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POLLUTANT LOAD REDUCTION GOAL (PLRG) ANALYSIS FOR THE WEKIVA RIVER AND ROCK SPRINGS RUN, FLORIDA 2006–2007

Final Phase 3 Report

Pollutant Load Reduction Goal (PLRG) Analysis for the Wekiva River and Rock Springs Run, Florida 2006 - 2007

Prepared for

St. Johns River Water Management District

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Wetland Solutions, Inc.

Executive Summary

The Wekiva Parkway and Protection Act of 2004 required the St. Johns River Water Management District (SJRWMD) to establish pollutant load reduction goals (PLRGs) for the Wekiva River Study Area by December 1, 2005. The Wekiva River Study Area includes the Wekiva River, Rock Springs Run, the Little Wekiva River, and other tributaries and springs collectively located in Seminole, Orange, and Lake Counties, Florida. At the request of the SJRWMD, Wetland Solutions Inc. (WSI) conducted an assessment of a portion of this area to identify appropriate nutrient PLRGs needed to protect ecosystem properties of the Wekiva River above SR 46 and all of Rock Springs Run with the exception of the headwater springs (collectively referred to in this report as the "Wekiva River System"). The Wekiva River System includes over 90 percent of the Wekiva River and the entire length of Rock Springs Run, for a combined stream length of about 36 km (22 miles). For the purposes of this PLRG analysis, the Little Wekiva River and all headwater springs were considered as external sources of pollutant loading to the Wekiva River System.

Phase 1 of the Wekiva PLRG study was completed in late summer 2005 (WSI 2005) and served as part of the SJRWMD's PLRG recommendations to the Florida Legislature (Mattson *et al.* 2006). Additional Phase 2 studies were initiated during late 2005 to provide validation of these preliminary study results. To further refine the preliminary nutrient PLRGs proposed, sampling was extended for four consecutive seasonal periods over the 2006 to 2007 time period (Phase 3). This report summarizes the results of these additional studies and updates findings of the apparent effects of nitrogen and phosphorus impairment present in the Wekiva River System.

Studies of the Wekiva River System conducted prior to 2005 were inconclusive with regards to the need for nutrient load reductions. Although it has been recognized that nutrients are elevated in these spring-fed streams for several decades, common biological indices, such as macroinvertebrate species diversity and population studies of plants and fish, were unable to demonstrate actual impairment of the flora and fauna inhabiting these streams. The WSI PLRG studies applied innovative methods for the examination of anthropogenic, nutrient-related impairment of these stream systems. Ecological and ecosystem metabolism indices were utilized to examine the structure and functioning of the stream ecosystems, inclusive of all living organisms that transform carbon through the biological processes of primary productivity and respiratory metabolism. Ecosystem metabolism was measured by the use of techniques that record the activity of the entire ecosystem through its effects upon dissolved oxygen concentrations. Upstream and downstream dissolved oxygen data were collected as well as extensive supporting information concerning sunlight, stream discharge rates, hydraulic residence time, oxygen diffusion rates, plant community composition, pollutant concentrations, mass loading and assimilation rates, and community export rates to fully interpret the ecosystem metabolism data.

Two reference streams were utilized throughout this study and were subjected to all of the same measurements conducted in the Wekiva River System streams. These reference sites, Juniper Creek and Alexander Springs Creek, are similar to the study streams in many respects but are different in that their watersheds are protected from developed land uses as a result of their location in the Ocala National Forest. This study confirmed that ambient surface water nutrient concentrations are elevated for nitrate+nitrite nitrogen, total nitrogen, and total phosphorus in the Wekiva River System stream reaches compared to the reference streams located in the Ocala National Forest.

The most important findings from the two years of ecosystem-level monitoring reveal that a number of key ecosystem-level processes are either reduced or accelerated in the Wekiva River Study streams compared to the reference streams. Gross primary productivity, net primary productivity, and ecological efficiency (the effectiveness of the entire aquatic ecosystem to utilize sun light) were consistently higher in the reference streams than in the upstream segments of the Wekiva River and Rock Springs Run with corresponding higher nutrient loads, suggesting that nutrient pollution does indeed cause harm to whole ecosystem functions. Productivity rates and ecological efficiency were higher in the downstream areas of the Wekiva River (where nutrient levels are lower) compared to the upstream area, especially during Phase 3 (a period of recovery following the hurricanes of 2004), providing additional evidence that these effects are inversely correlated with nutrient concentrations. Reductions in gross and net primary productivity directly translate to reduced life support for fish and other wildlife dependent upon these rivers. On average, community respiration rates were higher in the elevated nutrient stream segments compared to the reference stream segments. High community respiration is an indication of stress in these streams as evidenced by Phase 2 study results that showed increased community respiration in response to wholesale application of aquatic herbicides to Rock Springs Run.

Additional ecosystem-level indices were also found to be consistently altered in the Wekiva River System stream segments compared to the reference stream segments. These additional findings included a consistently higher total nitrogen assimilation rate in the reference streams compared to the Wekiva River System streams, higher percent cover of attached and benthic filamentous algae in the Wekiva River System streams compared to the reference sites, and a shift of total ecosystem net plant production from the aquatic plant communities to the non-aquatic (emergent) plant communities in the high nutrient streams compared to the reference sites.

The data collected during the ecological study described in this report illustrate the complexity of these large aquatic ecosystems. Measurements of ecosystem metabolism indices do not preclude the normal problems associated with controlling the large number of variables typically present when conducting any field study. Since many forcing functions are at work simultaneously, there are few obvious correlations indicating cause and effect. Also, field measurements are subject to normal error and insufficient replication. However, these studies demonstrated that ecosystem-level measurements could be repeated with promising accuracy over a two-year period with varying seasonal inputs of light, surface runoff, and recovering communities of aquatic plants. Overall results from the second year of ecosystem monitoring were readily comparable to the results of the first monitoring year and slight differences could generally be interpreted based on observable system changes during the two-year period. This two-year study provides an excellent baseline for comparison to future conditions, both in the Wekiva River and Rock Springs Run as nutrient levels are reduced, and in the reference streams which are likely to come into increasing use for future spring comparison studies.

Estimates of nutrient levels that are resulting in measurable impairment in these spring-fed streams were updated based on the additional data collected during Phase 3. This work generally supported the nutrient concentration and load reductions estimated by the District in 2006. Based on comparison to ecosystem function in the reference streams it is concluded that average nutrient concentrations need to be at or below the following estimated values to avoid measurable impairment:

- Total nitrogen – 0.6 mg/L
- Nitrate nitrogen – 0.2 mg/L
- Total phosphorus – 0.06 mg/L

Speculation can be made about the basis for these key findings. A typical response of an aquatic ecosystem to increasing nutrient concentrations is an increase in plant productivity. However spring run ecosystems appear to be adapted to ambient and naturally lower nutrient conditions. Although higher nutrient levels could be a subsidy in a simple, mono-culture plant community (such as an attached filamentous algae community), they represent an imbalance or stress in the natural order of a complex aquatic ecosystem with a long period of community adaptation and optimization. Additional evidence for this hypothesis has been found in a similar study of Silver Springs where ecosystem production and efficiency were also reduced in inverse proportion to rising nitrate nitrogen concentrations in spring flow (Munch *et al.* 2006).

The apparent recovery of primary productivity in the downstream segment of the Wekiva River between the hurricanes of 2004 and the most recent period of study is a promising sign that these systems can be restored to relatively high quality at moderate nutrient concentrations. Nutrients are not the only stressors of concern in these spring run ecosystems. Recent work in Wekiwa Springs and in Rock Springs headwater areas indicates that ecosystem metabolism can be negatively impacted by high levels of human recreation and by flow reductions (WSI unpublished data). The entire Wekiva River System is threatened by these additional stressors as well as by invasions from exotic plant and animal species, aquatic weed management activity, erosion and deposition of sediments, and increasing stormwater inflows from urbanized areas to the south. Additional research will need to be conducted to effectively understand the separate and synergistic effects of these multiple forcing functions and the associated responses of our spring-fed streams.

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Acknowledgements

Wetland Solutions, Inc. (WSI) gratefully acknowledges the following individuals for their assistance provided over the course of this project: Rob Mattson was the St. Johns River Water Management District (SJRWMD) project manager for the Wekiva River PLRG project and provided contract assistance and coordination with related projects, collected and transmitted existing information, reports, and data to WSI, and reviewed all deliverables, both draft and final; John Fillyaw (park manager) and Greg Walker with Florida Department of Environmental Protection, Division of Parks and Recreation, who coordinated WSI's on-site activities in the upper Wekiva River; Harold Shenk of the Ocala National Forest who coordinated access to Juniper Creek and Alexander Springs Creek; Donna and Ted Kirkland of Kings Landing who provided boat access to the upper portion of Rock Springs Run; and Ed Lowe and Larry Battoe of the SJRWMD who provided scientific guidance and oversight of the entire project. This project was completed under a contract agreement (SJ453AA) between the SJRWMD and WSI.

1.0 Introduction

1.1 Project Background

The Wekiva Parkway and Protection Act of 2004 (Chapter 369 part III, Florida Statutes [F.S.]) required the St. Johns River Water Management District (SJRWMD) to establish pollutant load reduction goals (PLRGs) for the Wekiva River Study Area by December 1, 2005 (Section 369.318 [9], F.S.). As one component of that process, Wetland Solutions Inc. (WSI) conducted nine months of ecological studies in the Wekiva River Study Area (Phase 1 Study) to provide a scientific basis for the proposed nutrient PLRGs for the Wekiva River and for Rock Springs Run (Wekiva River System) located in Seminole, Orange, and Lake Counties, Florida. Because the Phase 1 study was conducted over a period of less than one year, the SJRWMD extended the contract with WSI to continue ecological studies for two additional seasonal quarters (Phase 2 Study) to generate additional data for use in refining the preliminary PLRGs proposed for the Wekiva River and Rock Springs Run. Based on the Phase 1 work conducted by WSI and on additional studies and a literature review, the District published their recommended PLRGs for the Wekiva River and Rock Springs Run in August 2006 (Mattson *et al.* 2006). At the same time the District decided to extend WSI's contract for an additional annual period (2006-2007 or Phase 3) to a provide replication of the results measured previously in 2005-2006. This report provides a summary of the data and analyses resulting from that study continuation and provides an interpretation of the additional evidence now available in support of the District's PLRGs for these water bodies.

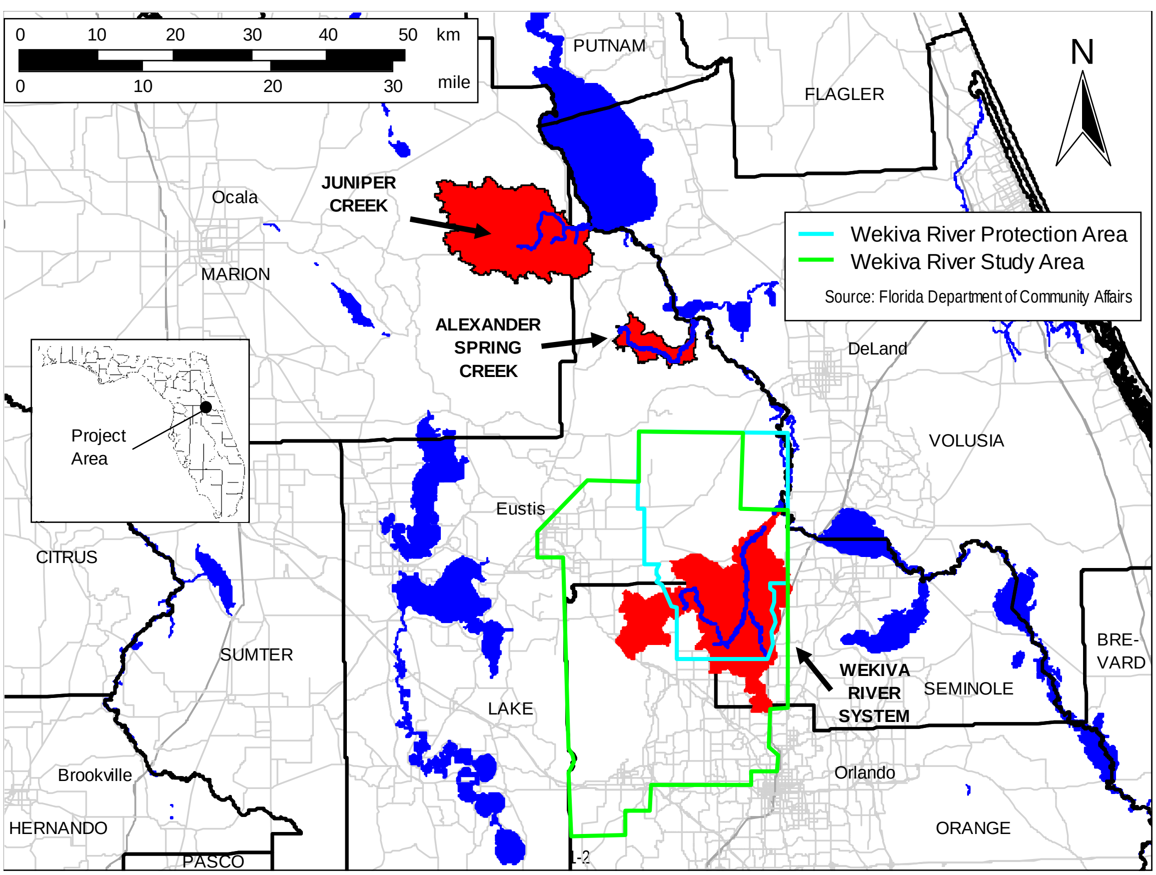
The Wekiva River Study Area defined in Chapter 369 part III is located in central Florida, just north of the City of Orlando (**Figure 1-1**). Although the Wekiva River Study Area includes a number of tributaries and their associated springs and watersheds, for the purposes of this project, only the Wekiva River (upstream of its confluence with Blackwater Creek) and Rock Springs Run were included. This area is called the Wekiva River System in this report and includes over 90 percent of the Wekiva River and the entire length of Rock Springs Run, for a total stream length of about 36 km (22 miles). The Wekiva River System included in this project did not include the nine named springs contributing directly to the upstream ends of the Wekiva River and Rock Springs Run, the Little Wekiva River and associated springs (Sanlando, Palm, Ginger Ale, and Starbuck Springs) above its confluence with the Wekiva River and Blackwater Creek and its tributaries Sulfur Run and Seminole Creek or the springs that feed those streams. Nutrient inputs contributed from those headwater springs and tributaries are treated as point source loads to the Wekiva River System evaluated in this study.

Previous studies of the Wekiva River System conducted before 2005 have been inconclusive with regards to the need for nutrient load reductions. Although it has been recognized that nutrients are elevated in these spring-fed streams, normal biological indices such as macroinvertebrate species diversity tools and population studies of plants and fish have not been able to demonstrate actual impairment of the flora and fauna inhabiting these streams. The WSI study applied different methods to examination of potential anthropogenic, nutrient-related impacts to these river systems. Ecological and ecosystem-level indices were utilized to examine the structure and functioning of the entire aquatic ecosystems inclusive of all living organisms that fix carbon and process that fixed carbon through the biological food chain of primary productivity and respiratory metabolism.

Two reference sites (Juniper Creek and Alexander Springs Creek in the Ocala National Forest [**Figure 1-1**]) were subjected to all of the same measurements conducted in the Wekiva River System streams. The original nine-month study confirmed that ambient surface water nutrient concentrations were elevated for nitrate+nitrite nitrogen, total nitrogen, and total phosphorus in the Wekiva River System stream reaches compared to the reference streams located in the Ocala National Forest. The most important finding from the preliminary Wekiva System PLRG study was that ecosystem-level indices were apparently consistently different between the Wekiva River System study streams and the two reference sites. Gross primary productivity, net primary productivity, and ecological efficiency (the effectiveness of the aquatic ecosystem to utilize solar radiation) were consistently higher in the reference streams than in the streams with higher nutrient content. Community respiration rates were not very different between the stream segments but were found to be reduced for the dominant submerged plant species (*Vallisneria americana)* in the *in situ* mesocosms.

Florida Class III waters have the designated uses of: "Recreation, Propagation of a Healthy, Well-Balanced Population of Fish and Wildlife" and specific water quality criteria are included in Section 62-302, Florida Administrative Code (F.A.C.) to protect

FIGURE 1-1
GENERAL LOCATION MAP FOR THE WEKIVA RIVER SYSTEM PROJECT AREA AND REFERENCE SITES - JUNIPER CREEK AND ALEXANDER SPRING CREEK



Source: FGDL

these designated uses. Outstanding Florida Waters (Section 62-302.700, F.A.C.) cannot be degraded relative to a 1979 baseline. PLRGs were developed for those pollutants that are likely to impair these designated uses, either through an exceedance of one or more specific water quality criteria or through overall degradation and loss of specific uses such as recreation or maintenance of normal fish and wildlife populations. Special emphasis was placed on determining whether nutrient loads need to be controlled in the Wekiva River System to meet the regulatory requirement for avoiding “an imbalance in natural populations of aquatic flora and fauna” (Section 62-302.530(48)(b), F.A.C.).

Nutrients are just one possible category of pollutants and stressors that may be resulting in impairment of the Wekiva River System. They were the focus of this project because they are most amenable to PLRG analysis. However, other pollutants and stressors may also be impairing designated uses in the Wekiva River System. Additional parallel and future work efforts may be required to identify and quantify the role of those additional pollutants and stressors on the functioning of the Wekiva River System. Part of this nutrient-focused project was to provide initial observations of other stressors of concern in the ecosystem and to make recommendations concerning additional focused sampling efforts for their documentation and eventual control. Pollutants or stressors that have either resulted in historic impairment, are currently resulting in continuing impairment, or have the potential to create future impairment if not attenuated, are considered in this analysis.

1.2 Study Objectives

The 2005 Wekiva River System PLRG Study (WSI 2005) and the Phase 2 PLRG study (WSI 2006) followed a previously prepared work plan (WSI 2004). The reader is referred to that work plan for a detailed basis for the approach used in the initial project to assess impairment and to develop recommended nutrient PLRGs for the Wekiva River System. The 2006-2007 (Phase 3) monitoring project described in this report utilized the same methods and experimental rationale as the initial ecosystem studies (WSI 2005, 2006).

As with the previous studies, the Wekiva River System PLRG 2006-2007 Study was designed to provide additional information to help achieve the following six objectives:

1. Identify Biological Impairments
2. Identify Pollutants of Concern
3. Refine Concentration Targets for Pollutants of Concern
4. Quantify Current Loadings of Pollutants of Concern
5. Characterize Relationship between Pollutant Loading Rates and Concentrations
6. Calculate Necessary Load Reductions in Terms of Concentrations

A general discussion of these objectives and the methods employed in this study to accomplish them was provided in the previous reports (WSI 2005 and 2006) and project work plan (WSI 2004) and is not repeated here.

2.0 Study Methods

2.1 Introduction

The initial Wekiva River System PLRG Study included collection of a significant amount of new ecological data from the four stream reaches of interest and detailed study methodologies were described previously (WSI 2005). The Phase 2 and 2006-2007 studies did not repeat the general characterization of the Wekiva System and reference site streams (WSI 2006). The 2006-2007 Study focused efforts on the re-measurement of ecosystem-level data for four additional seasons (fall, winter, spring, and summer) from the same six stream segments included in the original one-year study period. These three ecosystem studies now provide a database with a total of eight seasonal estimates (two for each season) that can be compared within and between the stream segments. This section briefly describes the six stream segments and the methods used during the 2006-2007 Study for collection of the detailed ecological data from those stream segments.

