THE WATER TOWER

GLOBAL INNOVATION HUB @ GWINNETT

Stakeholder-Driven Regional Planning:
TWT Lake Lanier Five Year Research Plan

SESWA Virtual Conference

October 8, 2020

Today's Presenters

Kristan VandenHeuvel
Strategic Director of
Research and Engagement
The Water Tower

Steve Leo
Client Services Manager
Constantine Engineering

Jeff Mosher
Principal Technologist
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Carollo Engineers

Agenda

1. Overview of The Water Tower (TWT), Project Vision, and Need for Stakeholders
2. Lake Lanier Five Year Research Plan Project Approach
3. Preliminary Results
    - *Stakeholder discussions*
    - *Technical Advisory Committee*
5. Next Steps

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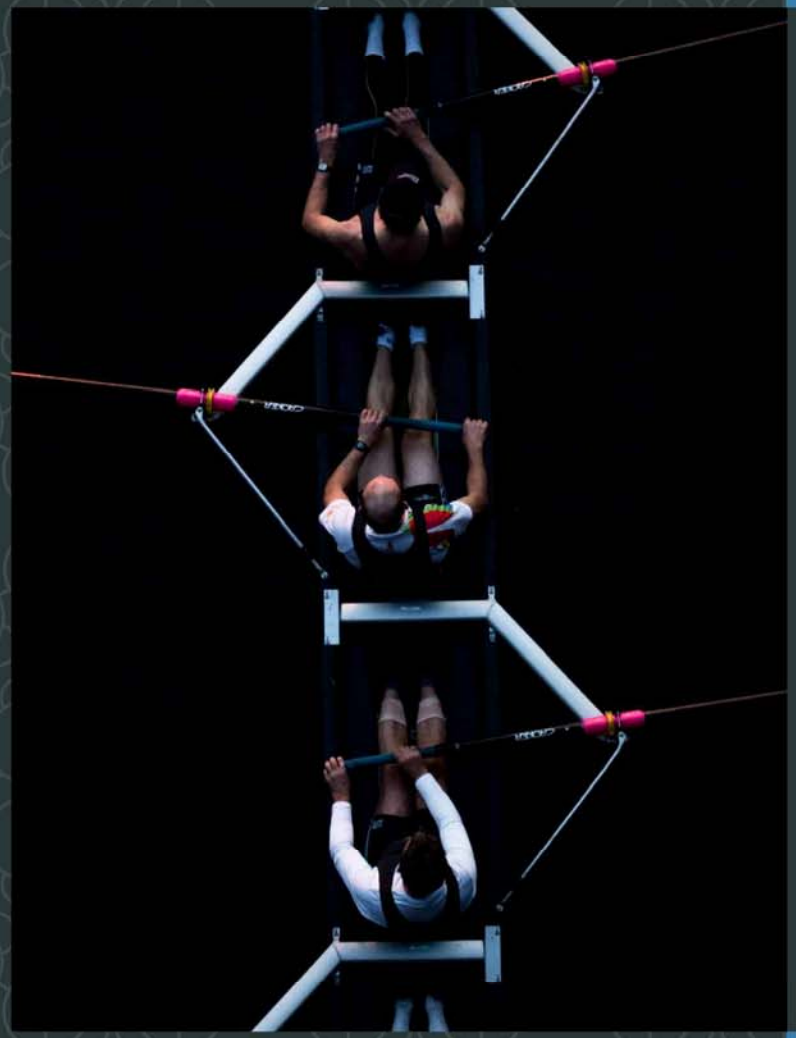
Overview of The Water Tower, Project Vision, and Need for Stakeholders

Kristan VandenHeuvel
The Water Tower



THE FUTURE OF WATER DOESN'T HAPPEN WITHOUT COLLABORATION

The Water Tower Mission

Be a thriving ecosystem of water innovation fueled by imagination, informed by research & powered by pioneers


