



GEORGIA
DEPARTMENT OF NATURAL RESOURCES

ENVIRONMENTAL PROTECTION DIVISION

Nutrient Permitting Roadmap Meeting #1

Audra Dickson
Wastewater Regulatory Program Manager

August 17, 2022



AGENDA

- National Conversation
- State Conversation & History
- Timing
- Reasonable Potential Analysis
- Nutrient Optimization
- Path Forward
- Contact Information



NATIONAL CONVERSATION



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Nutrient Pollution



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF WATER

April 5, 2022

MEMORANDUM

SUBJECT: Accelerating Nutrient Pollution Reductions in the Nation's Waters

FROM: Radhika Fox
Assistant Administrator

TO: State Environmental Secretaries, Commissioners, and Directors
State Agriculture Secretaries, Commissioners, and Directors
Tribal Environmental and Natural Resource Directors

<https://www.epa.gov/nutrientpollution>



NATIONAL CONVERSATION

Strategy 1: Deepen Collaborative Partnerships with Agriculture

- Actively collaborating with USDA leadership to build and maintain connections and momentum to help targeting funds whenever feasible to the locations and practices that will generate the most significant reductions in nutrient loads.
- Expanding engagements with agricultural stakeholders and highlighting their innovation and successes in reducing nutrient loads to waterbodies.
- Deepening on-the-ground collaboration with USDA, states, territories, tribes, and stakeholders in key geographic areas to leverage EPA's current activities and identify additional opportunities to help reduce nutrient pollution.

<https://www.epa.gov/nutrientpollution>



NATIONAL CONVERSATION

Strategy 2: Redouble EPA's Efforts to Support States, Tribes, and Territories to Achieve Nutrient Pollution Reductions from All Sources

- Strongly encouraging states to use a One Water approach to deliver a range of water quality benefits including protection of sources of drinking water.
- Championing innovative financing and using the flexibility of the Clean Water Act regulatory framework to spur development of more effective technologies, drive market-based approaches, including water quality trading, third-party credit aggregation and banking, and stronger agriculture-water sector partnerships.
- Prioritizing strategies to support small, rural, and disadvantaged communities.



<https://www.epa.gov/nutrientpollution>



NATIONAL CONVERSATION

Strategy 3: Utilize EPA's Clean Water Act Authorities to Drive Progress, Innovation, and Collaboration

- Urging more robust adoption of numeric nutrient criteria, particularly the newly published stressor-response based numeric criteria recommendations to address nutrient pollution in lakes and reservoirs, into Water Quality Standards.
- More fully using the CWA assessment and listing process support identifying nutrient-related impairments and assisting states in the development of robust and ready-for-implementation TMDLs and other restoration plans to reduce nutrient pollution.
- Further reducing nutrient loads from point sources by providing strong support of innovative permitting approaches that can drive deeper, sustained nutrient reductions.



STATE OF GA CONVERSATION

2.0 Background & Historical Review

In 1990, the Georgia General Assembly passed the “Lake Law” (OCGA 12-5-23.1) that authorizes the Environmental Protection Division (EPD) to establish water quality standards for each publicly owned lake or reservoir located wholly or partially within the state of Georgia that have a normal pool level surface average of 1,000 or more acres.

The law requires that a comprehensive study of each lake be conducted prior to the adoption of lake and major tributary water quality standards

<https://epd.georgia.gov/forms-permits/watershed-protection-branch-forms-permits/wastewater-permitting/permitting-strategies>