2.2 Stream Segments

2.2.1 Stream Segment Selection

After characterization of the four stream reaches, WSI and SJRWMD staff selected six stream segments for detailed ecological study (WSI 2005). These segments include two each (upstream and downstream) in Wekiva River and in Rock Springs Run (**Figure 2-1**), and one segment each in Juniper Creek (**Figure 2-2**) and in Alexander Springs Creek (**Figure 2-3**). Segment selection criteria and detailed cross-sectional data were described in the previous report (WSI 2005). Basic environmental characteristics of the four stream reaches and the six stream segments are re-summarized in **Tables 2-1** and **2-2**, respectively. In the Phase 2 study, JC-SEG1 was shortened at the upstream end in an attempt to reduce the interference of variable inflows from Sweetwater Springs (WSI 2006). In the 2006-2007 Study, the Wekiva River upstream segment (WR-SEG1) was also shortened to remove the influence of the lagoon downstream of the main boil (**Figure 2-4**).

The six stream segments are identified throughout the report as follows:

- WR-SEG1 Wekiva River upstream
- WR-SEG2 Wekiva River downstream
- RSR-SEG1 Rock Springs Run upstream
- RSR-SEG2 Rock Springs Run downstream
- JC-SEG1 a representative stream segment in Juniper Creek
- ASC-SEG1 a representative stream segment in Alexander Springs Creek

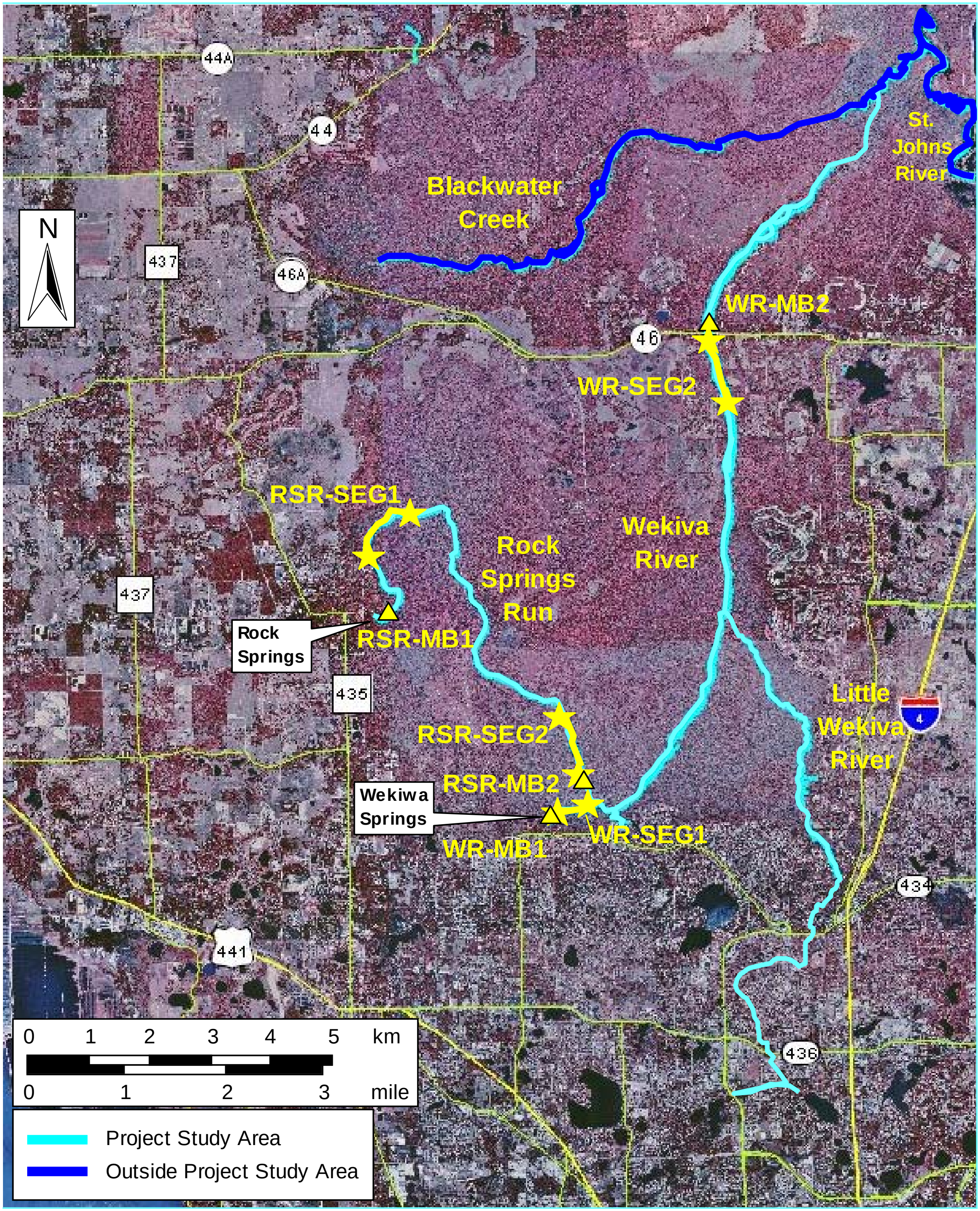


FIGURE 2-1
WEKIVA RIVER AND ROCK SPRINGS RUN STREAM SEGMENTS FOR DETAILED ECOLOGICAL EVALUATION

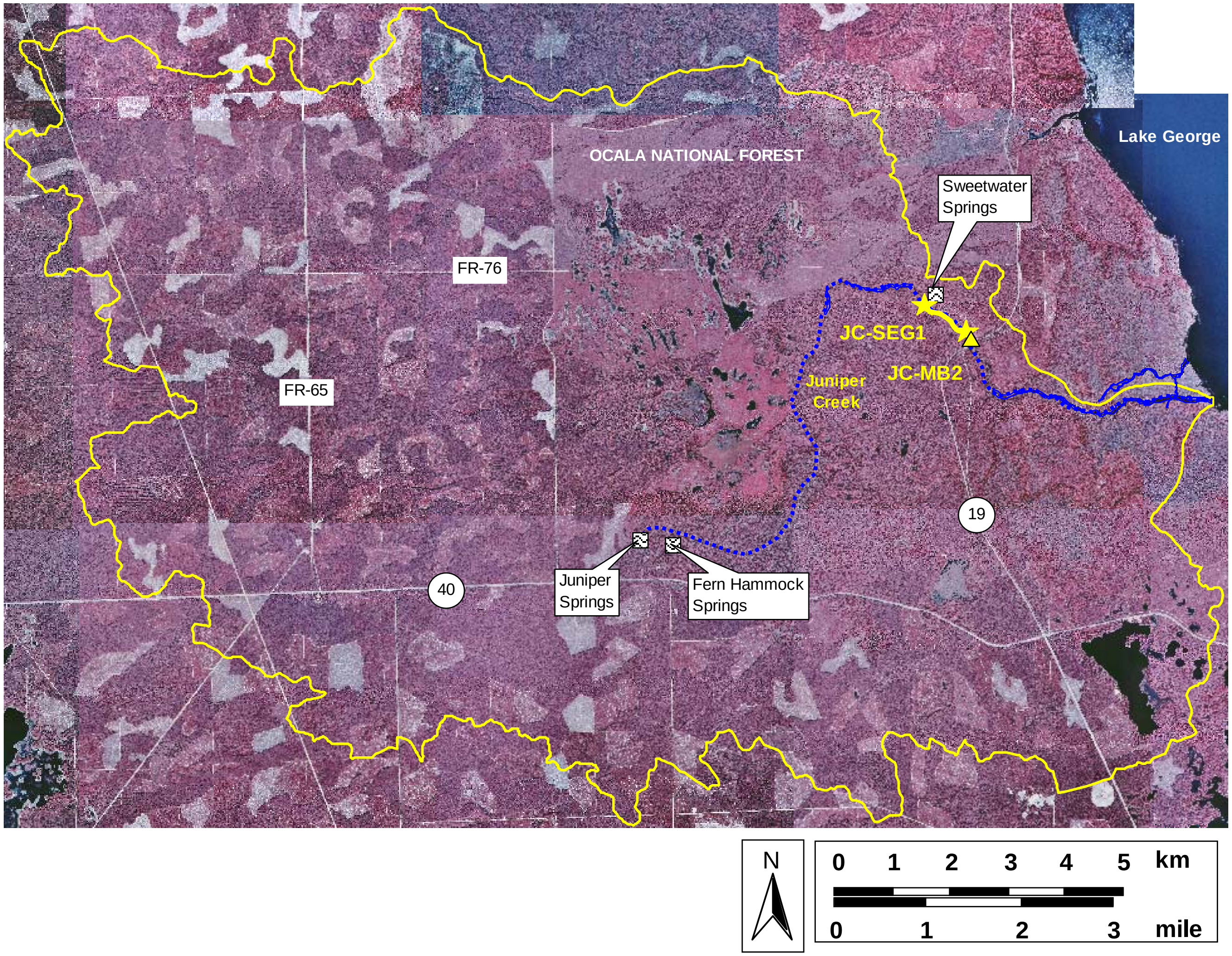


FIGURE 2-2
JUNIPER CREEK STREAM SEGMENT FOR DETAILED ECOLOGICAL EVALUATION

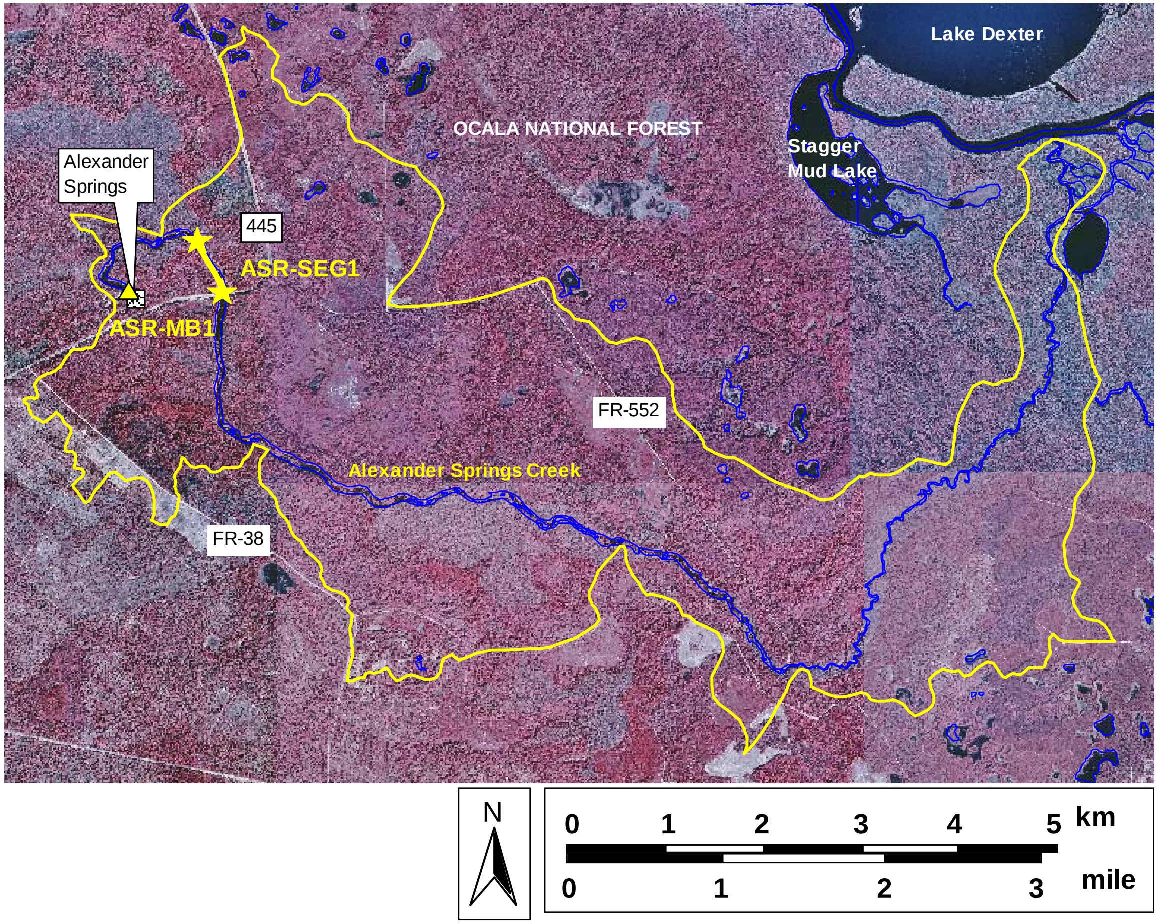


FIGURE 2-3
ALEXANDER SPRINGS CREEK STREAM SEGMENT FOR DETAILED ECOLOGICAL EVALUATION

TABLE 2-1
SUMMARY OF AVERAGE WEKIVA PLRG STREAM REACH RECONNAISSANCE DATA COLLECTED FROM JANUARY TO MARCH 2005 (WSI 2005)

Parameter	Wekiva River 1/26/2005	Rock Springs Run 2/23/2005	Juniper Creek 3/8/2005	Alexander Springs Creek 3/9/2005
Width (m)	52.4	28.9	20.2	56.8
Depth (m)	1.14	1.09	1.12	0.83
Velocity (m/s)	0.24	0.24	0.32	0.08
Dissolved Oxygen (mg/L)	6.2	4.8	6.8	5.7
Temperature (^{o}C)	17.6	21.6	20.9	19.7
pH (su)	7.5	7.4	7.5	7.8
Specific Conductance (µS/cm)	316	244	404	868
Light Attenuation Coefficient (k)	2.25	2.14	3.09	2.28
FAP Cover (%)	13	25	11	11
SAV Cover (%)	11	23	37	35
EMA Cover (%)	19	6	14	12
ALG Cover (%)	31	17	15	48
Canopy Cover (%)	4	22	34	7

TABLE 2-2
WEKIVA SYSTEM SEGMENT PHYSICAL, CHEMICAL, AND BIOLOGICAL CHARACTERISTICS (WSI 2005 and WSI 2007)

	River Segment							
Parameter	WR SEG1 Phase 1 and 2	WR SEG1 Phase 3	WR SEG2	RSR SEG1	RSR SEG2	ASC SEG1	JC SEG1 Phase 1	JC SEG1 Phase 2
Length (m)	1,003	785	778	824	1,277	695	856	584
Avg. Width (m)	30.9	21.0	124	31.3	37.5	60.3	10.2	10.5
Avg. Depth (m)	1.71	0.91	0.43	0.81	0.32	0.61	0.84	0.88
Est. Area (m^2)	33,665	19,469	98,529	25,381	48,018	41,286	8,665	6,043
Avg. Cross-Section Area (m^2)	53.0	20.1	53.9	24.8	12.1	36.7	8.49	9.04
Est. Volume (m^3)	57,427	15,744	42,492	20,574	15,316	25,318	7,306	5,329
Plant Cover (%)								
Benthic and floating algae	37.7	---	7.3	20.2	0.0	1.8	1.8	---
Submerged macrophytes	1.4	---	27.9	4.5	0.0	48.6	4.2	---
Emergent macrophytes	5.0	---	9.1	10.0	37.1	19.2	1.2	---
Floating aquatic plants	4.8	---	8.1	10.7	26.7	8.5	1.6	---
Shrubs and vines	1.1	---	0.3	0.1	1.2	0.1	1.1	---
Canopy	15.6	---	3.3	22.7	11.4	6.1	12.2	---
Sediments								
Organic matter (%)	34.2	---	3.48	4.88	3.52	4.02	0.28	---
TP (mg/kg DW)	3,112	---	361	540	136	838	107	---
TN (%DW)	0.500	---	0.110	0.133	0.057	0.113	0.025	---

2.2.2 Wekiva River Upstream (WR-SEG-1)

At the initiation of the Phase 3 component of this study, the starting point of this segment was moved downstream approximately 200 meters, to just downstream of the lagoon adjacent to the Wekiwa Springs State Park canoe launch area (**Figure 2-4**). It was believed that estimates of water residency time were confounded by the physical properties of this lagoon (120.6 m in diameter by 2.1 m deep), and that the shortened segment was more representative of the Wekiva River ecosystem. The resulting segment, WR-SEG-1, is approximately 785 m (2,575 ft) in length and extends downstream to a heavily-canopied location just upstream of the confluence with Rock Springs Run (**Figure 2-4**). The wetted surface area for this segment is about 1.95 ha (4.8 ac). The estimated water volume in this segment is 15,744 m^3 (20,592 cy). Based on previous measurements for this segment, sediments were generally low in percent solids and high in organic matter (12.3%), total phosphorus (2.2%), and total nitrogen (0.70%), with total phosphorus concentrations in the sediments were more that 10 times higher in this segment than in any of the other study segments (WSI 2005).

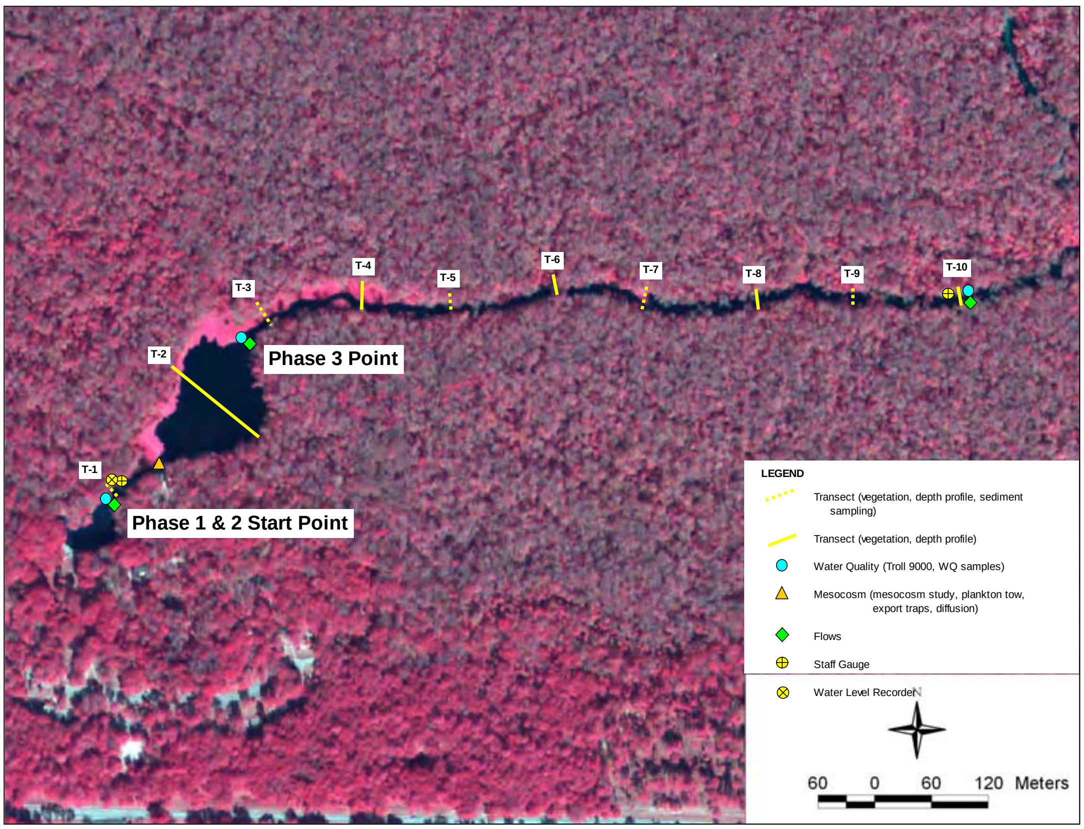


FIGURE 2-4
STREAM SEGMENT MAP FOR WEKIVA RIVER SEGMENT 1 (WSI 2007)

2.2.3 Wekiva River Downstream (WR-SEG-2)

WR-SEG-2 is about 778 m (2,550 ft) in length, starting downstream of the Wekiva Falls inflow and ending downstream at the SR 46 bridge (**Figure 2-5**). This portion of the river is quite wide with an overall average channel width of about 124.2 m (407 ft) and individual transect widths ranging from 62.9 to 151.5 m (204 to 497 ft). The average segment depth is about 0.43 m (1.4 ft), and the estimated wet area for this segment is about 9.85 ha (24 ac). The estimated water volume in this segment is 42,492 m^3 (55,575 cy). Based on previous measurements, the sediments were relatively low in organic matter and organic carbon, total phosphorus, and total nitrogen, and percent solids were high in these sandy sediments (WSI 2005).

