I. Introduction

A. Brief History of Georgia EPD, Delegation, and Responsibilities

Water Protection in Georgia

Since its inception in 1972, the Georgia Environmental Protection Division (GAEPD) has been a comprehensive environmental agency responsible for environmental protection, management, regulation, permitting, and enforcement in Georgia. GAEPD has aggressively sought most available program delegations from the USEPA to achieve and maintain a coordinated, integrated approach to environmental management. Today, the GAEPD administers regulatory programs for watershed protection, water supply and groundwater management, surface water allocation, safe dams, hazardous waste management, underground storage tanks, solid waste management, strip mining, soil erosion, radiation control, and air quality.

The integrated approach to water pollution control originated in 1964 with the predecessor of the GAEPD. The Georgia Water Quality Control Act of 1964 established the Georgia Water Quality Control Board and consolidated all water pollution control functions under the Board. Early efforts by the Board, in the late 1960s and early 1970s, included documentation and assessment of water quality conditions, followed by judicial actions to force cleanup of targeted, priority water pollution problem areas. Another major action by the Board during this period was the establishment of water quality standards.

The Federal Clean Water Act of 1972 established the national goal of the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water wherever attainable. Most industries in Georgia had installed effective water pollution control facilities by the end of 1972. In the mid to late 1970s, GAEPD placed major emphasis on the construction of municipal wastewater treatment plants, issuance of NPDES permits to municipal and industrial discharges, and the initiation of programs to monitor permit compliance and take appropriate enforcement actions. Major stream monitoring, modeling, and basin planning work was coordinated in support of wastewater treatment plant design and permitting. Priority was placed on targeted waters and on discharges to water quality limited stream segments through the construction grant priority funding list. While EPD’s focus was primarily on traditional municipal and industrial wastewater treatment plants in the 1970s and 1980, beginning in the 1990’s, EPD began to invest more resources on other sources of pollution including discharges from municipal separate storm sewer systems and stormwater runoff from industrial and construction sites.
In 2004, the Georgia General Assembly passed water planning legislation. The 2004 Comprehensive State-wide Water Management Planning Act called for the preparation of a comprehensive statewide water plan and provided fundamental goals and guiding principles for the development of the plan. As part of the Plan, 11 Regional Water Councils were created to represent different areas of the State. The Statewide Water Plan was completed in 2008. In 2011, the eleven Regional Water Councils completed Initial Recommended Regional Water Plans.

The Watershed Protection Branch of the GAEPD, in cooperation with many local, state, and federal agencies, coordinates programs to address most aspects of water resource management and water pollution control. These programs including: Continuing Planning Process; comprehensive statewide water planning; water quality standard development, water quality monitoring and assessment; modeling to develop wasteload allocations and Total Maximum Daily Loads (TMDLs); TMDL implementation; local watershed assessment and watershed protection plans; nonpoint source management; stormwater management; erosion and sedimentation control; Clean Water State Revolving and Georgia Fund Loan programs; NPDES permit and enforcement programs for municipal and industrial point sources; industrial pretreatment; land application of treated wastewater; regulation of concentrated animal feedlot operations (CAFOs); surface water and ground water withdrawals; drinking water permits; water conservation; source water protection; wetlands; floodplains; and public outreach including Georgia Project Wet and Adopt-A-Stream programs.

The Watershed Planning and Monitoring Program (WPMP) in the Watershed Protection Branch is primarily responsible for the development of water quality standards (http://epd.georgia.gov/georgia-water-quality-standards), monitoring of the State’s waters including streams, rivers, lakes, wetlands, and estuaries, assessment of those waters for the preparation of the Integrated 305(b)/303(d) report (http://epd.georgia.gov/georgia-305b303d-list-documents), preparation of the Fish Consumption Guidelines Booklet (http://epd.georgia.gov/fish-consumption-guidelines), and development of TMDLs for impaired waters on the 303(d) list (http://epd.georgia.gov/total-maximum-daily-loadings). All of these activities being housed in the same Program allows for close coordination of the work performed by the Program. In addition, WPMP prepares models for the development of wasteload allocations used by the Wastewater Regulatory Program (WRP) to determine NPDES permit limits and works with the Water Supply Program (WSP) to ensure protection of drinking water supplies located downstream from wastewater discharges in streams with indirect potable reuse. WPMP also works with the Nonpoint Source Program (NSP) to coordinate 319 priorities and determine watersheds for restoration and protection. Engineering positions in the TMDL Modeling and Development Unit are used for 319 match.

