Georgia's 2022 305(b)/303(d) Listing Assessment Methodology

Table of Contents

Georgia's 2022 305(b)/303(d) Listing Assessment Methodology

The outline below provides the listing assessment methodology used for the solicitation, review, consideration, and assessment of data for Georgia's 2022 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 9, 2021, a notice soliciting water quality data for use in the development of the 2022 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 2022 305(b)/303(d) List of Waters. Any comments, data, or other information were requested to be submitted to EPD by July 1, 2021. 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 includes 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 2019-2021 were considered in development of Georgia's 2022 305(b)/303(d) List of Waters. For data collected in 2021, typically only data from January through June are available for assessment. Currently, Georgia has nearly 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 2019 and 2021, EPD continues to use the older available data for the waterbodies to make the assessments. In addition, data from 2016 through 2018 are considered along with the 2019 through 2021 data, when assessing a waterbody, if the data set is continuous. For instance, if data were collected every year from 2016-2021, then the data from all these years are used in the assessment. On the other hand, if data were collected in 2016, but not again until 2020, then only the 2020 data are 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 both wet and dry weather, with the exception that 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 2022 305(b)/303(d) List of Waters. EPD currently has monitoring staff located in five offices (Atlanta, Cartersville, Brunswick, Tifton, and a new office in 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

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.

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

The USEPA has strongly encouraged states to move to a five-part categorization of their 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 4a – Data indicate at least one designated use is not being met, but a Total Maximum Daily Load (TMDL) has been completed for the parameter(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 (Category 5 Alt) - Data indicate at least one designated use is not being met; however, TMDL development is deferred while an alternative restoration plan is pursued. If the alternative 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). 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 fecal coliform bacteria 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 fecal coliform bacteria.

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

The following provides an outline of the assessment methodology employed during the 2022 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: Preferred minimum data set – 4 geometric means (2 collected in winter months and 2 in summer months). Each geometric mean is to consist of at least 3 samples collected in a 30-day period.

1. Listing –

a. One year of available data (Geometric Mean):

1. Waterbodies are determined not to be supporting their use designation if more than 10% of the geometric means exceed the water quality criteria.

b. Multiple consecutive years of available data (Geometric Mean):

1. Waterbodies are determined not to be supporting use designation if (a) more than 10% of the geometric means exceed the water quality

criteria or (b) if 10% of the geometric means exceed the water quality criteria and one or more winter maximum violations occurred in the 30-day data set(s) where the geometric mean meet the water quality criteria.

c. Single Sample Data: In the absence of sufficient data in a data set to calculate a geometric mean, the USEPA's Listing Guidance is used to assess bacterial data as described below. EPD uses its best professional judgment when determining whether to use the single sample data to make a use assessment or to place the waterbody in Category 3 until sufficient data can be collected for use determination. Some factors in making this determination include the size of the data set, the time of year samples were collected, the consistency of the data (i.e. were most of the samples well over the single sample criteria), etc. If it is determined the single sample data are sufficient for making a use determination:

1. Waterbodies are determined not to be supporting use designation if more than 10% of the single samples exceed the USEPA's recommended review criteria for bacteria of 400/100 mL during the months of May-October, and 4,000/100 mL during the months of November-April.

d. 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 90^{th} 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 90^{th} percentile exceeds the values provided above based upon the testing method used.

2. Delisting –

a. One year of available data:

1. Waters are eligible for delisting for fecal coliform if 10% or less of the geometric means exceed the water quality criteria. If fewer than 4 geometric means are available for assessment, EPD may consider a waterbody eligible for delisting if there are at least two summer geometric means available for assessment and they comply with the water quality criteria.

b. Multiple consecutive years of available data:

1. Waters are eligible for delisting for fecal coliform bacteria if 10% or fewer of the geometric means exceed the water quality criteria.

c. Single Sample Data: Single sample data are typically not used for delisting purposes as the preferred data set would include the ability to calculate geometric means. However, EPD may consider using single sample data for delisting using best professional judgment. Some factors to be taken into consideration are the size of the data set, the time of year samples were taken and/or whether the original "not supporting" designation was based on single sample data or geometric means. If it is determined the single sample data are sufficient for making a use determination:

1. Waterbodies are eligible for delisting for fecal coliform if 10% or fewer of the single samples exceed the USEPA's recommended review criteria for bacteria of 400/100 mL during the months of May-October, and 4,000/100 mL during the months of November-April.

d. 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 90^{th} 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 with a designated use of Recreation. 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. 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). Preferred minimum data set – 10 geometric means for coastal waters sampled weekly under the BEACH Act and 10 months of data for those sampled monthly under the BEACH ACT.

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 of 130 CFU/100 mL, a beach is assessed as not supporting its use designation.

b. Weekly Samples: 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 of 35 CFU/100 mL and/or if the STV of 130 CFU/100 mL is exceeded in more than 10% of the calendar months.

c. Mixture of Monthly and Weekly Samples

1. If during the last five years, data are collected monthly some years and weekly other years, then EPD assesses each data type separately as described above. If both the monthly and weekly data types indicate a beach is not in compliance with the enterococci criterion as described above, then the beach is assessed as not supporting its use. If the monthly and weekly data types support different listing decisions, then EPD uses its best professional judgment in making the listing determination. Generally, more weight is placed on the weekly data and on the most recent data set.

d. Quarterly Samples: Beaches under a permanent beach advisory are only sampled quarterly. Beaches under a permanent beach advisory are assessed not supporting their use designation.

