

# **Georgia's 2016 305(b)/303(d) Listing Assessment Methodology**

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## **Georgia's 2016 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 2016 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 4, 2015, a letter was sent by postal mail or electronic mail to the U.S. Environmental Protection Agency (USEPA), and individuals and/or organizations on the mailing list that is maintained by the Georgia Environmental Protection Division (EPD) for notifying interested parties regarding proposed changes to EPD's Rules. This letter stated that the EPD was gathering water quality data and information to be used in the development of Georgia's draft 2016 305(b)/303(d) List of Waters. Any comments, data, or other information were requested to be submitted to EPD by July 1, 2015. The letter 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. A copy of the notification letter was also included on EPD's 305(b)/303(d) webpage and EPD's "What's New" webpage.

### **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 regards to data quality, this data will have been collected and analyzed in accordance with the Quality Control/Quality Assurance requirements in the Georgia Environmental Protection Division's Quality Assurance Manual and Quality Assurance Project Plan. In the case of data collected by our sister agencies (Wildlife Resources Division, Coastal Resources 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 that is collected by third parties that was not collected under an approved SQAP and who do not show that 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 2013-2015 were considered in development of Georgia's 2016 305(b)/303(d) List of Waters. For data collected in 2015, typically only data from January thru June are available for assessment. Currently, Georgia has over 2,000 waterbodies on its 305(b)/303(d) list of waters. It is not possible to obtain new data on all of these waters every two years. In cases where no new data has been collected between 2013 and 2015, EPD continues to use the older available data for the waterbodies to make their assessments. In addition, data from 2010 through 2012 are considered along with the 2013 through 2015 data, when assessing a waterbody, if the data set is continuous. For instance, if data were collected every year from 2010-2015, then the data from all these years are used in the assessment. On the other hand, if data was collected in 2010, but not again until 2014, then only the 2014 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 that 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, the date of implementation, along with the water quality data supporting the assertion that the project has been successful.

### IV. Data Collection and Areas of Focus

Section 305b 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, fecal coliform 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 2016 305(b)/303(d) list of waters. EPD currently has monitoring staff located in four offices across the State (Atlanta, Cartersville, Brunswick and Tifton). By spreading its monitoring staff out in different regions of the State, 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 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 State 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 that waters are meeting their designated use(s).

Category 2 – A waterbody has more than one designated use and data indicate that 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 that at least one designated use is not being met, but a TMDL(s) has been completed for the parameter(s) that is causing a waterbody not to meet its use(s).

Category 4b - Data indicate that 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 that at least one designated use is not being met, but the impairment is not caused by a pollutant.

Category 5 - Data indicate that 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 that 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 use 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 2016 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 consisted 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 that 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 with the exception of waters classified as “Recreation” where the review criteria are 400/100 mL January-December.

- 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<sup>th</sup> 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 MPN/100 mL or if the 90<sup>th</sup> 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 be 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 that 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 with the exception of waters classified as “Recreation” where the review criteria are 400/100 mL January-December.
  - 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<sup>th</sup> percentile of the last 30 data points does not exceed the values provided above based upon the testing method used.

- B. 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. In the case of continuous data (where a probe is left in the water for a long period of time and data is recorded multiple times per day), EPD may choose not to monitor the water for an entire year. Data need to be available for the critical period to be used for listing decisions (e.g. summer data needed for DO and temperature assessment).
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 is 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).
    - 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.

\* Chapter 391-3-6-.03(7) of the Rules and Regulations for Water Quality Control recognizes that some waters of the State “naturally” will not meet the instream criteria in the Rules and that 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 that 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.

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 is 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 is 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

C. Metals: preferred minimum data set – 2 samples in a 12 month period (1 winter, 1 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 exceedences of the acute criteria occur and no more than one exceedence of the chronic criteria occurs in three years.

D. Priority Pollutant/Organic Chemicals: preferred minimum data set – 2 samples in a 12 month period (1 winter, 1 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 exceedence of the criteria occurs in a three-year period.

E. 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 that 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.
- F. 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 that 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 (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 equal to 0.3 mg/kg wet weight total are put in Category 3.
  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 or equal to 0.3 mg/kg wet weight total. Waters where the calculated Trophic-Weighted Residue Value for mercury is equal to 0.3 mg/kg wet weight total are put in Category 3.
- G. 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”
- H. 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.