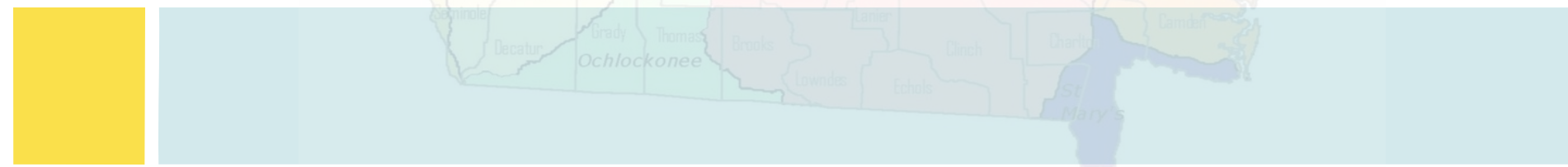
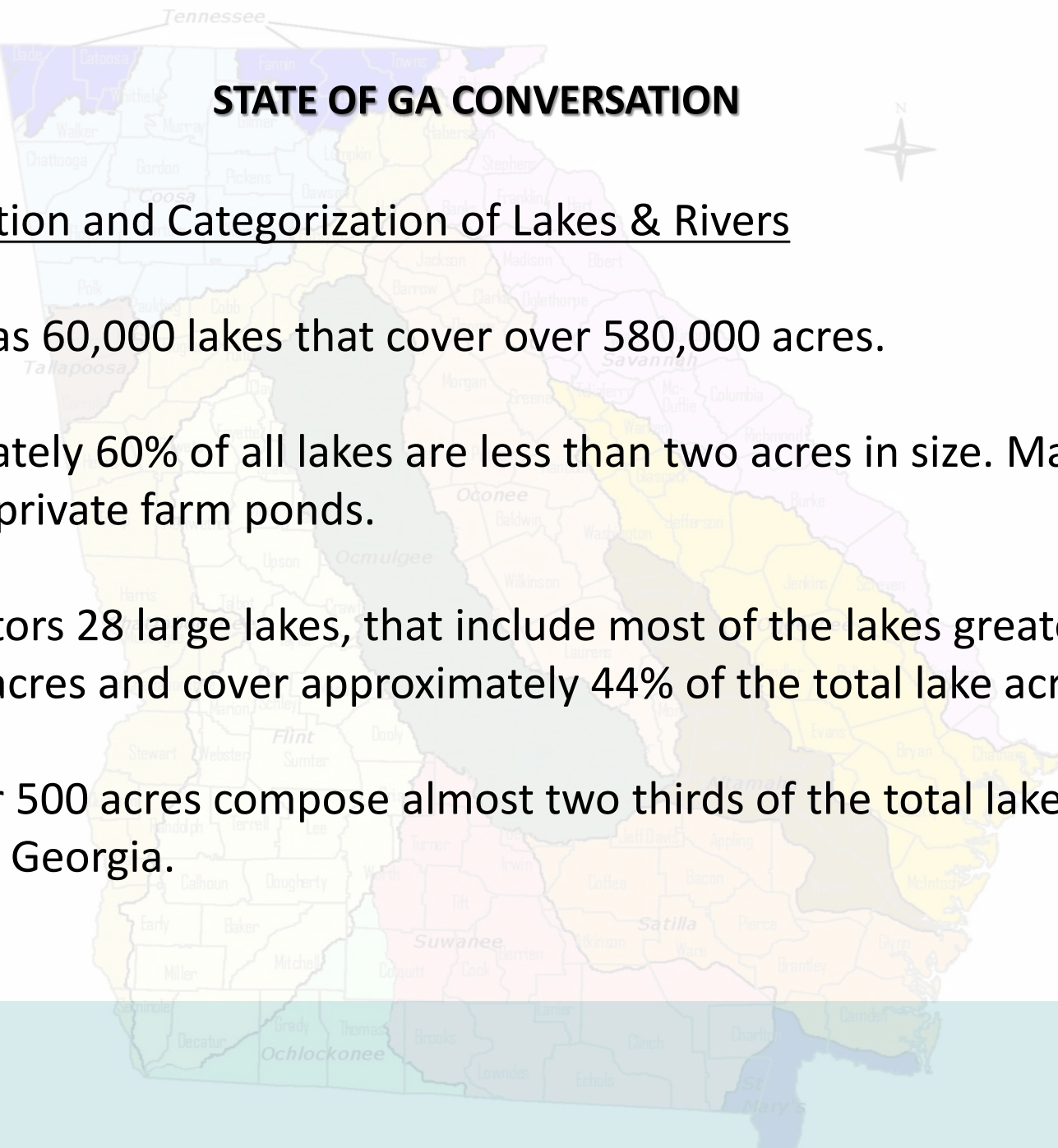


STATE OF GA CONVERSATION



3.0 Identification and Categorization of Lakes & Rivers

- Georgia has 60,000 lakes that cover over 580,000 acres.
- Approximately 60% of all lakes are less than two acres in size. Many of these are private farm ponds.
- EPD monitors 28 large lakes, that include most of the lakes greater than 500 acres and cover approximately 44% of the total lake acres.
- Lakes over 500 acres compose almost two thirds of the total lake acreage in Georgia.