B. Clean Water Act (Bridge)

The Federal Water Pollution Control Act of 1948 was the first major U.S. law to address water pollution. Growing public awareness and concern for controlling water pollution
led to sweeping amendments in 1972. As amended in 1972, the law became commonly known as the Clean Water Act (CWA). Section 101(a) states: “The objective of this Act is to restore and maintain the chemical, physical, and biological integrity of the Nation’s Waters.”

The 1972 amendments:

- Established the basic structure for regulating pollutants discharges into the waters of the United States.
- Gave EPA the authority to implement pollution control programs such as setting wastewater standards for industry.
- Maintained existing requirements to set water quality standards for all contaminants in surface waters.
- Made it unlawful for any person to discharge any pollutant from a point source into navigable waters, unless a permit was obtained under its provisions.
- Funded the construction of sewage treatment plants under the construction grants program.
- Recognized the need for planning to address the critical problems posed by nonpoint source pollution.

The Clean Water Act establishes the need for Water Quality Standards and drives the process.

- Water quality standards Section 303
- Monitoring is performed around the State each year, and is often targeted to areas of water quality concern.
- Assessment Section 305 - The data collected by USGS, GAEPD, Georgia’s Wildlife Resources Division, Georgia’s Coastal Resources Division, and any other parties that have a SQAP is assessed as it is collected, and used to update the Integrated 305(b)/303(d) report every 2 years. It is also used to inform future monitoring and other actions.
- TMDLs Section 303(d)
- WQBEL’s  Georgia has been developing WQBELs for Dissolved Oxygen, nitrogen and BOD5 using GADOSAG and GA Estuary for over 35 years. We have also developed WQBELs for metals and other priority pollutants using flow data and the appropriate dilution calculations.
- CWA Section 319

C. Georgia TMDLs - 1599 TMDLs Staying on Pace/ Basin Rotation

Over 1500 TMDLs have been finalized for Georgia waters. The majority of these TMDLs have been done for fecal coliform and biota impaired streams. Georgia uses a variety of methods for TMDL development. A breakdown of these TMDLs is as follows:
1. **Fecal Coliform TMDLs (805)** - have been done primarily using the loading curve approach. This involves comparing the current critical load to the seasonal TMDL curve to determine the percent reduction. An explicit Margin of Safety (MOS) has typically been used.

2. **Biota TMDLs (389)** - are for waters with either fish or macroinvertebrate community impairments. Typically, unless another specific contaminant can be identified, GAEPD has used sediment as the parameter to be limited. The WCS Sediment Tool is used and relies on The Universal Soil Loss Equation as well as the most up to date GIS coverages available for the watershed.

3. **DO TMDLs (239 DO and 96 DO/Nutrients)** - have been developed using a variety of models depending on the complexity of the system. For simple river systems, Georgia DOSAG, a one-dimensional, steady state river model that uses a modified Streeter-Phelps equation, is used. Georgia ESTUARY is used for simple estuary systems. This model is a one-dimensional, steady state, tidal average model that uses an advection-dispersion equation for mass transport. For complex systems, the one-dimensional hydrodynamic model Georgia RIV-1 is used.

4. **Chlorophyll a/Nutrients TMDLs (4)** - for lakes were developed using three computer models. The models were run for several calendar years when water quality data were collected. A watershed model, using LSPC that includes all major point sources of nutrients, simulates the effects of surface runoff on both water quality and flow and is calibrated to available data. The results of this model were used as tributary flow inputs to the hydrodynamic model EFDC, which simulated the transport of water into and out of the lake. The EPA EFDC or WASP model was used to simulate the fate and transport of nutrients into and out of the lake and the uptake by phytoplankton, where the growth and death of phytoplankton is measured through the surrogate parameter chlorophyll a.

5. **FCG (PCB) TMDLs (48)** - These have been done using a bioaccumulation rate to determine what instream concentration should result in fish with levels that are safe for human consumption. This method calculates an acceptable instream concentration, but since legacy pollutants such as PCBs are not discharged “on purpose”, the TMDL must emphasize that regulated clean-up activities and natural decay will slowly result in improvement.

