

# **Alapaha Swallets Dye Trace Project**

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Prepared for:  
Suwannee River Water Management  
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We thank the private landowners, Carolyn Coile, Tom Edwards, and Clay, David, and Karen Goolsby for providing access to their properties. Their interest in the project is sincerely appreciated.

FDEP Suwannee River State Park personnel are acknowledged for their continued support of our studies and for accommodating us when our field work runs after normal park hours. The expedited service obtained from Ozark Underground Lab is recognized and appreciated. Within, we thank each of the Florida Geological Survey staff that assisted with the successful completion of this project.

Cover photograph - Dead River Swallet fluorescein dye introduction on June 22, 2016.  
Photo taken by Mark Long.

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# **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.

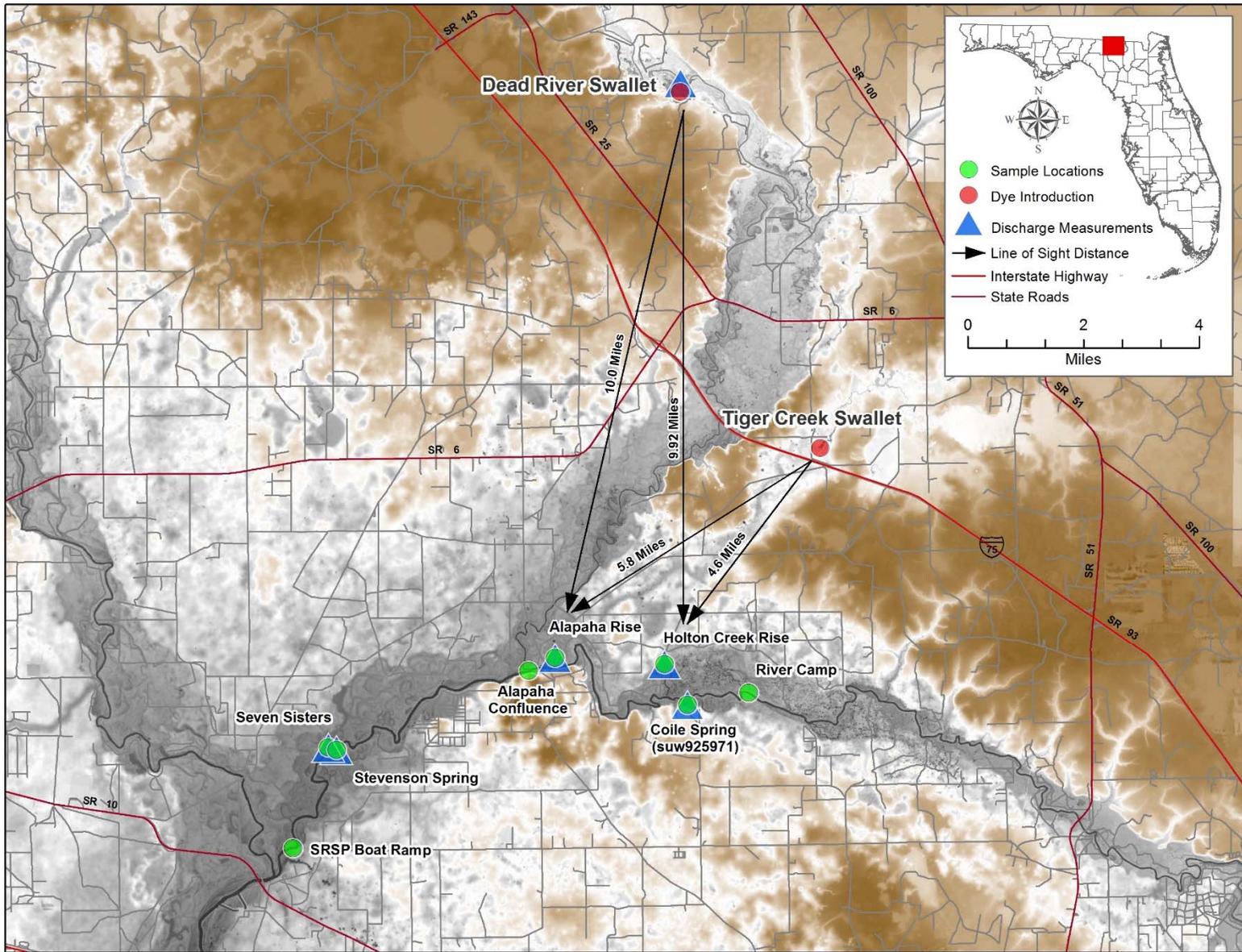


Figure 1. Study area and field sites.

The established hydrologic conditions for a same day dye release at both swallets required the Alapaha River at the Jennings gage (02317620) to be discharging between 500 and 1000 cubic feet per second (cfs) for the duration of the trace. Additionally, Dead River and Tiger Creek Swallets both needed to be flowing, and Alapaha and Holton Creek Rises discharging.

In October of 2015, dye introductions were postponed at the request of the District due to the potential for El Nino rainfall during the trace.

In June 2016, the District asked the FGS to release dye at the Dead River Swallet, Tiger Creek was not flowing. Tiger Creek began flowing in early August and the District requested the FGS release dye on August 11, 2016 and conduct limited sampling. US Geological Survey (USGS) stage and discharge information from June 9 to September 26, 2106 for selected sites in the study area are provided in Appendix I. Point discharge measurements obtained by the USGS during this period were not yet available on their website.

## **PURPOSE**

The study was performed to obtain hydrologic data to be incorporated into current groundwater modeling efforts that will support consumptive use permitting, water supply planning, and minimum flows and levels.

## **DYE TRACE**

In advance of the dye traces, the FGS contracted with Ozark Underground Laboratories, Inc. to provide dyes and analytical services. The FGS obtained the Scientific (Non-Commercial) Research/Collecting Permit No. 07191610 from the Florida Park Service, garnered site access to District lands, and from the private landowners for Tiger Creek Swallet, Coile Spring, and Stevenson Spring. The FGS also notified the appropriate local and State agencies/officials of the pending trace.

Prior to and after dye introduction, charcoal packets were secured to a locally collected limestone rock with coated wire and deployed at the sample sites (Figure 2).



**Figure 2. Example of a charcoal sample packet deployment.**

At most sites, the rocks with attached charcoal packets were secured using parachute cord so they could be easily recovered if the river stage changed dramatically during the dye trace. At the Suwannee River boat ramp, Seven Sisters (Five Hole) and Stevenson Spring sites, the charcoal packets were deployed directly into these sites without parachute cord tethers. At Alapaha and Holton Creek Rises, two charcoal packets were deployed at each site with tethers, one from the USGS water level platform and the other at an upstream (Holton Creek) and a downstream (Alapaha Rise) location near the platform. This deployment strategy was used to prevent a complete loss of data in the event a carbon pack was tampered with, and to produce an overlap in sample packet deployment times which could assist with determining dye arrival windows.

Background sampling utilizing the charcoal packets were conducted to verify that no dyes were present at the introduction and/or monitoring sites. Several rounds of background samples were collected, but only the ones closest to the dye introduction date were analyzed. Those background samples were non-detect for the presence of dye.

At Alapaha Rise and Holton Creek Rise, two ISCO automated samplers were deployed and programmed to collect a water sample every 12 hours. A photograph of the Alapaha Rise sampling station can be seen in Figure 3 and a diagram of the set-up is provided in Appendix II. By staggering the collection times, a water sample was collected every 6 hours. If dye was detected, this arrangement provided sufficient frequency of samples to narrow the arrival time to a 6-hour window and would allow a detailed dye curve to be generated. Also, in the event of equipment failure and/or vandalism of one of the ISCOs, there would be enough samples for analysis from the sampling sites.



