



Modeling & Management Practices Work Plan

Summer & Fall 2010

Middle Chattahoochee, Upper Flint, and Lower Flint Councils

Prepared by: Jim Hawkins, Kristin Rowles, and Steve Simpson

Prepared: April 19, 2010

Updated: June 15, 2010

This document outlines the work plan to complete surface & groundwater water quantity and surface water quality modeling. The modeling will assess the impacts of future (2050) demands and determine management practices that close gaps between resource availability and future demands. This work plan is intended as a guidance document for Work Group meetings and Joint Leadership Meetings for the summer and fall 2010.

Work Groups – Are committees to evaluate and guide the modeling efforts. The following Work Groups are anticipated for each Council (i.e. each Council will appoint a Water Quantity Work Group), however, some Councils may have a core team of the same members for all three Work Groups and two to three additional Council members who might only participate in one Work Group (that is to say, one Work Group might be appointed to guide all the modeling and assessment work yet allow a few members to join only meetings of their choosing).

- Water quantity (surface and groundwater)
- Water quality
- Management practices
- Plan review

Joint Leadership Team – The Chair and Vice Chair of each of the three Councils. Joint meetings of the leadership team are needed to coordinate the work of individual committees, share common goals and objectives, and coordinate plans

Resource Assessment Goals & Objectives

The major concerns of the Council members regarding future modeling scenarios will be determined as a means to identify, finalize and progress forward with the modeling effort. The concerns will become the primary goals and objectives.

A draft of the primary goals and objectives in facilitating the modeling effort for future state conditions include the following:

Common Goals (all Councils)

- Flint and Chattahoochee flow contributions at Woodruff Dam
 - The councils will coordinate to explore options for sharing burden of management targets for the ACF system, particularly at Woodruff Dam in times of drought
- Determining relative contribution and burden for addressing gap at southern border of planning region
- Estimate the impact of the new Water Stewardship Act of 2010 on future water demand forecasts
- Consider the potential impact of the proposed Florida nutrient standards
- Consider metrics other than the 7Q10 for the SW Availability Model (Discussed by LF Technical Ad Hoc Committee.)
- Address the management target for areas where gaps have been identified
- Consider actions in light of future revisions to DO and fecal coliform standards in Georgia
- Consider how AL and FL impacts on shared water resources can be addressed in the plan's management practices
- Investigate the impact of upstream IBT's on flows in the Flint & Chattahoochee

Middle Chattahoochee Council

- Addressing issues relating to lake levels at West Point Reservoir
 - The committee will utilize Scenario 5 model results to establish storage shortfalls within the system (see Attachment A)
 - The committee will analyze the cost benefits of utilizing different suites of management practices based upon the model results from Scenarios 6 and 7 (see Attachment A)
- Flow quantities past the Columbus gage
 - The committee will consider the appropriate minimum flow that should be maintained at the Columbus gage for water quality purposes and account for that flow within their management practices
 - Flow requirements should also take into consideration Federal Energy Regulatory Commission license to GPC for the Middle Chattahoochee Project

Upper Flint Council

- Explore opportunities for replacing surface water withdrawals with groundwater withdrawals
- Identify other gages within the region that might help to provide more detail for the surface water availability model, which has only one planning node gage in the Upper Flint region

Lower Flint Council

- Consider a workable alternative to the assumption of 100% consumptive use by agriculture (Discussed by Technical Ad Hoc Committee)
- Plan to make recommendations regarding agricultural metering program implementation
- Consider how groundwater withdrawals compare to the sustainable yields estimated for the aquifers in the region, particularly the Dougherty Plain of the Upper Floridan Aquifer
- Consider the effect of groundwater pumping on surface water flows in the GW and the SW Availability models
- Evaluate the impact reservoirs in the Flint system could make on the gap
- How do USFWS critical habitat designations affect the water resource management needs in the region?
- Identify feasible opportunities for augmentation of flows through groundwater offsets for surface water pumping, springs, and interbasin transfers

Work Group Schedule

An overall schedule for the Work Groups is presented on the next page. Note the following:

- Water quantity modeling and related management practices are the primary initial focus. These models will determine many of the quantity related management practices.
- Water quality efforts will focus on developing an understanding of existing efforts such as TMDLs and BMPs, reviewing dissolved oxygen modeling results under permitted conditions, and in the absence of watershed modeling, considering potential additional management practices.
- After the future conditions water quantity modeling work is nearly completed, the modeling emphasis will shift to water quality, using the river flows and lake elevations determined in the water quantity modeling.