6. **Metals TMDLs (42)** - A mass balance approach is used for parameters with standards based on instream concentrations. For protection of Human Health, annual average flows are used. For standards based on acute and chronic aquatic protection, 1Q10 and 7Q10 flows are used. With metals it is sometimes necessary to use a translator to estimate the dissolved fraction. The hardness is also required to determine the appropriate target for some metals since many metals are more toxic at lower hardness.
7. Others
   a. pH (14)
   b. Toxicity (12)
   c. Organics (8)
   d. Temperature (2)

D. Current Prioritization –

GAEPD has been engaging stakeholders and using tools for priority impairments to protect waters. We coordinate with current stakeholders, 319 and MS4 etc. and continue to use our 303d list to stay on pace with EPA goals.

II. EPA CWA Section 303(d) Program Vision Background

A. State’s TMDL/303d work will specifically incorporate the Vision

A Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program

The Clean Water Act Section 303(d) Program provides for effective integration of implementation efforts to restore and protect the nation’s aquatic resources, where the nation’s waters are assessed, restoration and protection objectives are systematically prioritized, and Total Maximum Daily Loads and alternative approaches are adaptively implemented to achieve water quality goals with the collaboration of states, federal agencies, tribes, stakeholders, and the public

1. “Prioritization” States should review, systematically prioritize, and report priority watersheds or waters for restoration and protection in their biennial integrated reports to facilitate state strategic planning for achieving water quality goals

2. “Assessment” States should identify the extent of healthy and CWA Section 303(d) impaired waters in each state’s priority watersheds or waters through site-specific assessments

3. “Protection” In addition to the traditional TMDL development priorities and schedules for waters in need of restoration, States should identify protection planning priorities and approaches along with schedules to help prevent impairments in healthy waters, in a manner consistent with each state’s systematic prioritization

4. “Alternatives” States should use alternative approaches, in addition to TMDLs, that incorporate adaptive management and are tailored to specific circumstances where such approaches are better suited to implement priority
watershed or water actions that achieve the water quality goals of each state, including identifying and reducing nonpoint sources of pollution

5. “Engagement” EPA and the States should actively engage the public and other stakeholders to improve and protect water quality, as demonstrated by documented, inclusive, transparent, and consistent communication; requesting and sharing feedback on proposed approaches; and enhanced understanding of program objectives

6. “Integration” EPA and the States should identify and coordinate implementation of key point source and nonpoint source control actions that foster effective integration across CWA programs, other statutory programs (e.g., CERCLA, RCRA, SDWA, CAA), and the water quality efforts of other Federal departments and agencies (e.g., Agriculture, Interior, Commerce) to achieve the water quality goals of each state

B. Timeline for Goal Statements

1. 2014 – Engagement
2. 2016 – Prioritization, Protection, Integration
3. 2018 – Alternatives
4. 2020 – Assessment (Site-specific)
5. 2022 – Evaluate accomplishments of the Vision and Goals

III. EPA Prioritization Framework Guidance

A. Framework Elements

1. Mechanism for Prioritization (e.g., Recovery Potential Screening Tool, Nutrient Framework (Stoner) Memo, cost/benefit analysis, etc. – See “ELI Menu of Approaches”

2. Factors Considered in Prioritization (such as indicators used in Recovery Potential Screening, pollutants/impairments, sources, etc.)

3. Consideration of EPA National and Regional Priorities. The document should explain how the State collaborates with the Region on prioritization and how EPA’s priorities fit into the State’s Framework. This does not mean the State must choose EPA priorities as their designations, rather the State should recognize the Agency’s priorities as an important factor in this process.

4. Plan for Where the State Will Begin Work; this may be very general, based on Rotating Basin Scheduling, monitoring or permitting cycle, or other appropriate process.
5. **Statement on Flexibility** and State’s approach to changing priorities.

6. **Description of Shifts or Changes** from the past prioritization scheme compared to what the state will be doing under the new Vision. Be clear about what’s different or new; highlighting what’s the same can be just as helpful to the public and other partners.