**Figure 3. Alapaha Rise ISCO sampling station.**

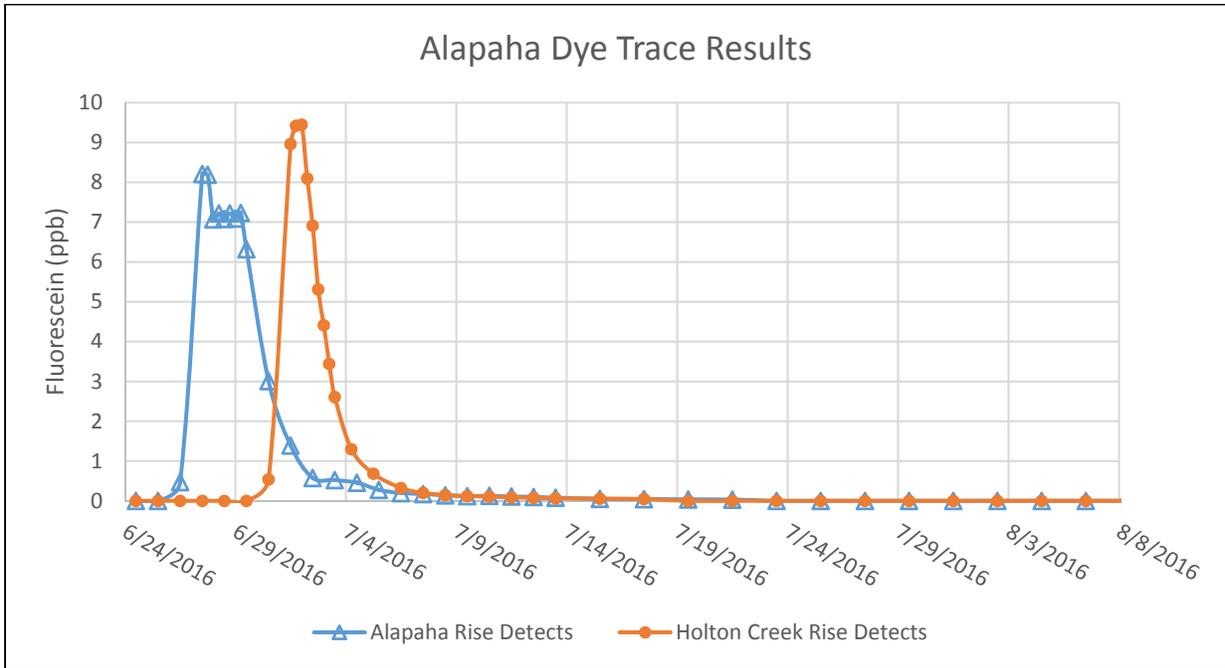
### **Dead River Swallet Dye Trace**

On June 22, 2016 at 11:03 AM, 100 lbs. of powdered fluorescein dye was introduced into the Dead River Swallet by lightly sprinkling the dye directly on to the surface of the Dead River's turbulent flow in the curve approximately 150 yards upstream of the swallet. The flow into the swallet was measured by SRWMD staff at 311 cfs minutes before the dye was introduced. The cover page photograph was taken during the dye introduction.

The field sampling team first observed visible fluorescein dye at Alapaha Rise on June 28 six days after introduction and at Holton Creek on July 1, nine days after introduction. Sampling for this trace was terminated on August 10, 2016, and the ISCO sampling stations were dismantled.

All of the samples collected during this trace were stored in the FGS geochemistry lab's refrigerator until they were overnighted via FedEx to Ozark Underground Laboratory, Inc. on August 23 and 24, 2016. The samples were split and shipped in two separate shipments as a precaution in case a shipment was lost in transit.

A graph of the results for the water samples that were analyzed are shown in Figure 4. Information on all the water samples collected by the ISCO automated samplers during the Dead River Swallet dye trace are provided in Appendix III.



**Figure 4. Fluorescein detections in water samples at Alapaha and Holton Creek Rises.**

Based on the visual dye observation, the FGS initially selected a subset of the samples to be analyzed. The noon water samples collected by the ISCO automated samplers from June 24 through July 13, 2016 were selected. The results from the water samples in this subset were graphed and very distinct single peak curves were observed. After consultation with the District’s co-investigator, additional water samples that were collected prior to and following the observed peaks were analyzed. The analytical data from this set of water samples further refined the peaks and showed that additional peaks were not present.

Charcoal packets in the Suwannee River downstream of Alapaha Rise collected after the visual dye observation were not analyzed. Appendix IV contains results of charcoal packet samples, background, river and springs sites were non-detect.

### **Tiger Creek Swallet Dye Trace**

On August 11, 2016 at 12:23 PM, 50 lbs. of liquid Rhodamine WT dye was introduced into the Tiger Creek Swallet by pouring the dye directly on to the surface of Tiger Creek’s turbulent flow approximately 40 yards upstream of the swallet (see Figure 3.). Although the District had only requested two sets of charcoal packet samples to be collected at Coile Spring and Alapaha and Holton Creek Rises following dye introduction, the FGS collect several sets of water grab

samples and additional rounds of charcoal packet samples. Appendix V contains a list of the samples collected and the analytical results for this trace.



**Figure 5. Dye introduction at Tiger Creek Swallet.**

Rhodamine WT was not detected in Alapaha and Holton Creek Rises in the first and second rounds of charcoal packet samplers, but was detected in third and fourth round of samples. Round three was deployed on August 15 and recovered on August 31, 2016. Round four was deployed on August 31 and recovered on September 20, 2016.

It is noted that all of the water grab samples that were analyzed did not have detectable concentrations of either fluorescein or Rhodamine WT; however, all four rounds of charcoal packet samplers contained low concentrations of fluorescein dye. This indicates that very low concentrations of fluorescein dye were still present in the discharge at Alapaha and Holton Creek Rises.

## **FGS DYE HANDLING/CROSS-CONTAMINATION AVOIDANCE**

To avoid cross-contamination when using dyes, especially when low level (parts per trillion) analytical methods are being utilized, one should at all times handle dyes with thoughtful consideration.

The dyes were ground shipped to the FGS main office in sealed 5-gallon plastic containers. Upon arrival, the dyes were placed in a secure room.

The sampling equipment (ISCOs, batteries, tubing, charcoal packets, glass vials) and the primary field sampling staff are housed in a separate building. Transport of the dye to introduction sites was in commercial grade large garbage bags, sealed with duct tape on a trailer towed by a vehicle that would not be used by the sampling staff.

Introduction of the dye at Dead River was performed with full body Tyvek, taped on gloves, respirator, and lab goggles. Following dye introduction, all containers, equipment, and personal protective equipment, including personal clothing, was double bagged in commercial garbage bags and tied shut. The person deploying the dye then bathed by full immersion using a bleach solution rinse and put on a clean set of clothing. At the Tiger Creek site, the same protocol was followed for the dye introduction. Upon returning from the field, the vehicle transporting the dye and discarded equipment was sprayed with a dilute bleach solution with a hand-pump sprayer and rinsed with City water (contains some chlorine). Chlorine is used because it destroys the dye.

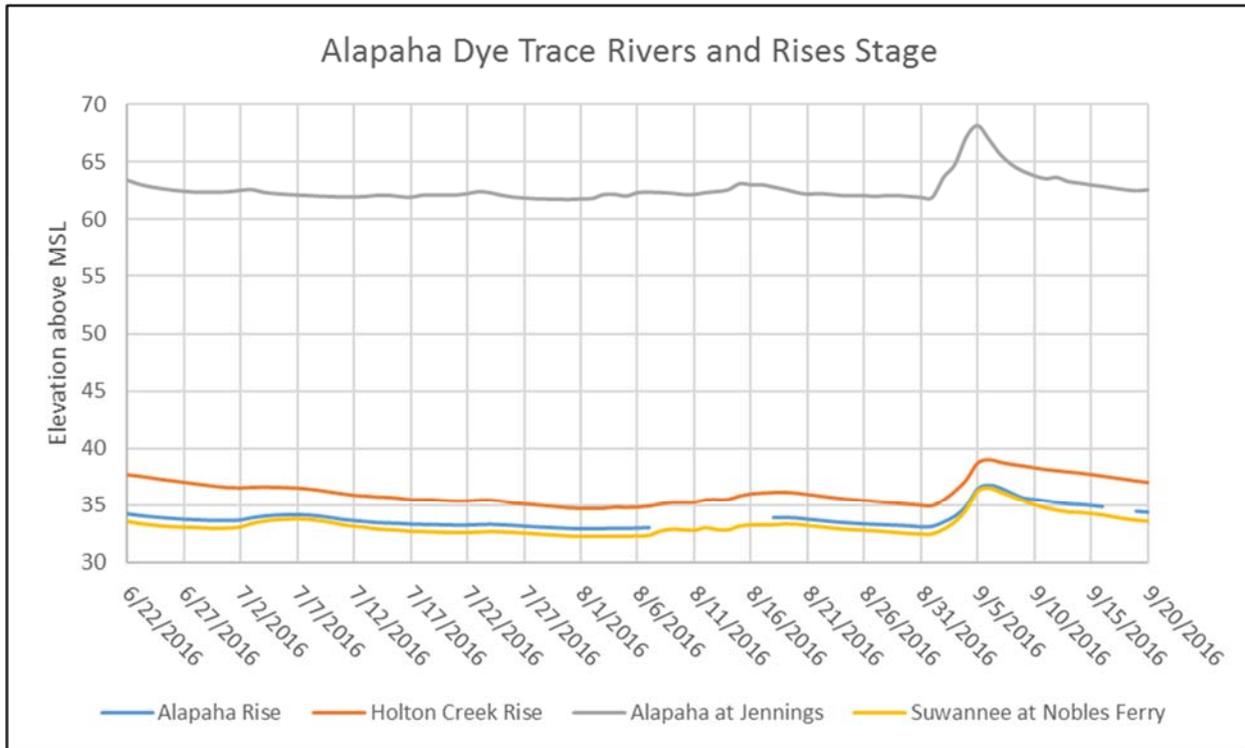
Field sampling- When collected, charcoal packet samplers and glass vials used to obtain water samples were placed in pre-labeled high quality plastic freezer bags or equivalent and placed in dedicated coolers.