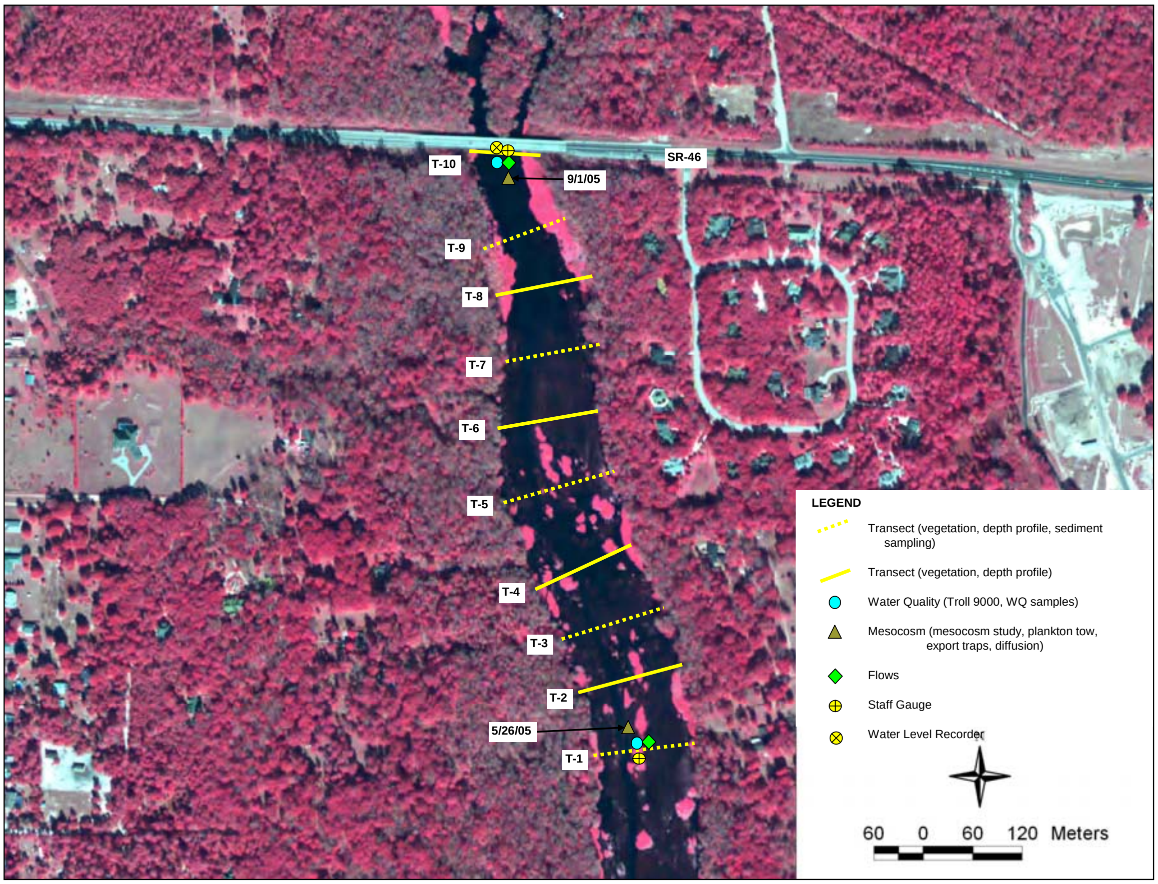


FIGURE 2-5
STREAM SEGMENT MAP FOR WEKIVA RIVER SEGMENT 2 (WSI 2005)

2.2.4 Rock Springs Run Upstream (RSR-SEG-1)

RSR-SEG-1 is about 824 m (2,700 ft) in length, starting a short distance below the Kings Landing Canal and extending downstream past a number of private houses into the Wekiwa Springs State park (**Figure 2-6**). Portions of this segment are fairly wide while others are narrow. A dense bed of floating and emergent macrophytes is found along much of the shoreline. Dense beds of *Vallisneria americana* occur in the upper half of the segment. The overall average channel width is about 31.3 m (103 ft), the average depth about 0.81 m (2.6 ft), and the estimated wet area for this segment is about 2.54 ha (6.3 ac). The estimated water volume in this segment is 20,574 m^3 (26,910 cy). Based on previous measurements, this segment had slightly elevated sediment organic matter, organic carbon, phosphorus, and nitrogen with segments composed of a mixture of sands and organic matter (WSI 2005).

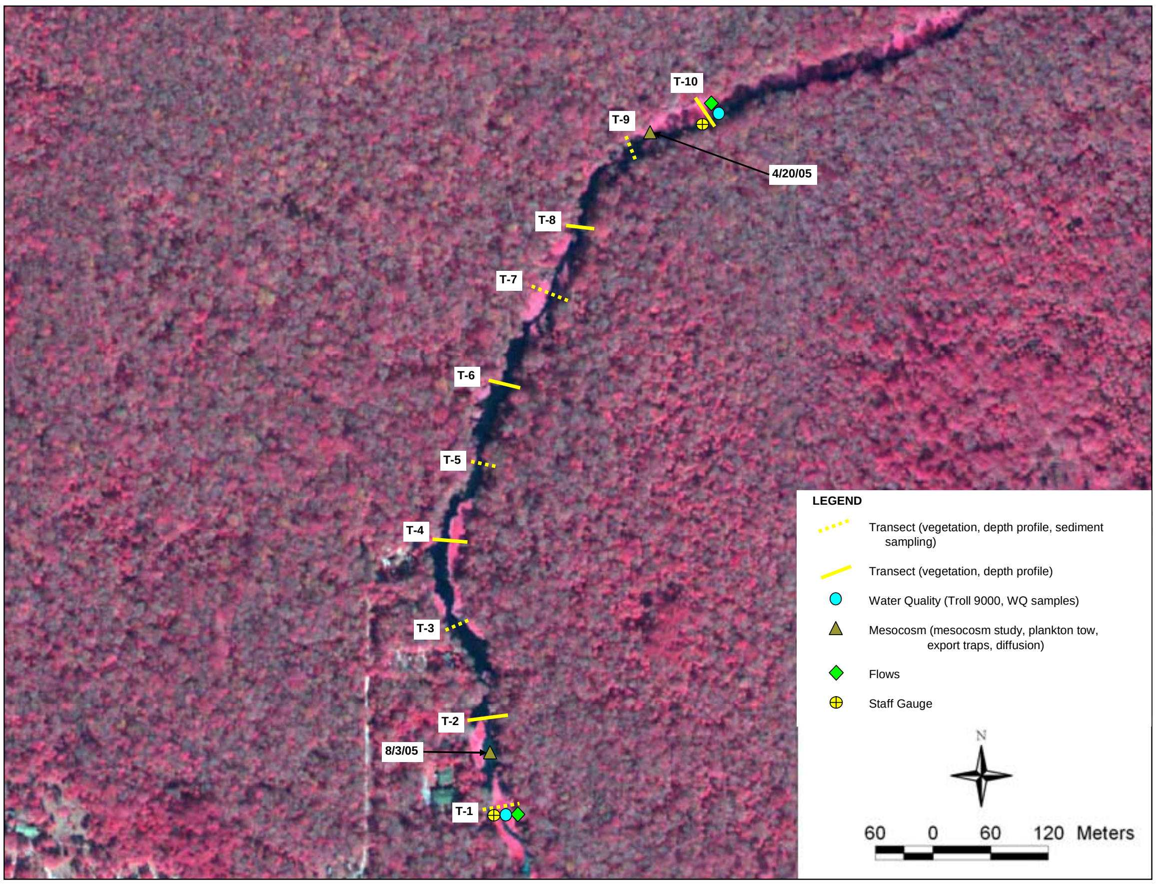


FIGURE 2-6
STREAM SEGMENT MAP FOR ROCK SPRING RUN SEGMENT 1 (WSI 2005)

2.2.5 Rock Springs Run Downstream (RSR-SEG-2)

RSR-SEG-2 is about 1,277 m (4,200 ft) in length and located in the final stretch of Rock Springs Run upstream from the RSR-MB-2 station. This segment includes a mixture of relatively open and closed canopy areas (**Figure 2-7**). Open canopy areas are largely dominated by emergent and floating aquatic plants. There is very little submerged vegetation in this segment. The overall average channel width is about 37.5 m (123 ft), the average depth about 0.32 m (1.0 ft), and the estimated wet area for this segment is about 4.8 ha (11.8 ac). The estimated water volume in this segment is 15,316 m^3 (20,000 cy). Based on previous measurements, this segment is dominated by sandy sediments with relatively low organic matter, carbon content, and nutrient levels (WSI 2005).

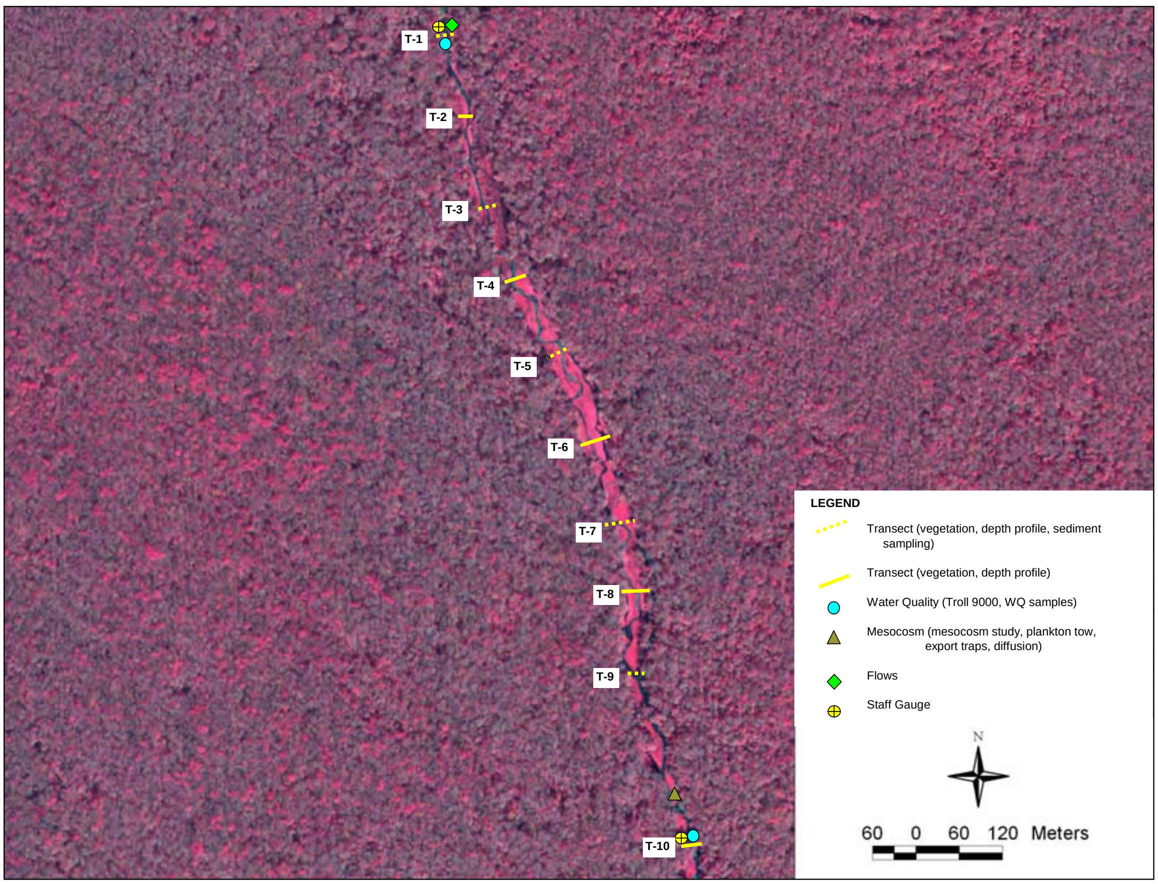


FIGURE 2-7
STREAM SEGMENT MAP FOR ROCK SPRING RUN SEGMENT 2 (WSI 2005)

2.2.6 Juniper Creek (JC-SEG-1)

JC-SEG-1 was reduced in length at the upstream end from about 856 m (2,800 ft) during the first nine-month study to 584 m (1,916 ft) in length, during the Phase 2 study and remained unchanged for the Phase 3 component. The area above Sweetwater Springs was removed due to the complication of unmeasured flows and water quality at Sweetwater Springs. JC-SEG-1 extends downstream to just above the State Road 19 bridge (**Figure 2-8**). Although the Juniper Creek channel is relatively narrow in this segment, the area is relatively open with minimal canopy shading and sparse populations of emergent and floating macrophytes. There are limited beds of *Vallisneria americana* and fairly extensive growths of *Potamogeton pectinatus* (sago pondweed) in this segment. The percent cover of the sago pondweed was observed to increase between the Phase 2 and Phase 3 studies but was not quantified.

Sweetwater Springs enters Juniper Creek about 80 m (262 ft) above the upstream end of the revised segment. This spring forms a small spring run and has a slightly different water quality than Juniper Creek. Based on highly variable oxygen-rate-of-change data collected during this Phase 2 study, it appears that flows from Sweetwater Spring or some other unknown spring or sink affected dissolved oxygen levels in this segment. The overall average channel width in the revised Juniper Creek Segment is about 10.5 m (34 ft), the average depth about 0.88 m (2.9 ft), and the estimated wet area for this segment is about 0.60 ha (1.5 ac). The estimated water volume in this segment is 5,329 m³ (7,002 cy). Based on previous measurements, this segment had the highest fraction of sand and the lowest organic matter and nutrient content of any of the studied segments (WSI 2005).

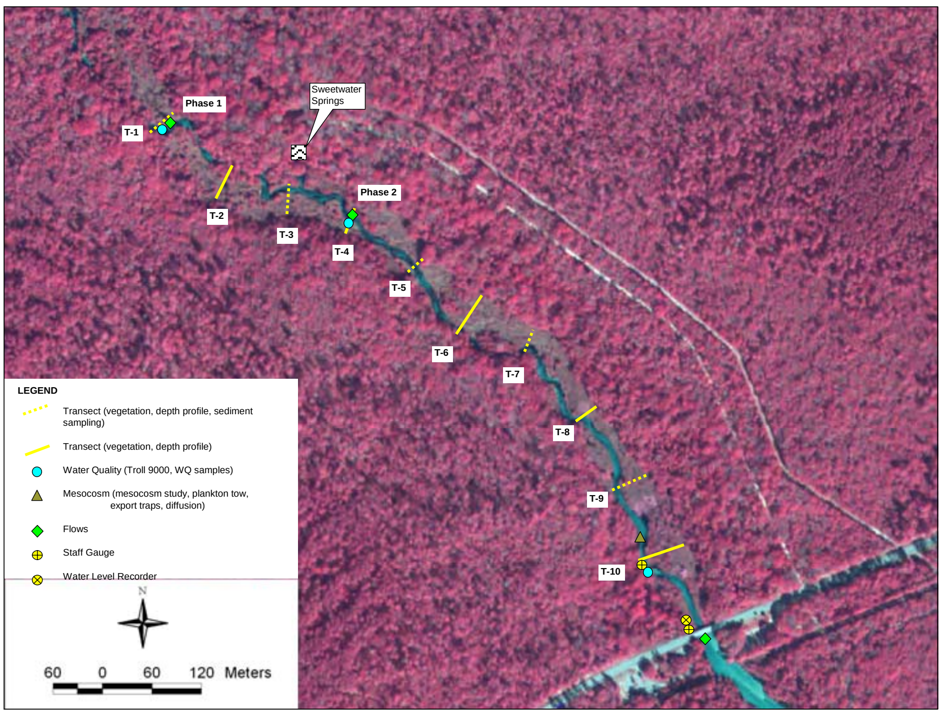


FIGURE 2-8
STREAM SEGMENT MAP FOR JUNIPER CREEK SEGMENT 1 (WSI 2005)

2.2.7 Alexander Springs Creek (ASC-SEG-1)

ASC-SEG-1 is about 695 m (2,300 ft) in length, starting downstream of the head spring and extending downstream to the CR 445 bridge (**Figure 2-9**). This portion of Alexander Springs Creek is quite wide and not significantly influenced by canopy shading. The dominant submersed plant community is composed of *Vallisneria americana* mixed with *Ceratophyllum demersum* (coontail) and with clumps of *Nuphar luteum (*spatterdock), *Typha* spp. (cattails), and other emergent and floating aquatic plants. There are no observable inflows to this stream segment. The overall average channel width is about 60.3 m (198 ft), the average depth about 0.61 m (2.0 ft), and the estimated wet area for this segment is about 4.12 ha (10.2 ac). The estimated water volume in this segment is 25,318 m3 (33,100 cy). Based on previous measurements, this segment had relatively higher sediment organic matter, carbon, and total phosphorus content (WSI 2005).

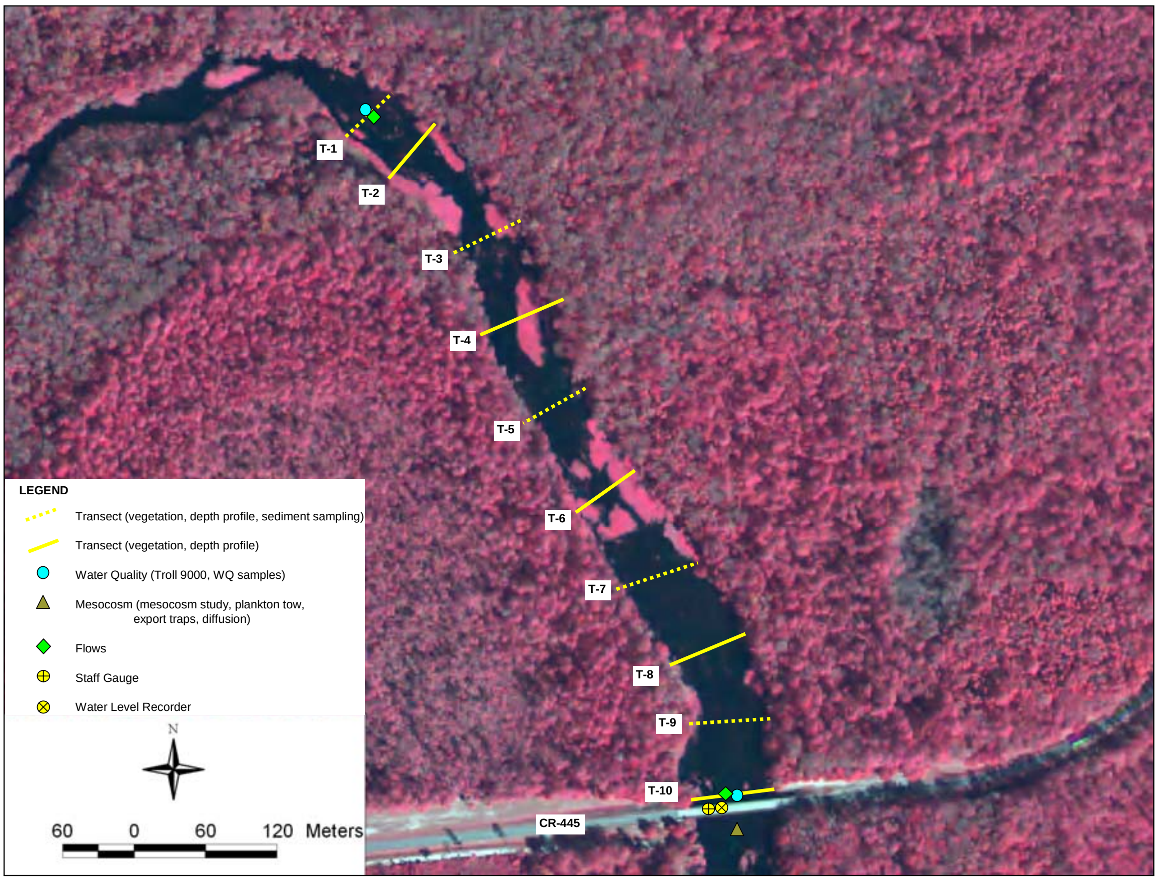


FIGURE 2-9
STREAM SEGMENT MAP FOR ALEXANDER SPRING CREEK RIVER SEGMENT 1 (WSI 2005)

2.3 Ecosystem Data Collection

Ecosystem data from the six stream segments described above were collected during four additional seasonal sampling events during Phase 3 (2006-2007). These four additional seasonal sampling events occurred during October - November 2006 (fall), January - February 2007 (winter), April – June 2007 (spring), and August – September 2007 (summer). Combined with the previous sampling in 2005 and 2006, there were a total of eight sampling events, (two for each season) for all six of the stream study segments.