THE WATER TOWER
Gwinnett Hall

THE FOUR PILLARS

01 02 03 04

THE FOUR PILLARS

APPLIED RESEARCH

02

03

04

THE FOUR PILLARS

APPLIED RESEARCH

TECHNOLOGY INNOVATION

03

04

THE FOUR PILLARS

APPLIED RESEARCH

TECHNOLOGY INNOVATION

WORKFORCE DEVELOPMENT

04

THE FOUR PILLARS

APPLIED RESEARCH

TECHNOLOGY INNOVATION

WORKFORCE DEVELOPMENT

COMMUNITY ENGAGEMENT

Integration ⇨ Collaboration

APPLIED RESEARCH

- world-class facilities
- real-world application and test conditions
- strategic and collaborative partnerships

Lake Lanier Watershed Five Year Research Plan Project Team

The Water Tower/Gwinnett County Dept. of Water Resources

- Tyler Richards, Director, Gwinnett County DWR
- Melissa Meeker, CEO, The Water Tower
- Kristan VandenHeuvel, Strategic Director of Research and Engagement, The Water Tower

Constantine Engineering

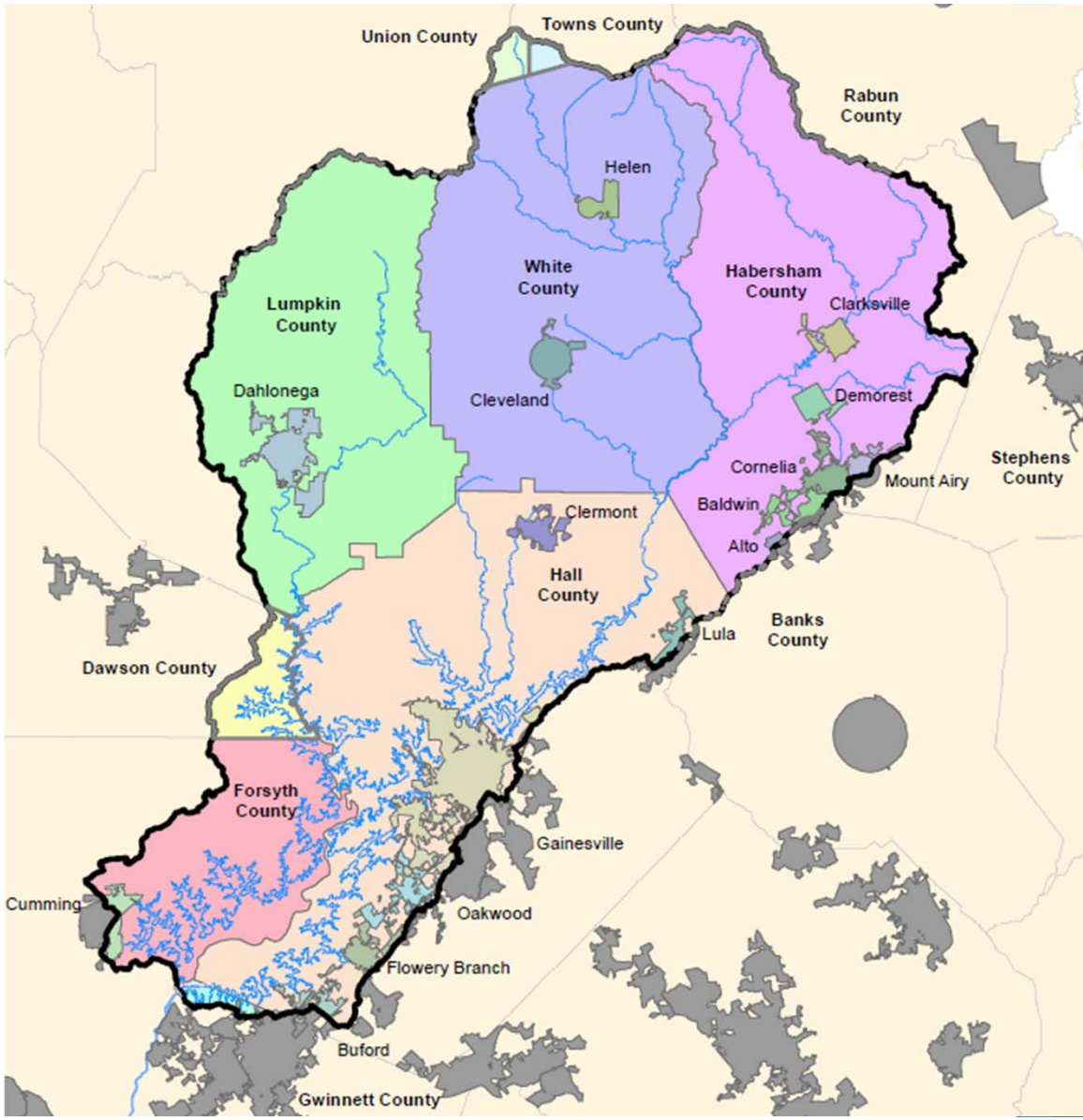
- Steve Leo, Client Services Manager