Upon visual observation of the dye at Alapaha Rise, each sample container in all of the ISCO automated samplers were rinsed using well water from outside the study area prior to re-deployment. This protocol was utilized for several weeks following the visual dye detection. Sample storage prior to shipping was in the FGS's geochemistry lab's refrigerator. Sample packing for shipment to the analytical laboratory was conducted in the FGS's geochemistry lab.

## **Appendix I**

### **Stage and discharge data**

## Appendix I



District discharge measurements obtained at select sites.

Site	6/22/2016	6/23/2016	8/12/2016
Alapaha Rise	614 cfs		
Holton Creek Rise	115 cfs		
Dead River	311 cfs		
Alapaha River Downstream of Dead River	114 cfs		
Stevenson Spring	85 cfs		
Five Hole Spring		7.7 cfs	
Coile Spring		15.3 cfs	
Tiger Creek			27 cfs

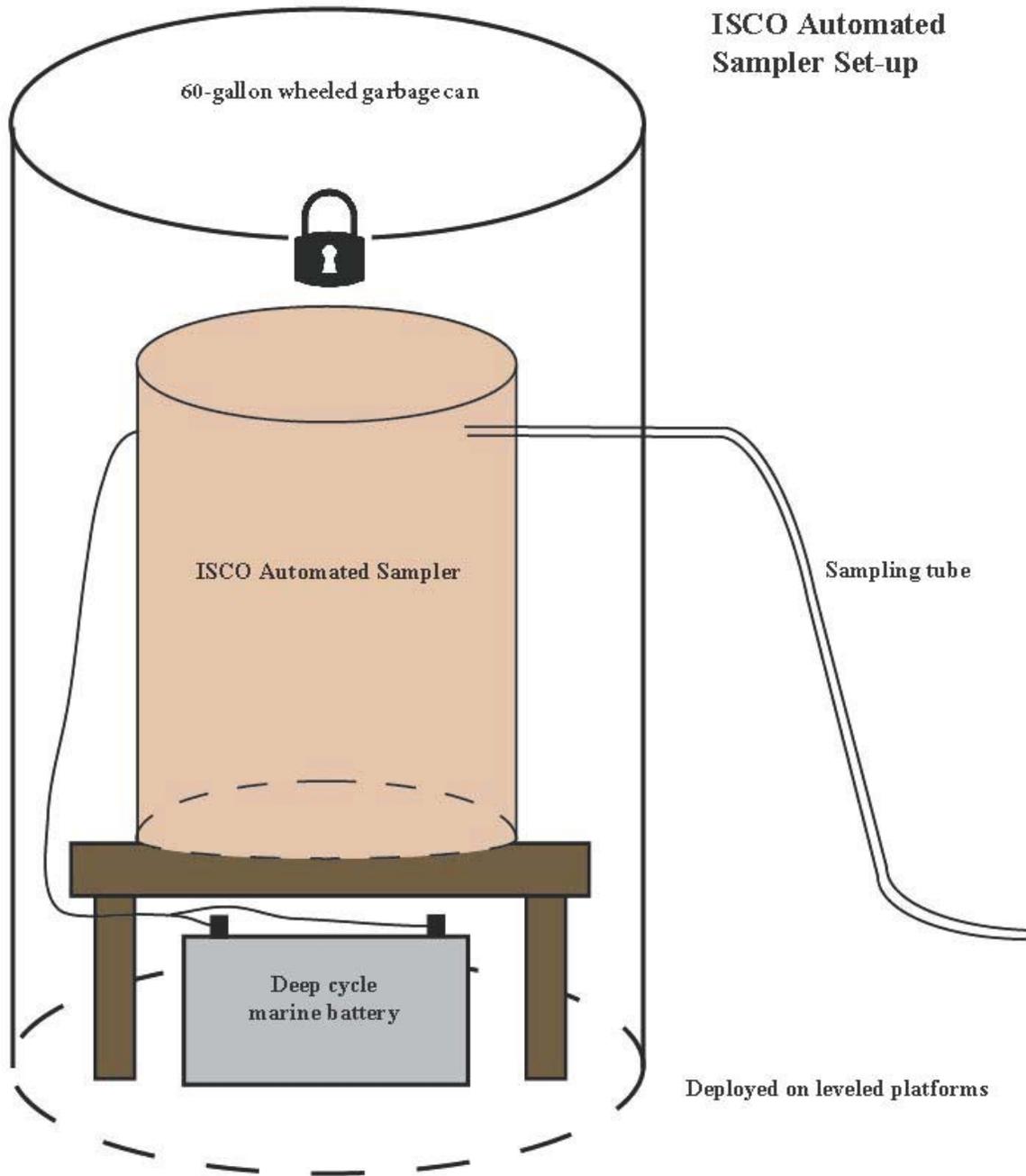
River and rise stage and discharge data sources:

- Stage data was obtained from the USGS's Water data website:  
[http://nwis.waterdata.usgs.gov/fl/nwis/current/?type=dailystage&group\\_key=huc\\_cd](http://nwis.waterdata.usgs.gov/fl/nwis/current/?type=dailystage&group_key=huc_cd)
- The Suwannee River Water Management District staff collected discharge data and provided it to the FGS.

## **Appendix II**

### **ISCO sample station diagram**

## Appendix II



Scrap lumber was used to make a wooden bench the same height as the wheel well in the bottom of a 60-gallon garbage can. This made a level shelf for the ISCO. A deep cell marine battery was placed underneath the shelf and connected to the ISCO. A hole was drilled in the side of the garbage can as an outlet for the sampling tubing. A hole was drilled through the lid and rim of the garbage can to allow for the use of a long shank lock. Sample tubing was secured in a pipe by the water of each sampling site. A level platform was constructed of wood and wood-plastic composite planks at each sampling site for the ISCO set-up to set on.