**B. Other Considerations**

1. **Public Engagement Approach.** How will the State involve the public in the process? How will the state share the final designated priorities with stakeholders? At a **minimum**, priorities should be clearly identified in the 2016 IR for the public to provide comments.

2. **When and How the State will Review and Update the Prioritization Scheme.** Assessment is a critical piece of the new Vision; States should consider how they will adapt to new information on the status of waters, interest and engagement from stakeholders and partners, and the effectiveness of their chosen scheme.

3. **Choice of Priority Designations.** Once the state has completed the Framework Document and gone through the process to determine their priorities, it would be appropriate to include that information as an appendix/update to the document.

4. **Availability of Framework Documents to the Public.** Although these documents are not subject to public notice requirements or EPA approval, states should consider making documents available to the public, on their websites, or through other means to facilitate transparency and public engagement.

**C. Schedule for GAEPD’s Priority Framework** This is in the 303(d)/TMDL Program 106 Workplan.

2. **December 31, 2014** - Draft Plan to EPA
3. **February 27, 2015** - Final Plan to EPA

EPA states:

Task 1 in the *DRAFT* 106 Workplan allows the State 303(d)/TMDL programs to work within the state agency to determine what tools and approach will be used for prioritization, collaborate with the Region to get an appropriate Framework in place and have priorities determined for inclusion in the 2016 Integrated Report.
This Priority Framework Document should describe how Georgia is going to prioritize, but does not have to list what the final priorities are going to be. The endpoint of the metric is, at 2022, to have the plan (TMDL, alternative, protection) final and approved for all priority designations. Restoration takes time; the priorities do not have to be restored and delisted by 2022.

IV. Georgia’s Prioritization Framework

A. Mechanism for Prioritization

1. **Complexity of the Issue** - Complex issues that impact human health and deal with pollutants that effect multimedia are prioritized.
   a. Human Health Concerns - GAEPD works with our sister agencies, Wildlife Resources Division (WRD) and Coastal Resources Division (CRD), in the development of appropriate water quality standards and the collection of fish tissue for analysis of priority pollutants. We have coordinated with CRD in the development of bacteria TMDLs for shellfish and recreational waters. In addition, we have used the fish tissue data to prepare TMDLs for priority pollutants that meet Fish Consumption Guidelines.

   b. Multimedia - During the 303(d) listing process and TMDL development, WPMP coordinates with the Land Protection Branch to gather information and updates on RCRA projects. This coordination allows the TMDL or alternate approach to include a through description of past, present, and future restoration activities and has been successfully used for the development of the Coosa River PCB TMDLs and the Buffalo Creek Copper TMDL. WPMP also coordinates with the Air Protection Branch on air deposition of mercury from power plants. This information was used to develop a fish tissue monitoring program to look at trends of mercury accumulation throughout the State.

2. **Interstate Issues** – In watersheds with a downstream State or a shared waterbody, Georgia will work with our neighboring States to prioritize and coordinate activities. Several examples of important interstate issues include, the Savannah Harbor, Lake Weiss, and Lake Talquin. In the Savannah River Basin, Georgia has worked with South Carolina to develop the same water quality criteria for Dissolved Oxygen for the Savannah Harbor. The two state agencies, along with EPA and an extensive stakeholder group, have been involved in a transparent process to develop an alternative approach to restore the Harbor. In the Coosa River Basin, Georgia partnered with EPA and Alabama to develop watershed and lake models for Lake Weiss in Alabama. A TMDL was developed that had an allocation for Georgia at the stateline. In the Ochlockonee River Basin, Georgia, Florida, and EPA are
working together to develop a series of water quality models to address nutrients in Lake Talquin.


Georgia recently completed a revision of the Statewide Nonpoint Source Management Plan last updated in 2000. This revision provides an update to reflect new priorities and practices of nonpoint source pollution control in Georgia. It represents Georgia’s plan for making progress toward meeting the ultimate goal of the Clean Water Act of achievement of water quality standards for fishable and swimmable waters. The plan includes a section to prioritize 319(h) funding and potentially other nonpoint source activities to targeted watersheds for the greatest nonpoint source pollution reduction or delisting opportunity. This plan will be coordinated with Georgia’s 303(d)/TMDL Vision as it is developed. Georgia’s Statewide Nonpoint Source Management Plan can be found on the GAEPD website at: [http://epd.georgia.gov/sites/epd.georgia.gov/files/related_files/site_page/Georgia_Nonpoint_Source_Management_Plan_2014.pdf](http://epd.georgia.gov/sites/epd.georgia.gov/files/related_files/site_page/Georgia_Nonpoint_Source_Management_Plan_2014.pdf).