STATE OF GA CONVERSATION

- Georgia has over 118,000 miles of rivers and streams.
- Over 14% of these streams (~17,500 miles) are upstream from the lakes that currently have numeric nutrient criteria, and 27.5% of these streams (~32,500 miles) are upstream from lakes that EPD intends to establish numeric nutrient criteria in the future.
- Approximately 34.6% of Georgia streams (~41,200 miles) are upstream of the estuaries EPD monitors.
- The total miles of streams that flow into Florida, Alabama, and Tennessee are approximately 11,900 miles (10%), 9,500 miles (8%), and 2,300 miles (2%), respectively



STATE OF GA CONVERSATION

4.0 Nutrient Water Quality Standards and Monitoring

By 2002, EPD completed studies and developed lake-specific water quality standards for six major publicly owned lakes:

1995 - West Point

1997 - Jackson

1997 - Walter F. George

2000 - Sidney Lanier

2000 – Allatoona

2002 - Carters

The water quality standards consist of lake-specific numeric criteria for chlorophyll-a, total phosphorus, total nitrogen, dissolved oxygen, pH, water temperature, and fecal coliform bacteria. In addition to developing and adopting the numeric criteria



STATE OF GA CONVERSATION

Table 1. provides a list the lakes greater than 500 acres that do not currently have water quality standards. The year given in the parenthesis is the year the annual monitoring during the growing season began.

Table 1. Major Lakes Monitoring Program (lakes currently without numeric nutrient criteria)

| | | |
|------------------------------|-------------------|-------------------|
| Andrews (2010) | Harding (2010) | Rabun (2013)* |
| Banks (2008) | Hartwell (2013)* | Seminole (2010) |
| Blackshear (2010) | High Falls (2009) | Sinclair (2009) |
| Blue Ridge (2011) | Juliette (2009) | Tobesofkee (2009) |
| Burton (2013)* | Nottely (2011) | Tugalo (2013)* |
| Chatuge (2011) | Oconee (2009) | Worth (2010) |
| Clarks Hill/Thurmond (2013)* | Oliver (2010) | |
| Goat Rock (2010) | Russell (2013)* | |

* Monitoring on these Lakes is contingent upon hiring of additional staff



STATE OF GA CONVERSATION

TIMELINE

- 2005 Ambient Water Quality Monitoring Plan
- 2006 EPD began biological monitoring of periphyton in selected rivers and streams.
- 2008 EPD began monitoring the basin lakes monthly during the growing season starting with Banks Lake in the Suwannee River Basin.
- 2008 EPD developed the first version of “Georgia’s Plan for the Adoption of Water Quality Standards for Nutrients” (Nutrient WQS Plan). The Nutrient WQS Plan was revised in 2011 and again in 2013. EPA mutually agreed to the latest revision in August 2013.