Carollo Engineers

- Jeff Mosher, Principal Technologist and Vice President
- Eva Steinle-Darling, Reuse Innovation Lead and Vice President

Water Reuse in Northern GA

- Lake Lanier is a major source of water supply to North Georgia
- Communities surrounding the Lake rely on it for both discharge of treated effluent and source water for drinking purposes
- Also known as Reservoir Augmentation/Indirect Potable Reuse
- Requires careful planning, monitoring, and protection of Lake Lanier and its watershed



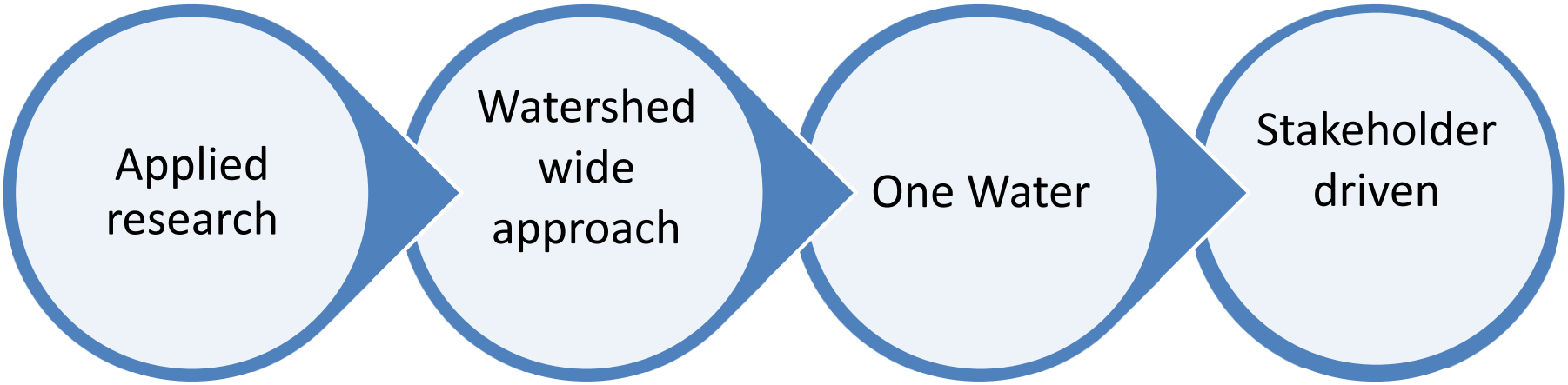
Project Goals and Need for Plan

- Great work has been done by multiple entities in the past for the benefit of the Watershed, however these efforts are often completed in silos
- This effort aims to create a coordinated, multi-year plan that will benefit multiple stakeholders in the Lake Lanier Watershed area
- Working with Gwinnett County DWR to create the Plan