The following ecological metrics were measured in the stream segments during the four seasonal sampling periods in 2006 and 2007:

- Physical Environment
    - Precipitation
    - Insolation and photosynthetically active radiation (PAR)
    - Stream discharge (water level and flow) and current velocity
    - Underwater light transmission (PAR)
- Water Quality
    - Field variables (water temperature, pH, dissolved oxygen, specific conductance)
    - Nutrients (total kjeldahl nitrogen, nitrate+nitrite nitrogen, ammonia nitrogen, soluble reactive phosphorus, total phosphorus)
    - Miscellaneous (color, total suspended solids, total dissolved solids, turbidity)
- Ecosystem-Level Metrics
    - Ecosystem metabolism (gross primary productivity, net primary productivity, community respiration, P/R ratio, ecological efficiency)
    - Nutrient assimilation
    - Community export (fine particulate export)

Methods used for measurement of these parameters are briefly described below. Several water quality parameters measured previously were dropped from the study plan and not sampled during the Phase 3 Study period, due to their relative consistency observed in prior measures including the cations (calcium, magnesium, silica, sodium) and anions (chlorides, sulfate, alkalinity). Previous characterization of five-day biochemical oxygen demand, volatile suspended solids, dissolved organic carbon, total organic carbon, and iron was not repeated as well. Detailed methods were described in the Phase 1 report (WSI 2005).

2.3.1 Precipitation

Continuous rainfall data were collected by use of a USA Infinities tipping bucket rain gauge installed for the duration of the study in Wekiwa Springs State Park. This recorder was checked for obstructions and logged data were downloaded on at least a monthly basis for the duration of the field sampling effort.

2.3.2 Insolation and PAR

LI-COR light sensors models LI-190SA (pyranometer) and LI-200SA (PAR) were installed in an open area free of significant shading at Wekiwa Springs State Park. Data were recorded using a LI-1000 data logger every minute and averaged to output integrated hourly data. The light sensors were checked monthly and cleaned as necessary and data were downloaded to a computer and output to an Excel spreadsheet and Access database.

2.3.3 Stream Discharge and Current Velocity

Stream discharge and velocity were estimated at the upstream and downstream ends of each stream segment using a portable flow meter (Marsh-McBirney Flo-Mate). A tape measure was stretched across the stream channel perpendicular to the flow direction, so that depth and velocity could be measured in at least 15 to 25 even-width segments. At water depths less than 76 cm (2.5 feet), velocity was measured at a fractional point (0.6) of the water column. For water depths greater than 76 cm (2.5 feet), velocity was measured at 0.2 and 0.8 fractional depths of the water column and averaged to estimate segment velocity. Each segment velocity was multiplied by its respective segment width and depth to estimate segment discharge; and all of the segment discharges were totaled to derive total stream discharge for the stream segment.

2.3.4 Underwater Light Transmission

Underwater light transmission and attenuation were measured by use of an underwater LI-COR brand photosynthetically active radiation (PAR) light sensor. The PAR sensor was attached to a weighted frame and light readings were manually recorded at 15 to 30 cm (0.5 to 1 ft) depth intervals from the surface to the stream bottom in an unshaded location. Light extinction (attenuation) coefficients were calculated from these data using the Lambert-Beer equation (Wetzel 2001):

$$I_z = I_o(e^{-kz}) \qquad \text{[Equation 1-1]}$$

Where:

I_z = PAR at depth z

I_o = PAR at the water surface

k = diffuse attenuation coefficient, m^{-1}

z = water depth, m

2.3.5 Stream Segment Morphometry

Ten channel cross-sections were previously measured at approximately 100 m (328 ft) intervals along each of the six stream segments (WSI 2005). A tape measure was stretched from shoreline to shoreline perpendicular to flow direction at each of these ten cross sections. Water depth along each cross section was determined at approximately 20 evenly-spaced points along the length of each of these cross sections with a pocket rod and recorded. Phase 1 cross section data were used without re-measurement for the Phase 2 and 3 analyses. Wetted surface area and volume of each stream segment was estimated based on these channel cross-sections. Nominal hydraulic residence time was estimated for each stream segment based on these estimated water volumes and the upstream and downstream flow estimates.

2.3.6 Oxygen Diffusion Rate

Oxygen diffusion rates were previously quantified in each stream segment by use of the floating dome method of McKeller (1975). Water depth and flow velocity were measured during each diffusion sampling event (WSI 2005). A regression was developed between oxygen diffusion rate and current velocity to estimate diffusion rates in response to day-to-day changes in average current velocity in the study segments (WSI 2006) and utilized during Phase 3 studies.

2.3.7 Water Quality

For the seasonal stream segment sampling, field variables (water temperature, dissolved oxygen, oxygen percent saturation, pH, conductivity and specific conductance) were measured and logged hourly using In Situ brand Troll-9000 or 9500 model data-loggers deployed at the upstream and downstream ends of each stream segment for periods up to three weeks. The data sondes were camouflaged and anchored in areas at least 0.5 m (20 in) deep with the sensors just above the top of any submerged vegetation and at least 30 cm (12 in) below the average water surface. The data sondes were calibrated immediately prior to deployment and subsequent to their retrieval for each sampling period following the manufacturers protocol.

Water quality samples were collected twice (beginning and end of each study period) during each of the seasonal sampling events at both the upstream and downstream ends of each stream segment. This sampling strategy resulted in a total of 16 water sampling events for each stream segment during the course of the Phase 3 study (2 stations x 2 samples per event x 4 seasonal events).

Water quality samples were collected as surface grabs. A rinsed water collection bottle was used to dip water samples from about 30 cm (1 foot) below the water surface and used to fill acid preserved sample bottles. Water depth and field variables (temperature, dissolved oxygen, pH, and specific conductance using a YSI brand model 556 sonde) were recorded during all water quality sampling events.

Water quality samples were analyzed for the constituents listed in **Table 2-3** by a certified laboratory (Advanced Environmental Labs, Gainesville FL, FDOH # E82620):

TABLE 2-3
WATER QUALITY CONSTITUENTS ANALYZED FOR THE CONTINUED ECOSYSTEM DATA COLLECTION

Parameter	Analytical Method	Reporting Limit	Units
Total Dissolved Solids	EPA 160.1	2	mg/L
Turbidity	EPA 180.1	1	NTU
Total Kjeldahl Nitrogen	EPA 351.2	0.048	mg/L
Nitrate+Nitrite Nitrogen	EPA 353.2	0.015	mg/L
Ammonia Nitrogen	EPA 350.1	0.026	mg/L
Soluble Reactive Phosphorus	EPA 365.2	0.015	mg/L
Total Phosphorus	EPA 365.4	0.02	mg/L
Total Suspended Solids	EPA 160.2	2	mg/L
Color	E110.2	5	color units

1 All methods for environmental waters from Methods for Chemical Analysis of Water and Wastes, EPA-600-79-020, Revised March 1983, and /or Standard Methods for the Examination of Water and Wastewater, 18th Edition, Revised 1992.

2.3.8 Plant Community Characterization

Aquatic plant communities in each of the six stream segments were previously quantified during the spring 2005 sampling event (WSI 2005). Vegetative cover was documented on each of the ten stream cross sections in each segment by the line-intercept method. Plants observed over or under the tape measure were identified to species when possible or were categorized according to functional group (floating aquatic, submersed aquatic, emergent, attached algae, benthic algae) and their linear distance was recorded. Dominant macrophyte species within each functional group were noted for each cover unit (discreet line-intercept interval for a functional group). No quantitative plant biomass samples were collected.

Vegetative cover was not estimated during Phase 2 or Phase 3. Seasonal variations in submersed aquatic vegetation are assumed to have occurred (i.e., maximum coverage/biomass achieved during the summer), and based on field observations there appeared to be some overall increase in the distribution and cover of submersed aquatic plant communities over the course of this project (2005 to 2007). Noticeable increases in plant cover were observed in both of the Wekiva River segments, the Rock Springs Run upstream segment, in Juniper Creek, and the Alexander Springs Creek Segment; while the lower segment of Rock Springs Run exhibited relatively minimal changes.

2.3.9 Ecosystem Metabolism

Ecosystem metabolism was estimated during seasonal sampling events in each of the six stream segments using the upstream/downstream dissolved oxygen change methods of H.T. Odum (1957a and b; 1960; Odum and Hoskins 1957). Hourly dissolved oxygen measures at upstream and downstream locations were used to estimate segment ecosystem metabolism. Recording data sondes were routinely deployed for a two-week period, allowing up to 14 continuous diel periods of measurement during each seasonal quarter. Actual useful data sets were sometimes less than the full deployment period due to instrument calibration drift.

Upstream and downstream dissolved oxygen data were each shifted by one-half of the estimated travel time between the upstream and downstream stream segment stations and an oxygen rate-of-change curve was prepared. This curve was corrected for atmospheric diffusion based on measured percent oxygen saturation and oxygen diffusion rates corrected for water velocity. The corrected oxygen rate-of-change curve for each 24-hour period was used to estimate gross primary productivity (GPP), community respiration (CR), net primary productivity (NPP), production/respiration (P/R) ratio, and ecological efficiency. **Figure 2-10** illustrates these metabolism measurements based on development of a typical oxygen rate-of-change curve:

- Gross primary productivity (GPP) is the entire area under the oxygen rate-of-change curve calculated by extending the nighttime corrected oxygen rate-of-change through the daylight hours and estimating the entire area under the daytime curve in g $O_2/m^2/d$. GPP is a measure of all aquatic plant productivity occurring below the water surface within the stream segment. GPP includes primary productivity of both algae (including photosynthetic bacteria) and macrophytic (vascular) plants.

- Community respiration (CR) is the average of the corrected nighttime oxygen rate-of-change values in g $O_2/m^2/d$. CR is a measure of the total dark metabolism of the entire submerged ecosystem within each stream segment. CR includes the respiration of all microbes in the sediments and water column, respiration of bacteria, algae, and plants in the water column, and respiration of all aquatic animals, including protozoans, macroinvertebrates, crustaceans, and fish.

- Net primary productivity (NPP) is equal to the difference between these two estimates (GPP-CR). NPP provides an estimate of the net fixed carbon that remains each day after the respiratory needs of the aquatic ecosystem are met. CR may be higher than GPP in some streams and during some periods of time, indicating that there are unmeasured inputs of fixed carbon or losses of fixed carbon that were previously stored in the ecosystem.

- The P/R ratio or ecological quotient is equal to GPP/CR. A P/R ratio of one indicates that production and consumption are equally balanced. A ratio greater than one indicates an autotrophic aquatic ecosystem while a value less than one indicates a heterotrophic ecosystem.

- Ecological efficiency (EE) is equal to the rate of gross primary productivity divided by the incident PAR during a specified time interval. It is an ecosystem-level property that estimates the overall efficiency of an aquatic ecosystem to effectively utilize incident solar radiation, the principal forcing function for autotrophic stream ecosystems. PAR reaching the productive plant level was estimated based on river stage, the plant community characterization data for segment depth, and the light attenuation coefficient estimated for each sampling event. Ecological efficiency is reported as PAR Efficiency by dividing GPP in $gO_2/m^2/d$ by $mol/m^2/d$, resulting in units of gO_2/mol. PAR Efficiency is also reported as a percentage using the conversion factors employed by Knight (1980; 1983): 4.22 Kcal/gO_2 and 52.27 Kcal/mole of photons (McCree 1972).

2.3.10 Nutrient Assimilation

Nutrient assimilation rates for total nitrogen, nitrate, ammonia, total phosphorus, and soluble reactive phosphorus, were estimated for each of the six stream segments by calculating upstream-downstream concentration changes during each seasonal segment sampling period. Average nutrient mass inputs and outputs were estimated based on average water concentrations and flows over the period of each study. Non-point nutrient inputs from the surrounding watershed feeding each stream segment were not included in these segment nutrient assimilation estimates.

2.3.11 Community Export

During the study, community export of particulate suspended matter was quantified in each stream segment using a plankton net suspended in the current at mid-depth. The mesh size on the plankton net was 153 µm. Three replicate plankton net samples were collected at the upstream and downstream end of each segment. Samples collected by the plankton net at a known stream velocity and for a known time were rinsed into a sample bottle and returned to the laboratory for wet, dry, and ash-free dry weight analyses. Particulate samples were ashed at an oven temperature of 450 ^{o}C. Net production of fine particulate export in each segment was calculated as the difference between the upstream and downstream export rates.

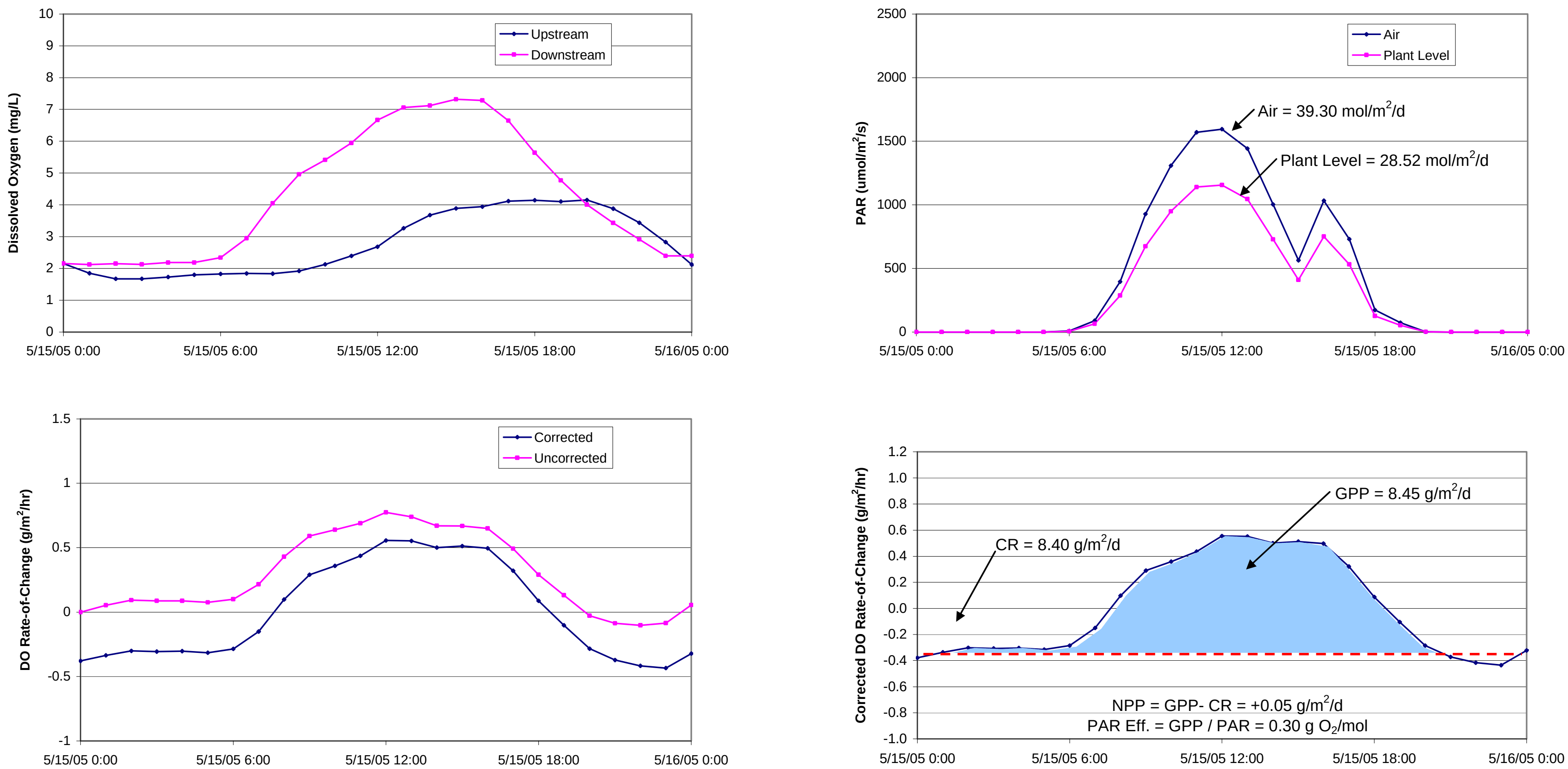


FIGURE 2-10
EXAMPLE DETERMINATION OF ECOSYSTEM METABOLISM BASED ON UPSTREAM-DOWNSTREAM DISSOLVED OXYGEN DATA

2.4 Data Analysis

2.4.1 Within-Segment Comparisons

For each of the six stream segments, within-segment statistical comparisons were made to compare the variation of selected metabolism parameters (gross primary productivity, net primary productivity, community respiration, and ecological efficiency) between seasonal sampling periods. These comparisons were performed using one-way analysis of variance (ANOVA) with subsequent comparisons for all possible pair combinations using a Tukey-Kramer honestly significant difference (HSD) test (JMP 7 statistical software SAS Institute, Inc.). To analyze the relative strength of relationships between metabolism parameters (GPP, NPP, CR, P/R, and EE) with selected water quality variables (total nitrogen, total inorganic nitrogen, total phosphorus, and soluble reactive phosphorus), an analysis of variance was performed with average seasonal sampling period values from each stream segment (8 sampling periods X 6 segments = 48 observations, JMP 7 statistical software SAS Institute, Inc.). Statements of significance imply alpha values ≤ 0.05 unless noted otherwise.

2.4.2 Between-Segment Comparisons

For each of the six stream segments, between-segment statistical comparisons were made to compare the variation of selected metabolism parameters (gross primary productivity, net primary productivity, community respiration, and ecological efficiency) between different stream segments. This allowed the statistical comparison between stream segments using data from all eight seasonal sampling periods. These comparisons were performed using one-way analysis of variance (ANOVA) with subsequent comparisons for all possible pair combinations using a Tukey-Kramer honestly significant difference (HSD) test (JMP 7 statistical software SAS Institute, Inc.).

3.0 Summary of Ecological Studies

3.1 Introduction

The Wekiva River System PLRG Phase 3 monitoring encompassed a twelve month period from October 2006 through early September 2007. Detailed ecological studies were conducted in the six stream segments described in Section 2 above during four seasons: fall (October-November) 2006, winter (January-February) 2007, spring (April-Jun) 2007, and summer (August-September) 2007. This section describes and summarizes the data collected from these Phase 3 studies and puts them in the context of the full study period spanning January 2005 to September 2007.

3.2 Climatological Conditions

Solar and rainfall data are summarized for the entire active study period between January 2005 and September 2007 (**Figure 3-1** and **Appendix A**). A gap in the collection of solar data occurred between March and June 2006 corresponding to inactivity between project phases.

Over this period-of-record, average monthly insolation varied from a low of 81 $J/s/m^2$ in December 2006 to high of 242 $J/s/m^2$ in April 2005. A maximum daily insolation value of 1,073 $J/s/m^2$ was measured during April 2007. Average monthly photosynthetically active radiation (PAR) varied from a low of 128 $uE/s/m^2$ in December 2006 to a maximum of 475 $uE/s/m^2$ in April 2005. The maximum daily PAR reading of 2,015 $uE/s/m^2$ was measured during June 2007. Insolation and PAR values followed a seasonal sinusoidal pattern consistent with the latitude of the monitoring station.

