

## Memorandum

*To: Georgia Regional Water Planning Councils – Coastal Georgia*

*From: CDM Smith*

*Date: July 12, 2022*

*Subject: Coastal Georgia and Savannah Upper Ogeechee Regional Water Planning Council Joint Meeting Summary*

This memorandum provides a summary of the items presented during the July 12, 2022, Coastal Georgia Regional Water Planning Council Meeting, held jointly with the Savannah-Upper Ogeechee Regional Water Planning Council, at the Georgia Southern University Armstrong Center in Savannah, GA with a Microsoft Teams call-in option. The Council Meeting was held from 10:00 AM to 2:00 PM.

### **1) Welcome and Introductions**

CDM Smith, the Planning Contractor (PC), and Coastal Georgia's Council Chairman, Benjy Thompson, initiated the meeting, welcomed Council Members and guests, and asked Christopher Curtis to give his opening remarks and overview Georgia Southern University. Christopher Curtis (Vice-provost for Research and Scholarship) began with an introduction of Georgia Southern and their research. He highlighted their new college programs, grant funding, and relevant projects.

Savannah-Upper Ogeechee's Council Chairman, Bruce Azevedo, and Chairman Thompson both introduced themselves as Council Chairmen for the joint meeting. Chairman Thompson asked each Council Member (CM) and attendee to introduce themselves. Virtual attendees were asked to type in their name and affiliation in the MS Teams chat. An outline of the agenda items to be covered during the Council Meeting was then presented and the Council agenda was approved unanimously.

### **2) Updates to Regional Water Planning Schedule (Ashley Reid, CDM Smith)**

Ms. Reid provided an overview of the updated regional water planning schedule. She noted that the planning schedule had been extended by 6 months, with an anticipated plan adoption by June 2023. Ms. Reid noted that this extension provides additional time to integrate new appointments and model updates.

### **3) Seed Grant Updates (Haydn Blaize, Georgia EPD)**

Mr. Blaize provided a virtual update on the SEED grants. He summarized that there have been \$2 million in grants awarded since 2015 across 10 regional water councils. This year's

application period is now open and closes on October 31, 2022. The application process is fully electronic using the new online portal.

#### **4) SEED Grant Project Overview: Know Your River (Tonya Bonitatibus, Savannah Riverkeeper)**

Ms. Bonitatibus provided an overview of the Know Your River water quality website. She explained that Know Your River started as an effort to develop a real time monitoring system on the Savannah/Ogeechee Rivers, but several data gaps and single pieces of data were identified. These gaps revealed the need to compile data from several layers (federal, state (GA and SC), and the City of Savannah) to understand the larger water resources picture. The solution identified was to build a system using ArcGIS.

The goal of Know Your River was to develop an automated process that uses the last 3 years of live and regularly updated data. A publicly available Python code was written to create this automated process. Mr. Rosco Peters added that Python is the muscle in the system that allows data from different sources with different names and units to speak the same language in a user friendly interface. Themed maps with layers help the user determine what characteristics are being observed. All data build on the language used by EPA and are transformed so the data are comparable. The hope is that the project will lead to the growth of the Google Doc of shared data and scientists will start to regularly share their data so other scientists can use and reference it. Ms. Bonitatibus presented the GIS website ([knowyourriver.com](http://knowyourriver.com)) live and demonstrated how data can be layered on top of other data.

After navigating through the website, Ms. Bonitatibus summarized providing notable updates concerning the project. She explained that ESRI sent out updates in the ArcNews April 2022 edition with the Know your River highlighted in the centerfold. The next steps for this project include expanding outside of the watershed, building out real time monitors with Bluetooth capability, sending notifications to users when they've signed up for parameter alerts outside a specified threshold, development of easier methods for batch uploads, and the ability to download the whole program onto a user's computer.

- A public attendee asked if a single service link to pull out data is provided or if users have to navigate through the website. Ms. Bonitatibus said the API link is provided and each layer can be downloaded.
- A CM asked how much money was invested in this project for Savannah. Ms. Bonitatibus estimated that since this is the second SEED grant, the project has received about \$300,000 through funding.
- A CM asked how much time was involved in the development of the website. Ms. Bonitatibus explained the project is going on year three.
- A public attendee asked if adding additional basins now would be easier and cheaper than in the past. Ms. Bonitatibus responded that it would be cheaper and easier. She estimated that turning on a new basin now would be about \$35,000 depending on the size, and it becomes exponentially cheaper to build out.