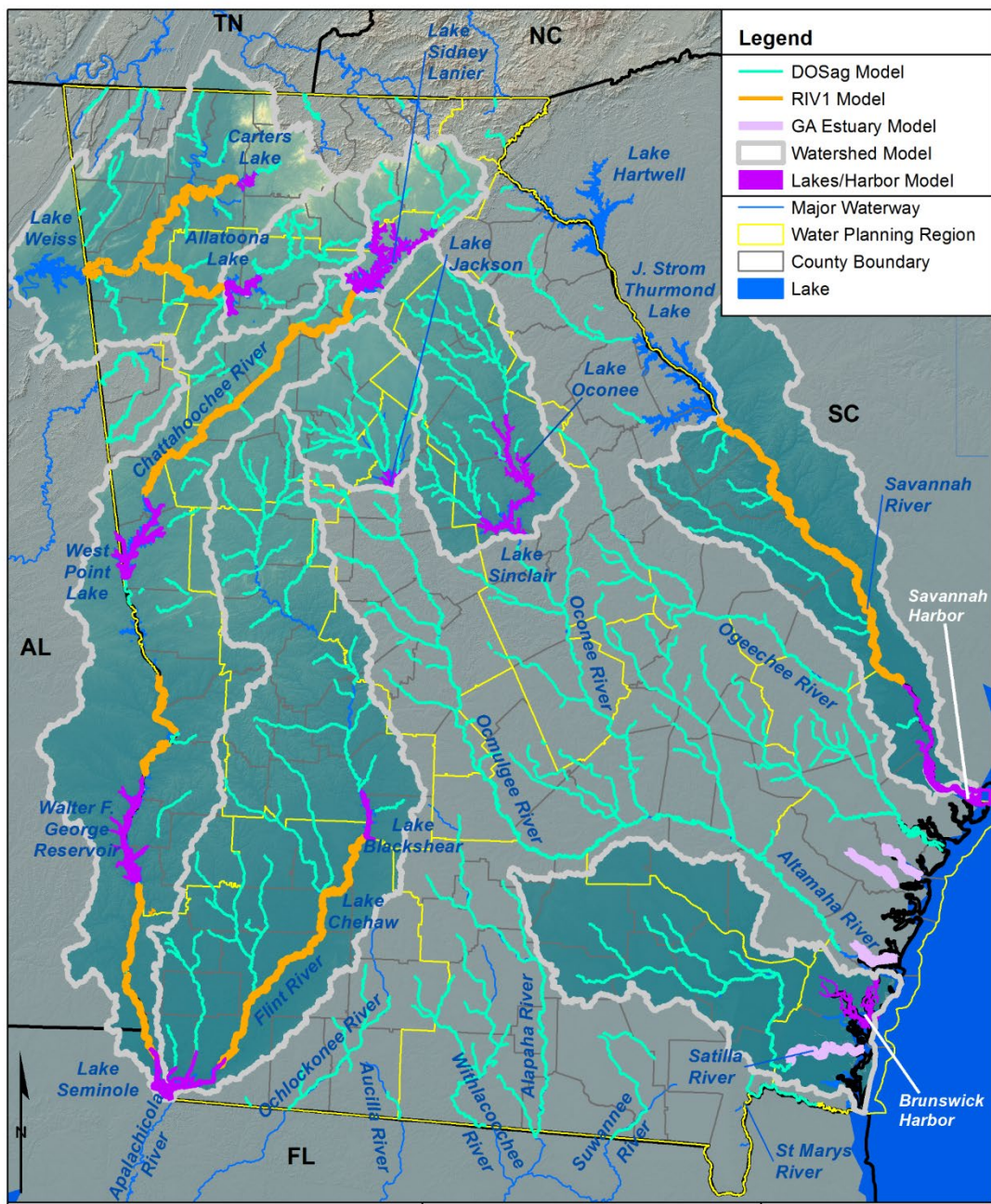
STATE OF GA CONVERSATION

- 2010 EPD began sampling chlorophyll-a in several of the State's estuaries.
- 2011 EPD published the "Strategy for Addressing Phosphorus in NPDES Permitting"
 - The Phosphorus Strategy identified a general strategy for all waters and specific strategies for: 1) waters in close proximity to lakes and/or estuaries; 2) waters entering lakes with specific water quality standards; and 3) waters on the Georgia 303(d) List.
 - The strategies outlined specific permit requirements, including, in some cases, numeric effluent limits.
 - As a result of these nutrient control reductions and strategies, the phosphorous levels in Georgia's streams and rivers have been reduced over the decades.



STATE OF GA CONVERSATION

- ~2010 EPD began including TP and OrthoP monitoring in NPDES permits
- 2012 First round of State Water Plan
- 2015 EPD along with South Carolina Department of Health and Environmental Control (DHEC) and EPA developed "An Approach to Develop Numeric Nutrient Criteria for Georgia and South Carolina Estuaries."
- 2017 Second round of State Water Plan
- ~2017 EPD began including total nitrogen, organic nitrogen, and TKN monitoring for all POTWs and non-POTWs as needed based on their effluent characterization.



Legend

- DOSag Model
- RIV1 Model
- GA Estuary Model
- Watershed Model
- Lakes/Harbor Model
- Major Waterway
- Water Planning Region
- County Boundary
- Lake