Approximately 284 cm (111.8 in) of rainfall were recorded at Wekiwa Springs State Park during the 33 month period-of-record. The lowest monthly average rainfall was recorded in January 2006 (0.05 cm [0.02 in]) and the highest was 30 cm (11.7 in) in June 2005. Lower than average rainfall was observed for much of 2006 and early 2007; which correspond to statewide drought conditions experienced during this time period.

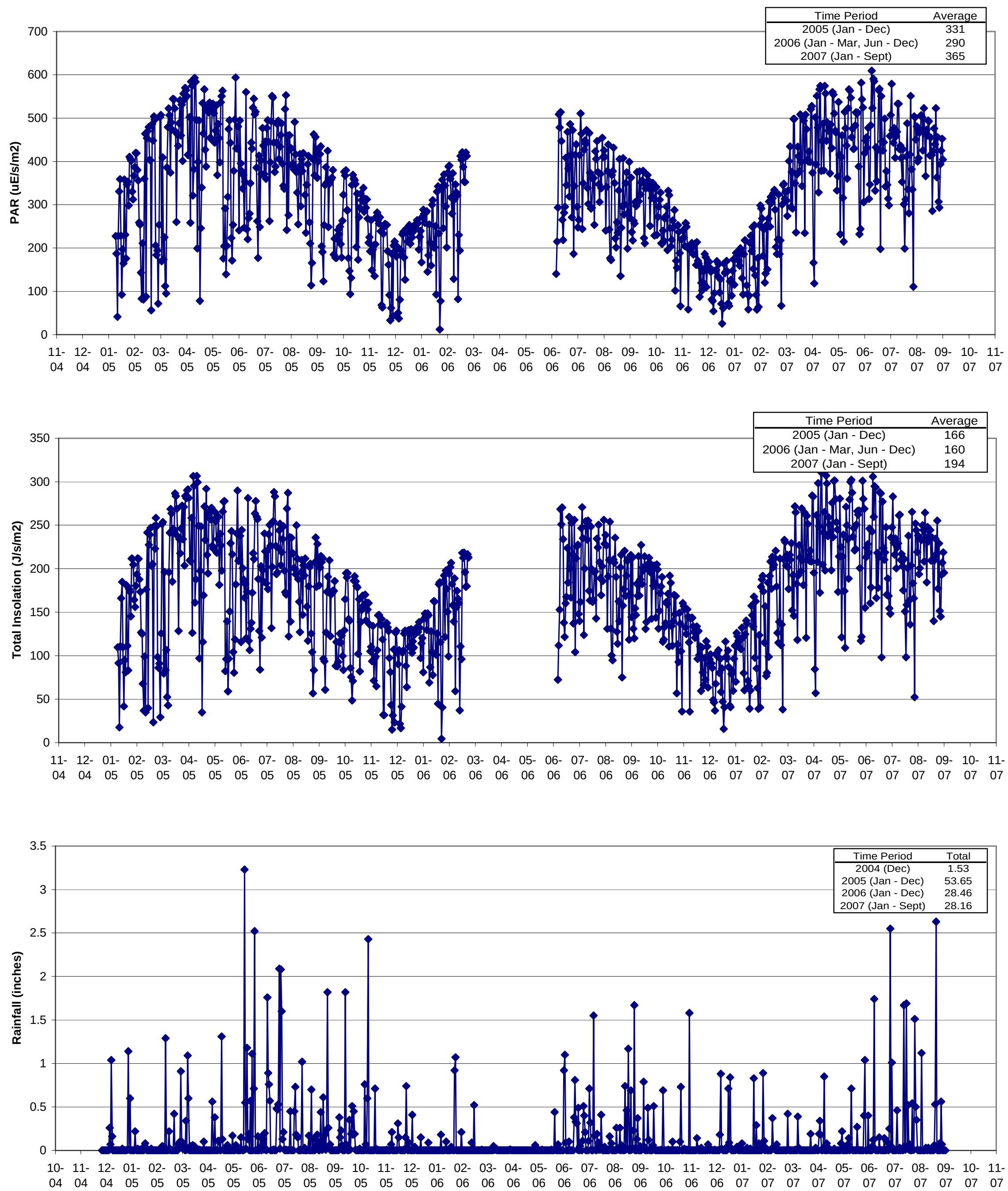


FIGURE 3-1
PHOTOSYNTHETICALLY ACTIVE RADIATION, TOTAL SOLAR RADIATION, AND RAINFALL DATA COLLECTED AT THE WEKIWA SPRINGS STATE PARK

3.3 Hydrology and Flows

3.3.1 Continuing Calibration of Discharge Stations

Water level recorders installed at four stations during the Phase 1 effort (WSI 2005) were utilized to estimate stream discharge rates during the Phase 3 Study at the following locations:

- RSR-MB-2 at the downstream end of Rock Springs Run
- JC-MB-1 at the upstream end of Juniper Creek just below its confluence with the Fern Hammock Spring Run
- JC-MB-2 downstream just above the US 19 bridge
- ASC-MB-1 just below the head spring and swimming area rope

Additional stage vs. discharge measurements were only made at RSR-MB-2 and JC-MB-2 during the Phase 2 and 3 studies. **Figure 3-2** illustrates the updated observed relationships for each station between stage and discharge. Stage vs. discharge regressions were positively correlated and had R^2 values ranging from 0.46 to 0.79 for Rock Springs Run and Juniper Creek respectively. These correlations represented a significant improvement over those observed in Phase 2, likely due to a wider range of depth and flow observations during the longer period-of-record.

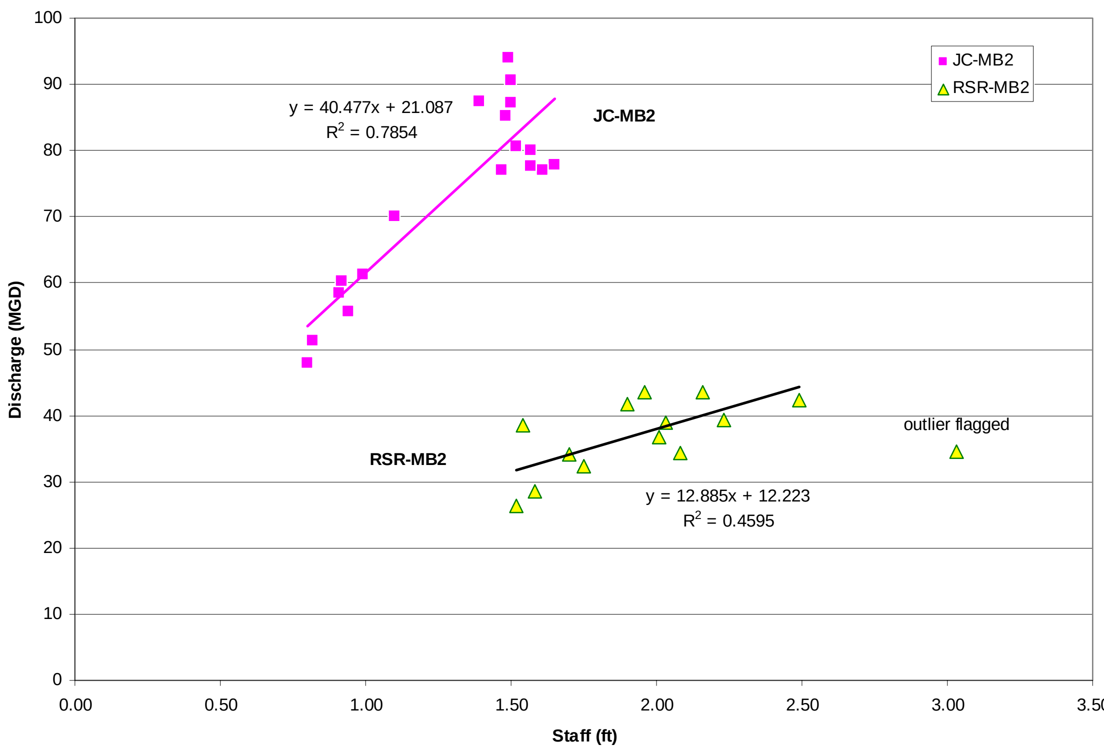


FIGURE 3-2
STAGE DISCHARGE RELATIONSHIPS FOR THE STATIONS USED IN THE PHASE 3 STUDY

3.3.2 Stage and Flow Summary

Water level and flow data for the four study stream reaches and the six stream segments are summarized for the full period-of-record in **Table 3-1**. Detailed discharge data collected during this Phase 3 study for the six stream segments are provided in **Appendix B**. Data for individual stations for the full period-of-record (December 2004 to September 2007) are described in more detail below.

Average river stage during the study period decreased from 12.9 ft National Geodetic Vertical Datum (NGVD) at the Wekiwa Springs bridge to 6.86 ft NGVD at the SR 46 bridge. Average discharge increased with distance downstream from 1.80 m^3/s (63.4 cfs) at the head spring to 4.42 m^3/s (156 cfs) at the Wekiva Marina, and 8.10 m^3/s (286 cfs) at the SR 46 bridge.

Rock Springs Run near the head spring had an average stage of 26.3 ft NGVD during the study period while the downstream Rock Springs Run mass balance station had an average stage of 12.6 ft NGVD. Average discharge at the upstream station of 1.80 m^3/s (63.6 cfs) was slightly higher than observed at the downstream station 1.48 m^3/s (52.4 cfs).

The average stage in Juniper Creek below Fern Hammock Spring was 23.6 ft NGVD while the average water stage downstream near the US 19 bridge was 5.07 ft NGVD. Average discharge increased downstream from an estimated 0.708 m^3/s (25.0 cfs) at the JC-MB-1 station to 3.09 m^3/s (109 cfs) at the US 19 bridge station.

Average stage at Alexander Springs was 10.7 ft NGVD during this period. The recorded stage at the CR 445 bridge was 11.6 ft NGVD and the average stage downstream at the Tracy Canal station was 4.65 ft NGVD. Alexander Springs Creek discharge values exhibited the least variation during the study period. The average recorded discharge at the upstream station was 2.97 m^3/s [105 cfs], with an increase to 3.51 m^3/s [124 cfs] at the CR 445 bridge, and 3.96 m^3/s [140 cfs] at Tracy Canal.

3.3.2 Wekiva River

Stage and discharge data for the Wekiva River stations during the study period are illustrated in **Figure 3-3**. Effects of rainfall events are clearly visible on these charts and are magnified with travel distance downstream, suggesting increased surface water inputs to the river system.

3.3.3 Rock Springs Run

Stage and discharge data for the Rock Springs Run stations during the study period are illustrated in **Figure 3-4**. Rock Springs Run contributed an average of about 20% of the Wekiva River discharge measured downstream at the SR 46 bridge.

3.3.4 Juniper Creek

Stage and discharge data for the Juniper Creek stations during the study period are illustrated in **Figure 3-5**. Estimated discharges in Juniper Creek declined over the period-of-record.

TABLE 3-1
WEKIVA PLRG - STAGE / DISCHARGE SUMMARY FOR THE PHASE 1, 2 AND 3 STUDY PERIODS (DECEMBER 2004 TO SEPTEMBER 2007)

Station Name	Station ID	Stage (ft NGVD)				Discharge (cfs)			
		Avg	Min	Max	N	Avg	Min	Max	N
Wekiva Spg	WEK	12.9	12.6	14.2	840	63.4	53.8	76.3	900
Wekiva Rv Marina	2234635	12.4	12.0	14.1	873	156	107	349	871
Wekiva Rv RR Brdg	WKRRC	9.51	8.55	11.0	901	252	120	853	901
Wekiva Rv SR46	2235000	6.86	6.19	8.34	899	286	144	809	903
Rock Spg	ROX	26.3	25.9	26.7	896	63.6	54.9	72.1	668
Rock Spg Run	RSR-MB2	12.6	12.2	14.1	938	52.4	44.0	82.1	938
Juniper Crk	JC-MB1	23.6	23.4	24.1	589	25.0	20.3	35	589
Juniper Crk - SR19	JC-MB2	5.07	4.59	5.77	945	109	78.3	152	945
Alexander Spg	ALX	10.7	10.3	11.2	29	107	91	124	26
Alexander Spg	ASC-MB1	10.7	10.5	11.5	686	105	100	120	686
Alex Spg Run CR445	ALXCR445	11.6	11.2	12.8	538	124	91.4	222	744
Alex Spg Tracy Cnl	ALXTRACY	4.65	3.74	5.45	376	140	100	263	744

ALXCR445 - unknown datum

3.3.5 Alexander Springs Creek

Stage and discharge data for the Alexander Springs Creek stations during the study period are illustrated in **Figure 3-6**. Flows in the upper portion of Alexander Springs Creek were more consistent than those in the lower river. Downstream flows were more responsive to rainfall events.

3.4 Water Quality

Water quality data for the stream segments are summarized in **Tables 3-2** through **3-5**. Detailed water quality data for the Phase 3 period are provided in **Appendix C**. The section that follows provides descriptions of the water quality observed in each of the six stream segments during the entire Phase 1 through Phase 3 study period from March 2005 through September 2007.

3.4.1 Comparison of Stream Segments

Table 3-2 provides a comparison of the entire PLRG period-of-record (2005-2007) water quality in each of the six stream segments.

Average water temperature in the six stream segments was similar, varying from a low of 21.9 °C in the Juniper Creek segment to a high of 23.7 °C in Wekiva River segment 1. This similarity is due to the inputs to these streams being dominated by spring flow, although seasonal variation in the lower reaches was observed.

Average dissolved oxygen concentrations were lowest in Wekiva River segment 1 (1.9 mg/L) and highest downstream in the Wekiva River segment 2 and Juniper Creek segments (6.8 mg/L). The low dissolved oxygen values observed in the upper section of Wekiva River are consistent with historical observations and the proximity to the spring boil where low oxygen waters are emanating. The Rock Springs Run and Alexander Springs Creek segments had higher average dissolved oxygen concentrations ranging between 5.5 and 6.4 mg/L.

TABLE 3-2
SUMMARY OF WEKIVA SYSTEM PLRG PERIOD-OF-RECORD WATER QUALITY DATA

Parameter Group	Parameter	Units	Wekiva River		Rock Springs Run		Alexander Springs Creek	Juniper Creek
			SEG1	SEG2	SEG1	SEG2	SEG1	SEG1
Temperature	Temp	C	23.7	22.4	23.0	22.4	23.5	21.9
Dissolved Oxygen	DO	%	22.9	78.1	66.1	73.5	65.5	77.9
		mg/L	1.93	6.81	5.67	6.40	5.54	6.81
Physical	pH	SU	7.47	7.71	7.84	7.67	7.97	7.82
	Sp Cond	uS/cm	316	426	242	257	898	1,645
	Color	cpu	11.8	53.5	23.2	112	57.2	32.6
	Turbidity	ntu	0.218	1.28	0.630	1.07	0.495	0.470
Solid	TSS	mg/L	1.24	2.62	2.11	3.27	1.33	2.87
	TDS	mg/L	191	263	148	173	538	918
Nitrogen	NH3	mg/L	0.030	0.016	0.007	0.026	0.012	0.010
	NO2 + NO3	mg/L	1.01	0.364	1.13	0.554	0.051	0.024
	TKN	mg/L	0.186	0.994	0.172	0.594	0.202	0.146
	TN	mg/L	1.20	1.36	1.31	1.15	0.254	0.171
Phosphorus	SRP	mg/L	0.120	0.105	0.084	0.084	0.041	0.016
	TP	mg/L	0.130	0.118	0.095	0.101	0.049	0.024
Period of Record		Min	5/9/05	5/10/05	4/1/05	4/1/05	5/3/05	3/31/05
		Max	8/15/07	8/16/07	9/6/07	9/5/07	8/15/07	9/5/07

Notes:
Statistics calculated using half the detection limit when reported below the detection limit