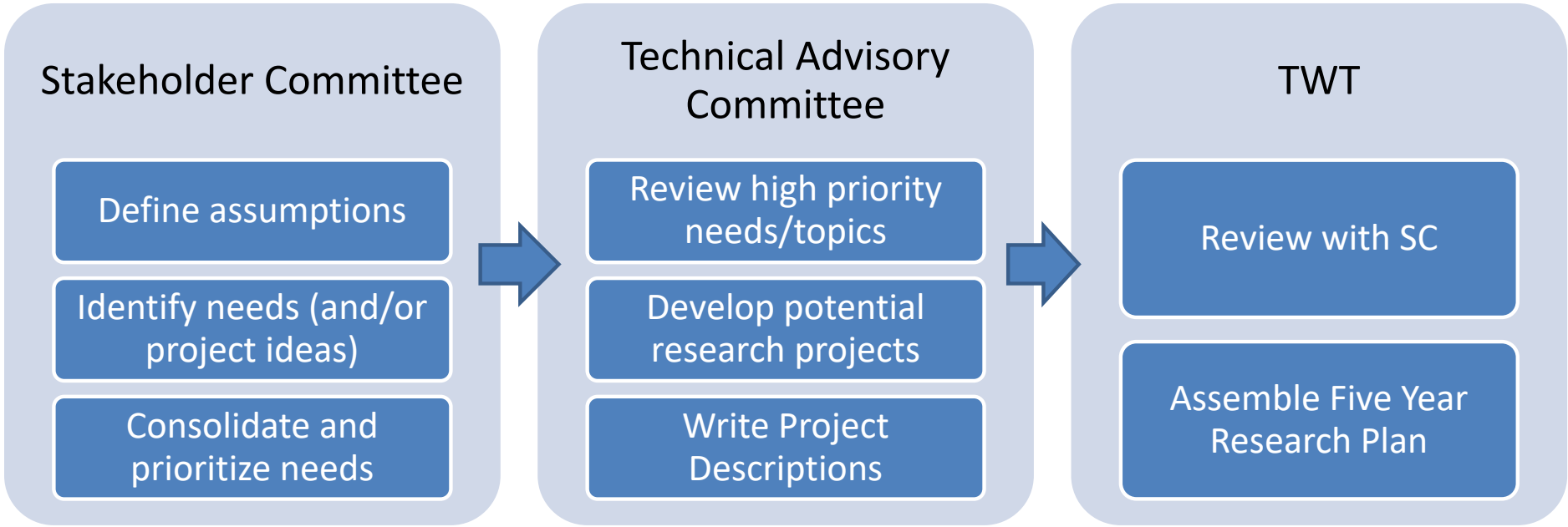
Ultimate Goal:

*Create a multi-year research agenda of **applied research projects** based on stakeholder and technical expertise to maintain and improve the Lake Lanier Watershed through a utility perspective and water quality lens*