## **Appendix III**

### **Alapaha Rise and Holton Creek Rise ISCO water sample data**

(No shading – not analyzed, Gray shade – analyzed but non-detect, Green shade – fluorescein detects)

### Appendix III

Site	Site Name	Round	Sample	Date Collected	Time Collected	ISCO	Fluorescein (ppb)
Alapaha Rise	ALAP	1	1	6/21/16	18:00	1	
Alapaha Rise	ALAP	1	2	6/22/16	0:00	2	
Alapaha Rise	ALAP	1	3	6/22/16	6:00	1	
Alapaha Rise	ALAP	1	4	6/22/16	12:00	2	
Alapaha Rise	ALAP	1	5	6/22/16	18:00	1	
Alapaha Rise	ALAP	1	6	6/23/16	0:00	2	
Alapaha Rise	ALAP	1	7	6/23/16	6:00	1	
Alapaha Rise	ALAP	1	8	6/23/16	12:00	2	
Alapaha Rise	ALAP	1	9	6/23/16	18:00	1	
Alapaha Rise	ALAP	1	10	6/24/16	0:00	2	
Alapaha Rise	ALAP	1	11	6/24/16	6:00	1	
Alapaha Rise	ALAP	1	12	6/24/16	12:00	2	ND
Alapaha Rise	ALAP	1	13	6/24/16	18:00	1	
Alapaha Rise	ALAP	1	14	6/25/16	0:00	2	
Alapaha Rise	ALAP	1	15	6/25/16	6:00	1	
Alapaha Rise	ALAP	1	16	6/25/16	12:00	2	ND
Alapaha Rise	ALAP	1	17	6/25/16	18:00	1	
Alapaha Rise	ALAP	1	18	6/26/15	0:00	2	
Alapaha Rise	ALAP	1	19	6/26/15	6:00	1	
Alapaha Rise	ALAP	2	1	6/26/15	12:00	2	0.470
Alapaha Rise	ALAP	2	2	6/26/15	18:00	1	
Alapaha Rise	ALAP	2	3	6/27/16	0:00	2	
Alapaha Rise	ALAP	2	4	6/27/16	6:00	1	
Alapaha Rise	ALAP	2	5	6/27/16	12:00	2	8.21
Alapaha Rise	ALAP	2	6	6/27/16	18:00	1	8.19
Alapaha Rise	ALAP	2	7	6/28/16	0:00	2	7.07
Alapaha Rise	ALAP	2	8	6/28/16	6:00	1	7.22
Alapaha Rise	ALAP	2	9	6/28/16	12:00	2	7.08
Alapaha Rise	ALAP	2	10	6/28/16	18:00	1	7.22
Alapaha Rise	ALAP	2	11	6/29/16	0:00	2	7.09
Alapaha Rise	ALAP	2	12	6/29/16	6:00	1	7.23
Alapaha Rise	ALAP	2	13	6/29/16	12:00	2	6.32
Alapaha Rise	ALAP	2	14	6/29/16	18:00	1	
Alapaha Rise	ALAP	2	15	6/30/16	0:00	2	
Alapaha Rise	ALAP	2	16	6/30/16	6:00	1	
Alapaha Rise	ALAP	2	17	6/30/16	12:00	2	3.01
Alapaha Rise	ALAP	2	18	6/30/16	18:00	1	
Alapaha Rise	ALAP	3	1	7/1/16	0:00	2	

Site	Site Name	Round	Sample	Date Collected	Time Collected	ISCO	Fluorescein (ppb)
Alapaha Rise	ALAP	3	NS	7/1/16	6:00	1	
Alapaha Rise	ALAP	3	3	7/1/16	12:00	2	1.39
Alapaha Rise	ALAP	3	NS	7/1/16	18:00	1	
Alapaha Rise	ALAP	3	5	7/2/16	0:00	2	
Alapaha Rise	ALAP	3	NS	7/2/16	6:00	1	
Alapaha Rise	ALAP	3	7	7/2/16	12:00	2	0.576
Alapaha Rise	ALAP	3	NS	7/2/16	18:00	1	
Alapaha Rise	ALAP	3	9	7/3/16	0:00	2	
Alapaha Rise	ALAP	3	NS	7/3/16	6:00	1	
Alapaha Rise	ALAP	3	11	7/3/16	12:00	2	0.524
Alapaha Rise	ALAP	3	NS	7/3/16	18:00	1	
Alapaha Rise	ALAP	3	13	7/4/16	0:00	2	
Alapaha Rise	ALAP	3	NS	7/4/16	6:00	1	
Alapaha Rise	ALAP	3	15	7/4/16	12:00	2	0.457
Alapaha Rise	ALAP	3	NS	7/4/16	18:00	1	
Alapaha Rise	ALAP	3	17	7/5/16	0:00	2	
Alapaha Rise	ALAP	3	NS	7/5/16	6:00	1	
Alapaha Rise	ALAP	3	19	7/5/16	12:00	2	0.276
Alapaha Rise	ALAP	3	NS	7/5/16	18:00	1	
Alapaha Rise	ALAP	3	21	7/6/16	0:00	2	
Alapaha Rise	ALAP	3	22	7/6/16	6:00	1	
Alapaha Rise	ALAP	3	23	7/6/16	12:00	2	0.197
Alapaha Rise	ALAP	4	1	7/6/16	18:00	1	
Alapaha Rise	ALAP	4	2	7/7/16	0:00	2	
Alapaha Rise	ALAP	4	NS	7/7/16	6:00	1	
Alapaha Rise	ALAP	4	4	7/7/16	12:00	2	0.173
Alapaha Rise	ALAP	4	5	7/7/16	18:00	1	
Alapaha Rise	ALAP	4	6	7/8/16	0:00	2	
Alapaha Rise	ALAP	4	NS	7/8/16	6:00	1	
Alapaha Rise	ALAP	4	8	7/8/16	12:00	2	0.140
Alapaha Rise	ALAP	4	9	7/8/16	18:00	1	
Alapaha Rise	ALAP	4	10	7/9/16	0:00	2	
Alapaha Rise	ALAP	4	NS	7/9/16	6:00	1	
Alapaha Rise	ALAP	4	12	7/9/16	12:00	2	0.120
Alapaha Rise	ALAP	4	13	7/9/16	18:00	1	
Alapaha Rise	ALAP	4	14	7/10/16	0:00	2	
Alapaha Rise	ALAP	4	NS	7/10/16	6:00	1	
Alapaha Rise	ALAP	4	16	7/10/16	12:00	2	0.126
Alapaha Rise	ALAP	4	17	7/10/16	18:00	1	
Alapaha Rise	ALAP	4	18	7/11/16	0:00	2	

Site	Site Name	Round	Sample	Date Collected	Time Collected	ISCO	Fluorescein (ppb)
Alapaha Rise	ALAP	4	NS	7/11/16	6:00	1	
Alapaha Rise	ALAP	4	20	7/11/16	12:00	2	0.110
Alapaha Rise	ALAP	4	21	7/11/16	18:00	1	
Alapaha Rise	ALAP	4	22	7/12/16	0:00	2	
Alapaha Rise	ALAP	4	23	7/12/16	6:00	1	
Alapaha Rise	ALAP	4	24	7/12/16	12:00	2	0.100
Alapaha Rise	ALAP	5	1	7/12/16	18:00	6	
Alapaha Rise	ALAP	5	2	7/13/16	0:00	2	
Alapaha Rise	ALAP	5	3	7/13/16	6:00	6	
Alapaha Rise	ALAP	5	4	7/13/16	12:00	2	0.080
Alapaha Rise	ALAP	5	5	7/13/16	18:00	6	
Alapaha Rise	ALAP	5	6	7/14/16	0:00	2	
Alapaha Rise	ALAP	5	7	7/14/16	6:00	6	
Alapaha Rise	ALAP	5	8	7/14/16	12:00	2	
Alapaha Rise	ALAP	5	9	7/14/16	18:00	6	
Alapaha Rise	ALAP	5	10	7/15/16	0:00	2	
Alapaha Rise	ALAP	5	11	7/15/16	6:00	6	
Alapaha Rise	ALAP	5	12	7/15/16	12:00	2	0.052
Alapaha Rise	ALAP	5	13	7/15/16	18:00	6	
Alapaha Rise	ALAP	5	14	7/16/16	0:00	2	
Alapaha Rise	ALAP	5	15	7/16/16	6:00	6	
Alapaha Rise	ALAP	5	16	7/16/16	12:00	2	
Alapaha Rise	ALAP	5	17	7/16/16	18:00	6	
Alapaha Rise	ALAP	5	18	7/17/16	0:00	2	
Alapaha Rise	ALAP	5	19	7/17/16	6:00	6	
Alapaha Rise	ALAP	5	20	7/17/16	12:00	2	0.044
Alapaha Rise	ALAP	5	21	7/17/16	18:00	6	
Alapaha Rise	ALAP	5	22	7/18/16	0:00	2	
Alapaha Rise	ALAP	5	23	7/18/16	6:00	6	
Alapaha Rise	ALAP	5	24	7/18/16	12:00	2	
Alapaha Rise	ALAP	5	25	7/18/16	18:00	6	
Alapaha Rise	ALAP	5	26	7/19/16	0:00	2	
Alapaha Rise	ALAP	5	27	7/19/16	6:00	6	
Alapaha Rise	ALAP	5	28	7/19/16	12:00	2	0.037
Alapaha Rise	ALAP	5	29	7/19/16	18:00	6	
Alapaha Rise	ALAP	5	30	7/20/16	0:00	2	
Alapaha Rise	ALAP	5	31	7/20/16	6:00	6	
Alapaha Rise	ALAP	6	1	7/20/16	12:00	2	
Alapaha Rise	ALAP	6	2	7/20/16	18:00	6	
Alapaha Rise	ALAP	6	3	7/21/16	0:00	2	