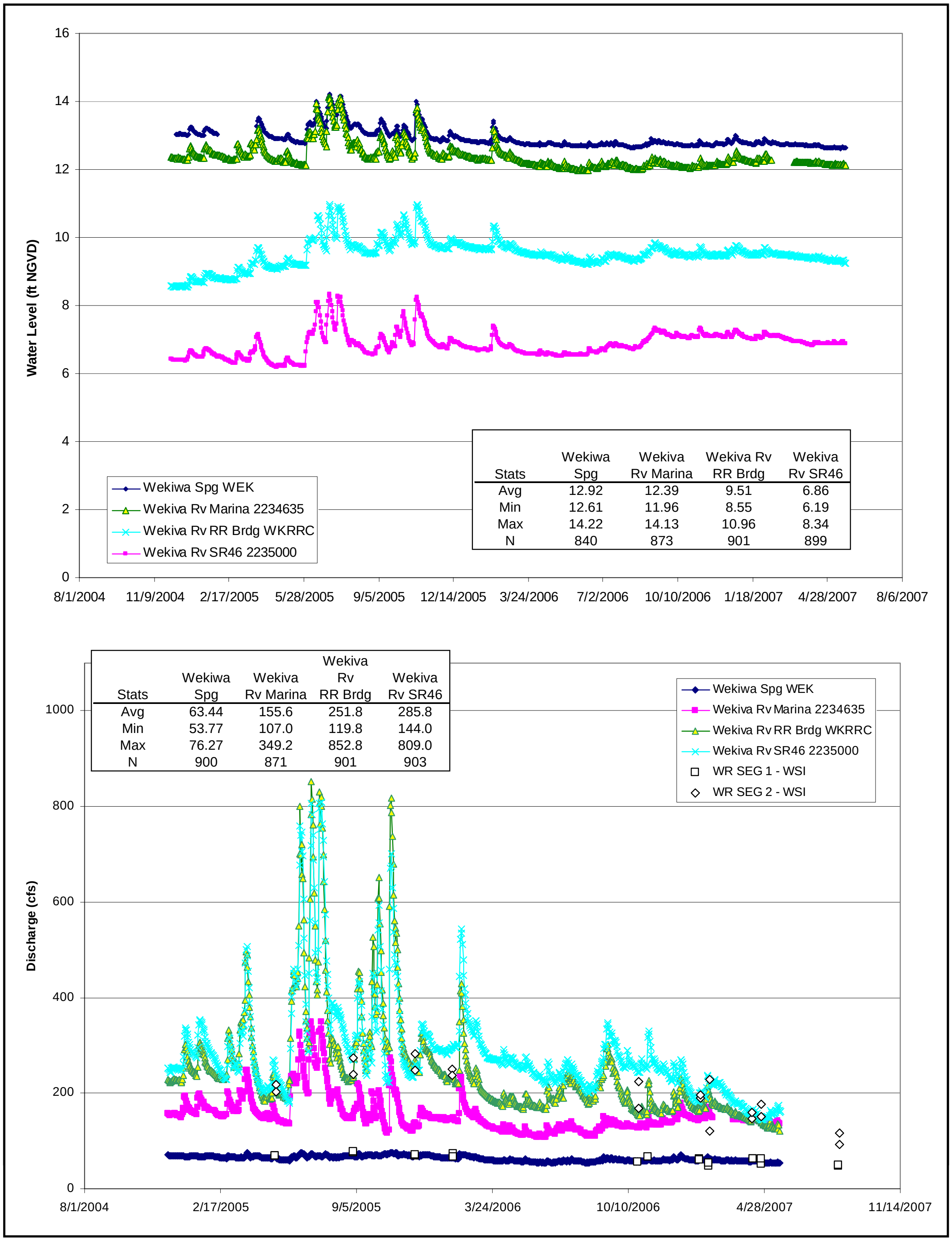


FIGURE 3-3
WEKIVA RIVER STAGE AND DISCHARGE MEASUREMENTS DURING THE PLRG STUDY PERIOD

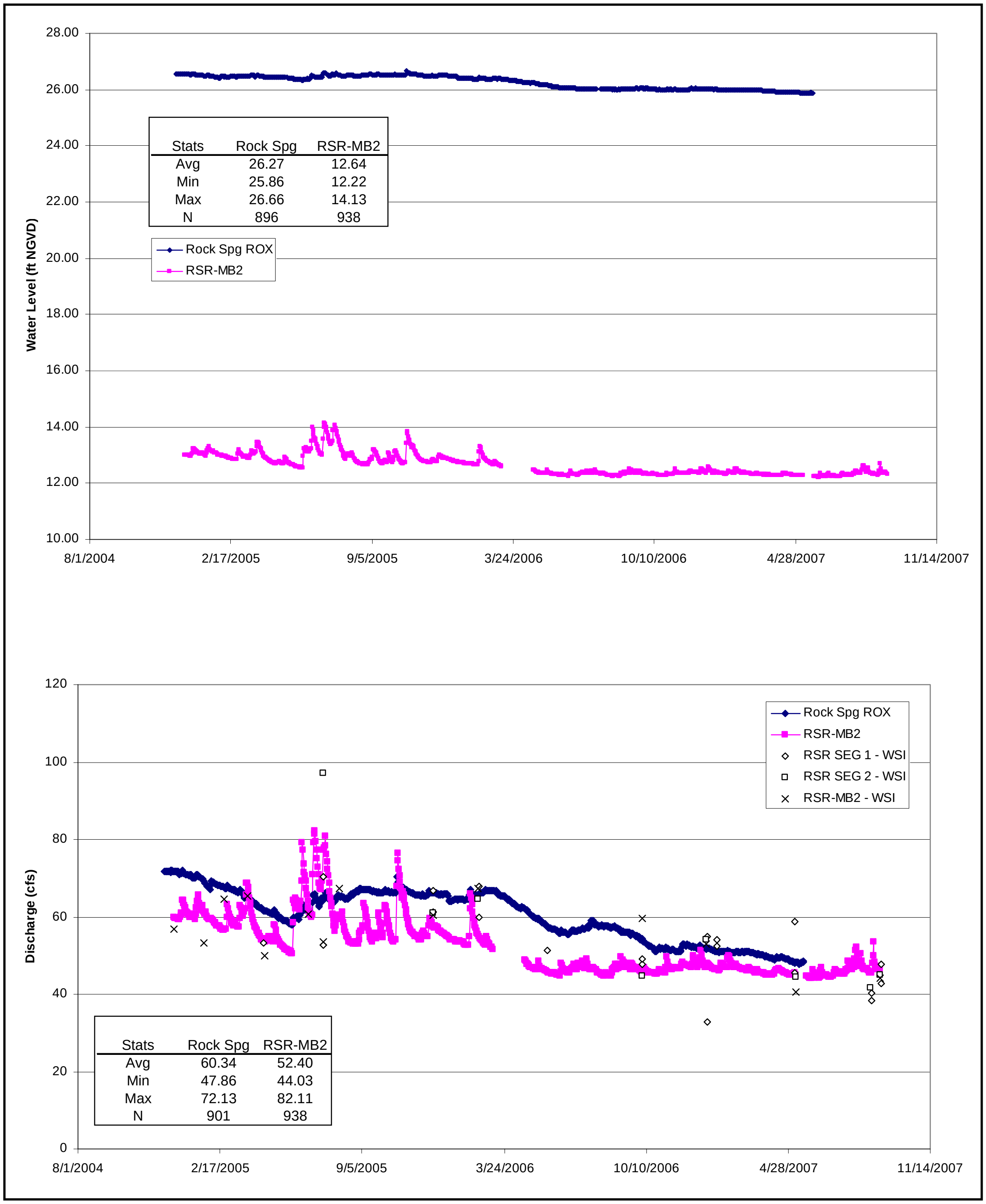


FIGURE 3-4
ROCK SPRINGS RUN STAGE AND DISCHARGE MEASUREMENTS DURING THE PLRG STUDY PERIOD

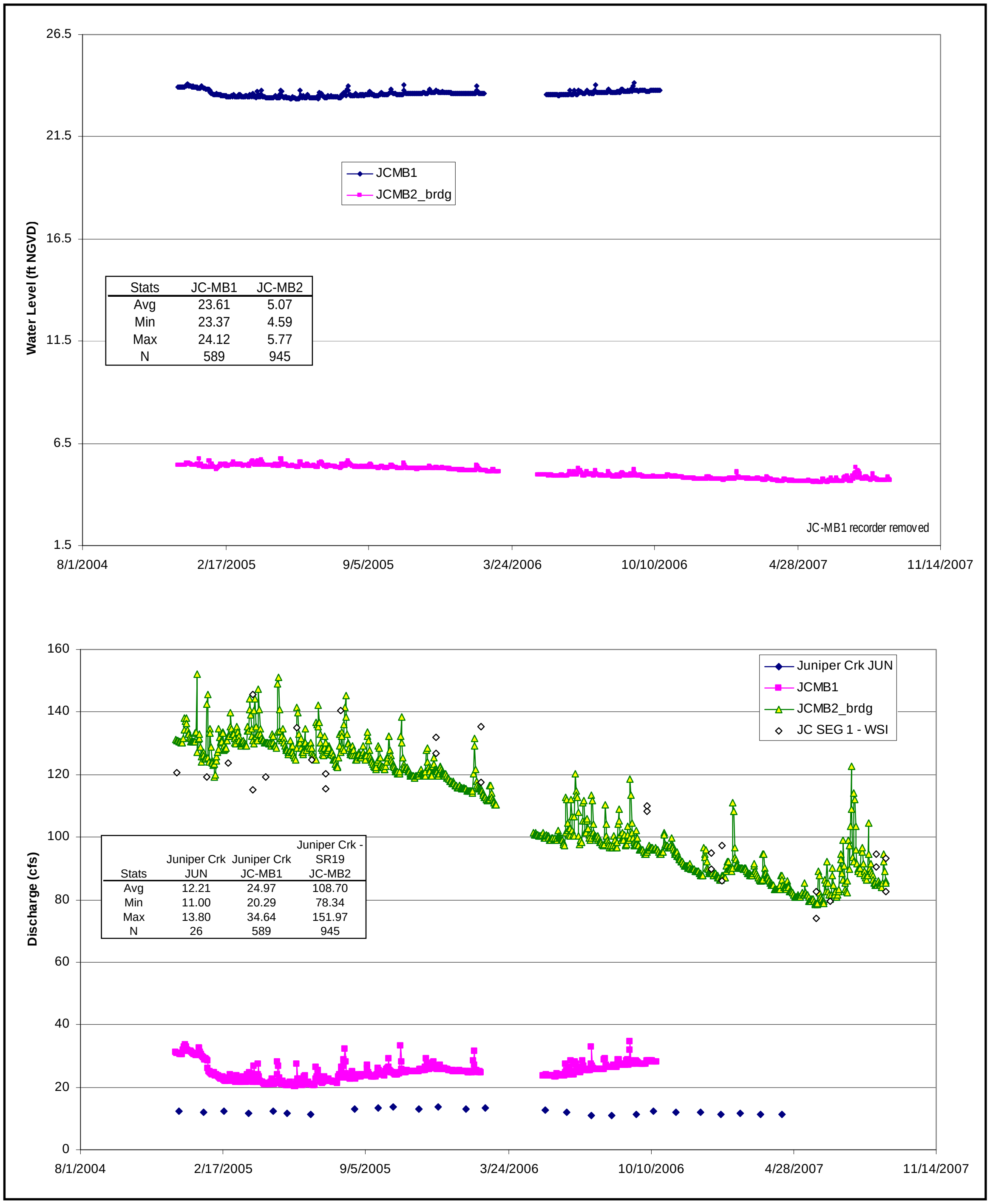


FIGURE 3-5
JUNIPER CREEK STAGE AND DISCHARGE MEASUREMENTS DURING THE PLRG STUDY PERIOD

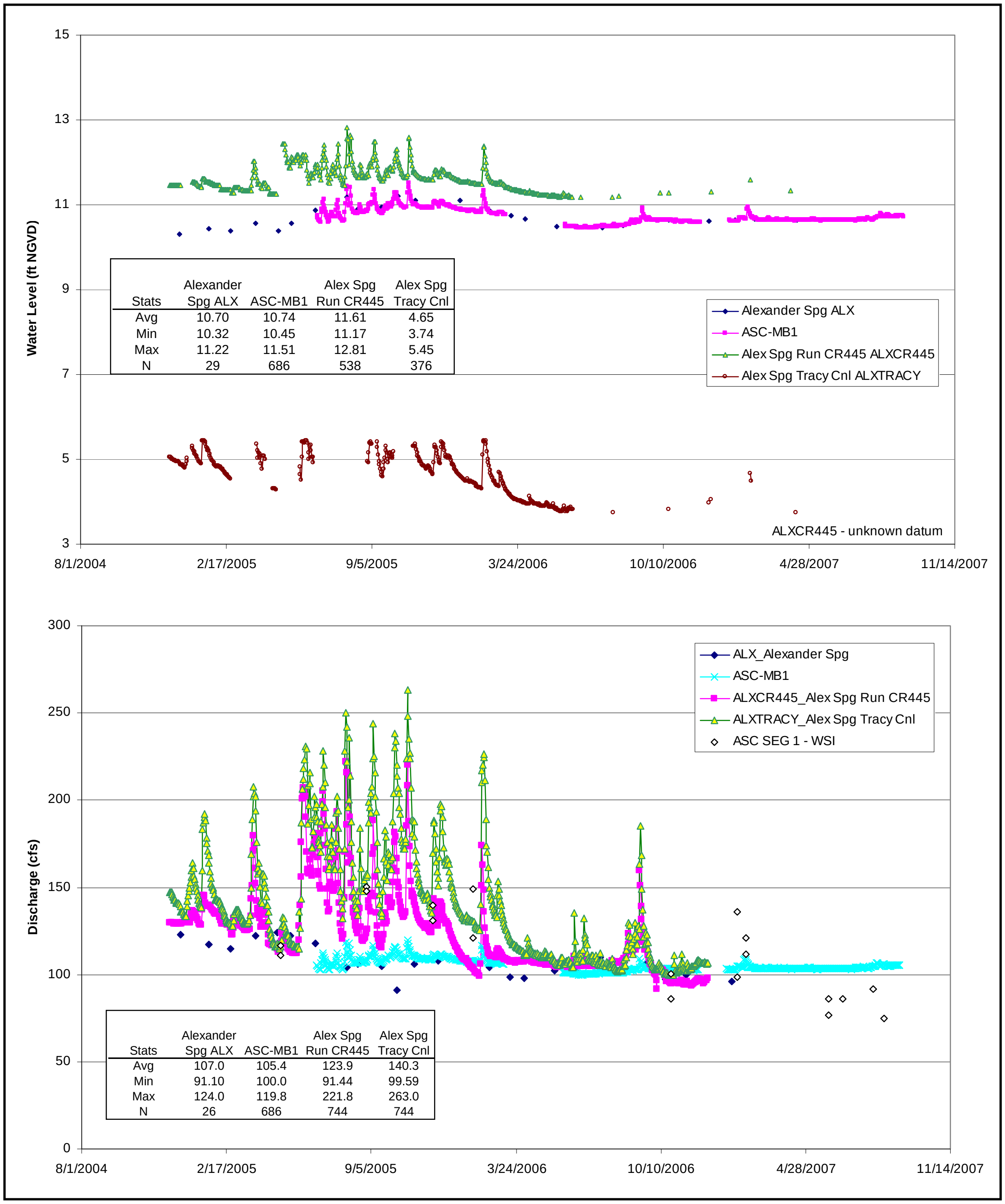


FIGURE 3-6
ALEXANDER SPRINGS CREEK STAGE AND DISCHARGE MEASUREMENTS DURING THE PLRG STUDY PERIOD

The hydrogen ion concentration expressed as pH was relatively similar across these streams with a range of average values from about 7.47 s.u. in Wekiva segment 1 to 7.97 s.u. in Alexander Springs Creek. These pH values are consistent with spring dominated systems.

Specific conductance was different between the six stream segments. The lowest average value of 242 µS/cm was observed in Rock Springs Run segment 1, while the highest average values were observed in Juniper Creek of 1,645 µS/cm and 898 µS/cm in Alexander Springs Creek. These higher values are likely due to differences in groundwater and are similar to neighboring springs (i.e., Silver Glenn and Salt Springs). Total dissolved solids concentrations exhibited a similar pattern in these streams to specific conductance.

Color values increased with distance downstream, as average color concentrations increased markedly between the upstream and downstream segments in the Wekiva River and in Rock Springs Run. The lowest average color value observed was about 12 cpu in Wekiva segment 1 and the highest average was 112 cpu from Rock Springs Run segment 2. The reference stream segments had intermediate average color values as Alexander Springs Creek was 57 cpu, while Juniper Creek was 33 cpu. Turbidity values generally followed a similar pattern in these streams, with average concentrations between 0.22 and 1.28 ntu. Likewise, total suspended solids increased with downstream, ranging between 1.24 for Wekiva River segment 1 to 3.27 (mg/L) for Rock Spring Run segment 2.

Average total nitrogen concentrations were elevated but similar for both upstream and downstream segments in the Wekiva River (1.20 to 1.36 mg/L) and in the Rock Spring Run (1.31 to 1.15 mg/L). The major differences between upstream and downstream segments in the study streams were the percentages of nitrate in the total nitrogen: 84% and 27% in the upstream and downstream segments respectively for Wekiva River and 84% and 48% in the in upstream and downstream segments respectively for Rock Springs Run. Average total nitrogen concentrations were much lower in the two reference stream segments at 0.25 mg/L in Alexander Springs Creek and 0.17 mg/L in Juniper Creek, with percentages of nitrate being 20% and 14% respectively. As these percentages of nitrate suggest, nitrate nitrogen concentrations were elevated in the Wekiva River and Rock Springs Run compared to the reference stream segments. The average nitrate nitrogen concentrations decreased with distance downstream from 1.01 mg/L to 0.36 mg/L at Wekiva River, and from 1.13 mg/L in to 0.55 mg/L at Rock Springs Run. Average nitrate nitrogen concentrations ranged from 0.051 to 0.024 mg/L in the reference stream study segments. Average ammonia nitrogen concentrations were relatively low in all stream segments (less than 0.03 mg/L). Within the Wekiva and Rock Springs streams, the reduction in dissolved inorganic nitrogen and the increase in total organic nitrogen between segments, suggests assimilation and increased productivity by the autotrophic community.

Average total phosphorus concentrations were highest in the Wekiva River segments (0.130 mg/L to 0.118 mg/L), and in Rock Springs Run (0.095 mg/L to 0.101 mg/L), and were lowest in Juniper Creek (0.024 mg/L) and Alexander Springs Creek (0.049 mg/L). Average soluble reactive phosphorus (SRP) concentrations ranged from 0.120 to 0.105 mg/L in Wekiva River, were 0.084 mg/L in Rock Springs Run, and 0.041 and 0.016 in

Alexander Springs Creek and Juniper Creek. SRP concentrations followed the patterns of total phosphorus because it comprised a high percentage of total phosphorus, 83% to 92% in the study streams, and 67%to 84% in the reference streams. This may suggest that phosphorus cycling rates between dissolved and organic particulate forms are rapidly occurring in all streams.

3.4.2 Wekiva River

Table 3-3 summarizes the water quality data from the individual Wekiva River study segments by season for the Phase 3 Study period (October 2006 to August 2007). Detailed water quality data for both the upstream and downstream ends of each segment is provided in **Appendix C**. Most water quality parameters measured at the upstream Wekiva River segment were relatively similar during the four seasonal sampling periods. Maximum dissolved oxygen was observed in the summer period, perhaps a result of increased primary producer biomass commonly observed at this time of year. Nitrate concentrations declined from a fall/winter maxima to spring and then a summer minima, possibly in relation to corresponding increases in primary producer biomass. Average quarterly water quality at the downstream Wekiva River segment was more variable, reflecting the greater distance from spring water inputs and longer water residence times. Temperature values corresponded well with season and oxygen concentration appears to also be influenced by water temperature. Similar to the upstream segment, nitrate concentrations declined to minima during the summer, perhaps suggesting seasonal uptake by primary producers. Total and soluble reactive phosphorus concentrations were generally consistent between seasons with slight declines in concentration at the downstream segment.

3.4.3 Rock Springs Run

Table 3-4 summarizes the water quality data from the individual Rock Springs Run study segments by season for the Phase 3 Study period (October 2006 to September 2007). Detailed water quality data for both the upstream and downstream ends of each segment are provided in **Appendix C**. Water quality at the upstream Rock Springs Run segment varied the least among all stream segments during the four seasonal sampling periods. This observation is consistent with the concept of a spring ecosystem as chemostatic and reflects the proximity of this segment to the spring boil. Average quarterly water quality at the downstream Rock Springs Run segment was more variable, as expected given the distance downstream from the spring boil. Greatest variability was observed for temperature corresponding to seasonal patterns. Nitrogen concentrations exhibited no seasonal trend in either segment, other than lowest total organic nitrogen concentrations during the fall. Total and soluble reactive phosphorus concentrations were generally consistent between seasons with slight declines in concentration at the downstream segment.

3.4.4 Alexander Springs Creek and Juniper Creek

Table 3-5 summarizes the water quality data from the two reference site study segments by season for the Phase 3 Study (October 2006 to September 2007). Detailed water quality data for both of the segments are provided in **Appendix C**. Water quality at the Alexander Springs Creek segment varied during the four seasonal sampling periods mostly in regard to temperature, dissolved oxygen, color, and nitrate. A large nitrate increase was observed during winter 2007 sampling (see Appendix C) coincident with higher color values, both of which may possibly correspond to higher rainfall and runoff. Average water quality data from the Juniper Creek segment were generally similar between seasons, although higher total organic nitrogen was observed in the spring and summer.

3.5 Stream Segment Nutrient Mass Balances

3.5.1 Introduction

Stream segment period-of-record mass balances for nitrogen and phosphorus for the Phase 3 PLRG Study (October 2006-September 2007) are summarized in **Table 3-6**. Estimated total phosphorus mass removals were negative or low in all segments (-1.93 to -0.01 kg/ha/d), except for Wekiva River segment 1 (0.09 kg/ha/d) and nearly all quarterly averages in Rock Springs segment 1, indicating that total phosphorus is generally exported from these flowing aquatic ecosystems. Likewise, estimated mass reductions for soluble reactive phosphorus were generally negative or very low (-0.96 to 0.03 kg/ha/d).

Estimated total nitrogen mass load reductions were negative in the upper Wekiva and Alexander Springs Creek segments (-1.03 and -2.13 kg/ha/d) respectively, and were positive at the rest of the stations (0.47 to 4.01 kg/ha/d). Both the highest and lowest total nitrogen assimilation rates were noted in the reference streams. Estimated assimilation of organic nitrogen was generally negative in the stream segments (-0.26 to –2.03 kg/ha/d), except for Rock Springs Run segment 2 and Juniper Creek (0.08 and 2.05 kg/ha/d) respectively. Estimated total inorganic nitrogen (TIN - primarily nitrate+nitrite nitrogen) mass removals were highest in the Rock Springs Run segment 1 at 2.11 kg/ha/d, with the other stream segments having positive values ranging from 0.47 to 1.26 kg/ha/d. Alexander Springs Creek had an average TIN mass removal rate estimate of -1.46 kg/ha/d, suggesting that inorganic nitrogen was being exported from this segment.