- I. 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. Fecal Coliform: Typically only single sample data are available for evaluation. The data from the last 5 years are evaluated. If there are sufficient data to calculate a geometric mean, the procedures in Part VII.A.1. of this document are followed.
      1. Waterbodies are determined not to be supporting their use designation if more than 10% of the single samples exceeded 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 with the exception of waters classified as "Recreation" where the review criteria are 400/100 mL January-December.
    - d. Dissolved Oxygen, pH, Water Temperature: The last five calendar years of available data are assessed.
      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. Fecal Coliform: Typically only single sample data are available for evaluation. The data from the last 5 years are assessed. (If there are sufficient data to calculate a geometric mean, the procedures in Part VII.A.2. of this document are followed).
    1. The waterbody is eligible for delisting if 10% or less 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 with the exception of waters classified as “Recreation” where the review criteria are 400/100 mL January-December.
  - d. Dissolved Oxygen, pH, Water Temperature: The last five calendar years of available data are assessed.
    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.
- J. Enterococci Data Collected under the BEACH Act: Preferred minimum data set – 10 geometric means. Each geometric mean is to consist of at least 3 samples collected in a 30 day period. If there is insufficient data (such as when data is

collected monthly), then a longer averaging period (recreational season instead of 30 days) is used to calculate a single geometric mean per year. 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; or monthly from April to October; or quarterly (see 1.d. under “Listing” below, and 2. D. under “Delisting” below for more details on quarterly beach sampling).

1. Listing –

a. Monthly Samples: An annual geometric mean is calculated for each year using Enterococci data from the Recreational Season (May – October).

1. If there are five consecutive years of annual geometric means available for assessment, a beach is assessed as not supporting its use designation if more than one annual geometric mean exceeds the criterion (35/100 mL). If there are fewer than five consecutive years of data available for assessment, a beach is assessed as not supporting its use designation if at least one annual geometric mean exceeds the criterion.

b. Weekly Samples: Rolling geometric means are calculated using data from all months (not just the Recreational Season) from the last 5 years. Each geometric mean consists of at least 3 samples taken in a 30-day period.

1. Beaches are determined not to be supporting their designated use if more than 10% of the geometric means exceed the criterion.

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 that 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. Geometric means are calculated using data from all four quarters, regardless of whether they are taken in the recreational season.

1. If there are five consecutive years of annual geometric means available for assessment, a beach is assessed as not supporting its use designation if more than one annual geometric mean exceeds the criterion (35/100 mL). If there are fewer than five consecutive years of data available for assessment, a beach is assessed as not supporting its use designation if at least one annual geometric mean exceeds the criterion.

2. Delisting –

a. Monthly Samples: An annual geometric mean is calculated for each year using Enterococci data from the Recreational Season (May – October).

1. If there are five consecutive years of annual geometric means available for assessment and one or fewer annual geometric means exceeds the criterion, the beach is eligible for delisting. If there are fewer than five consecutive years of data available for assessment, a

- beach is be eligible for delisting if none of the annual geometric means exceed the criterion.
- b. Weekly Samples: Rolling geometric means are calculated using data from all months (not just the Recreational Season) from the last five years. Each geometric mean consists of at least 3 samples taken in a 30-day period.
    1. If 10% or less of the geometric means exceed the criterion, 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 that a beach is in compliance with the Enterococci criterion as described above, then the beach is eligible for delisting.
  - d. Quarterly Samples: Beaches under a permanent beach advisory are only sampled quarterly. Geometric means are calculated using data from all four quarters, regardless of whether they were taken in the recreational season.
    1. If there are five consecutive years of annual geometric means available for assessment and one or fewer annual geometric means exceeds the criterion, the beach is eligible for delisting. If there were fewer than five consecutive years of data available for assessment, a beach is be eligible for delisting if none of the annual geometric means exceed the criterion.
3. Swimming Advisories –
- a. Beach swimming advisories are issued when either the most recent Enterococci geometric mean exceeds 35/100 mL or the most recent single sample exceeds 104/100 mL.
  - b. The swimming advisory is lifted when new data shows both the geometric mean and single sample data meet the criteria.
- K. 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 reveal that 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.

#### 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 uses to be made

of such segments. The State is 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 that is allowed for TMDL development as provided in the US EPA 1997 Interpretative Guidance for the TMDL Program. This guidance states that States should develop schedules for establishing TMDLs expeditiously, generally within 8-13 years of being listed.

In addition, US EPA has developed a new 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 Draft Priority Framework that describes how GA EPD will prioritize 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>