

LONG-TERM SURFACE WATER QUALITY TRENDS RELEVANT TO DRINKING WATER SUPPLY IN TAMPA, FLORIDA

Casey Harris, AJ Reisinger, and Wendy Graham

University of Florida, Gainesville, FL, USA

The Hillsborough River has supplied surface water for the City of Tampa's drinking water since the mid-1920s, and the greater Tampa Bay, FL, region has relied in part on surface water from both the Hillsborough and Alafia Rivers for drinking water since around 2002. These rivers and their watersheds also have long histories of water quality challenges driven by urban/suburban growth as well as agricultural and mining operations. To gain a better understanding of water quality trends in these rivers and how trends may be related to climate and land use, we examine how several water quality characteristics relevant to drinking water supply (alkalinity, fluoride, specific conductance, sulfate, total organic carbon, true color, and turbidity) have changed over recent decades (periods of record ranging from 10 to 29 years) at eight monitoring stations across the two watersheds. We use weighted regression on time, discharge, and season from the USGS EGRET package in R to calculate observed and flow-normalized trends graphically and estimate the uncertainty of long-term trends. We examine potential drivers of these trends, including climate and land use variables, and implications for future water quality and drinking water use. These results will help drinking water managers develop water quality priorities when considering future demand and potential threats due to climate and land use change.

PRESENTER BIO: Casey Harris is a PhD student at the University of Florida. She previously worked in the field of environmental science in Florida and in the greater southeastern and northwestern US.