ROUND 1 OF THE STATE WATER PLAN

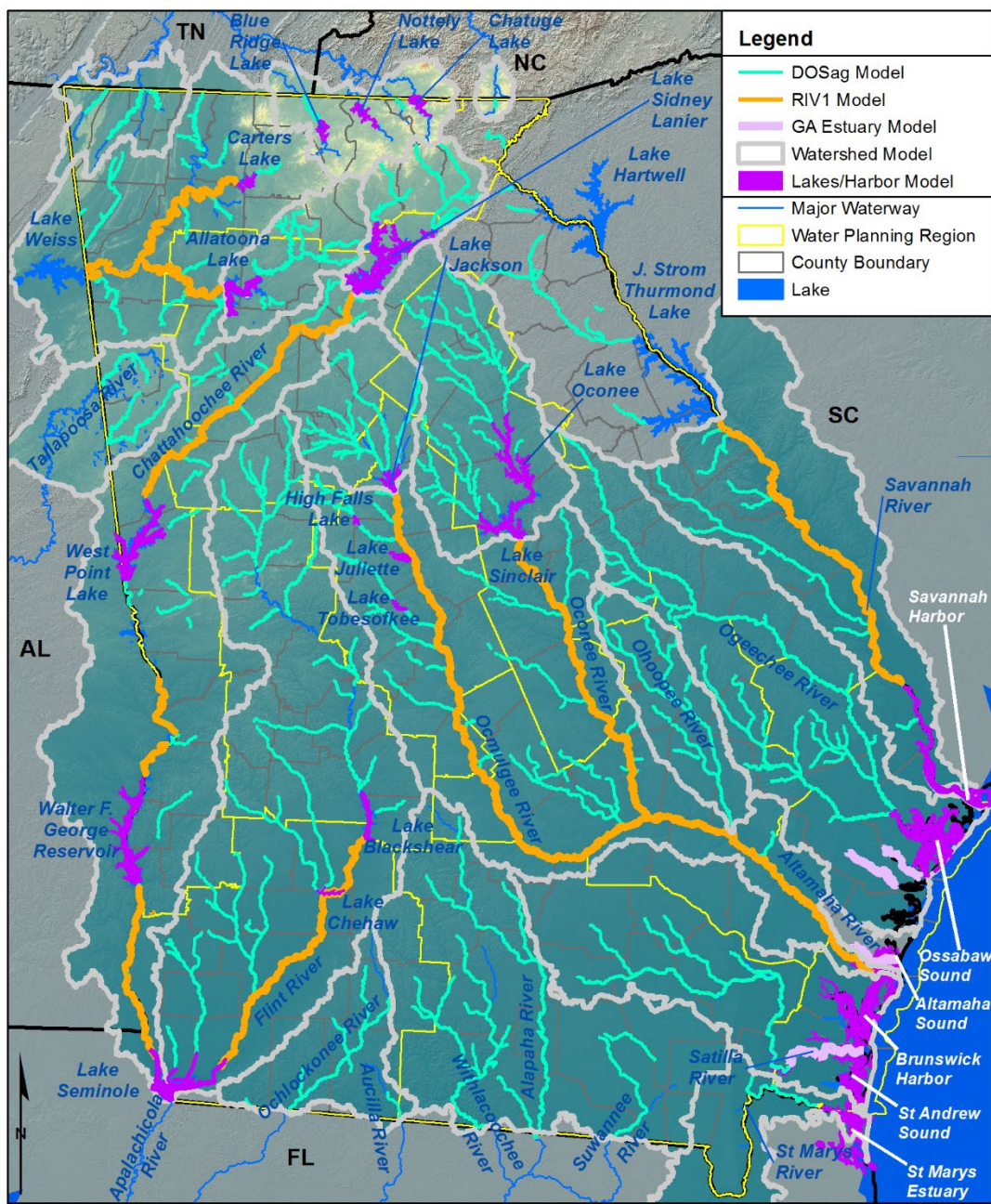
Assimilative Capacity Models

NAD_1983_UTM_Zone_17N
Map produced 09-09-2014 - P. Cada

0 20 40 80 Kilometers

0 20 40 80 Miles

TETRA TECH



Legend

- DOSag Model
- RIV1 Model
- GA Estuary Model
- Watershed Model
- Lakes/Harbor Model
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ROUND 2 OF THE STATE WATER PLAN