- A CM commented that it would be great to see all river basins in the Atlantic slope included in the program before tackling west Georgia.
- A CM noted that if SEED grants could be joined together with other partners, data from the river basins could be obtained. Ms. Bonitatibus added that this information would be beneficial to everyone.
- A CM pointed out a potential caveat the, noting that data is being pulled in from a lot of different sources, which is great if the data are good. If the data is bad, this could lead to improper decision making. Once the program is built and the general public begins to use it, how is the data verified? Ms. Bonitatibus explained that all the data being gathered are state, federal, or local municipality data. If a municipality is willing to submit data to the state, it is assumed that this is good data. If a user only wants state or federal data, this can be chosen in the program. She added that the average citizen cannot enter in data - volunteers are vetted first.
  - The CM urged caution and added that the biggest concern is that bad data could lead to money spent on problems that don't really need to be addressed. Ms. Bonitatibus noted that users are required to click on a disclaimer when entering the website that explains that the data are pulled from several sources. She explained that if you're able to see data together, outliers become more obvious too.

Chairman Thompson thanked Ms. Bonitatibus and initiated a 5 minute break.

## **5) Updates on Water Management in the Savannah River Basin (Kathryn Feingold, US Army Corps)**

Ms. Feingold provided an overview of water management in the Savannah River Basin and the current basin status. She explained that water management is a balancing act, and all components are important. Currently, three dam projects are being managed by the Corp, including Russel, Thurmond, and Hartwell. These projects are owned by Duke, who is required to provide water to the Savannah River Basin in certain circumstances at a specific regulated point. The Hartwell project is a popular recreation spot, Russel is the largest power plant east of the Mississippi River, and Thurmond is the last control point before the water leaves the Savannah River Basin system. Ms. Feingold continued to explain that the number one priority right now is to minimize flood damages and loss of life, followed by maximizing the benefit to the public. Each project can be classified into one of the following pools: 1) Inactive and only used for sedimentation 2) conservation 3) flood storage used temporarily to store inflow from flood events.

Ms. Feingold then reviewed induced surcharge and the relationship with Duke Energy. She explained that Duke Energy is not allowed to hoard water, so if water levels are at 80%, then Duke Energy must release water until they're at 80% as well. They also are required to maintain a certain volume of water in case of emergency plant shutdown. Ms. Feingold also reviewed the

drought management plan and explained that there have been four periods of drought recorded to date. She also noted that about 25% of water is lost to seasonal evaporation.

Hydropower was also reviewed, and it was explained that hydropower is provided by the Corps, but it is not marketed or run by the Corps – this is done by SEPA (Southeastern Power Administration). Ms. Feingold finished the presentation with a summary of the Water Management webpage. She asked the Council to reach out if there's anything desired on the webpage that is not currently included.

- A CM asked if saltwater intrusion affects how much water comes out of the basin to keep saltwater back. Ms. Feingold explained that it is currently not included in the water control manual. The largest point downstream the Corps is concerned with is the water supply through the City of Augusta. She noted that there will be a water control update coming up and this topic is on the discussion list.
- A CM noted that in 2008/2009 there was a drought and then 10 years ago, we experienced a lot of rainfall. The CM asked if that was the maximum flow for these three projects. Ms. Feingold explained that the max flood event was in 2013 around the winter holidays. All projects during this time went into induced surcharge. Ms. Bonitatibus added that Augusta experienced the flood of record earlier this year. SEPA is not allowed to release water during these flood events.

## **6) Overview of USACE Study Authorities (Brian Choate, USACE)**

Mr. Choate began with a review of the mission and priorities of the US Army Corps, which includes people, readiness, partnerships, and revolutionaries. He explained that partnerships would be the focus of this presentation and noted that the two reasons to partner with the Corps include their technical expertise and the increase in financial resources available.

