

## CLIMATE VS CONTROL: IS FLOW IN THE LOWER ACF BASIN CONTROLLED BY CLIMATE VARIATION OF HUMAN DECISIONS?

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The Apalachicola River is the largest river in Florida in terms of flow. It is part of the Apalachicola-Chattahoochee-Flint (ACF) watershed and has been the subject of a decades-long dispute over the effects of water management practices on the salinity regime of the Apalachicola estuary. Implicit to these lawsuits and proposed remedies to addressing ecological problems in the Apalachicola estuary is the assumption that flow in the watershed is primarily defined by municipal/agricultural water consumption and reservoir management practices. Additionally, these assumptions include the notion that it will be possible to restore future flows to historically recorded levels.

In this presentation, we will focus on the extent to which inflows to the Apalachicola estuary are driven by climate versus human management practices. This question is addressed using the ACF-STELLA watershed model that has been validated with historical flow conditions. Using the current Water Control Manual operations for the ACF reservoir system along with the current level of consumptive withdrawals from the basin, we evaluate the water flow entering the Apalachicola River and the elevation of the storage reservoirs in the ACF under alternative flow scenarios based on 96 downscaled future climate projections. With these future conditions in mind, we focus on the following outcomes: 1) how often drought operations are in effect; 2) extreme low, moderately low and median flows entering the Apalachicola River at Jim Woodruff Dam; 3) the elevations of the principal storage reservoirs (e.g., Lake Lanier, West Point Lake and W.F. George Lake); and 4) flows in wet and dry years.

**PRESENTER BIO:** Dr. Leitman is an environmental hydrologist and Dr. Stefanova a meteorologist who work on the Apalachicola Bay Strategic Initiative at Florida State University AND Dr. Kiker is a hydrologist at the University of Florida. All three of the authors have extensive experience working the ACF watershed and multiple publications on water management related issues in the watershed.