligible for delisting for fecal coliform bacteria if the geometric mean of the last 30 data points is less than or equal to 14 MPN/100 mL and the 90th percentile of the last 30 data points does not exceed the values provided above based upon the testing method used.

B. Enterococci: enterococci is the bacterial indicator species for coastal and estuarine waters (waters with a salinity of 0.5 parts per thousand and greater) . The criteria consist of both a geometric mean and a statistical threshold value (STV). The geometric mean and STV apply to data collected within a 30-day period. For waters with a designated use other than Recreation the criteria are seasonal and are: May – October (geometric mean 35 count/100 mL, STV 130 count/100 mL); November – April (geometric mean 74 count/100 mL, STV 273 count/100 mL). For waters with a use of Recreation, the criteria are equal to the May – October values above for the whole year.

Depending upon how frequently bacteria data are collected, EPD uses the geometric mean, STV, or both to assess water quality. Coastal beaches are sampled at different frequencies depending upon how many people use them for recreation and their proximity to potential pollution sources. Beaches are sampled either weekly (year-round); monthly (from April to October) or quarterly (if they are under a permanent advisory). Coastal waters other than beaches are generally sampled monthly from April to October if they are sampled by boat. For waters that can be sampled from a bridge, enterococci is typically sampled for four

quarters (each quarter four samples are collected in a 30-day period for a total of 16 samples in a year). Preferred minimum data set – For coastal beaches: 10 geometric means for coastal beaches sampled weekly and 10 months of data for those sampled monthly. For other coastal waters sampled by boat – 10 months of data. For waters sampled from a bridge – enough data to calculate 4 geometric means. Each geometric mean is to consist of at least 3 samples collected in a 30-day period.

1. Listing –

    a. Monthly Samples: Since only 1 sample is taken per month, there are not enough data available to calculate a meaningful geometric mean. Instead, the results of each monthly sample are compared with the STV.

        1. If more than 10% of the monthly data exceed the STV, a water is assessed as **not** supporting its use designation.

    b. Weekly Samples: For beaches (or other waters) sampled weekly, a geometric mean is calculated for each calendar month (if there were at least 3 samples taken during the calendar month). Each geometric mean is compared with the criteria. In addition, the individual data points from each calendar month are compared against the STV. If one or more of the individual data points within a calendar month exceeds the STV, then that calendar month exceeds the STV.

        1. Waters are determined **not** to be supporting their designated use if more than 10% of the geometric means exceed the geometric mean portion of the criterion and/or if the STV is exceeded in more than 10% of the30-day sampling periods.

    c. Quarterly Geometric Means (16 samples per year): For sites monitored quarterly for geometric means, a geometric mean is calculated for each quarter if there are at least 3 samples taken in a 30-day period. Each geometric mean is compared with the criteria. In addition, the individual data points collected in each 30-day period are compared with the STV.

        1. Waters are determined **not** to be supporting their designated use if more than 10% of the geometric means exceed the geometric mean portion of the criterion and/or if the STV is exceeded in more than 10% of the 30-day sampling periods.

    d. Mixture of Sampling Types

        1. If during the last five years, data are collected such that some years geometric means can be calculated and some years they cannot, then EPD assesses each data type separately as described above. If either the geometric mean or STV data indicate that a water is impaired, then the water will be listed as impaired.

    e. Permanent Beach Advisory: Beaches under a permanent beach advisory are only sampled quarterly (4 samples per year). Beaches under a permanent

beach advisory are assessed as **not** supporting their use designation based solely on the fact that a permanent advisory is in place.

2. Delisting –

   a. Monthly Samples: Since only 1 sample is taken per month, there are not enough data available to calculate a meaningful geometric mean. Instead, the results of each monthly sample are compared with the STV.

      1. If 10% or less of the monthly data exceed the STV, a water is assessed as supporting its use designation.

   b. Weekly Samples (for Beaches or other waters): A geometric mean is calculated for each calendar month (if there were at least 3 samples taken during the calendar month). Each geometric mean is compared with the criteria. In addition, the individual data points from each calendar month are compared against the STV. If one or more of the individual data points within a calendar month exceeds the STV, then that calendar month exceeds the STV.