Site	Site Name	Round	Sample	Date Collected	Time Collected	ISCO	Fluorescein (ppb)
Alapaha Rise	ALAP	6	4	7/21/16	6:00	6	
Alapaha Rise	ALAP	6	5	7/21/16	12:00	2	0.032
Alapaha Rise	ALAP	6	NS	7/21/16	18:00	6	
Alapaha Rise	ALAP	6	7	7/22/16	0:00	2	
Alapaha Rise	ALAP	6	8	7/22/16	6:00	6	
Alapaha Rise	ALAP	6	9	7/22/16	12:00	2	
Alapaha Rise	ALAP	6	10	7/22/16	18:00	6	
Alapaha Rise	ALAP	6	11	7/23/16	0:00	2	
Alapaha Rise	ALAP	6	12	7/23/16	6:00	6	
Alapaha Rise	ALAP	6	13	7/23/16	12:00	2	ND
Alapaha Rise	ALAP	6	14	7/23/16	18:00	6	
Alapaha Rise	ALAP	6	15	7/24/16	0:00	2	
Alapaha Rise	ALAP	6	16	7/24/16	6:00	6	
Alapaha Rise	ALAP	6	17	7/24/16	12:00	2	
Alapaha Rise	ALAP	6	18	7/24/16	18:00	6	
Alapaha Rise	ALAP	6	19	7/25/16	0:00	2	
Alapaha Rise	ALAP	6	20	7/25/16	6:00	6	
Alapaha Rise	ALAP	6	21	7/25/16	12:00	2	ND
Alapaha Rise	ALAP	6	22	7/25/16	18:00	6	
Alapaha Rise	ALAP	6	23	7/26/16	0:00	2	
Alapaha Rise	ALAP	6	24	7/26/16	6:00	6	
Alapaha Rise	ALAP	6	25	7/26/16	12:00	2	
Alapaha Rise	ALAP	6	26	7/26/16	18:00	6	
Alapaha Rise	ALAP	6	27	7/27/16	0:00	2	
Alapaha Rise	ALAP	6	28	7/27/16	6:00	6	
Alapaha Rise	ALAP	7	1	7/27/16	12:00	2	ND
Alapaha Rise	ALAP	7	2	7/27/16	18:00	6	
Alapaha Rise	ALAP	7	3	7/28/16	0:00	2	
Alapaha Rise	ALAP	7	4	7/28/16	6:00	6	
Alapaha Rise	ALAP	7	5	7/28/16	12:00	2	
Alapaha Rise	ALAP	7	6	7/28/16	18:00	6	
Alapaha Rise	ALAP	7	7	7/29/16	0:00	2	
Alapaha Rise	ALAP	7	8	7/29/16	6:00	6	
Alapaha Rise	ALAP	7	9	7/29/16	12:00	2	ND
Alapaha Rise	ALAP	7	10	7/29/16	18:00	6	
Alapaha Rise	ALAP	7	11	7/30/16	0:00	2	
Alapaha Rise	ALAP	7	12	7/30/16	6:00	6	
Alapaha Rise	ALAP	7	13	7/30/16	12:00	2	
Alapaha Rise	ALAP	7	14	7/30/16	18:00	6	
Alapaha Rise	ALAP	7	15	7/31/16	0:00	2	

Site	Site Name	Round	Sample	Date Collected	Time Collected	ISCO	Fluorescein (ppb)
Alapaha Rise	ALAP	7	16	7/31/16	6:00	6	
Alapaha Rise	ALAP	7	17	7/31/16	12:00	2	ND
Alapaha Rise	ALAP	7	18	7/31/16	18:00	6	
Alapaha Rise	ALAP	7	19	8/1/16	0:00	2	
Alapaha Rise	ALAP	7	20	8/1/16	6:00	6	
Alapaha Rise	ALAP	7	21	8/1/16	12:00	2	
Alapaha Rise	ALAP	7	22	8/1/16	18:00	6	
Alapaha Rise	ALAP	7	23	8/2/16	0:00	2	
Alapaha Rise	ALAP	7	24	8/2/16	6:00	6	
Alapaha Rise	ALAP	7	25	8/2/16	12:00	2	ND
Alapaha Rise	ALAP	7	26	8/2/16	18:00	6	
Alapaha Rise	ALAP	7	27	8/3/16	0:00	2	
Alapaha Rise	ALAP	7	28	8/3/16	6:00	6	
Alapaha Rise	ALAP	8	1	8/3/16	12:00	2	
Alapaha Rise	ALAP	8	2	8/3/16	18:00	6	
Alapaha Rise	ALAP	8	3	8/4/16	0:00	2	
Alapaha Rise	ALAP	8	4	8/4/16	6:00	6	
Alapaha Rise	ALAP	8	5	8/4/16	12:00	2	ND
Alapaha Rise	ALAP	8	6	8/4/16	18:00	6	
Alapaha Rise	ALAP	8	7	8/5/16	0:00	2	
Alapaha Rise	ALAP	8	8	8/5/16	6:00	6	
Alapaha Rise	ALAP	8	9	8/5/16	12:00	2	
Alapaha Rise	ALAP	8	10	8/5/16	18:00	6	
Alapaha Rise	ALAP	8	11	8/6/16	0:00	2	
Alapaha Rise	ALAP	8	12	8/6/16	6:00	6	
Alapaha Rise	ALAP	8	13	8/6/16	12:00	2	ND
Alapaha Rise	ALAP	8	14	8/6/16	18:00	6	
Alapaha Rise	ALAP	8	15	8/7/16	0:00	2	
Alapaha Rise	ALAP	8	16	8/7/16	6:00	6	
Alapaha Rise	ALAP	8	17	8/7/16	12:00	2	
Alapaha Rise	ALAP	8	18	8/7/16	18:00	6	
Alapaha Rise	ALAP	8	19	8/8/16	0:00	2	
Alapaha Rise	ALAP	8	20	8/8/16	6:00	6	
Alapaha Rise	ALAP	8	21	8/8/16	12:00	2	ND
Alapaha Rise	ALAP	8	22	8/8/16	18:00	6	
Alapaha Rise	ALAP	8	23	8/9/16	0:00	2	
Alapaha Rise	ALAP	8	24	8/9/16	6:00	6	
Alapaha Rise	ALAP	8	25	8/9/16	12:00	2	