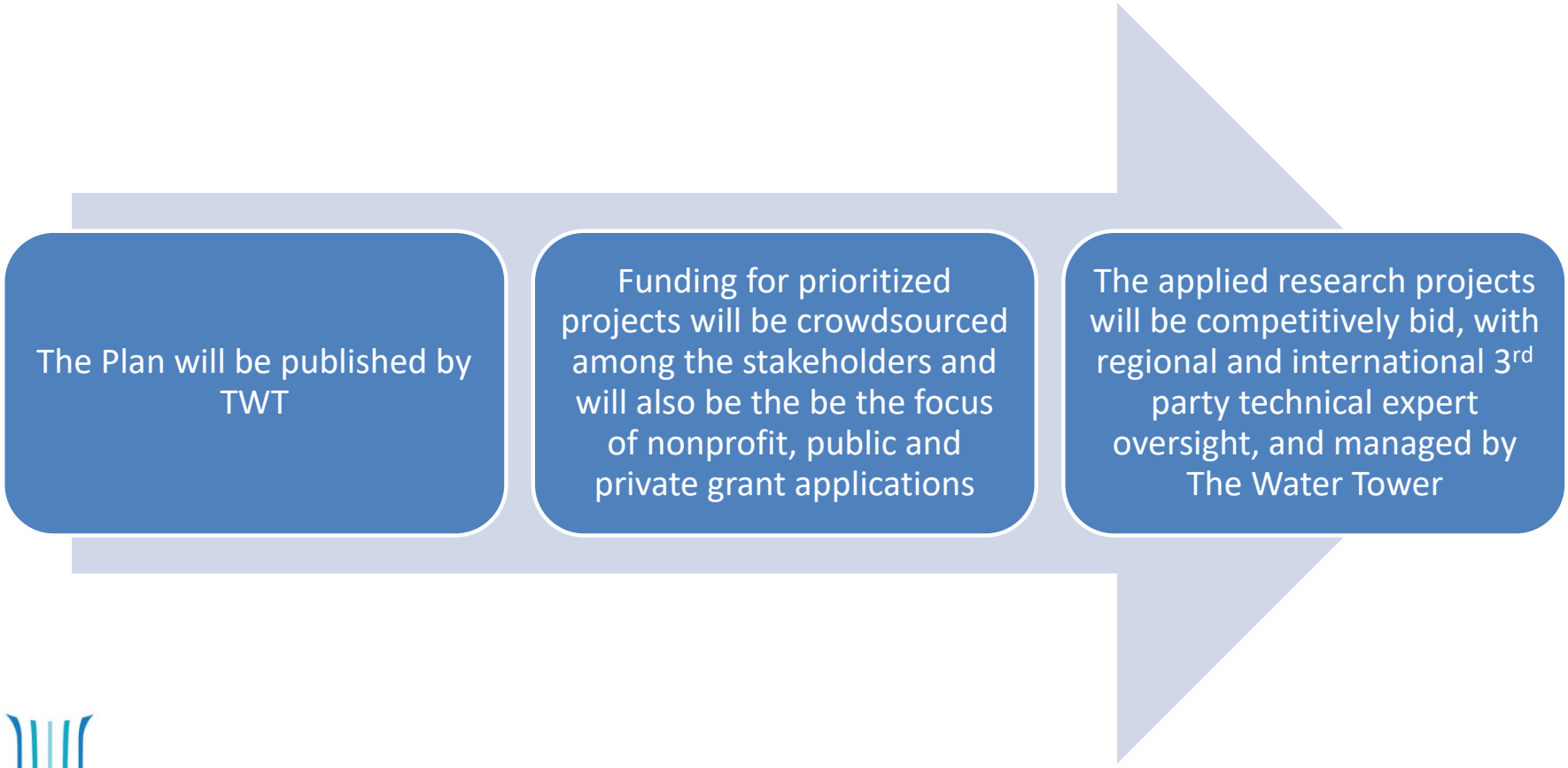
Plan Assumptions



5 Year Research Plan (Plan) Approach



Plan Development and Future Collaborations



Lake Lanier Five Year Research Plan Project Approach, Preliminary Results from Stakeholder Discussions

Steve Leo
Constantine Engineering

Role of Stakeholder Committee

Identify ***questions*** and ***challenges*** that need to be addressed regarding Lake Lanier and the Lanier Watershed

- Regulators
- Environmental Groups
- Utilities/Local Government/Planning Entities/Associations
- Interested Parties

Responsibilities of a Stakeholder

- Commit to attending 2-3 online meetings
- Willingness to speak out about your organization's questions and concerns

Stakeholder Committee: Characteristics

Stakeholder Committee members are generally:

- Responsible for directing/delivering water management outcomes
- Commonly policymakers, agencies, utilities, environmental groups, community groups, regulators
- Driven by mandates or desire to protect water resources
- Could be potential funding partners

Stakeholder Engagement

Engagement Process

- Brainstorm organizations/individuals
- Develop Communications
- Develop Stakeholder Survey

- And then … along came COVID …

Stakeholder Engagement

Engagement Process

- Collated feedback from survey – prepared topics for SC Meetings
- Met with:
  - Regulators
  - Environmental Groups
  - Utilities/Local Governments/Planners/Associations
- Survey responses were a good catalyst to get discussion started
- Requested Additional Feedback on issues