Mr. Choate then reviewed the following USACE programs: 1) Floodplain management services 2) Planning assistance to the states 3) Continuing Authorities Program (CAP). Floodplain management services include general technical services and planning guidance. He noted there is national competition to obtain these funds. The planning assistance to the states program is a 50/50 cost share, where typical challenges may include right of entry, data delays, personnel overcommitment, and incremental funding from headquarters. Mr. Choate summarized CAP and explained that it is cost shared with a non-federal sponsor. This program also has national competition. He noted that CAP is construction focused and has two phases: feasibility phase (12-18 months) and design/implementation phase (3 years). Two recent CAP projects include Ecosystem Restoration and Rocky creek.

Mr. Wood concluded the joint portion of the meeting and explained that Council Members should divide into breakout rooms for separate council meetings after lunch.

## **7) Coastal Georgia Council Business**

Chairman Thompson and the Coastal Georgia Council approved meeting minutes from February 24, 2022.

### **8) Coastal Georgia Groundwater Resource Assessment (Christine Voudy, GA EPD)**

Ms. Voudy began with review of the Coastal Council areas map, and overviewed the Red Zone, Yellow Zone and Green Zone areas as they relate to Floridan aquifer withdrawals and management of those areas that have contributed to saltwater intrusion into the Floridan aquifer. She explained that the Floridan aquifer system has an upper permeable layer and a lower permeable layer; however, the confining layer between the permeable layers is leaky and the system acts as one aquifer unit. Ms. Voudy noted there are places where the confining layer above the Floridan aquifer is not as thick and this can contribute to saltwater intrusion. In Brunswick, there is also a "T-Plume" where brackish water from the deeper Fernandina permeable zone is upwelling through fractures into the Floridan aquifer.

Ms. Voudy reviewed historical groundwater use and explained that this is not a new issue. In the 1960s and 1970s there were concerns of saltwater intrusion, and serious conversations began in the 1990s. From 1995-1997 the Interim Strategy for Managing Saltwater Intrusion in the Upper Floridan aquifer was developed. She explained that the Interim Strategy for Saltwater Intrusion was broken into northern, central, and southern divisions.

- A public attendee asked how to define an alternative resource. Ms. Voudy explained an alternative resource is surface water, reuse water, another aquifer (shallower or deeper), etc.

Ms. Voudy explained that saltwater is entering the Floridan aquifer by downward vertical movement through the confining layer where it is thinner or absent. Seismic studies confirmed the thinning of the confining layer in the Hilton Head area is also where chloride concentrations were the highest. To further understand the relationship between pumping and chloride movement, the CSSI model was developed. The CSSI model was calibrated for steady state and transient conditions. South Carolina provided the 2007 chloride contours. The CSSI model was calibrated and closely matched historical measurements of chloride plume movement.

Model simulations were performed where both Hilton Head and Savannah were pumping at 2010 withdrawals, and this resulted with the worst case of the chloride plume. Simulations were also run where Savannah pumping rates were maintained while Hilton head pumping was eliminated and vice versa to determine the greatest area to impact chloride plume movement and occurrence. The results revealed that both Savannah and Hilton Head contributed to the chloride plume in 2007. If no reductions in pumping occurred, the plume would have continued to expand. Ms. Voudy explained that chlorides are conservative ions and move at the same rate of flow as the groundwater. If there is an increase in drawdown, chloride ions move faster. If there is less or no drawdown, the ions slow down or remain in place.

The conclusion is that saltwater plumes will continue to exist well into the future. Since the mid-1960s, the saltwater plume has moved about 2 miles south-southwest, towards the Savannah area. It was determined that the chlorides tend to move toward to the cone of depression, which

is toward Savannah and not toward Tybee Island, which was a concern in the past. In 2011, EPD simulated the amount of time it would take the plume to reach Savannah. The model simulations suggested it would take approximately 125 years to reach the Savannah wells. In 2013, EPD presented modeling work done by USGS, and simulations showed that even if pumping was eliminated for an extended period of time, the saltwater plume would remain. Simulations were also done to determine the amount of water that could be pumped from the Floridan aquifer without causing movement of the saltwater plume toward Savannah. Ms. Voudy explained the likelihood of getting the potentiometric surface to what it was before development is not possible. If we cannot get back to pre-development chloride levels, the saltwater plume will need to be managed.