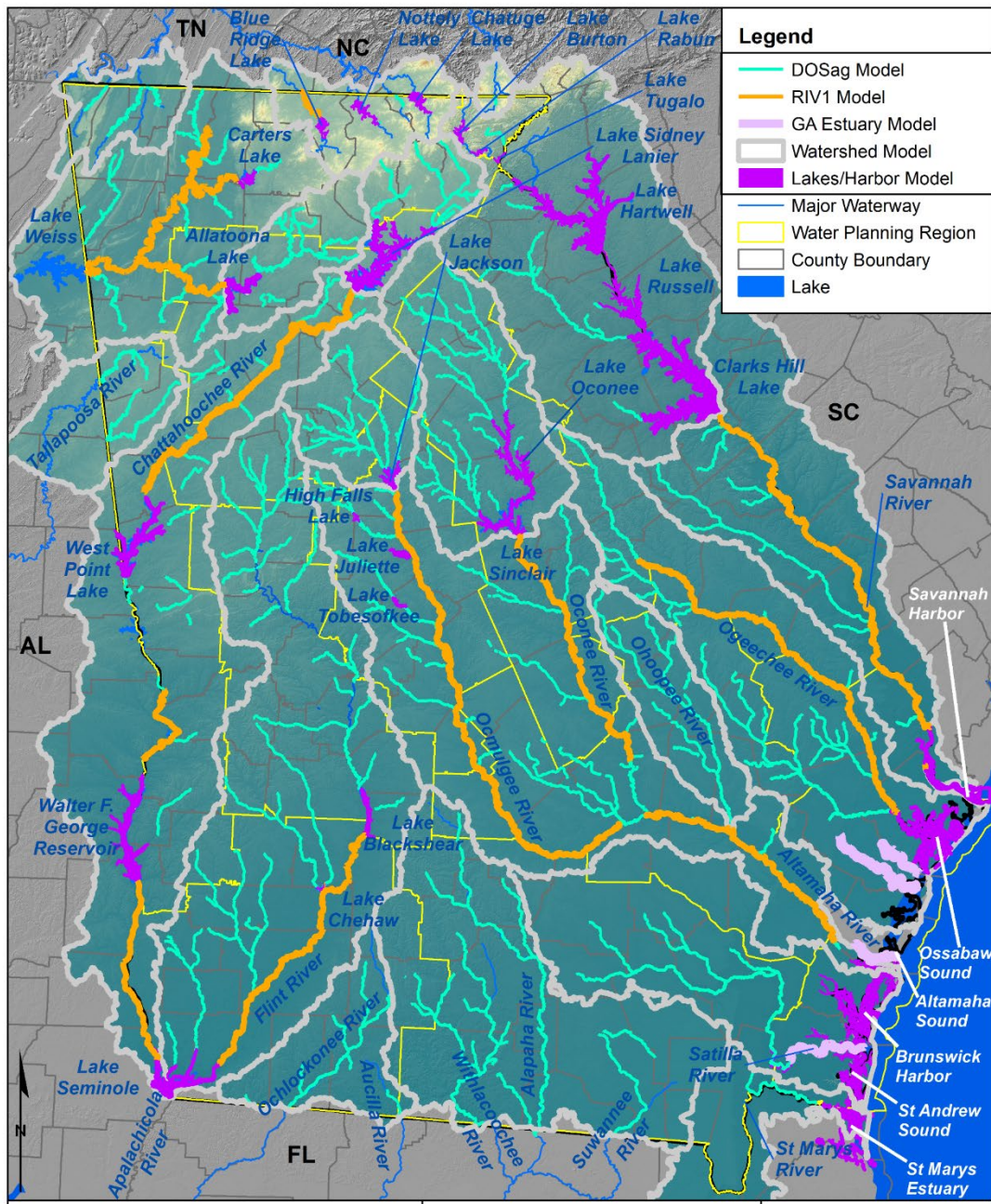
Assimilative Capacity Models

NAD_1983_UTM_Zone_17N
Map produced 06-07-2016 - P. Cada

0 20 40 80 Kilometers

0 20 40 80 Miles

TETRA TECH



Legend

- DOSag Model
- RIV1 Model
- GA Estuary Model
- Watershed Model
- Lakes/Harbor Model
- Major Waterway
- Water Planning Region
- County Boundary
- Lake