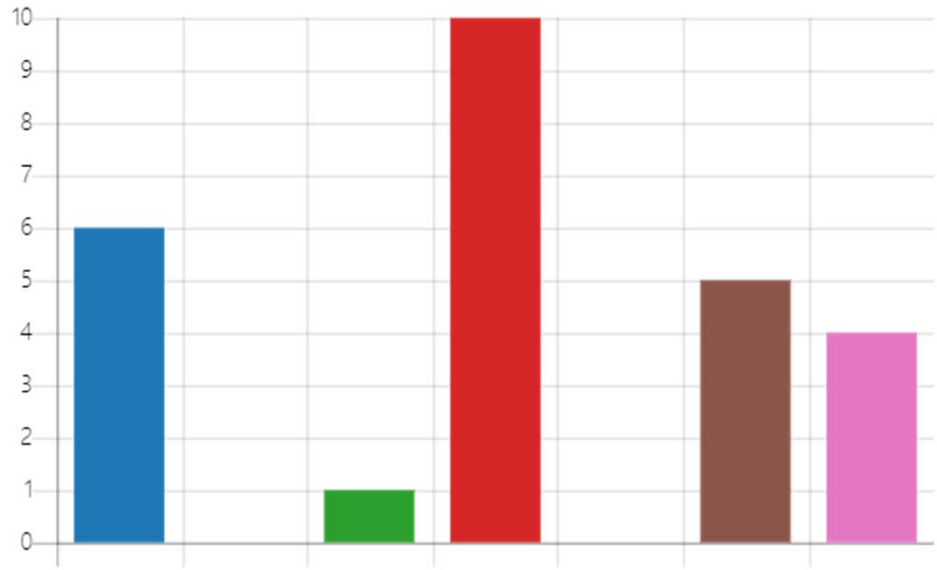
Stakeholder Survey

Main Questions:

- What challenges or questions is your organization facing regarding your management responsibilities and/or interests with Lake Lanier or its watershed?
- Do you have any existing, planned or considered research projects, or any you would like to see implemented?

Survey Respondents: Entity Type

Water/Wastewater Utility	6
Private Company	0
Planning Entity	1
Government	10
Association	0
NGO/Non-profit	5
Other	4

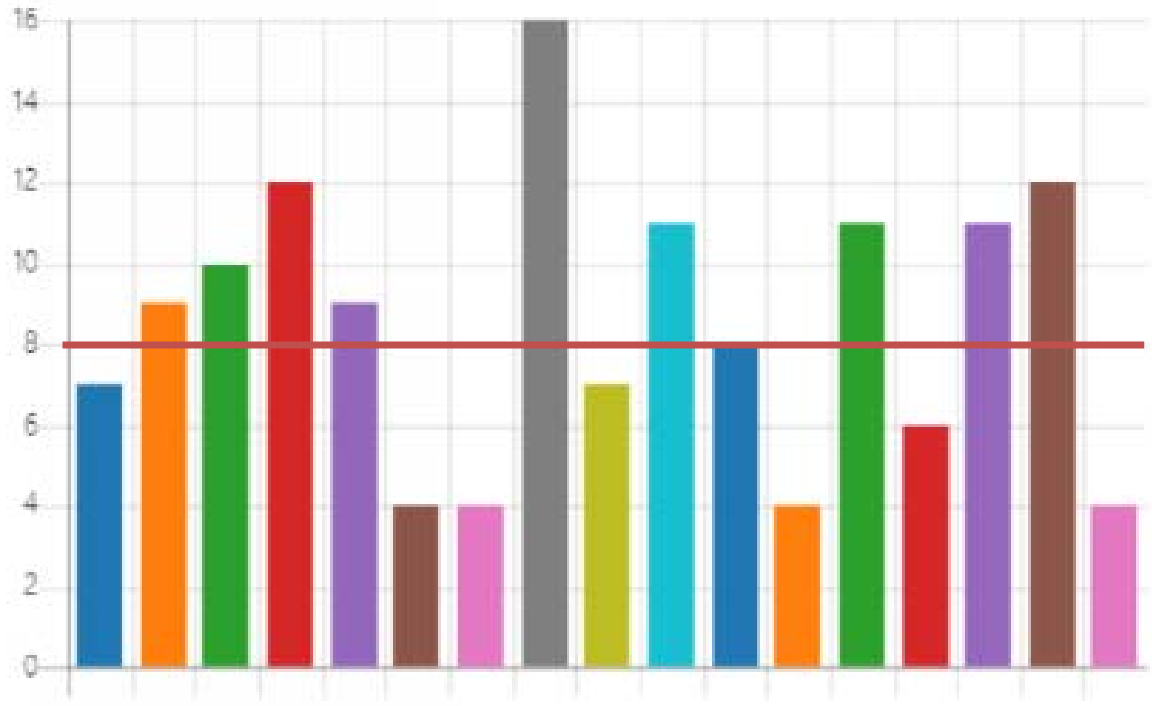


Other:

- Public private partnership
- Public university / Government
- Citizen advocate
- Water utility / Government

Challenges/Questions currently being faced Re: Lake Lanier

Water Supply	16
Other Stormwater Issues	12
Policy/Regulatory Concerns	12
Ecological Health	11
Public Engagement	11
TMDLs	11
Stormwater Nutrient Manage...	10
Nutrients in Wastewater Disch...	9
Harmful Algal Blooms	9
Wastewater Treatment of Efflu...	8
Eutrophication	7
Habitat Preservation/Restorati...	7
Constituents of Emerging Con...	6
Cyanobacteria/Cyanotoxins	4
PFAS	4
Need for Innovative Technolo...	4
Other	4