      1. If 10% or less of the geometric means exceed the geometric mean portion of the criterion and if the STV is exceeded in 10% or less of the calendar months, the beach is eligible for delisting.

   c. Quarterly Geometric Means: A geometric mean is calculated for each 30-day sampling period (if there were at least 3 samples taken). Each geometric mean is compared with the criteria. In addition, the individual data points from each 30-day sampling period are compared against the STV. If one or more of the individual data points within a 30-day period exceeds the STV, then that 30-day sampling period exceeds the STV.

      1. If 10% or less of the geometric means exceed the criterion and if the STV is exceeded in 10% or less of the 30-day sampling periods, the water is eligible for delisting.

   d. Mixture of Sampling Types

      1. If during the last five years, data are collected such that some years geometric means can be calculated and some years they cannot, then EPD assesses each data type separately as described above. If both the geometric means and STV portions of the criteria are exceeded 10% or less of the time, then the water is eligible for delisting.

   e. Permanent Beach Advisory: Beaches under a permanent beach advisory are not eligible for delisting.

3. Swimming Advisories – Swimming Advisories are issued by County Health Departments as described below. Swimming Advisories are not used for assessment purposes.

a. Beach swimming advisories are issued when the most recent enterococci data exceeds the Beach Action Value (BAV) of 70 CFU/100 mL.

b. The swimming advisory is lifted when new data shows the enterococci concentration is less than 70 CFU/100 mL.

C. *E. Coli*: *E. coli* is the bacterial indicator species used for freshwater streams, lakes, and beaches. The criteria consist of both a geometric mean and a statistical threshold value (STV). The geometric mean and STV apply to data collected within a 30-day period. For waters with a designated use other than Recreation the criteria are seasonal and are: May – October (geometric mean 126 count/100 mL, STV 410 count/100 mL); November – April (geometric mean 265 count/100 mL, STV 861 count/100 mL). For waters with a use of Recreation, the criteria are equal to the May – October values for the whole year.

Depending upon how frequently bacteria data are collected, EPD uses the geometric mean, STV, or both to assess water quality. EPD typically measures *E. coli* in lakes monthly (April – October). These samples are taken offshore (not at a beach). *E coli* is typically sampled quarterly in streams (each quarter four samples are collected in a 30-day period for a total of 16 samples per year). The Georgia Parks, Recreation and Historic Sites Division (Parks Division) samples their beaches weekly from mid-April to Labor Day. Preferred minimum data set for data collected monthly: 7 monthly samples per year. Preferred minimum data set for data collected quarterly: 4 geometric means. Each geometric mean is to consist of at least 3 samples collected in a 30-day period. Preferred minimum data set for data collected weekly: 4 geometric means.

1. Listing –

a. Monthly Samples: Since only 1 sample is taken per month, there are not enough data available to calculate a meaningful geometric mean. Instead, the results of each monthly sample are compared with the STV.

1. If more than 10% of the monthly data exceed the STV, a water is assessed as **not** supporting its use designation.

b. Quarterly Geometric Means: A geometric mean is calculated for each 30-day sampling period (if there were at least 3 samples taken). Each geometric mean is compared with the criteria. In addition, the individual data points from each 30-day sampling period are compared against the STV. If one or more of the individual data points within a 30-day period exceeds the STV, then that 30-day sampling period exceeds the STV.

1. Waters are determined **not** to be supporting their designated use if more than 10% of the geometric means exceed the criterion and/or if the STV is exceeded in more than 10% of the 30-day sampling periods.

c. Weekly Samples (Parks Division Freshwater Beach data): A geometric mean is calculated for each calendar month (if there were at least 3 samples taken during the calendar month). Each geometric mean is compared with the criteria. In addition, the individual data points from each calendar month are compared against the STV. If one or more of the individual

data points within a calendar month exceeds the STV, then that calendar month exceeds the STV.

1. Beaches are determined **not** to be supporting their designated use if more than 10% of the geometric means exceed the criterion and/or if the STV is exceeded in more than 10% of the calendar months.

d. Mixture of Sampling Types

1. If during the last five years, some years have geometric means available and other years only have monthly data available, then EPD assesses each data type separately as described above. Waters are determined **not** to be supporting their designated use if more than 10% of the geometric means exceed the criterion and/or if the STV is exceeded in more than 10% of the 30-day sampling periods.