ROUND 3 OF THE STATE WATER PLAN

Assimilative Capacity Models

NAD_1983_UTM_Zone_17N
Map produced 02-23-2020 - H. Yonce

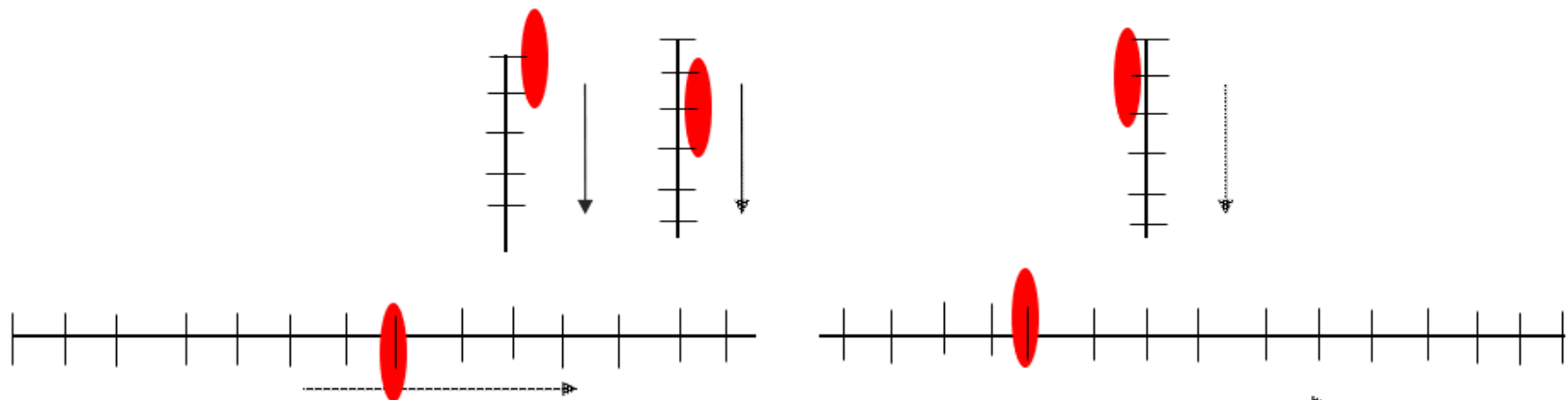
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TETRA TECH




STATE WATER PLAN MODELING



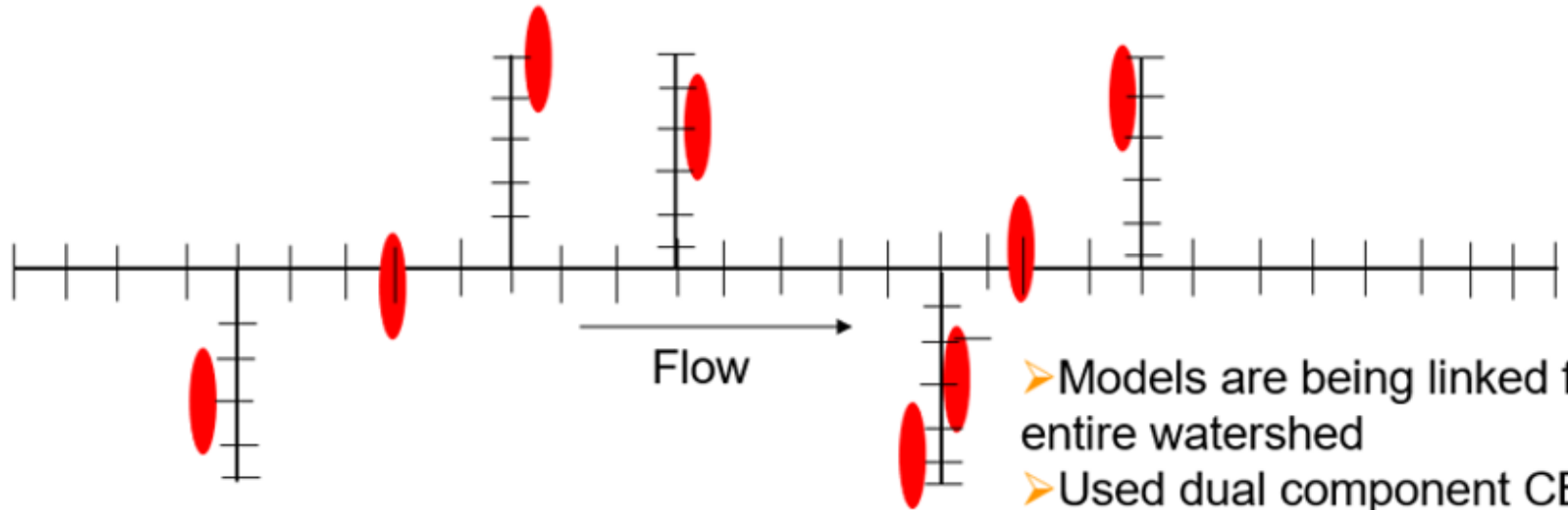
Flow


- Models were for tributaries and short river segments
- Used single component CBOD
- Used higher range of decay rates (k rate)
- Sediment Oxygen Demand (SOD) was not considered

 Wastewater Treatment Plant



STATE WATER PLAN MODELING



 Wastewater Treatment Plant

- Models are being linked for entire watershed
- Used dual component CBODs
- Used decays rates from long-term BOD test results
 - ❖ Instream
 - ❖ Effluent
- Sediment Oxygen Demand is being considered