Site	Site Name	Round	Sample	Date Collected	Time Collected	ISCO	Fluorescein (ppb)
Holton Creek	HOLT	1	1	6/22/16	0:00	5	
Holton Creek	HOLT	1	2	6/22/16	6:00	4	
Holton Creek	HOLT	1	3	6/22/16	12:00	5	
Holton Creek	HOLT	1	4	6/22/16	18:00	4	
Holton Creek	HOLT	1	5	6/23/16	0:00	5	
Holton Creek	HOLT	1	6	6/23/16	6:00	4	
Holton Creek	HOLT	1	7	6/23/16	12:00	5	
Holton Creek	HOLT	1	8	6/23/16	18:00	4	
Holton Creek	HOLT	1	9	6/24/16	0:00	5	
Holton Creek	HOLT	1	10	6/24/16	6:00	4	
Holton Creek	HOLT	1	11	6/24/16	12:00	5	ND
Holton Creek	HOLT	1	12	6/24/16	18:00	4	
Holton Creek	HOLT	1	13	6/25/16	0:00	5	
Holton Creek	HOLT	1	14	6/25/16	6:00	4	
Holton Creek	HOLT	1	15	6/25/16	12:00	5	ND
Holton Creek	HOLT	1	16	6/25/16	18:00	4	
Holton Creek	HOLT	1	17	6/26/15	0:00	5	
Holton Creek	HOLT	1	18	6/26/15	6:00	4	
Holton Creek	HOLT	2	1	6/26/15	12:00	5	ND
Holton Creek	HOLT	2	2	6/26/15	18:00	4	
Holton Creek	HOLT	2	3	6/27/16	0:00	5	
Holton Creek	HOLT	2	4	6/27/16	6:00	4	
Holton Creek	HOLT	2	5	6/27/16	12:00	5	ND
Holton Creek	HOLT	2	6	6/27/16	18:00	4	
Holton Creek	HOLT	2	7	6/28/16	0:00	5	
Holton Creek	HOLT	2	8	6/28/16	6:00	4	
Holton Creek	HOLT	2	9	6/28/16	12:00	5	ND
Holton Creek	HOLT	2	10	6/28/16	18:00	4	
Holton Creek	HOLT	2	11	6/29/16	0:00	5	
Holton Creek	HOLT	2	12	6/29/16	6:00	4	
Holton Creek	HOLT	2	13	6/29/16	12:00	5	ND
Holton Creek	HOLT	2	14	6/29/16	18:00	4	
Holton Creek	HOLT	2	15	6/30/16	0:00	5	
Holton Creek	HOLT	2	16	6/30/16	6:00	4	
Holton Creek	HOLT	2	17	6/30/16	12:00	5	0.540
Holton Creek	HOLT	2	18	6/30/16	18:00	4	
Holton Creek	HOLT	2	19	7/1/16	0:00	5	
Holton Creek	HOLT	2	20	7/1/16	6:00	4	
Holton Creek	HOLT	3	1	7/1/16	12:00	5	8.96
Holton Creek	HOLT	3	2	7/1/16	18:00	4	9.42

Site	Site Name	Round	Sample	Date Collected	Time Collected	ISCO	Fluorescein (ppb)
Holton Creek	HOLT	3	3	7/2/16	0:00	5	9.45
Holton Creek	HOLT	3	4	NA	NA	NA	
Holton Creek	HOLT	3	5	7/2/16	12:00	5	6.91
Holton Creek	HOLT	3	6	7/2/16	6:00	4	8.1
Holton Creek	HOLT	3	7	7/3/16	0:00	5	4.41
Holton Creek	HOLT	3	8	7/2/16	18:00	4	5.31
Holton Creek	HOLT	3	9	7/3/16	12:00	5	2.61
Holton Creek	HOLT	3	10	7/3/16	6:00	4	3.44
Holton Creek	HOLT	3	11	7/4/16	0:00	5	
Holton Creek	HOLT	3	12	7/3/16	18:00	4	
Holton Creek	HOLT	3	13	7/4/16	12:00	5	
Holton Creek	HOLT	3	14	7/4/16	6:00	4	1.30
Holton Creek	HOLT	3	15	7/5/16	0:00	5	
Holton Creek	HOLT	3	16	7/4/16	18:00	4	
Holton Creek	HOLT	3	17	7/5/16	12:00	5	
Holton Creek	HOLT	3	18	7/5/16	6:00	4	0.683
Holton Creek	HOLT	3	19	7/6/16	0:00	5	
Holton Creek	HOLT	3	20	7/5/16	18:00	4	
Holton Creek	HOLT	3	21	7/6/16	6:00	4	
Holton Creek	HOLT	4	1	7/6/16	18:00	4	
Holton Creek	HOLT	4	2	7/6/16	12:00	5	0.325
Holton Creek	HOLT	4	3	7/7/16	6:00	4	
Holton Creek	HOLT	4	4	7/7/16	0:00	5	
Holton Creek	HOLT	4	5	7/7/16	18:00	4	
Holton Creek	HOLT	4	6	7/7/16	12:00	5	0.198
Holton Creek	HOLT	4	7	7/8/16	6:00	4	
Holton Creek	HOLT	4	8	7/8/16	0:00	5	
Holton Creek	HOLT	4	9	7/8/16	18:00	4	
Holton Creek	HOLT	4	10	7/8/16	12:00	5	0.144
Holton Creek	HOLT	4	11	7/9/16	6:00	4	
Holton Creek	HOLT	4	12	7/9/16	0:00	5	
Holton Creek	HOLT	4	13	7/9/16	18:00	4	
Holton Creek	HOLT	4	14	7/9/16	12:00	5	0.119
Holton Creek	HOLT	4	15	7/10/16	6:00	4	
Holton Creek	HOLT	4	16	7/10/16	0:00	5	
Holton Creek	HOLT	4	17	7/10/16	18:00	4	
Holton Creek	HOLT	4	18	7/10/16	12:00	5	0.108
Holton Creek	HOLT	4	19	7/11/16	6:00	4	
Holton Creek	HOLT	4	20	7/11/16	0:00	5	
Holton Creek	HOLT	4	21	7/11/16	18:00	4	

Site	Site Name	Round	Sample	Date Collected	Time Collected	ISCO	Fluorescein (ppb)
Holton Creek	HOLT	4	22	7/11/16	12:00	5	0.089
Holton Creek	HOLT	4	23	7/12/16	6:00	4	
Holton Creek	HOLT	4	24	7/12/16	0:00	5	
Holton Creek	HOLT	4	25	7/12/16	12:00	5	0.077
Holton Creek	HOLT	5	1	7/12/16	18:00	4	
Holton Creek	HOLT	5	2	7/13/16	0:00	5	
Holton Creek	HOLT	5	3	7/13/16	6:00	4	
Holton Creek	HOLT	5	4	7/13/16	12:00	5	0.065
Holton Creek	HOLT	5	5	7/13/16	18:00	4	
Holton Creek	HOLT	5	6	7/14/16	0:00	5	
Holton Creek	HOLT	5	7	7/14/16	6:00	4	
Holton Creek	HOLT	5	8	7/14/16	12:00	5	
Holton Creek	HOLT	5	9	7/14/16	18:00	4	
Holton Creek	HOLT	5	10	7/15/16	0:00	5	
Holton Creek	HOLT	5	11	7/15/16	6:00	4	
Holton Creek	HOLT	5	12	7/15/16	12:00	5	0.054
Holton Creek	HOLT	5	13	7/15/16	18:00	4	
Holton Creek	HOLT	5	14	7/16/16	0:00	5	
Holton Creek	HOLT	5	15	7/16/16	6:00	4	
Holton Creek	HOLT	5	16	7/16/16	12:00	5	
Holton Creek	HOLT	5	17	7/16/16	18:00	4	
Holton Creek	HOLT	5	18	7/17/16	0:00	5	
Holton Creek	HOLT	5	19	7/17/16	6:00	4	
Holton Creek	HOLT	5	20	7/17/16	12:00	5	0.046
Holton Creek	HOLT	5	21	7/17/16	18:00	4	
Holton Creek	HOLT	5	22	7/18/16	0:00	5	
Holton Creek	HOLT	5	23	7/18/16	6:00	4	
Holton Creek	HOLT	5	24	7/18/16	12:00	5	
Holton Creek	HOLT	5	25	7/18/16	18:00	4	
Holton Creek	HOLT	5	26	7/19/16	0:00	5	
Holton Creek	HOLT	5	27	7/19/16	6:00	4	
Holton Creek	HOLT	5	28	7/19/16	12:00	5	ND
Holton Creek	HOLT	5	29	7/19/16	18:00	4	
Holton Creek	HOLT	5	30	7/20/16	0:00	5	
Holton Creek	HOLT	5	31	7/20/16	6:00	4	
Holton Creek	HOLT	5	32	7/20/16	12:00	5	
Holton Creek	HOLT	6	1	7/20/16	18:00	4	
Holton Creek	HOLT	6	2	7/21/16	0:00	5	
Holton Creek	HOLT	6	3	7/21/16	6:00	4	
Holton Creek	HOLT	6	4	7/21/16	12:00	5	ND