2. Delisting –

a. Monthly Samples: Since only 1 sample is taken per month, there are not enough data available to calculate a meaningful geometric mean. Instead, the results of each monthly sample are compared with the STV.

1. If 10% or less of the monthly data exceed the STV, a water is assessed as supporting its use designation.

b. Quarterly Geometric Means: A geometric mean is calculated for each 30-day sampling period (if there were at least 3 samples taken). Each geometric mean is compared with the criteria. In addition, the individual data points from each 30-day sampling period are compared against the STV. If one or more of the individual data points within a 30-day period exceeds the STV, then that 30-day sampling period exceeds the STV.

1. If 10% or less of the geometric means exceed the criterion and if the STV is exceeded in 10% or less of the 30-day sampling periods, the water is eligible for delisting.

c. Weekly Samples (Parks Division Freshwater Beach data): A geometric mean is calculated for each calendar month (if there were at least 3 samples taken during the calendar month). Each geometric mean is compared with the criteria. In addition, the individual data points from each calendar month are compared against the STV. If one or more of the individual data points within a calendar month exceeds the STV, then that calendar month exceeds the STV.

1. If 10% or less of the geometric means exceed the criterion and if the STV is exceeded in 10% or less of the calendar months, the beach is eligible for delisting.

d. Mixture of Sampling Types

2. If during the last five years, some years have geometric means available and other years only have monthly data available, then EPD assesses each data

type separately as described above. If 10% or less of the geometric means exceed the criterion and if 10% or less of the 30-day sampling periods have values that exceed the STV, the water is eligible for delisting.

D. Dissolved Oxygen (DO), pH, Water Temperature: preferred minimum data set – 12 samples in a 12-month period with 1 or 2 samples collected per month. Normally only discrete data is available for assessment. A single instantaneous reading of DO is taken at a site each time the site is visited. In the case of discrete data, the in-situ DO data is compared against the daily minimum criteria. Sometimes continuous data may be available for assessment. Continuous data is when a probe is left in the water for a long period of time and data is recorded multiple times per day. Continuous data may be collected for an entire year or only a portion of a year. Data must be collected in the critical period if it is to be used for assessment purposes. In the case of continuous data, both the daily average and daily minimum data would be compared against the criteria. The critical period for temperature and DO is May-October. The parameter pH does not have a critical period.

The DO criteria are a daily average of 5.0 mg/L and no less than 4.0 mg/L. In the case of waters designated as trout streams by the Wildlife Resources Division the DO criteria are daily average of 6.0 mg/L and no less than 5.0 mg/L. The pH criteria are a minimum of 6.0 and a maximum of 8.5. Some lakes have site-specific pH criteria. These can be found in our Rules and Regulations at 391-3-6-.03(17). Water temperature is not to exceed 90^{o} F.

1. Listing* –

    a. Dissolved Oxygen – One year of available data or multiple consecutive years of available data:

        1. Waterbodies are determined **not** to be supporting use designation if more than 10% of the data do not meet the water quality criteria. In the case of continuous data, a waterbody would be determined **not** to be supporting its use if more than 10% of the data in the critical period exceeds the criteria.

        2. In the case where the DO criteria are not met more than 10% of the time, but where a "natural" dissolved oxygen concentration has been established, then the dissolved oxygen data are compared against the established "natural" dissolved oxygen concentration. If any of the data points are less than the "natural" dissolved oxygen concentration, then the waterbody is determined **not** to be supporting its designated use. If none of the DO data are less than the "natural" DO, then the waterbody is determined to be "supporting" its use (as far as DO is concerned).