TABLE 3-3
WEKIVA RIVER SEGMENT WATER QUALITY SUMMARY - WEKIVA PLRG PHASE 3

			WR-SEG1					WR-SEG2				
Parameter Group	Parameter	Units	Fall	Winter	Spring	Summer	POR	Fall	Winter	Spring	Summer	POR
Temperature	Temp	C	23.5	23.0	23.8	25.0	23.8	20.0	17.0	20.8	26.9	21.2
Dissolved Oxygen	DO	%	22.8	28.3	26.9	50.7	32.2	91.3	69.3	83.2	54.6	74.6
		mg/L	1.93	2.43	2.27	4.20	2.71	8.29	6.68	7.51	4.34	6.70
Physical	pH	SU	7.59	7.69	7.63	7.26	7.54	7.99	7.80	7.77	7.44	7.75
	Sp Cond	uS/cm	306	312	335	306	315	404	417	427	367	404
	Color	cpu	7.5	15.0	6.3	3.8	8.1	13.8	38.8	10.0	21.3	20.9
	Turbidity	ntu	0.333	0.096	0.115	0.360	0.226	0.875	0.538	0.350	1.095	0.71
Solid	TSS	mg/L	1.25	0.63	1.88	0.38	1.03	1.13	1.25	2.63	2.88	1.97
	TDS	mg/L	189	177	197	190	188	251	252	254	214	243
Nitrogen	NH3	mg/L	0.022	0.005	0.180	0.017	0.056	0.025	0.008	0.055	0.019	0.027
	NO2 + NO3	mg/L	0.91	0.97	0.77	0.65	0.83	0.49	0.45	0.33	0.22	0.373
	TKN	mg/L	0.178	0.079	0.298	0.268	0.205	0.278	0.27	0.223	0.428	0.30
	TN	mg/L	1.09	1.04	1.07	0.92	1.03	0.77	0.71	0.55	0.63	0.66
Phosphorus	SRP	mg/L	0.089	0.117	0.118	0.109	0.108	0.098	0.127	0.093	0.096	0.104
	TP	mg/L	0.127	0.124	0.128	0.124	0.126	0.114	0.107	0.113	0.117	0.113
Period of Record		Min	10/24/06	1/23/07	4/11/07	7/31/07	10/24/06	10/25/06	1/24/07	4/10/07	8/1/07	10/25/06
		Max	11/8/06	2/5/07	4/24/07	8/15/07	8/15/07	11/7/06	2/6/07	4/24/07	8/16/07	8/16/07

Notes:
Statistics calculated using half the detection limit when reported below the detection limit

TABLE 3-4
ROCK SPRING RUN SEGMENT WATER QUALITY SUMMARY - WEKIVA PLRG PHASE 3

			RSR-SEG1					RSR-SEG2				
Parameter Group	Parameter	Units	Fall	Winter	Spring	Summer	POR	Fall	Winter	Spring	Summer	POR
Temperature	Temp	C	23.2	22.7	23.3	23.6	23.2	25.3	21.6	23.6	28.1	24.6
Dissolved Oxygen	DO	%	63.5	66.8	73.5	61.0	66.2	93.9	88.4	91.1	93.9	91.8
		mg/L	5.43	5.76	6.26	5.17	5.65	7.71	7.79	7.72	7.31	7.63
Physical	pH	SU	7.90	7.90	7.97	7.80	7.89	8.20	7.98	8.01	7.94	8.03
	Sp Cond	uS/cm	241	238	251	259	247	246	261	252	263	255
	Color	cpu	8.8	8.8	10.0	5.0	8.1	16.3	17.5	10.6	5.0	12
	Turbidity	ntu	0.51	0.37	0.98	0.31	0.54	0.91	0.51	0.92	0.49	0.71
Solid	TSS	mg/L	0.50	2.51	4.38	6.25	3.41	2.13	4.00	4.00	8.00	4.53
	TDS	mg/L	135	148	148	166	149	169	164	121	168	155
Nitrogen	NH3	mg/L	0.005	0.007	0.005	0.029	0.011	0.005	0.013	0.005	0.040	0.016
	NO2 + NO3	mg/L	1.18	1.15	1.15	1.15	1.16	0.88	0.81	0.86	0.87	0.856
	TKN	mg/L	0.071	0.149	0.158	0.148	0.131	0.114	0.243	0.173	0.290	0.205
	TN	mg/L	1.25	1.30	1.30	1.30	1.29	1.00	1.05	1.04	1.20	1.07
Phosphorus	SRP	mg/L	0.075	0.088	0.080	0.083	0.082	0.071	0.080	0.070	0.077	0.075
	TP	mg/L	0.092	0.105	0.094	0.087	0.094	0.090	0.088	0.090	0.089	0.089
Period of Record		Min	10/5/06	1/4/07	5/8/07	8/23/07	10/5/06	10/4/06	1/3/07	5/9/07	8/22/07	10/4/06
		Max	10/19/06	1/18/07	5/24/07	9/6/07	9/6/07	10/18/06	1/17/07	5/24/07	9/5/07	9/5/07

Notes:
Statistics calculated using half the detection limit when reported below the detection limit

TABLE 3-5
REFERENCE SITE SEGMENT WATER QUALITY SUMMARY - WEKIVA PLRG PHASE 3

			ASC-SEG1					JC-SEG1				
Parameter Group	Parameter	Units	Fall	Winter	Spring	Summer	POR	Fall	Winter	Spring	Summer	POR
Temperature	Temp	C	22.3	20.9	25.4	24.0	23.1	22.4	20.0	23.1	23.6	22.3
Dissolved Oxygen	DO	%	60.0	47.7	98.4	50.1	64.1	79.6	74.1	78.5	69.7	75.4
		mg/L	5.22	4.25	8.03	4.21	5.43	6.87	6.69	6.68	5.87	6.52
Physical	pH	SU	8.11	7.75	8.62	7.76	8.06	7.86	7.83	7.82	7.69	7.80
	Sp Cond	uS/cm	964	898	1,035	1,004	975	1,714	1,650	1,899	1,899	1,790
	Color	cpu	7.5	42.5	10.0	25.0	21.3	11.3	8.8	12.5	8.8	10.3
	Turbidity	ntu	0.445	0.138	0.036	0.185	0.201	0.555	0.163	0.095	0.195	0.252
Solid	TSS	mg/L	0.25	1.50	1.25	1.25	1.06	1.50	4.50	4.25	5.00	3.81
	TDS	mg/L	576	458	606	605	561	990	974	1,073	1,058	1,023
Nitrogen	NH3	mg/L	0.012	0.010	0.034	0.015	0.018	0.005	0.009	0.022	0.031	0.017
	NO2 + NO3	mg/L	0.016	0.529	0.006	0.008	0.140	0.013	0.017	0.014	0.019	0.016
	TKN	mg/L	0.105	0.126	0.145	0.123	0.125	0.080	0.060	0.111	0.113	0.091
	TN	mg/L	0.121	0.655	0.151	0.130	0.264	0.093	0.077	0.134	0.132	0.109
Phosphorus	SRP	mg/L	0.042	0.058	0.042	0.040	0.046	0.011	0.016	0.020	0.017	0.016
	TP	mg/L	0.058	0.065	0.044	0.046	0.053	0.024	0.030	0.025	0.017	0.024
Period of Record		Min	10/24/06	1/23/07	5/30/07	7/31/07	10/24/06	10/4/06	1/3/07	5/30/07	8/22/07	10/4/06
		Max	11/7/06	2/5/07	6/19/07	8/15/07	8/15/07	11/18/06	2/5/07	6/19/07	9/5/07	9/5/07

Notes:
Statistics calculated using half the detection limit when reported below the detection limit

3.5.2 Wekiva River Segments

Estimated nutrient mass balances for the Wekiva River segments are detailed by quarter in **Table 3-7**. Estimated removals for total nitrogen in WR-SEG-1 were positive during the fall and spring seasons (1.46 and 8.37 kg/ha/d, respectively) and negative values during the winter and summer seasons(-13.35 and -0.61 kg/ha/d, respectively). Total organic nitrogen estimated mass removals were negative during three sampling periods (-4.89 to -0.54 kg/ha/d), except for fall with a value of 0.70 kg/ha/d. Estimated mass removals for total inorganic nitrogen were positive in three seasons for the upstream Wekiva River segment (0.77 to 8.90 kg/ha/d), except for the winter season at -8.46 kg/ha/d. The estimated mass removal for total phosphorus was positive for the fall and summer seasons (0.88 to 0.45 kg/ha/d) and negative for the winter and spring seasons (-0.59 and -0.39 kg/ha/d). The estimated mass removal for soluble reactive phosphorus was positive during the summer and winter seasons (0.0 to 0.35 kg/ha/d) and negative during the fall and spring seasons (-4.17 and -0.04 kg/ha/d).

Estimated removals for total nitrogen in WR-SEG-2 were positive during the fall and summer seasons (4.31 and 0.76 kg/ha/d) and negative during the winter and spring seasons (-1.32 and -0.40 kg/ha/d). Total organic nitrogen estimated mass removals were positive in the fall season (4.62 kg/ha/d) and negative the other three seasons (-4.66 to -0.24 kg/ha/d). Estimated mass removals for total inorganic nitrogen were generally positive at 0.19 to 1.79 kg/ha/d, except for the summer season (-0.43 kg/ha/d). The estimated mass removal for total phosphorus was generally negative in this segment (-0.44 to -0.09 kg/ha/d), except for the fall season (0.25 kg/ha/d). The estimated mass removal for soluble reactive phosphorus was positive during the fall and winter seasons (0.06 and 0.03 kg/ha/d) and negative during the spring and summer seasons (-0.19 kg/ha/d) for each.

3.5.3 Rock Springs Run Segments

Estimated nutrient mass balances during the Phase 3 Study period at the Rock Springs Run segments are detailed in **Table 3-8**. Estimated removals for total nitrogen in RSR-SEG-1 were positive during the fall and summer seasons (4.39 and 3.66 kg/ha/d) and negative during the winter and spring seasons (-4.09 to -2.09 kg/ha/d). Total organic nitrogen estimated mass removals were positive during the fall and summer seasons (1.34 and 2.08 kg/ha/d) and negative during the winter and spring seasons (-5.40 and -4.88 kg/ha/d). Estimated mass removals for total inorganic nitrogen were positive during all four sampling periods, from 1.26 to 3.06 kg/ha/d. The estimated mass removal for total phosphorus was very low or negative during all seasons (-0.84 to 0.16 kg/ha/d). The estimated mass removal for soluble reactive phosphorus was positive during the summer season (0.02 kg/ha/d) and negative during the remaining seasons (-0.30 to -0.17 kg/ha/d).

TABLE 3-6
SUMMARY OF ESTIMATED SEGMENT MASS REMOVALS FOR THE WEKIVA RIVER SYSTEM AND REFERENCE SITES DURING THE PHASE 3 STUDY PERIOD

		Inflow				Outflow				Removal				
		Segment - Up				Segment - Down								
		Conc	Flow	Mass	Mass	Conc	Flow	Mass	Mass	Conc		Mass		
Parameter	Stream Segment	(mg/L)	(m^3/d)	(kg/d)	(kg/ha/d)	(mg/L)	(m^3/d)	(kg/d)	(kg/ha/d)	(mg/L)	(%)	(kg/d)	(kg/ha/d)	(%)
Total Phosphorus	Wekiva River Segment 1	0.126	138,001	17.4	8.95	0.125	138,001	17.3	8.87	0.001	0.98	0.17	0.09	1.0
	Wekiva River Segment 2	0.110	448,975	49.6	5.03	0.114	448,975	51.1	5.19	-0.003	-3.04	-1.51	-0.15	-3.0
	Rock Springs Run Segment 1	0.091	119,101	10.8	4.27	0.098	119,101	11.7	4.62	-0.007	-8.18	-0.89	-0.35	-8.2
	Rock Springs Run Segment 2	0.089	113,111	10.1	2.10	0.089	113,111	10.1	2.11	0.000	-0.45	-0.04	-0.01	-0.4
	Juniper Creek Segment 1	0.021	217,103	4.64	7.67	0.027	217,103	5.80	9.60	-0.005	-25.13	-1.17	-1.93	-25.1
	Alexander Springs Creek Segment 1	0.049	231,519	11.4	2.77	0.059	231,519	13.6	3.30	-0.009	-19.12	-2.18	-0.53	-19.1
Soluble Reactive Phosphorus	Wekiva River Segment 1	0.101	138,001	14.0	7.19	0.115	138,001	15.9	8.15	-0.014	-13.41	-1.88	-0.96	-13.4
	Wekiva River Segment 2	0.104	448,975	46.7	4.74	0.106	448,975	47.4	4.82	-0.002	-1.53	-0.71	-0.072	-1.5
	Rock Springs Run Segment 1	0.080	119,101	9.5	3.74	0.083	119,101	9.9	3.90	-0.003	-4.23	-0.40	-0.16	-4.2
	Rock Springs Run Segment 2	0.075	113,111	8.5	1.78	0.074	113,111	8.4	1.75	0.001	1.82	0.16	0.03	1.8
	Juniper Creek Segment 1	0.015	217,103	3.30	5.46	0.016	217,103	3.52	5.82	-0.001	-6.54	-0.22	-0.36	-6.5
	Alexander Springs Creek Segment 1	0.041	231,519	9.4	2.28	0.052	231,519	12.1	2.93	-0.012	-28.43	-2.68	-0.65	-28.4
Total Nitrogen	Wekiva River Segment 1	1.03	138,001	142	72.97	1.04	138,001	144	74.00	-0.015	-1.41	-2.01	-1.03	-1.4
	Wekiva River Segment 2	0.69	448,975	312	31.64	0.68	448,975	304	30.81	0.018	2.64	8.24	0.84	2.6
	Rock Springs Run Segment 1	1.03	138,001	142	72.97	1.04	138,001	144	74.00	-0.015	-1.41	-2.01	-1.03	-1.4
	Rock Springs Run Segment 2	1.09	113,111	123	25.62	1.05	113,111	119	24.78	0.036	3.29	4.04	0.84	3.3
	Juniper Creek Segment 1	0.11	217,103	24.6	40.71	0.10	217,103	22.2	36.70	0.011	9.85	2.42	4.01	9.9
	Alexander Springs Creek Segment 1	0.27	231,519	63.7	15.42	0.31	231,519	72.6	17.57	-0.038	-13.99	-8.90	-2.16	-14.0
Total Organic Nitrogen	Wekiva River Segment 1	0.13	138,001	17.9	9.17	0.16	138,001	21.8	11.21	-0.029	-22.1	-3.95	-2.03	-22.1
	Wekiva River Segment 2	0.26	448,975	118	11.97	0.27	448,975	121	12.23	-0.006	-2.15	-2.54	-0.26	-2.2
	Rock Springs Run Segment 1	0.10	119,101	12.0	4.72	0.14	119,101	16.3	6.44	-0.037	-36.39	-4.36	-1.72	-36.4
	Rock Springs Run Segment 2	0.19	113,111	21	4.45	0.19	113,111	21	4.37	0.003	1.78	0.38	0.08	1.8
	Juniper Creek Segment 1	0.08	217,103	16.7	27.61	0.07	217,103	15.4	25.55	0.006	7.43	1.24	2.05	7.4
	Alexander Springs Creek Segment 1	0.10	231,519	23.4	5.67	0.11	231,519	26.3	6.36	-0.012	-12.29	-2.88	-0.70	-12.3
Total Inorganic Nitrogen	Wekiva River Segment 1	0.90	138,001	124	63.80	0.89	138,001	122.3	62.80	0.014	1.57	1.95	1.00	1.6
	Wekiva River Segment 2	0.43	448,975	195	19.79	0.42	448,975	190	19.32	0.010	2.39	4.66	0.47	2.4
	Rock Springs Run Segment 1	1.18	119,101	140	55.23	1.13	119,101	135	53.13	0.045	3.81	5.34	2.11	3.8
	Rock Springs Run Segment 2	0.90	113,111	101.7	21.17	0.85	113,111	95.6	19.91	0.054	5.96	6.05	1.26	6.0
	Juniper Creek Segment 1	0.03	217,103	7.03	11.64	0.03	217,103	6.73	11.14	0.001	4.28	0.30	0.50	4.3
	Alexander Springs Creek Segment 1	0.17	231,519	40.26	9.75	0.20	231,519	46.28	11.21	-0.026	-14.97	-6.03	-1.46	-15.0

Wekiva River Segment 1	1.95	ha
Wekiva River Segment 2	9.85	ha
Rock Springs Run Segment 1	2.54	ha
Rock Springs Run Segment 2	4.80	ha
Juniper Creek Segment 1	0.60	ha
Alexander Springs Creek Segment 1	4.13	ha