In 2004, the Georgia legislature passed the Comprehensive State-wide Water Management Planning Act that authorized the development of the State Water Plan. The State Water Plan called for state-wide regional water planning that provides local and regional perspectives to ensure water resources are sustainably managed through at least 2050. Information on the State Water Plan can be found at: [http://www.georgiawaterplanning.org/](http://www.georgiawaterplanning.org/).

4. **Recovery Potential Tool** - This is a systematic, comparative method for identifying differences among watersheds that may influence their relative likelihood to be successfully restored or protected. It was developed by the EPA Office of Water as a flexible, user-driven tool to help States and others compare impaired waters more quickly and efficiently and set priorities for investing limited restoration resources. The Watershed Planning and Monitoring Program in conjunction with Georgia’s Non-Point Source Program has used this tool to prioritize watersheds.

5. **Rotating Basin Approach** - GAEPD has successfully been developing TMDLs using the Rotating Basin Approach for almost 15 years. There are five Basin Groups in Georgia. Each year, TMDLs are developed for a Basin
Group, for example Coosa, Tallapoosa, Tennessee River Basins, or the Savannah, Ogeechee River Basins. The basins are usually close and share similar characteristics. This allows for a more detailed assessment to be done and a single document to be prepared for TMDLs for the same parameter in the same River Basin. This approach prioritizes the development of TMDLs by river basin and allows Georgia to develop many more TMDLs than if preparing multiple TMDL documents all over the State every year. This has resulted in Georgia consistently complying with the requirements of the Clean Water Act and becoming a leader in TMDL development. GAEPD has worked closely with EPA Region 4 and has obtained technical assistance and help in areas where they have more expertise, such as Mercury Fish Tissue TMDLs. GAEPD will continue to use the Rotating Basin Approach as a guide; but for complex issues - extra time may be needed, and for more urgent issues TMDLs may be developed ahead of the basin cycle.

B. Factors Considered in Prioritization

1. Available Data is needed to document that problems exist and help define the nature of the situation. Is the source easily identified? Does it affect multiple stakeholders? Is it seasonal? Does enough data exist to build and calibrate an appropriate model? Therefore, it is imperative that monitoring and assessment are closely coordinated throughout the State to determine priorities and the best solutions for protection and restoration waters.

2. Stakeholder Interest and Partners
   a. Permit holders i.e., Savannah River/Harbor Discharger Group
   b. Environmental groups and concerned citizens
   c. Regional Councils
   d. Watershed Improvement Plan (WIP) – 9 key element watershed management plan
   e. 319 projects – addresses specific impairments attributed to nonpoint sources
   f. 5R – an alternative to a TMDL where there is a commitment to implement a restoration plan

3. Water Quality Models GAEPD has developed watershed models throughout the State and has water quality models for several lakes and estuaries. Since most impairments related to point sources have already been taken care of, the watershed models along with the land use coverages, and other required GIS coverages, will be important in developing TMDLs and alternative approaches that focus on load allocations (LA) from nonpoint sources.

4. Regulatory Mechanism to Deal with the Issue
   a. Appropriate Water Quality Standards
   b. Straight to Implementation (Permit WQBELs)
   c. 5R point source and/or nonpoint source
d. Multimedia i.e. RCRA, CAA Permits

C. Consideration of EPA National and Regional Priorities

1. National Priorities

a. **Nutrients** are a high priority in lakes, rivers and streams, and estuaries. Algae can cause taste and odor problems in drinking water, can make recreation unpleasant, and can lead to low DO and other objectionable conditions. Modeling the cause and response, as well as to finding ways to reduce nutrients, is one of the biggest challenges.

b. **Drinking Water** must be protected and will continue to be a top priority. GAEPD will continue to prioritize TMDLs for parameters that effect human health.

c. **Protection of Human Health and aquatic life** are the goals of the CWA. Water quality standards are aimed at achieving these goals. GAEPD is currently developing an ammonia standard that will be protective of aquatic life for all waters and is revising the bacteria standard for recreation waters to protect human health. The monitoring and assessment of waterbodies for these parameters will determine which waterbodies need additional protection and/or restoration.