        3. Chapter 391-3-6-.03(7) of the Rules and Regulations for Water Quality Control recognizes some waters of the State "naturally" will not meet the instream criteria in the Rules and this situation does not constitute a violation of water quality standards. Before assessing a water as being impaired for DO, EPD needs to determine that low DO

is not a result of natural conditions. Many waters in Georgia, specifically areas in South Georgia and near the Coast, have "natural" dissolved oxygen concentrations below the State's standard dissolved oxygen criteria (daily average of 5.0 mg/l and an instantaneous minimum of 4.0 mg/l). If a waterbody does not meet the DO criteria more than 10% of the time and when it is anticipated the low dissolved oxygen condition is natural, then EPD will place the waterbody in Category 3N until work is completed that establishes the "natural" dissolved oxygen concentration for the waterbody. The measured dissolved oxygen data will then be compared with the "natural" dissolved oxygen concentration and an assessment will be made as to whether the waterbody is meeting its designated use.

b. Water Temperature, pH – One year or multiple consecutive years of available data:

1. Waterbodies are determined **not** to be supporting use designation if more than 10% of the data do not meet water quality criteria. In the case of continuous data, a waterbody would be determined **not** to be supporting its use if more than 10% of the data in the critical period exceeds the criteria.

2. Chapter 391-3-6-.03(7) of the Rules and Regulations for Water Quality Control recognizes some waters of the State "naturally" will not meet the instream criteria in the Rules and this situation does not constitute a violation of water quality standards. Georgia has many blackwater streams. The pH of blackwater streams is naturally low. If a waterbody has been identified as a blackwater stream, then it is not listed as impaired if greater than 10% of the pH measurements are less than minimum pH criterion of 6.0, as long as there is no point source or land use issues that may be contributing to the low pH status of the stream. Until more definitive criteria for defining blackwater streams are developed, EPD will use dissolved organic carbon (DOC) or total organic carbon (TOC) concentrations along with field observations of water color to assess a stream as being blackwater. The water color should be described as tannic and the DOC/TOC is to be 10 mg/L or greater.

3. Obtaining accurate pH measurements in waters with low conductivity (<100 μS/cm) can be difficult based on how pH meters work. Waters where more than 10% of the data does not meet water quality criteria and where conductivity is < 100 μS/cm will be placed in Category 3 until new methods used for measuring pH in low conductivity water are utilized.

4. EPD believes that waters with low alkalinity (< 20 mg/L as $CaCO_3$) may have naturally low pH. Until it can be established whether waters with low alkalinity have naturally low pH, pH will be placed in Category 3N if alkalinity is less than 20 mg/L as $CaCO_3$.

2. Delisting –

   a. Dissolved Oxygen – One year or multiple consecutive years of available data:

      1. Waters are eligible for delisting for DO if 10% or less of the data are lower than the water quality criteria. In the case of continuous data a waterbody would be eligible for delisting if 10% or less of the data in the critical period exceeds the criteria.

      2. In the case where the DO criteria are not met more than 10% of the time, but where a "natural" dissolved oxygen concentration has been established, the instream DO data is compared against the "natural" DO. If no violations of the natural dissolved oxygen concentration occur, the segment is eligible for delisting.

   b. Water Temperature, pH – One year or multiple consecutive years of available data:

      1. Waters are eligible for delisting for temperature or pH if 10% or less of the data does not meet the water quality criteria. In the case of continuous data, a waterbody would be eligible for delisting if 10% or less of the data in the critical period exceeds the criteria.

E. Metals: preferred minimum data set – 4 samples in a 12-month period (2 winter, 2 summer). The criteria for many of the metals are hardness dependent (i.e. the criteria changes depending upon the hardness of the water). When metal samples are collected, hardness data are also collected. The criteria for metals are calculated using the hardness data collected at the same time the metals data are collected. The criteria for metals, including the formulas for hardness dependent criteria, can be found in the Rules and Regulations for Water Quality Control: Chapter 391-3-6-.03(5)I(ii) and (iv).

   1. Listing –

      a. Waterbodies are determined **not** to be supporting their use designation if one sample exceeds the acute criteria in a three-year period or if more than one sample exceeds the chronic criteria in three years.

   2. Delisting –

      a. Waters are eligible for delisting of metals if no exceedances of the acute criteria occur and no more than one exceedance of the chronic criteria occurs in three years.

F. Priority Pollutant/Organic Chemicals: preferred minimum data set – 4 samples in a 12-month period (2 winter, 2 summer). Criteria can be found in our Rules and Regulations for Water Quality Control Chapter 391-3-6-.03(5)I(i-iv)

1. Listing –

    a. Waterbodies are determined **not** to be supporting their use designation if more than one sample exceeds the criteria in a three-year period.

2. Delisting –

    a. Waters are eligible for delisting for priority pollutants/organic chemicals if no more than one exceedance of the criteria occurs in a three-year period.