Stakeholder Meeting: Major Topics of Concern

- Non-Point Sources
- Nutrients
- Lake Water Quality
- Monitoring programs
- Stormwater
- Land Use
- HAB's
- Outreach
- Policy/Institutional
- Reclamation

Stakeholder Results: Highlights

Regulators - Questions

- Can we verify BMP “book” numbers?
- What’s the impact of nutrient ratios on HABs?

Regulators – Comments

- Make sure research is “applied research”. Must be practical.

Stakeholder Results: Highlights

Environmental Groups - Questions

- How can poor sediment and erosion control compliance be corrected?

Environmental Groups – Comments

- Siltation in the lake is a significant issue
- Hope that this effort could catalyze UCBG, TWT and other groups to work together

Stakeholder Results: Highlights

Utilities/Local Governments/Planners/Associations - Questions

- Is the lake really P limited?
- Is nutrient trading a viable management tool? How can we facilitate it?
- How can we better understand the causes of T&O issues?
- What are the actual nutrient loads from the various sources?
- How can we incentivize the maintenance of forested land?

Stakeholder Results: Highlights

Utilities/Local Governments/Planners/Associations - Questions

- The lake is within two planning districts: how is the lake affected by different requirements?
- Are current monitoring efforts adequate/appropriate/duplicative? Spatial quality differences may require different parameters. What makes sense holistically? Collate existing data.

Poll Question

Do you think development of an applied research plan would benefit your community?

- Yes, absolutely
- Possibly
- Probably not
- Definitely not

Results from Technical Advisory Committee Discussions, Next Steps

Jeff Mosher
Carollo Engineers

Role of Technical Advisory Committee (TAC)

Develop applied research projects that addresses ***questions*** and ***challenges*** raised by the Stakeholders

- Academia
- Consulting firms
- Utilities/Government
- Research foundations

Responsibilities

- Participate in four 3 hour meetings … with homework!
- Develop project descriptions

TAC Results: Highlights

9 Non-point source control projects

7 Nutrients projects

8 Water quality and monitoring projects

4 Stormwater projects

2 Land use projects

3 Outreach and policy projects

1 Water reuse project

Non-Point Source Control Projects

- Assessing NPS:
  - Improved modeling of NPS in the watershed
  - Contributions from septic systems
- Sedimentation:
  - Assess sediment loading
- Control:
  - Analysis BMPs suitable for region and land/location
  - Efficacy and validation of urban and agricultural BMPs
  - Capture sediment (marketable products)

Nutrients

- Nutrient trading program for the watershed
- Partner with industry to survey poultry farms and litter management
- Form a Nutrient-Algae-HABs Workshop Group to coordinate activities and projects
- Water quality monitoring indicators and “dashboard”
- Develop better information for region’s Base Nutrient Modeling Tool

Water Quality

- Compile information on current monitoring programs
  - Document drivers and locations
  - Document parameters tested and methods
  - Evaluate and summarize
- Assess eutrophication and HAB causes
  - Increase Secchi Disk measurements
  - Develop predictive models of HABs
- Characterize CECs in the watershed, sources, and impacts

Other Topics

- Stormwater:
  - Effectiveness of BMPs for first flush storm events
- Land Use:
  - Benefits and incentives for maintaining forests
- Outreach:
  - Lake Lanier Water Quality Outreach Program
  - Outreach on BMPs for municipalities, ag community, and businesses
- Policy:
  - Innovative solutions for nutrient management
- Water Reuse
  - Potential and benefits for expanded recycled water in the region

Current Status – Next Steps

Next Steps

- Four TAC Meetings completed
- PDs Assembled
- SC Meeting #2: September 8, 2020 – seek consensus on project priorities
- Develop and Publish 5 Year Research Plan – Mid October 2020
- Webinar to present plan to all stakeholders/TAC members
- Publish PDs on “crowdsourcing” sites
- Pursue project implementation

Questions?

Thank

THE WATER TOWER

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https://theh2otower.org/five-year-research-plan