The Work Groups will meet every month and include the Planning Contractor (Steve Simpson, Jim Hawkins and/or Kristin Rowles) and EPD (Tim Cash, Bill Morris, and others as appropriate). Work Group meetings will include at least one in person meeting; additional meetings may be by conference call to reduce the time commitments of the members.

Assessments of Future Water Quantity

Baseline assessments were developed earlier this year. The Chattahoochee and Flint River Basins are included in one surface water quantity model, so the modeling of future conditions for the three Councils is most efficient if coordinated and analyzed together. A working list of modeling runs requested by the Middle Chattahoochee council to evaluate Future Assessments is provided as Attachment A and summarized below.

Scenario 5	Future State 2050 (Current RIOPs)	Early June
Scenario 6	Desired State 2050 (with changes to RIOPs)	August

Future State 2050 - The first run will simply add the future demand forecasts to the Baseline Assessment model subject to current (year 2010) RIOPs. This will provide an initial look at the gap without the effects of any management practices.

The next iteration will apply the effects of conservation to the Baseline 2050 scenario. This analysis will provide an estimate of the remaining gap after conservation is implemented.

The final iteration will be to determine management practices to close water quantitative gaps.

Desired State 2050 - A future scenario that assumes some changes to the USACOE RIOPs.

A draft list of possible iterations:

- Change lake levels and flow targets.
- Include storage from other non-regulated reservoirs.
- Add *some* storage based on what can be practicably implemented. Add additional conservation practices to close the gap.

Assessments of Future Water Quality

Two models are planned by EPD:

1. *River Model (Dissolved Oxygen Modeling)* – This model evaluates dissolved oxygen due to existing point discharges under critical conditions
2. *Lake and Watershed Models (Nutrient Modeling)* – These models evaluate the impacts of point and non point sources from nutrient loadings, primarily nitrogen and phosphorus. The watershed and lake models will account for nutrient sources from both wastewater discharges and nonpoint source stormwater runoff based on various land uses.

The assimilative capacity assessment is not the same as the 303(d) list of impaired waters or total maximum daily loads because this assessment is only looking at dissolved oxygen and nutrients; the 303(d) list assesses other parameters such as solids, bacteria, metals, etc.

The lake and watershed models being done in the Chattahoochee and Flint River Basins as part of the State Water Plan, due to funding constraints, did not begin until the fall of 2009. This work is scheduled to be completed in November 2010, and these tools will be available for future rounds of planning.

Even though we do not have the watershed and lake models that provide the nutrient results, the Councils will need to consider nutrients since numeric nutrient criteria for lakes and free flowing streams were proposed for the state of Florida. EPA has drafted

these criteria as the result of a lawsuit filed in federal court under the federal CWA. These criteria, if promulgated as proposed, will affect all waters that flow into the State and will require control of nutrients in Georgia waters.

Attachment A. Scenarios (Model Runs) Proposed for the ACF to Determine the Surface Water Availability Assessment

ACF Resource Assessment Scenario		No human activity	Reservoirs Constructed (includes Evaporative Losses)	Consumptive Uses	Regulated Releases	Target Flows & Levels	Management Practices	Purpose
1	Unimpaired Flow Analysis	X						Understand and compare natural system to regulated
2	Run of the river with reservoirs, but no releases and no consumptive use	X	X					Understand impact of construction of reservoirs (evaporative losses affect flows)
3	Run of the river with reservoirs, no releases with consumptive uses		X	X				Understand impact of existing consumptive uses
4	Current State 2010 (Resource assessment as performed)		X	X	X			Understand current conditions and subject to current RIOPs
5	Future State 2050		X	X	X	X		Estimate conditions with future needs and 2010 RIOP's for federal reservoirs
6	Desired State 2050		X	X	X	X	X	Estimate conditions with future needs with desired changes to RIOP's for federal reservoirs

