Draft Resource Assessment for Coastal Water Planning Region

Georgia EPD November 2022

Presentation Outline

- Introduction and Model Settings
- Model Results Baseline and Future Scenarios
 - Water Supply Challenges, Examples (water supply PMs)
 - Wastewater Assimilation Challenges, Examples (wastewater assimilation PMs)
- Additional Performance Measures to consider?

Coastal Region and Model Domain





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BEAM Model Baseline and Future Scenario Settings

- Simulation Period (Hydrologic Conditions): 1939-2013
- Withdrawal and Discharge amount: (1)baseline: average of period 2010-2018 (i.e. marginally dry conditions); (2) Projected 2060 M&I and 2060 AG demand.
- Instream Flow Protection Thresholds: per permit conditions (to the extent they exist)
- Reservoir physical and operational data: from reservoir owner or EPD (to the extent they exist)

Water Supply Settings: Facilities Analyzed in BEAM Model for Coastal Region

Facility	Total number
Municipal Withdrawal	1
Municipal Discharge	5
Industrial Withdrawal	0
Industrial Discharge	2
Energy Withdrawal/Discharge	0

Municipal Withdrawal Facility

BEAM Node	Permit No.	Permit Holder
4475	051-0115-01	Savannah Industrial & Domestic Water System

Municipal Discharge Facilities

BEAM Node	Permit No.	Permit holder
4408	GA0020770	City of Springfield
4458	GA0046442	City of Rincon
5278	GA0038377	City of Pembroke
5338	GA0023108	City of Statesboro
5378	GA0047180	City of Hinesville

Industrial Discharge Facilities

BEAM Node	Permit No.	Permit holder
4428	GA0046973	Georgia Pacific Consumer Operations, LLC
5368	GA0004308	US Department of the Army

Draft Resource Assessment Results

- Water Supply Challenges
 - Savannah Industrial & Domestic Water System is the only water supply provider with a surface water withdrawal permit
 - It does not have existing water supply challenge
 - It has one pending application for permit modification
- Wastewater Assimilation Challenges, Examples (wastewater assimilation PMs)
 - There are no discharge facilities with challenges
- Other Performance Metrics (examples)

Wastewater Assimilation Challenge

- Wastewater increases with population growth, which may also bring challenge to water resource management.
- Effluent limitation is determined by two factors:
 - Available technology technology based effluent limitations
 - Water quality standards upholding water quality standards in the receiving water body - 7Q10 flow is usually used as low flow threshold for determining wastewater assimilation and NPDES permit limitations

Wastewater Assimilation Challenge Example 1:Permit GA0020770 (BEAM Node 4408)

- Permit holder: City of Springfield (Springfield WPCP)
- 7Q10 Flow at discharge location: 0.0 cfs





Simulation Results at GA 0020770 Location Flow Frequency



Simulation Results at GA 0020770 Location Flow Frequency (low end) (7Q10 = 0.0 cfs)



Simulation Results at GA 0020770 Location Flow in 2007



Simulation Results at GA 0020770 Location Flow in 2012



Wastewater Assimilation Challenge Example 2:Permit GA0046442 (BEAM Node 4458)

- Permit holder: City of Rincon (Rincon WPCP)
- 7Q10 Flow at discharge location: 0.0 cfs





Simulation Results at GA 0046442 Location Flow Frequency



Simulation Results at GA 0046442 Location Flow Frequency (low end) (7Q10 = 0.0 cfs)



Simulation Results at GA 0046442 Location Flow in 2007



Simulation Results at GA 0046442 Location Flow in 2012



Using Flow to Create Boating/Paddling Performance Metric

For Informational Purposes Only

Convert stream flow to stage



Table 11. Low-flow metrics for Ocmulgee River recreational boating

River Service	Metric	Source
Kayaking/canoeing	Amount of time that kayaking or canoeing is not ideal (i.e., gage height < 6.0 feet) due to low water conditions	Personal communication with Kathleen O' Neal (Ocmulgee Outdoor Expeditions)
Boating	Amount of time that boating is not ideal (i.e., gage height < 7.5 feet) due to low water conditions	Viable stage for kayaking/canoeing + 1.5 feet (average shaft length of short- and long-shaft small engines); (Iboats, 2009)



Locations of Recreational Interests – Stakeholder Input





Performance Metric example: Macon, GA for Boating





Discussion

- Do you want to adopt similar performance metric as part of your plan?
- Future conditions will be included in the next update in Resource Assessment for comparison with the baseline.
- What additional performance measure would you like to see in assessing river recreation or river habitats?

Questions?

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