Site	Site Name	Round	Sample	Date Collected	Time Collected	ISCO	Fluorescein (ppb)
Holton Creek	HOLT	6	5	7/21/16	18:00	4	
Holton Creek	HOLT	6	6	7/22/16	0:00	5	
Holton Creek	HOLT	6	7	7/22/16	6:00	4	
Holton Creek	HOLT	6	8	7/22/16	12:00	5	
Holton Creek	HOLT	6	9	7/22/16	18:00	4	
Holton Creek	HOLT	6	10	7/23/16	0:00	5	
Holton Creek	HOLT	6	11	7/23/16	6:00	4	
Holton Creek	HOLT	6	12	7/23/16	12:00	5	ND
Holton Creek	HOLT	6	13	7/23/16	18:00	4	
Holton Creek	HOLT	6	14	7/24/16	0:00	5	
Holton Creek	HOLT	6	15	7/24/16	6:00	4	
Holton Creek	HOLT	6	16	7/24/16	12:00	5	
Holton Creek	HOLT	6	17	7/24/16	18:00	4	
Holton Creek	HOLT	6	18	7/25/16	0:00	5	
Holton Creek	HOLT	6	19	7/25/16	6:00	4	
Holton Creek	HOLT	6	20	7/25/16	12:00	5	ND
Holton Creek	HOLT	6	21	7/25/16	18:00	4	
Holton Creek	HOLT	6	22	7/26/16	0:00	5	
Holton Creek	HOLT	6	23	7/26/16	6:00	4	
Holton Creek	HOLT	6	24	7/26/16	12:00	5	
Holton Creek	HOLT	6	25	7/26/16	18:00	4	
Holton Creek	HOLT	6	26	7/27/16	0:00	5	
Holton Creek	HOLT	6	27	7/27/16	6:00	4	
Holton Creek	HOLT	7	1	7/27/16	12:00	5	ND
Holton Creek	HOLT	7	2	7/27/16	18:00	4	
Holton Creek	HOLT	7	3	7/28/16	0:00	5	
Holton Creek	HOLT	7	4	7/28/16	6:00	4	
Holton Creek	HOLT	7	5	7/28/16	12:00	5	
Holton Creek	HOLT	7	6	7/28/16	18:00	4	
Holton Creek	HOLT	7	7	7/29/16	0:00	5	
Holton Creek	HOLT	7	8	7/29/16	6:00	4	
Holton Creek	HOLT	7	9	7/29/16	12:00	5	ND
Holton Creek	HOLT	7	10	7/29/16	18:00	4	
Holton Creek	HOLT	7	11	7/30/16	0:00	5	
Holton Creek	HOLT	7	12	7/30/16	6:00	4	
Holton Creek	HOLT	7	13	7/30/16	12:00	5	
Holton Creek	HOLT	7	14	7/30/16	18:00	4	
Holton Creek	HOLT	7	15	7/31/16	0:00	5	
Holton Creek	HOLT	7	16	7/31/16	6:00	4	
Holton Creek	HOLT	7	17	7/31/16	12:00	5	ND

Site	Site Name	Round	Sample	Date Collected	Time Collected	ISCO	Fluorescein (ppb)
Holton Creek	HOLT	7	18	7/31/16	18:00	4	
Holton Creek	HOLT	7	19	8/1/16	0:00	5	
Holton Creek	HOLT	7	20	8/1/16	6:00	4	
Holton Creek	HOLT	7	21	8/1/16	12:00	5	
Holton Creek	HOLT	7	22	8/1/16	18:00	4	
Holton Creek	HOLT	7	23	8/2/16	0:00	5	
Holton Creek	HOLT	7	24	8/2/16	6:00	4	
Holton Creek	HOLT	7	25	8/2/16	12:00	5	ND
Holton Creek	HOLT	7	26	8/2/16	18:00	4	
Holton Creek	HOLT	7	27	8/3/16	0:00	5	
Holton Creek	HOLT	7	28	8/3/16	6:00	4	
Holton Creek	HOLT	8	1	8/3/16	12:00	5	
Holton Creek	HOLT	8	2	8/3/16	18:00	4	
Holton Creek	HOLT	8	3	8/4/16	0:00	5	
Holton Creek	HOLT	8	4	8/4/16	6:00	4	
Holton Creek	HOLT	8	5	8/4/16	12:00	5	ND
Holton Creek	HOLT	8	6	8/4/16	18:00	4	
Holton Creek	HOLT	8	7	8/5/16	0:00	5	
Holton Creek	HOLT	8	8	8/5/16	6:00	4	
Holton Creek	HOLT	8	9	8/5/16	12:00	5	
Holton Creek	HOLT	8	10	8/5/16	18:00	4	
Holton Creek	HOLT	8	11	8/6/16	0:00	5	
Holton Creek	HOLT	8	12	8/6/16	6:00	4	
Holton Creek	HOLT	8	13	8/6/16	12:00	5	ND
Holton Creek	HOLT	8	14	8/6/16	18:00	4	
Holton Creek	HOLT	8	15	8/7/16	0:00	5	
Holton Creek	HOLT	8	16	8/7/16	6:00	4	
Holton Creek	HOLT	8	17	8/7/16	12:00	5	
Holton Creek	HOLT	8	18	8/7/16	18:00	4	
Holton Creek	HOLT	8	19	8/8/16	0:00	5	
Holton Creek	HOLT	8	20	8/8/16	6:00	4	
Holton Creek	HOLT	8	21	8/8/16	12:00	5	ND
Holton Creek	HOLT	8	22	8/8/16	18:00	4	
Holton Creek	HOLT	8	23	8/9/16	0:00	5	
Holton Creek	HOLT	8	24	8/9/16	6:00	4	
Holton Creek	HOLT	8	25	8/9/16	12:00	5	

## **Appendix IV**

### **Dead River Swallet dye trace charcoal packet data**

(No shading – not analyzed, Gray shade – analyzed, RWT = Rhodamine WT)

## Appendix IV

Site	Site Name	Round	Date Placed	Time Placed	Date Collected	Time Collected	Fluorescein (ppb)	RWT (ppb)
Dead River Run	DRR	1	6/2/16	12:15	6/9/16	11:30		
Tiger Creek	TIGC	1	6/2/16	13:15	8/10/16	12:00		
Alapaha Rise Platform	ARP	1	6/2/16	16:15	6/9/16	14:00		
Alapaha Rise Downstream	ARD	1	6/2/16	16:25	6/9/16	14:05		
Holton Creek Rise Platform	HCP	1	6/2/16	15:45	6/9/16	13:25		
Holton Creek Rise Upstream	HCU	1	6/2/16	15:50	6/9/16	13:30		
River Camp	SRC	1	6/2/16	15:10	6/9/16	13:10		
Alapaha Suwannee Confluence	ACON	1	6/2/16	14:15	7/6/16	8:45		
Coile Spring	CCS	1	6/2/16	17:15	6/9/16	14:30		
Dead River Run	DRIV	B-2	6/9/16	11:30	6/16/16	10:15	ND	ND
Alapaha Suwannee Confluence	ACON	B-2	6/9/16	14:00	6/16/16	11:45	ND	ND
Alapaha Rise Downstream	ALRD	B-2	6/9/16	14:05	6/16/16	12:30	ND	ND
River Camp	RIVC	B-2	6/9/16	13:10	6/16/16	12:50	ND	ND
Holton Creek Rise Platform	HCRP	B-2	6/9/16	13:25	6/16/16	13:10	ND	ND
Coile Spring	COIL	B-2	6/9/16	14:30	6/16/16	13:40	ND	ND
Dead River Overflow Creek	OVER	1	6/22/16	9:15	6/28/16	9:50		
Suwannee River State Park	SRSP	1	Grab	Grab	6/21/16	20:30		
5-Hole	HOLE	1	Grab	Grab	6/22/16	14:45		
Stevenson	STEVE	1	Grab	Grab	6/22/16	15:15		
Stevenson Spring	STEV	1	6/22/16	15:15	6/30/16	15:50	ND	ND
Five Hole	HOLE	1	6/22/16	14:45	6/30/16	10:45	ND	ND