G. Toxicity:

1. Listing –

    a. Acute or Chronic toxicity tests conducted on municipal or industrial effluent samples and receiving waters – Waterbodies are determined **not** to be supporting use designation if:

        1. Effluent toxicity test(s) consistently predict in-stream toxicity at critical 7Q10 low stream flow and/or if toxicity tests performed on receiving waters consistently indicate the waterbody is toxic.

2. Delisting –

    a. New data with a facility consistently passing WET test(s) (if listing originated based on effluent toxicity test results) are eligible for delisting.

    b. New data with receiving waters consistently passing toxicity test(s) (if listing originated based on stream toxicity test results) are eligible for delisting.

H. Fish/Shellfish Consumption Guidelines:

1. Listing –

    a. All Fish/Shellfish Tissue Contaminants Except Mercury:

        1. Waterbodies are determined **not** to be supporting use designation if the State's fish consumption guidelines document recommends consumption needs to be limited or if no consumption is recommended.

    b. Fish/Shellfish Tissue – Mercury:

        1. Waterbodies are determined **not** to be supporting their use designation if the Trophic-Weighted Residue Value (calculated as described in the October 19, 2001 EPD "Protocol"), is in excess of Georgia's water quality criterion of 0.3 mg/kg wet weight mercury. Waters where the calculated Trophic-Weighted Residue Value for mercury is between 0.25 mg/kg and 0.30 mg/kg wet weight total are put in Category 3. The 2001 protocol document described above contains outdated information about how waters will be assessed, and the assessment

information should be ignored. The protocol for calculating the Trophic-Weighted Residue Values themselves is still accurate.

2. Delisting –

   a. All Fish/Shellfish Tissue Contaminants Except Mercury:

      1. Waters are eligible for delisting if there are no consumption restrictions and fish/shellfish can be consumed in unlimited amounts.

   b. Fish/Shellfish Tissue – Mercury:

      1. Waters are eligible for delisting if the calculated Trophic-Weighted Residue Values for mercury in fish tissue is less than 0.25 mg/kg wet weight total. Waters where the calculated Trophic-Weighted Residue Value for mercury is between 0.25 mg/kg and 0.30 mg/kg wet weight total are put in Category 3. The 2001 protocol document described above contains outdated information about how waters will be assessed, and the assessment information should be ignored. The protocol for calculating the Trophic-Weighted Residue Values themselves is still accurate.

I. Biotic Data (Fish Bioassessments):

1. Listing – Fish Bioassessments are based on Fish Index of Biotic Integrity (IBI) data. Waterbodies are determined **not** to be supporting use designation if:

   a. The IBI ranking is “Poor” or “Very Poor”;

2. Delisting –

   a. Waters are eligible for delisting if the waterbody has a Fish IBI rank of “Excellent”, “Good”, or “Fair”.

J. Biotic Data (Macroinvertebrate Bioassessments):

1. Listing – Benthic Macroinvertebrate Bioassessments based on a multi-metric index.

   a. Waterbodies are determined **not** to be supporting use designation if the narrative rankings are “Poor” or “Very Poor”.

   b. If the narrative ranking is “Fair”, then the waterbody is placed in Category 3.

2. Delisting –

   a. Waterbodies are eligible for delisting if the waterbody scores a narrative ranking of “Very Good” or “Good”. If a waterbody scores “Fair”, it is placed in Category 3.

K. Data from Lakes with Site-Specific Nutrient Criteria:
Site-specific numeric criteria have been established for 8 major lakes in Georgia including 1) West Point Lake, 2) Lake Walter F. George, 3) Lake Jackson, 4) Lake Allatoona, 5) Lake Sidney Lanier 6) Carters Lake, 7) Lake Oconee and 8) Lake Sinclair. The criteria for these lakes can be found at 391-3-6-.03(17). These lakes are monitored annually and assessed for the parameters as described below:

1. Listing –

a. Chlorophyll *a* (lake stations): The last five calendar years of chlorophyll *a* data collected at each site-specific lake criteria station are assessed.

