

ALAPAHA SWALLETS DYE TRACE PROJECT

EXECUTIVE SUMMARY

The Alapaha Swallets Dye Trace project consisted of two separate dye traces in the lower Alapaha River basin. On June 22, 2016, fluorescein dye was introduced into the Dead River Swallet and was visually observed in the Alapaha Rise in six days and at Holton Creek Rise in eight days. Analytical data established dye arrival at Alapaha Rise by noon on June 26 (a line of site groundwater velocity of 13,063 feet/day (2.47 mi/day)) and arrival at Holton Creek Rise by noon on June 30 (a line of site groundwater velocity of 6,514 feet/day (1.23 mi/day)). Although not detectable in water samples after July 23, 2016, charcoal packet samples collected between August 9 and September 20, 2016 at both rises, had low level detections of fluorescein dye.

On August 11, 2016, Rhodamine WT was introduced into the Tiger Creek Swallet. This dye was detected in both Alapaha and Holton Creek Rises in charcoal packet samples deployed on August 15 and collected on August 31. First arrival times and line of site groundwater velocities for the dye detections at these sites cannot be determined from the charcoal packet samplers, however, travel time for the dye was on the order of days.

These dye traces reveal an interconnected conduit system exists in the Upper Floridan aquifer system in the lower Alapaha River basin and establishes that the Dead River and Tiger Creek Swallets are both directly connected to the Alapaha and Holton Creek Rises.

INTRODUCTION

Under a Memorandum of Agreement (SRWMD Contract #15/16-027), the Suwannee River Water Management District (District) contracted with the Florida Department of Environmental Protection - Florida Geological Survey (FGS) to conduct an eight-week dye tracing study in the lower Alapaha River basin and vicinity. The proposed study consisted of same day introductions of dyes in Dead River and Tiger Creek Swallets in the lower Alapaha River basin and monitoring the Alapaha and Holton Creek Rises, two springs (Stevenson and SUW 925971, a.k.a. "Coile Spring"), and three locations on the Suwannee River. Additionally, intermediate monitoring sites (karst windows, sinks, and/or wells) between the dye introduction sites and the Rises/Suwannee River were proposed, but suitable sites were not located during field reconnaissance of the study area. Figure 1 shows the study area and locations of dye introduction and monitoring sites.