STATE OF GA CONVERSATION

2022

- Georgia has adopted lake standards for several lakes
- Developed water quality models for our watershed, lakes, and estuaries
- Part of the State Water Plan we now have water quality models of all the watershed models in Georgia, and water quality models for the major lakes and estuaries. We also have models for some lakes that are run of the river
- Issued point source National Pollutant Discharge Elimination System (NPDES) permits with permit conditions and discharge limits designed to protect these waterbodies from excessive nutrient loadings, targeting TP



TIME SENSITIVITY & REASONABLE POTENTIAL ANALYSIS

6.0 U.S. EPA & EPD Discussion

EPA recently provided feedback to EPD that facilities with the potential to discharge a pollutant of concern, such as nitrogen must go through a Reasonable Potential Analysis (RPA) as required in the federal regulations to determine if the discharge of nitrogen has the reasonable potential to cause or contribute to an instream water quality standard violation.

The results of the RPA may require the inclusion of numeric total nitrogen effluent limits in point source discharge permits.



TIME SENSITIVITY & REASONABLE POTENTIAL ANALYSIS

6.2. Reasonable Potential Analysis

EPA regulations state: “Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any [s]tate water quality standard, including [s]tate narrative criteria for water quality” 40 C.F.R. §122.44(d)(l)(i).



NUTRIENT ROADMAP

7.0 Nutrient Permitting Strategy

- Georgia's diverse ecosystems and lake-specific water quality standards do not lend themselves to a one-size-fits-all approach.
- Each stream, river, lake, and watershed must be evaluated independently and then as a whole, connecting the various water quality models from upstream to downstream.



GA NUTRIENT ROADMAP

EPD proposes to develop a Permitting Strategy for Nutrients (Nutrient Permitting Strategy).

GOALS

1. Update the Phosphorus Strategy,
2. Develop a comprehensive nutrient reduction approach to tackle phosphorus, nitrogen, and their effect on chlorophyll a , and
3. Solicit stakeholder and permittee feedback on key strategy elements.
4. Provide a degree of regulatory certainty for point source dischargers and minimize the regulatory burden whereby EPD will be evaluating and establishing WLAs for nitrogen and phosphorus, instead of a fragmented permitting process that would likely result in piecemeal upgrades to wastewater treatment plants.



GA NUTRIENT ROADMAP

- In lieu of including numeric nutrient effluent limits for nitrogen (unless required in a TMDL or wasteload allocation), EPD will include **Comprehensive Nutrient Optimization Plan** permit conditions, as appropriate in all domestic wastewater permits and non-POTW permits with nutrient loads.
- Additionally, EPD will include a **specific permit condition to reopen** the permit during the 5-year term to include applicable nutrient effluent limits upon completion and implementation of the Nutrient Permitting Strategy.



GA NUTRIENT ROADMAP

8.0 Proposed Actions & Timelines

| <u>No.</u> | <u>Actions¹</u> | <u>Notes</u> | <u>Target Timelines</u> |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|-------------------------|
| 1 | Review EPA guidelines and policies for nutrients | Ongoing | ongoing |
| 2 | Review federal and state regulations associated with water quality standards; neighboring state standards and TMDLs; permitting strategies associated with nutrients | CWA, OCGA, 391-3-6, ADEM, FDEP, DHEC, Lake Talquin | complete |
| 3 | Identify and categorize waterbodies with water quality standards for TN, TP, and chlorophyll-a | 391-3-6-.03 | complete |
| 4 | Identify waterbodies listed on the most recently approved 303(d) List for impairments associated with nutrients | 2022 List approved | complete |
| 5 | Review current TMDLs associated with nutrients and TMDLs providing WLA for TN, TP, and or chlorophyll-a | | complete |
| 6 | Public notice kick-off stakeholder meeting (~30-day public notice) | | 30 days |
| 7 | Stakeholder meeting to kick-off the Nutrient Permitting Strategy, present the Nutrient Strategy Roadmap, and solicit feedback | | August 17, 2022 |
| 8 | Review stakeholder feedback and update models and or strategies as needed. | Dependent on level of stakeholder participation and feedback | 60 days |
| 9 | Continued development of water quality models for lakes and major tributaries as funding and resources become available. Develop lake targets. | Identify critical variables | ongoing |



NEXT STEPS



<https://forms.office.com/Pages/ResponsePage.aspx?id=DaEtURsHIEuKvJ7EBE0VFj8cTorKJzRDvhx7C53yDYxUNk8zOUw3S1ZYQ0xYS1JGVDgwU1BKSTNQTS4u>



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