1. If during the five-year assessment period, the growing season average exceeds the site-specific growing season criteria 2 (or more) out of the last 5 years, the lake area representative for that station is assessed as not supporting its designated uses. If the average exceeds the site-specific growing season criteria for 1 out of last 5 years, the waterbody is placed in Category 3.

b. Total Nitrogen (lake stations): The last five calendar years of total nitrogen concentrations collected at each site-specific lake criteria station are assessed.

1. For Lakes other than Lake Allatoona: If greater than 10% of the total nitrogen values exceed the site-specific criteria, the lake area representative for that station is assessed as not supporting its designated uses.

2. For Lake Allatoona: A growing season average for each of the last five years is calculated for each site-specific lake criteria station. If any of the five growing season averages exceed the criterion, then the lake area is represented by that station is assessed as not supporting designated uses.

3. Lake Oconee and Sinclair do not have Total Nitrogen criteria at this time.

c. Major Lake Tributary Annual Total Phosphorous Loading Criteria: Annual total phosphorous loadings for each major lake tributary standard station are calculated for each of the last five calendar years.

1. If the average of the annual total phosphorous loadings exceeds the site-specific criteria, the site is assessed as not supporting designated uses. Note: Lake Oconee and Sinclair do not have Phosphorus Loading Criteria for their major tributaries.

d. Major Lake Annual Total Phosphorous Loading Criteria: The annual total phosphorus loading for each lake is calculated for each of the last five calendar years.

1. If the average of the annual total phosphorous loadings exceeds the site-specific criteria, the site is assessed as not supporting its designated uses. Note: Lake Oconee and Sinclair do not have Phosphorus Loading Criteria.

2. Delisting –

   a. Chlorophyll *a* (lake stations): The last five calendar years of chlorophyll *a* data collected at each site-specific lake standard station are assessed.

      1. If during the five-year assessment period, there are no chlorophyll *a* growing season averages exceeding the site-specific growing season criteria, the lake area representative for that station is eligible for delisting. If the average exceeds the site-specific growing season criteria for 1 out of 5 years, the waterbody is placed in Category 3.

   b. Total Nitrogen (lake stations): The last five calendar years of total nitrogen concentrations collected at each site-specific lake standard station are assessed.

      1. For Lakes other than Lake Allatoona: If 10% or less of the total nitrogen values exceed the site-specific criteria, the lake area representative for that station is eligible for delisting.

      2. For Lake Allatoona: A growing season average for each of the last five years is calculated for each site-specific lake criteria station. If none of the five growing season averages exceed the criterion, then the lake area that is represented by that station is eligible for delisting.

      3. Lake Oconee and Sinclair do not have Total Nitrogen criteria at this time.

   c. Major Lake Tributary Annual Total Phosphorous Loading Criteria: Annual total phosphorous loadings for each major lake tributary standard station were calculated for each of the last five calendar years.

      1. If the average of the annual total phosphorous loadings does not exceed the site-specific criteria, then the site was eligible for delisting. Note: Lake Oconee and Sinclair do not have Phosphorus Loading Criteria for their major tributaries.

   d. Major Lake Annual Total Phosphorous Loading Criteria: The annual total phosphorus loading for each lake is calculated for each of the last five calendar years.

      1. If the average of the annual total phosphorous loadings does not exceed the site-specific criteria, then the site is eligible for delisting. Note: Lake Oconee and Sinclair do not have Phosphorus Loading Criteria.

L. Objectionable Algae (Nutrients)

1. Listing –

   a. A waterbody is listed for objectionable algae based upon visual observation of excessive algae, duckweed, or other aquatic plant life by field staff along with other factors including high concentrations of nutrients in the waterbody compared with other waters in the same river basin, and diurnal DO and pH swings indicative of high algae or plant activity (higher DO and pH later in the day and lower DO in the early morning).

2. Delisting –

   a. A waterbody is considered for delisting for objectionable algae if visual observation by field staff reveals algae, duckweed, or other aquatic plant life is no longer excessive compared to other streams in the area, and the DO, pH, and nutrient data are at levels that no longer indicated a problem with excessive algae/plant life.