2. Regional Priorities

a. **Alternative Approaches**

i. **Straight to Implementation** GAEPD has done WLAs for NPDES Permits and incorporated these into permits when data have shown a direct discharge was responsible for the impairment. This approach will continue. (Coosa River Temperature)

ii. **5R** is an alternative approach for addressing nonpoint and point source problems when a stakeholder group proposes a restoration plan. GAEPD will work with stakeholder groups to make this option successful. (Savannah Harbor DO)

b. **Downstream Protections**

i. *(Lake Weiss)* Georgia is working to insure that Alabama WQS are met at the Stateline.

ii. *(Ochlockonee Nutrients)* Georgia is working to insure that Florida WQS are met at the Stateline.
D. Plan for Where the State Will Begin Work

1. The current 303d list will contain the year by which the TMDLs are scheduled to be drafted. This is based on a Rotating Basin Approach, and allows for compliance with the Clean Water Act. These waters may or may not be part of our 303(d)/TMDL Vision priority list.

2. GAEPD will begin work in areas where are our priority mechanisms and priority factors are intersecting. Added benefits will result when these areas intersect with EPA National and Regional priorities.

   a. GAEPD will begin work in areas that have complex issues such as nutrient impairments and where water quality models have been developed that can be used for assessment, and there is an engaged stakeholder group. Due to the complexity of the issues and required resources, it may take longer to develop the TMDL or alternative, but successful restoration will be more likely. Areas may be prioritized if an alternative approach can be used for implementation.

E. Statement on Flexibility

Georgia’s Priority Framework will be flexible to address new issues that threaten human health or aquatic life. As water quality criteria are changed to incorporate new parameters and/or new science, Georgia’s monitoring and assessment programs will be adjusted and if necessary priority areas will be shifted to protect and restore Georgia’s waters. GAEPD will prioritize waters with impairments related to new National, Regional, and State concerns. New Federal guidance will also be incorporated as it becomes available. Stakeholder’s interest and other factors, including available resources will be considered and evaluated regularly.

F. Description of Shifts or Changes

1. **Basin Approach** - Georgia will continue to develop TMDLs primarily on a Rotating Basin Approach. GAEPD will continue to complete TMDLs in 13 years as previously required by EPAs PACE indicator. These waters may or may not be part of our 303(d)/TMDL Vision priority list.

2. **Public Engagement** - Once the Priority Framework is approved by EPA, GAEPD intends to publish the Framework on the GAEPD website in order to share with the public. Links to other activities and plans reference by the Framework are available on the GAEPD website at [http://epd.georgia.gov/watershed-protection-branch](http://epd.georgia.gov/watershed-protection-branch). Georgia will continue to develop basin-wide water quality models as funds become available and will encourage the engagement of various stakeholders. GAEPD has worked closely with several stakeholders and partners in the past. A few examples of
TMDLs that have or will require complicated water management tools, as well as coordination and engagement of a variety of stakeholders include:

a. 2004 Coosa River Basin DO TMDL  
b. Savannah Harbor Dissolved Oxygen TMDL  
c. 2013 Lake Allatoona Chlorophyll a TMDL  
d. Carter’s Lake and Lake Lanier TMDLs  
e. Interstate Issues  
   i. Lake Weiss – Nutrients (Georgia/Alabama)  
   ii. Lake Talquin - Nutrients (Georgia/Florida)  
f. Multimedia  
   i. Hg Fish - Statewide Clean Air Act (CAA)  
   ii. PCBs – 2004 Coosa River Basin PCB TMDL - Resource Conservation and Recovery Act (RCRA) Permit 2003 to present  
   iii. Copper- Tallapoosa Resource Conservation and Recovery Act (RCRA)

3. **Focus more on Priorities resulting from the Vision Approach.** GAEPD will focus our monitoring, modeling, and assessment efforts in areas where our Federal, State, and local partners are also providing effort. This coordinated effort is expected to provide a synergism that may result in more measurable successes. GAEPD will continue to concentrate our efforts for monitoring, assessing, and permitting where there are water quality violations or threats to health.