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 of 130 CFU/100 mL, a beach is assessed as supporting its use designation.

b. Weekly Samples: 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 of 35 CFU/100 mL and if the STV of 130 cfu/mL is exceeded in 10% or less of the calendar months, the beach is eligible for delisting.

c. Mixture of Monthly and Weekly Samples

1. If during the last five years, data are collected monthly some years and weekly other years, then EPD assesses each data type separately as described above. If both the monthly and weekly data types indicate a beach is in compliance with the enterococci criteria as described above, then the beach is eligible for delisting.

d. Quarterly Samples: Beaches under a permanent beach advisory are not eligible for delisting.

3. Swimming Advisories -

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 with a designated use of Recreation. 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. 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). The Georgia Parks, Recreation and Historic Sites Division (Parks Division) used to collect 5 samples of *E. coli* in April/May of each year at the public beaches in their parks. Beginning in 2019, the Parks Division began to sample their beaches weekly from mid-April to Labor Day. 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 monthly: 7 monthly samples per year. 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 of 410 CFU/100 mL, a water is assessed as not supporting its use designation.

b. Data collected Quarterly for 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 of 126 CFU/100 mL and/or if the STV of 410 CFU/100 mL 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 of 126 CFU/100 mL and/or if the STV of 410 CFU/100 mL is exceeded in more than 10% of the calendar months.

d. Mixture of monthly and geometric mean data

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 of 126 CFU/100 mL and/or if the STV of 410 CFU/100 mL 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 of 410 CFU/100 mL, a water is assessed as supporting its use designation.

b. Data collected Quarterly for 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 of 126 CFU/100 mL and if the STV of 410 CFU/100 mL 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 of 126 CFU/100 mL and if the STV of 410 CFU/mL is exceeded in 10% or less of the calendar months, the beach is eligible for delisting.

d. Mixture of monthly and geometric mean data

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. If 10% or less of the geometric means exceed the criterion of 126 CFU/100 mL and if 10% or less of the 30-day sampling periods have values that exceed the STV of 410 CFU/100 mL, 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.

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. 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 the waterbody is located in an area of the State where it is anticipated the low dissolved oxygen condition is natural, then EPD will place the waterbody in Category 3 until work is completed that establishes the "natural" dissolved oxygen concentration for the waterbody. The measured dissolved oxygen data is then compared with the "natural" dissolved oxygen concentration and an assessment is 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.

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)

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)

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 is 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 Criteria:
Site-specific numeric criteria have been established for 6 major lakes in Georgia including 1) West Point Lake, 2) Lake Walter F. George, 3) Lake Jackson, 4) Lake Allatoona, 5) Lake Sidney Lanier and 6) Carters Lake. These lakes are monitored annually and assessed for these 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.

   c. Bacteria: Lakes with site-specific criteria have bacteria criteria of *E. coli* or a combination of *E. coli* and fecal coliform. The data from the last 5 years are evaluated using the procedures describes in Part VII.A. and VII.C. above.

   d. Dissolved Oxygen, pH, Water Temperature: The last five calendar years of available data are assessed as described in Part VII.D. above.

      1. Waterbodies are determined not to be supporting use designation if more than 10% of the data do not meet water quality criteria.

   e. 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.

   f. 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.

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.

c. Bacteria: Lakes with site-specific criteria have bacteria criteria of *E. coli* or a combination of *E. coli* and fecal coliform. The data from the last 5 years are evaluated using the procedures describes in Part VII.A. and VII.C. above

d. Dissolved Oxygen, pH, Water Temperature: The last five calendar years of available data are assessed as described in Part VII.D. above.

1. If 10% or less of the data do not meet water quality criteria, the water is eligible for delisting.

e. 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.

f. 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.

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*. 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 less than once a year.

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) of the Clean Water Act 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). This 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. 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 and complex analysis. TMDLs are typically finalized sometime during the year after they are proposed. 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.

All dates provided 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.

In addition, US EPA has developed a Long-Term Vision for Assessment, Restoration, and Protection of waters. This Vision focuses on six elements including 1) Prioritization, 2) Assessment, 3) Protection, 4) Alternatives, 5) Engagement, and 6) Integration. In accordance with this Vision, EPD has developed a Priority Framework that describes how GA EPD prioritizes waters on the 303(d) List for development of TMDLs or TMDL alternatives. The framework, along with the State's List of Priority Waters can be found on the EPD website at: http://epd.georgia.gov/georgia-305b303d-list-documents. The Long-Term Vision process began in 2013 and ends in 2022.

US EPA, in consultation with States and Authorized Tribes, is developing a new framework to guide the 303(d) program for the Nation for the next 10 years. The goal is for the new National Framework to be in place by October 1, 2022. Once the framework is in place, there will be opportunity for public input into Georgia's plans that will be developed under this National framework.