M. Ammonia Toxicity:

EPD implemented U.S. EPA's 2013 Ammonia Criteria using our narrative criteria "All waters shall be free from toxic, corrosive, acidic, and caustic substances discharged from municipalities, industries, or other sources, such as nonpoint sources, in amounts, concentrations, or combinations which are harmful to humans, animals, or aquatic life", along with our 2017 NPDES Permitting Strategy for Addressing Ammonia Toxicity. As part of this permitting strategy, EPD has been collecting ammonia data upstream and downstream of NPDES facilities to determine if discharges are causing waters to exceed the U.S. EPA's chronic ammonia criteria.

1. Listing – Ammonia concentration are compared against the criteria in the *U.S. EPA Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater 2013*. The criteria are expressed as formulas and the allowed concentrations are dependent upon water temperature and pH. Salinity is also used as a variable when calculating criteria for marine waters (waters with a salinity of 0.5 parts per thousand and greater). When ammonia data is collected, temperature, pH and salinity data are also collected. Each ammonia concentration is compared against the ammonia toxicity criteria calculated using the temperature, pH and salinity data taken at the same time the ammonia sample was taken. Waterbodies are determined **not** to be supporting their use designation if any of the following occurs:

   a. Ammonia concentrations exceed the chronic criteria more than once a year.

   b. Ammonia concentrations exceed (2.5 x the chronic criteria) more than once in a 3-year period.

c. Ammonia concentrations exceed the acute criteria more than once in a 3-year period.

2. Delisting – A waterbody is eligible for delisting when the following conditions occur:

a. Ammonia concentrations exceed the chronic criteria once a year or less

b. Ammonia concentrations exceed (2.5 x the chronic criteria) no more than once in a 3-year period.

c. Ammonia concentrations exceed the acute criteria no more than once in a 3-year period.

VIII. Priorities for Action

Section 303(d)(1)(A) of the Clean Water Act and 40 CFR 130.7(b)(4) requires each State to "establish a priority ranking" for the segments it identifies on the 303(d) List (i.e. those waters in Category 5). In addition, States must submit a list of waters targeted for TMDL development in the next two years. The priority ranking is to take into account the severity of the pollution and the designated uses of such segments. States are to establish TMDLs in accordance with the priority ranking. States are given considerable flexibility in establishing their ranking system.

EPD has chosen to implement the priority ranking by indicating the year by which the TMDL for each segment on the 303(d) List will be drafted. TMDLs may be drafted before the year indicated in the report. Georgia typically uses a basin rotation approach when it comes to drafting TMDLs. There are some cases where EPD may choose to draft a TMDL outside of the basin rotation schedule. Factors influencing this decision could include the severity of the pollution and whether development of the TMDL may require additional data collection or complex analysis. All dates provided as part of the priority ranking are within the 13-year timeframe allowed for TMDL development as provided in the US EPA 1997 Interpretative Guidance for the TMDL Program. This guidance says states should develop schedules for establishing TMDLs expeditiously, generally within 8-13 years of being listed. If a water is in Category 5R, the priority ranking is provided as a narrative "Low" instead of providing the year by which the TMDL will be drafted. This is because TMDL development has been postponed while other restoration actions are being pursued. EPD also submits a list of the waters and pollutants that are targeted for TMDL development in the next two years to USEPA as part of the Integrated Report submittal in accordance with 40 CFR 130.7(b)(4).

IX. Long-Term Vision

In 2013 US EPA implemented the first Long-Term Vision for Assessment, Restoration, and Protection of waters. As part of this first Vision process, EPD developed a Priority Framework that described how we would prioritize waters on the 303(d) list for development of TMDLs or TMDL alternatives. EPD also developed a list of Priority Waters for which we planned to develop TMDLs or TMDL alternatives by 2022. EPD successfully completed all TMDLs or TMDL alternatives on our Priority list of waters by the 2022 deadline.

In 2022 US EPA released guidance for a new Long-Term Vision period (2022-2032). Under this new Vision Document, states will develop a new Priority Framework that will guide the decision process on what TMDLs, Advanced Restoration Plans or Protection Plans will be prioritized for completion by 2032. Every two years, EPD will provide U.S. EPA with a list of Priority waters for which we plan to develop TMDLs or other plans in the next two-year period. The first set of Priority Waters under the New Vision will be provided to U.S. EPA by September 30, 2024 (for plan development by 2026). Information about Georgia's Priority Framework can be found on the Water Quality in Georgia webpage.