Site	Site Name	Round	Date Placed	Time Placed	Date Collected	Time Collected	Fluorescein (ppb)	RWT (ppb)
Suwannee River State Park	SRSP	1	6/25/16	15:45	6/30/16	9:25		
Tiny Alapaha Rise Spring	ALRS	1	6/29/16	11:15	NC	NC		
Dead River Run	DRIV	2	6/9/16	11:30	6/28/16	9:30		
Alapaha Rise Platform	ALRP	2	6/9/16	14:00	6/28/16	13:00		
Alapaha Rise Downstream	ALRD	2	6/9/16	14:05	6/26/16	9:30		
Holton Creek Rise Platform	HCRP	2	6/9/16	13:25	6/26/16	8:45		
Holton Creek Rise Upstream	HCRU	2	6/9/16	13:30	6/28/16	12:30		
River Camp	RIVC	2	6/9/16	13:10	6/28/16	11:35	ND	ND
Alapaha Suwannee Confluence	ACON	2	7/6/16	8:45	7/13/16	12:00		
Coile Spring	COIL	2	6/9/16	14:30	6/30/16	15:00		
Stevenson Spring	STEV	2	6/30/16	16:00	7/13/16	14:35	ND	ND
Five Hole	HOLE	2	6/30/16	10:45	7/13/16	10:15	ND	ND
Suwannee River State Park	SRSP	2	6/30/16	9:25	7/6/16	7:00		
Alapaha Rise Platform	ALRP	3	6/28/16	13:00	7/27/16	8:22		
Alapaha Rise Downstream	ALRD	3	6/26/16	9:35	7/12/16	15:15		
Holton Creek Rise Platform	HCRP	3	6/26/16	8:45	7/6/16	10:00		
Holton Creek Rise Upstream	HCRU	3	6/28/16	12:30	7/12/16	14:00		
River Camp	RIVC	3	6/28/16	11:35	7/6/16	9:30	ND	ND
Alapaha Suwannee Confluence	ACON	3	7/13/16	12:00	7/20/16	15:36		
Coile Spring	COIL	3	6/30/16	15:00	7/13/16	13:25	ND	ND
Stevenson Spring	STEV	3	7/13/16	14:35	7/20/16	17:20	ND	ND
Five Hole	HOLE	3	7/13/16	10:15	7/20/16	9:12	ND	ND

Site	Site Name	Round	Date Placed	Time Placed	Date Collected	Time Collected	Fluorescein (ppb)	RWT (ppb)
Suwannee River State Park	SRSP	3	7/6/16	7:00	7/13/16	7:45		
Alapaha Rise Platform	ALRP	4	7/27/16	8:22	8/9/16	14:20		
Alapaha Rise Downstream	ALRD	4	7/12/16	15:15	8/9/16	13:41		
Holton Creek Rise Platform	HCRP	4	7/6/16	10:00	7/20/16	12:44		
Holton Creek Rise Upstream	HCRU	4	7/12/16	14:00	7/27/16	10:16		
River Camp	RIVC	4	7/6/16	9:30	7/12/16	18:00	ND	ND
Alapaha Suwannee Confluence	ACON	4	7/20/16	15:36	8/2/16	16:14		
Coile Spring	COIL	4	7/13/16	13:25	7/20/16	16:10	ND	ND
Stevenson Spring	STEV	4	7/20/16	17:20	8/3/16	12:01	ND	ND
Five Hole	HOLE	4	7/20/16	9:12	8/3/16	14:37	ND	ND
Suwannee River State Park	SRSP	4	7/13/16	7:45	7/20/16	7:26		
Holton Creek Rise Platform	HCRP	5	7/20/16	12:44	8/9/16	15:30		
River Camp	RIVC	5	7/12/16	18:00	7/20/16	13:11	ND	ND
Coile Spring	COIL	5	7/20/16	16:10	8/2/16	13:33	ND	ND
Stevenson Spring	STEV	5	8/3/16	12:01	8/10/16	11:25	ND	ND
Five Hole	HOLE	5	8/3/16	14:37	8/10/16	10:10	ND	ND
Suwannee River State Park	SRSP	5	7/20/16	7:26	7/26/16	16:30		
River Camp	RIVC	6	7/20/16	13:11	8/2/16	17:32	ND	ND
Stevenson Spring	STEV	6	8/10/16	11:25	8/16/16	17:20	ND	ND
Five Hole	HOLE	6	8/10/16	10:10	8/16/16	15:45	ND	ND
River Camp	RIVC	7	8/2/16	17:32	8/9/16	16:10	ND	ND

## **Appendix V**

### **Tiger Creek Swallet dye trace sampling data**

(No shading – not analyzed, Gray shade – analyzed but non-detect, Green shade – fluorescein only detect,  
Yellow shade – both fluorescein and Rhodamine WT [RWT] detects)

## Appendix V

Site	Site Name	Round	Date Placed	Time Placed	Date Collected	Time Collected	Fluorescein (ppb)	RWT (ppb)
Alapaha Rise Downstream	TCAR	1	Grab	Grab	8/12/16	8:25		
Holton Creek Rise Platform	TCHC	1	Grab	Grab	8/12/16	9:00		
Coile Spring	TCCO	1	Grab	Grab	8/12/16	16:05		
Suwannee at Alapaha Rise	TCSA	1	Grab	Grab	8/12/16	13:05		
Alapaha Rise Downstream	TCAR	2	Grab	Grab	8/13/16	9:50		
Alapaha Rise Downstream	TCAR	CR-1	8/9/16	13:41	8/13/16	9:50	2.08	ND
Holton Creek Rise Platform	TCHC	2	Grab	Grab	8/13/16	10:40		
Holton Creek Rise Platform	TCHC	CR-1	8/9/16	15:30	8/13/16	10:40	1.58	ND
Coile Spring	TCCO	2	Grab	Grab	8/13/16	11:30		
Coile Spring	TCCO	CR-1	8/2/16	13:33	8/13/16	11:30	ND	ND
Alapaha Rise Downstream	TCAR	3	Grab	Grab	8/14/16	12:05		
Holton Creek Rise Platform	TCHC	3	Grab	Grab	8/14/16	11:43		
Alapaha Rise Downstream	TCAR	4	Grab	Grab	8/15/16	8:10		
Alapaha Rise Downstream	TCAR	5	Grab	Grab	8/15/16	14:55		
Holton Creek Rise Platform	TCHC	4	Grab	Grab	8/15/16	9:05		
Holton Creek Rise Platform	TCHC	5	Grab	Grab	8/15/16	15:25		
Alapaha Rise Downstream	TCAR	CR-2	8/13/16	9:50	8/15/16	8:10	1.69	ND
Holton Creek Rise Platform	TCHC	CR-2	8/13/16	8:10	8/15/16	9:05	1.02	ND
Alapaha Rise Downstream	TCAR	6	Grab	Grab	8/16/16	11:25		
Holton Creek Rise Platform	TCHC	6	Grab	Grab	8/16/16	10:00		
Coile Spring	TCCO	3	Grab	Grab	8/16/16	12:15		

Site	Site Name	Round	Date Placed	Time Placed	Date Collected	Time Collected	Fluorescein (ppb)	RWT (ppb)
Suwannee at Coile Spring	TCSC	1	Grab	Grab	8/16/16	12:15	ND	ND
Suwannee at Alapaha Rise	TCSA	2	Grab	Grab	8/16/16	11:40	ND	ND
Alapaha Rise Downstream	TCAR	7	Grab	Grab	8/17/16	9:50	ND	ND
Holton Creek Rise Platform	TCHC	7	Grab	Grab	8/17/16	9:30	ND	ND
Suwannee at Alapaha Rise	TCSA	3	Grab	Grab	8/17/16	9:50	ND	ND
Alapaha Rise Downstream	TCAR	CR-3	8/15/16	8:10	8/31/16	13:00	2.66	25.3
Holton Creek Rise Platform	TCHC	CR-3	8/15/16	9:05	8/31/16	13:20	2.12	83.9
Suwannee River State Park	TCSP	CR-1	7/26/16	16:30	8/31/16	14:15	ND	ND
Alapaha Rise Downstream	TCAR	CR-4	8/31/16	13:00	9/20/16	15:00	2.10	10.1
Holton Creek Rise Platform	TCHC	CR-4	8/31/16	13:20	9/20/16	15:50	1.51	8.36
Suwannee River State Park	TCSP	CR-2	8/31/16	14:15	9/20/16	19:50	ND	ND
Alapaha Suwannee Confluence	TCAC	CR-1	8/2/16	16:14	9/20/16	16:30	ND	ND