The CSSI model was updated again in 2018 to include updated withdrawals, including agricultural withdrawals. The model update eliminated distributed fluxes between 2008-2016 and simulated steady state conditions under December 2015 permitted groundwater withdrawals.

- A CM commented that in South Carolina, if water levels are not coming back up, it seems like South Carolina has not reduced pumping. Ms. Voudy responded that there could be a different gradient. The CM agreed but added that if Georgia is acting in the short term because South Carolina has high levels of saltwater intrusion that will affect Georgia in the long term, but South Carolina is not taking much action, we should ask if South Carolina is doing their part. Georgia will continue to add effort and money, so open communication between Georgia and South Carolina is important.
- A CM asked if there have been any conversations with permitting groups about whether or not they will continue to cut groundwater permits after 2025. Ms. Voudy responded that she does not think EPD has the next step in mind yet but talking with the Council to run more simulations will help predict pumping potentials. Another CM commented that they would like for EPD to reward the permit holders for their efforts, such as a suspension on permit changes.
- A CM asked if the 2020 withdrawal reductions have been input into the model to see the impact. Ms. Voudy responded that this has not been done yet, but it is something that can be done. Chairman Thompson added that the Council will draft this request to EPD formally.

## **8) Public Comment/Local Elected Official Comments**

Mr. Wood asked if there were any public comments, but no local elected official comments nor public comments were received in person or virtually.

Chairman Thompson asked if the meeting schedule would be the same following the changed Regional Water Plan deadline. Mr. Wood suggested the quarterly meeting schedule be maintained, and then he highlighted two outstanding items:

- 1) Hold an editing session for vision and goals (to be added to the agenda for the next meeting)

2) Host a virtual work session to review the demand forecast.

Mr. Wood agreed to provide a summary of previous demand forecast conversations ahead of the virtual work session.

Mr. Wood added that the Regional Water Plan Sections 1, 2 and 4 could be posted online and then reviewed instead of waiting for the complete draft next year. Mr. Wood agreed to provide a draft timeline with an estimated schedule of when each section will be complete and ready to be reviewed. The Council agreed to work on the report into 2023 instead of finishing the report by the end of 2022.

Mr. Wood wrapped up the meeting, thanked everyone for attending, and reminded the Council that CDM Smith is available to help with SEED grant applications if needed.

The meeting was adjourned at 2:00 PM.

## 9) Meeting Attendance

<b>Affiliation</b>	<b>Name</b>
<b><i>Coastal Georgia Regional Water Planning Council</i></b>	Benjy Thompson Ken Lee Russ Foulke Brian Nease Phil Odom Michelle Liotta James Burnsed John Sawyer Mark Smith Jim McGowan Michael Browning
<b><i>Regional Water Planning Council Planning Contractors</i></b>	Emory Gawlik Shayne Wood Ashley Reid Emma Sutherland Laura Hartt
<b><i>Georgia EPD</i></b>	Christine Voudy Reid Jackson Dr. Wei Zeng Haydn Blaize
<b><i>Public/Agency Attendees:</i></b>	
Ogeechee Riverkeeper	Damon Mullis
Newfields Environmental/Savannah Riverkeeper	Rosco Peters
Georgia DNR	Joel Fleming
Georgia Forestry Commission	Jay Foskey
USACE	Kathryn Feingold Brian Choate
USGS	Chris Henry

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Affiliation	Name
	Greg Cherry John Joiner
Augusta Utilities	Wes Byne
Clemson Extension	Heather Nix
UGA Extension	Mary Claire
SC DHEC	Frank Nemeth
Hussey Gay Bell	Trent Hodges
Public	Merril Varn Mark Beatty Daniel Calhoun Oscar Flite Monty Parks Jennifer Hilder
Simonton Engineering	Paul Simonton
City of Savannah	Laura Walker
Coastal Region Commission	Dionne Lovett
Georgia Southern University	Christopher Curtis
Phinzy Center	Callie Oldfield Jillian Amurao Trevor Sondan
Sapelo Island National Estuarine Research Reserve	Brittany Dodge
Colonial Group Inc	Megan Corley
SNF Holding Co	Steve Simonsen
Windsor Forestry	Holly Page
GMC	Chris Tolleson