TABLE 3-7
SUMMARY OF ESTIMATED PHASE 3 NUTRIENT MASS REMOVALS IN THE WEKIVA RIVER SEGMENTS

				Inflow				Outflow								
				Segment - Up				Segment - Down				Removal				
				Conc	Flow	Mass	Mass	Conc	Flow	Mass	Mass	Conc		Mass		
Site	Date	Parameter	Units	(mg/L)	(m^3/d)	(kg/d)	(kg/ha/d)	(mg/L)	(m^3/d)	(kg/d)	(kg/ha/d)	(mg/L)	(%)	(kg/d)	(kg/ha/d)	(%)
WR-Seg1	Fall	TN	mg/L	1.10	142,484	156.9	80.6	1.08	142,484	154.1	79.1	0.020	1.8	2.8	1.46	1.8
	10/24/2006	TON	mg/L	0.16	142,484	22.9	11.7	0.15	142,484	21.5	11.1	0.009	5.9	1.4	0.70	5.9
	11/8/2006	TIN	mg/L	0.94	142,484	134.1	68.9	0.93	142,484	132.6	68.1	0.011	1.1	1.5	0.77	1.1
		SRP	mg/L	0.061	142,484	8.6	4.4	0.118	142,484	16.7	8.6	-0.057	-94.2	-8.1	-4.17	-94.2
		TP	mg/L	0.133	142,484	18.9	9.7	0.121	142,484	17.2	8.8	0.012	9.1	1.7	0.88	9.1
	Winter	TN	mg/L	0.96	152,436	146.3	75.1	1.13	152,436	172.3	88.5	-0.171	-17.8	-26.0	-13.35	-17.8
	1/23/2007	TON	mg/L	0.04	152,436	6.5	3.3	0.11	152,436	16.0	8.2	-0.063	-147.1	-9.5	-4.89	-147.1
	2/5/2007	TIN	mg/L	0.92	152,436	139.8	71.8	1.03	152,436	156.2	80.3	-0.108	-11.8	-16.5	-8.46	-11.8
		SRP	mg/L	0.119	152,436	18.1	9.3	0.115	152,436	17.5	9.0	0.004	3.8	0.7	0.35	3.8
		TP	mg/L	0.120	152,436	18.3	9.4	0.128	152,436	19.4	10.0	-0.008	-6.3	-1.1	-0.59	-6.3
	Spring	TN	mg/L	1.13	139,208	157.0	80.7	1.01	139,208	140.7	72.3	0.117	10.4	16.3	8.37	10.4
	4/11/2007	TON	mg/L	0.11	139,208	15.9	8.2	0.12	139,208	16.9	8.7	-0.008	-6.6	-1.0	-0.54	-6.6
	4/24/2007	TIN	mg/L	1.01	139,208	141.2	72.5	0.89	139,208	123.8	63.6	0.125	12.3	17.3	8.90	12.3
		SRP	mg/L	0.118	139,208	16.4	8.4	0.119	139,208	16.5	8.5	0.000	-0.4	-0.1	-0.04	-0.4
		TP	mg/L	0.126	139,208	17.5	9.0	0.131	139,208	18.2	9.4	-0.006	-4.4	-0.8	-0.39	-4.4
	Summer	TN	mg/L	0.92	117,876	108.0	55.5	0.93	117,876	109.2	56.1	-0.010	-1.1	-1.2	-0.61	-1.1
	7/31/2007	TON	mg/L	0.22	117,876	26.2	13.5	0.28	117,876	32.8	16.9	-0.056	-25.2	-6.6	-3.39	-25.2
	8/15/2007	TIN	mg/L	0.69	117,876	81.8	42.0	0.65	117,876	76.4	39.2	0.046	6.6	5.4	2.79	6.6
		SRP	mg/L	0.109	117,876	12.8	6.6	0.109	117,876	12.8	6.6	0.000	0.0	0.0	0.00	0.0
		TP	mg/L	0.128	117,876	15.1	7.7	0.121	117,876	14.2	7.3	0.008	5.9	0.9	0.45	5.9
	POR	TN	mg/L	1.03	138,001	142.1	73.0	1.04	138,001	144.1	74.0	-0.015	-1.4	-2.0	-1.03	-1.4
	10/24/2006	TON	mg/L	0.13	138,001	17.9	9.2	0.16	138,001	21.8	11.2	-0.029	-22.1	-4.0	-2.03	-22.1
	8/15/2007	TIN	mg/L	0.90	138,001	124.2	63.8	0.89	138,001	122.3	62.8	0.014	1.6	1.9	1.00	1.6
		SRP	mg/L	0.101	138,001	14.0	7.2	0.115	138,001	15.9	8.2	-0.014	-13.4	-1.9	-0.96	-13.4
		TP	mg/L	0.126	138,001	17.4	9.0	0.125	138,001	17.3	8.9	0.001	1.0	0.2	0.09	1.0
WR-Seg2	Fall	TN	mg/L	0.81	623,877	502.2	51.0	0.74	623,877	459.8	46.7	0.068	8.4	42.4	4.31	8.4
	10/25/2006	TON	mg/L	0.29	623,877	180.3	18.3	0.22	623,877	134.8	13.7	0.073	25.3	45.5	4.62	25.3
	11/7/2006	TIN	mg/L	0.52	623,877	326.9	33.2	0.52	623,877	325.0	33.0	0.003	0.6	1.9	0.19	0.6
		SRP	mg/L	0.099	623,877	61.5	6.2	0.098	623,877	60.8	6.2	0.001	1.0	0.6	0.06	1.0
		TP	mg/L	0.116	623,877	72.1	7.3	0.112	623,877	69.6	7.1	0.004	3.5	2.5	0.25	3.5
	Winter	TN	mg/L	0.70	510,111	357.8	36.3	0.73	510,111	370.9	37.6	-0.026	-3.6	-13.0	-1.32	-3.6
	1/24/2007	TON	mg/L	0.23	510,111	117.3	11.9	0.32	510,111	163.2	16.6	-0.090	-39.1	-45.9	-4.66	-39.1
	2/6/2007	TIN	mg/L	0.47	510,111	240.5	24.4	0.44	510,111	222.9	22.6	0.035	7.3	17.6	1.79	7.3
		SRP	mg/L	0.128	510,111	65.0	6.6	0.127	510,111	64.8	6.6	0.001	0.4	0.3	0.03	0.4
		TP	mg/L	0.104	510,111	53.1	5.4	0.111	510,111	56.4	5.7	-0.007	-6.3	-3.3	-0.34	-6.3
	Spring	TN	mg/L	0.54	378,404	205.7	20.9	0.55	378,404	209.6	21.3	-0.011	-1.9	-4.0	-0.40	-1.9
	4/10/2007	TON	mg/L	0.16	378,404	59.8	6.1	0.18	378,404	67.2	6.8	-0.020	-12.3	-7.4	-0.75	-12.3
	4/24/2007	TIN	mg/L	0.39	378,404	145.9	14.8	0.38	378,404	142.5	14.5	0.009	2.3	3.4	0.35	2.3
		SRP	mg/L	0.090	378,404	34.1	3.5	0.095	378,404	35.9	3.6	-0.005	-5.6	-1.9	-0.19	-5.6
		TP	mg/L	0.108	378,404	40.7	4.1	0.119	378,404	45.0	4.6	-0.012	-10.7	-4.4	-0.44	-10.7
	Summer	TN	mg/L	0.64	283,509	181.3	18.4	0.61	283,509	173.8	17.6	0.027	4.1	7.5	0.76	4.1
	8/1/2007	TON	mg/L	0.40	283,509	114.5	11.6	0.41	283,509	116.9	11.9	-0.008	-2.1	-2.4	-0.24	-2.1
	8/16/2007	TIN	mg/L	0.24	283,509	66.8	6.8	0.25	283,509	71.0	7.2	-0.015	-6.4	-4.3	-0.43	-6.4
		SRP	mg/L	0.093	283,509	26.4	2.7	0.100	283,509	28.2	2.9	-0.007	-7.0	-1.8	-0.19	-7.0
		TP	mg/L	0.115	283,509	32.6	3.3	0.118	283,509	33.5	3.4	-0.003	-2.6	-0.9	-0.09	-2.6
	POR	TN	mg/L	0.69	448,975	311.8	31.6	0.68	448,975	303.5	30.8	0.018	2.6	8.2	0.84	2.6
	10/25/2006	TON	mg/L	0.26	448,975	118.0	12.0	0.27	448,975	120.5	12.2	-0.006	-2.2	-2.5	-0.26	-2.2
	8/16/2007	TIN	mg/L	0.43	448,975	195.0	19.8	0.42	448,975	190.4	19.3	0.010	2.4	4.7	0.47	2.4
		SRP	mg/L	0.104	448,975	46.7	4.7	0.106	448,975	47.4	4.8	-0.002	-1.5	-0.71	-0.072	-1.5
		TP	mg/L	0.110	448,975	49.6	5.0	0.114	448,975	51.1	5.2	-0.003	-3.0	-1.5	-0.15	-3.0

Segment Areas:	WR SEG 1	1.95 ha
	WR SEG 2	9.85 ha

Estimated removals for total nitrogen in RSR-SEG-2 were positive during the fall, winter, and summer sampling periods (0.82 to 1.41 kg/ha/d) and negative during the spring (-0.06 kg/ha/d). Total organic nitrogen estimated mass removals were negative during the fall, winter, and spring seasons (-0.80 to -0.06 kg/ha/d) and was positive in the summer (1.58 kg/ha/d). Estimated mass removals for total inorganic nitrogen were positive during all seasons (0.74 to 1.60 kg/ha/d). The estimated mass removal for total phosphorus was positive during the winter and spring (0.04 to 0.03 kg/ha/d) and negative during the fall and summer (-0.04 to -0.07 kg/ha/d). The estimated mass removal for soluble reactive phosphorus was positive all seasons (0.01 to 0.07 kg/ha/d).

3.5.4 Juniper Creek Segment

Estimated Phase 3 nutrient mass balances for the Juniper Creek segment are detailed in **Table 3-9**. Estimated mass removal for total nitrogen was highest during the summer and fall seasons (19.91 and 2.65 kg/ha/d) and negative during the winter and spring seasons (-6.02 and -0.50 kg/ha/d). The estimated mass assimilation rates for total organic nitrogen was neutral in the fall, positive for the winter and summer (0.73 and 17.99 kg/ha/d), and negative for the spring (-10.51 kg/ha/d). The estimated mass removal rate for total inorganic nitrogen was positive during the fall, spring, and summer seasons (2.65, 4.17, and 1.92 kg/ha/d) and negative during the winter season (-6.75 kg/ha/d). The estimated mass removal rate for total phosphorus was negative during the all sampling periods (-4.74 to -0.50 kg/ha/d). The estimated mass removal rate for soluble reactive phosphorus were also negative for all seasons, ranging between -0.39 to -0.17 kg/ha/d.

3.5.5 Alexander Springs Creek Segment

Estimated Phase 3 nutrient mass balances for the Alexander Springs Creek segments are detailed in **Table 3-10**. Estimated mass removal rates for total nitrogen were generally positive (5.8 to 10.4 kg/ha/d) except for the summer period (-2.2 kg/ha/d). Estimated mass assimilation for total organic and total inorganic nitrogen forms followed the same pattern. Estimated mass assimilation rate for total phosphorus was negative during all four sampling periods (-0.38 to -0.06 kg/ha/d). Estimated mass removal rate for soluble reactive phosphorus was only slightly negative in the fall (0.04 kg/ha/d) and positive during the remaining three seasons (0.04 to 1.9 kg/ha/d).

TABLE 3-8
SUMMARY OF ESTIMATED PHASE 3 NUTRIENT MASS REMOVALS IN THE ROCK SPRINGS RUN SEGMENTS

				Inflow				Outflow								
				Segment - Up				Segment - Down				Removal				
				Conc	Flow	Mass	Mass	Conc	Flow	Mass	Mass	Conc		Mass		
Site	Date	Parameter	Units	(mg/L)	(m^3/d)	(kg/d)	(kg/ha/d)	(mg/L)	(m^3/d)	(kg/d)	(kg/ha/d)	(mg/L)	(%)	(kg/d)	(kg/ha/d)	(%)
RSR-Seg1	Fall	TN	mg/L	1.29	129,280	167.3	65.9	1.21	129,280	156.1	61.5	0.086	6.7	11.2	4.39	6.7
	10/5/2006	TON	mg/L	0.08	129,280	10.2	4.0	0.05	129,280	6.8	2.7	0.026	33.3	3.4	1.34	33.3
	10/19/2006	TIN	mg/L	1.22	129,280	157.1	61.9	1.16	129,280	149.3	58.8	0.060	4.9	7.8	3.06	4.9
		SRP	mg/L	0.074	129,280	9.5	3.7	0.077	129,280	10.0	3.9	-0.003	-4.8	-0.5	-0.18	-4.8
		TP	mg/L	0.090	129,280	11.6	4.6	0.094	129,280	12.1	4.8	-0.004	-4.5	-0.5	-0.20	-4.5
	Winter	TN	mg/L	1.26	125,850	158.3	62.4	1.34	125,850	168.6	66.4	-0.083	-6.6	-10.4	-4.09	-6.6
	1/4/2007	TON	mg/L	0.09	125,850	11.0	4.3	0.20	125,850	24.7	9.7	-0.109	-124.6	-13.7	-5.40	-124.6
	1/18/2007	TIN	mg/L	1.17	125,850	147.2	58.0	1.14	125,850	143.9	56.7	0.027	2.3	3.3	1.31	2.3
		SRP	mg/L	0.086	125,850	10.8	4.3	0.090	125,850	11.3	4.4	-0.004	-4.1	-0.4	-0.17	-4.1
		TP	mg/L	0.100	125,850	12.6	5.0	0.111	125,850	13.9	5.5	-0.011	-10.5	-1.3	-0.52	-10.5
	Spring	TN	mg/L	1.28	117,944	151.0	59.5	1.33	117,944	156.3	61.6	-0.045	-3.5	-5.3	-2.09	-3.5
	5/8/2007	TON	mg/L	0.10	117,944	11.8	4.6	0.21	117,944	24.2	9.5	-0.105	-105.0	-12.4	-4.88	-105.0
	5/24/2007	TIN	mg/L	1.18	117,944	139.2	54.8	1.12	117,944	132.1	52.0	0.060	5.1	7.1	2.79	5.1
		SRP	mg/L	0.077	117,944	9.1	3.6	0.084	117,944	9.8	3.9	-0.006	-8.4	-0.8	-0.30	-8.4
		TP	mg/L	0.085	117,944	10.0	3.9	0.103	117,944	12.1	4.8	-0.018	-21.2	-2.1	-0.84	-21.2
	Summer	TN	mg/L	1.34	103,329	138.5	54.6	1.25	103,329	129.2	50.9	0.090	6.7	9.3	3.66	6.7
	8/23/2007	TON	mg/L	0.14	103,329	14.9	5.9	0.09	103,329	9.7	3.8	0.051	35.3	5.3	2.08	35.3
	9/6/2007	TIN	mg/L	1.13	103,329	117.2	46.2	1.10	103,329	114.0	44.9	0.031	2.7	3.2	1.26	2.7
		SRP	mg/L	0.083	103,329	8.6	3.4	0.083	103,329	8.5	3.4	0.000	0.6	0.1	0.02	0.6
		TP	mg/L	0.089	103,329	9.2	3.6	0.085	103,329	8.8	3.5	0.004	4.5	0.4	0.16	4.5
	POR	TN	mg/L	1.29	119,101	153.7	60.6	1.28	119,101	152.5	60.1	0.010	0.8	1.2	0.47	0.8
	5/8/2007	TON	mg/L	0.10	119,101	12.0	4.7	0.14	119,101	16.3	6.4	-0.037	-36.4	-4.4	-1.72	-36.4
	1/18/2007	TIN	mg/L	1.18	119,101	140.2	55.2	1.13	119,101	134.8	53.1	0.045	3.8	5.3	2.11	3.8
		SRP	mg/L	0.080	119,101	9.5	3.7	0.083	119,101	9.9	3.9	-0.003	-4.2	-0.4	-0.16	-4.2
		TP	mg/L	0.091	119,101	10.8	4.3	0.098	119,101	11.7	4.6	-0.007	-8.2	-0.9	-0.35	-8.2
RSR-Seg2	Fall	TN	mg/L	1.02	112,050	114.3	23.8	0.97	112,050	108.6	22.6	0.051	5.0	5.7	1.19	5.0
	10/4/2006	TON	mg/L	0.10	112,050	11.2	2.3	0.12	112,050	13.2	2.7	-0.018	-17.5	-2.0	-0.41	-17.5
	10/18/2006	TIN	mg/L	0.92	112,050	103.1	21.5	0.85	112,050	95.5	19.9	0.069	7.4	7.7	1.60	7.4
		SRP	mg/L	0.073	112,050	8.1	1.7	0.070	112,050	7.8	1.6	0.003	4.1	0.3	0.07	4.1
		TP	mg/L	0.090	112,050	10.0	2.1	0.091	112,050	10.2	2.1	-0.002	-1.7	-0.2	-0.04	-1.7
	Winter	TN	mg/L	1.08	114,912	124.1	25.8	1.02	114,912	117.3	24.4	0.059	5.5	6.8	1.41	5.5
	1/3/2007	TON	mg/L	0.23	114,912	26.2	5.5	0.23	114,912	26.5	5.5	-0.003	-1.1	-0.3	-0.06	-1.1
	1/17/2007	TIN	mg/L	0.85	114,912	97.9	20.4	0.79	114,912	90.8	18.9	0.062	7.2	7.1	1.47	7.2
		SRP	mg/L	0.081	114,912	9.3	1.9	0.080	114,912	9.2	1.9	0.001	0.6	0.1	0.01	0.6
		TP	mg/L	0.089	114,912	10.2	2.1	0.087	114,912	10.0	2.1	0.002	1.7	0.2	0.04	1.7
	Spring	TN	mg/L	1.03	109,433	113.2	23.6	1.04	109,433	113.5	23.6	-0.002	-0.2	-0.3	-0.06	-0.2
	5/9/2007	TON	mg/L	0.15	109,433	16.4	3.4	0.19	109,433	20.2	4.2	-0.035	-23.3	-3.8	-0.80	-23.3
	5/24/2007	TIN	mg/L	0.88	109,433	96.8	20.2	0.85	109,433	93.2	19.4	0.033	3.7	3.6	0.74	3.7
		SRP	mg/L	0.071	109,433	7.7	1.6	0.070	109,433	7.7	1.6	0.001	0.7	0.1	0.01	0.7
		TP	mg/L	0.091	109,433	10.0	2.1	0.090	109,433	9.8	2.0	0.002	1.6	0.2	0.03	1.6
	Summer	TN	mg/L	1.21	116,050	140.4	29.2	1.18	116,050	136.5	28.4	0.034	2.8	3.9	0.82	2.8
	8/22/2007	TON	mg/L	0.27	116,050	31.6	6.6	0.21	116,050	24.0	5.0	0.066	24.0	7.6	1.58	24.0
	9/5/2007	TIN	mg/L	0.94	116,050	108.8	22.7	0.89	116,050	102.9	21.4	0.051	5.4	5.9	1.23	5.4
		SRP	mg/L	0.078	116,050	9.1	1.9	0.077	116,050	8.9	1.8	0.002	1.9	0.2	0.04	1.9
		TP	mg/L	0.088	116,050	10.2	2.1	0.091	116,050	10.5	2.2	-0.003	-3.4	-0.3	-0.07	-3.4
	POR	TN	mg/L	1.09	113,111	123.0	25.6	1.05	113,111	119.0	24.8	0.036	3.3	4.0	0.84	3.3
	10/4/2006	TON	mg/L	0.19	113,111	21.4	4.4	0.19	113,111	21.0	4.4	0.003	1.8	0.4	0.08	1.8
	9/5/2007	TIN	mg/L	0.90	113,111	101.7	21.2	0.85	113,111	95.6	19.9	0.054	6.0	6.1	1.26	6.0
		SRP	mg/L	0.075	113,111	8.5	1.8	0.074	113,111	8.4	1.7	0.001	1.8	0.2	0.03	1.8
		TP	mg/L	0.089	113,111	10.1	2.1	0.089	113,111	10.1	2.1	0.000	-0.4	0.0	-0.01	-0.4

Segment Areas: RSR SEG 1 2.54 ha
RSR SEG 2 4.80 ha

TABLE 3-9
SUMMARY OF ESTIMATED PHASE 3 NUTRIENT MASS REMOVALS IN THE JUNIPER CREEK SEGMENT

				Inflow				Outflow				Removal				
				Segment - Up				Segment - Down								
				Conc	Flow	Mass	Mass	Conc	Flow	Mass	Mass	Conc		Mass		
Site	Date	Parameter	Units	(mg/L)	(m^3/d)	(kg/d)	(kg/ha/d)	(mg/L)	(m^3/d)	(kg/d)	(kg/ha/d)	(mg/L)	(%)	(kg/d)	(kg/ha/d)	(%)
JC-Seg1	Fall	TN	mg/L	0.10	235,277	22.7	37.6	0.09	235,277	21.1	34.9	0.007	7.0	1.6	2.65	7.0
	10/4/2006	TON	mg/L	0.08	235,277	17.6	29.2	0.08	235,277	17.6	29.2	0.000	0.0	0.0	0.00	0.0
	11/18/2006	TIN	mg/L	0.02	235,277	5.1	8.4	0.01	235,277	3.5	5.7	0.007	31.6	1.6	2.65	31.6
		SRP	mg/L	0.011	235,277	2.5	4.1	0.012	235,277	2.7	4.5	-0.001	-9.5	-0.2	-0.39	-9.5
		TP	mg/L	0.021	235,277	4.9	8.2	0.026	235,277	6.1	10.1	-0.005	-23.8	-1.2	-1.95	-23.8
	Winter	TN	mg/L	0.07	220,382	15.1	25.0	0.09	220,382	18.7	31.0	-0.017	-24.1	-3.6	-6.02	-24.1
	1/3/2007	TON	mg/L	0.05	220,382	11.6	19.1	0.05	220,382	11.1	18.4	0.002	3.8	0.4	0.73	3.8
	2/5/2007	TIN	mg/L	0.02	220,382	3.5	5.8	0.03	220,382	7.6	12.6	-0.019	-115.6	-4.1	-6.75	-115.6
		SRP	mg/L	0.016	220,382	3.4	5.7	0.017	220,382	3.6	6.0	-0.001	-6.5	-0.2	-0.36	-6.5
		TP	mg/L	0.024	220,382	5.2	8.6	0.037	220,382	8.0	13.3	-0.013	-55.3	-2.9	-4.74	-55.3
	Spring	TN	mg/L	0.13	201,671	26.8	44.4	0.13	201,671	27.1	44.9	-0.002	-1.1	-0.3	-0.50	-1.1
	5/30/2007	TON	mg/L	0.07	201,671	14.8	24.5	0.11	201,671	21.2	35.0	-0.032	-42.9	-6.4	-10.51	-42.9
	6/19/2007	TIN	mg/L	0.04	201,671	8.5	14.0	0.03	201,671	5.9	9.8	0.013	29.8	2.5	4.17	29.8
		SRP	mg/L	0.019	201,671	3.8	6.3	0.021	201,671	4.1	6.8	-0.002	-7.9	-0.3	-0.50	-7.9
		TP	mg/L	0.025	201,671	4.9	8.2	0.026	201,671	5.2	8.7	-0.002	-6.1	-0.3	-0.50	-6.1
	Summer	TN	mg/L	0.16	211,083	33.8	55.9	0.10	211,083	21.7	36.0	0.057	35.6	12.0	19.91	35.6
	8/22/2007	TON	mg/L	0.11	211,083	22.7	37.5	0.06	211,083	11.8	19.6	0.052	47.9	10.9	17.99	47.9
	9/5/2007	TIN	mg/L	0.05	211,083	11.1	18.3	0.05	211,083	9.9	16.4	0.006	10.5	1.2	1.92	10.5
		SRP	mg/L	0.017	211,083	3.5	5.8	0.017	211,083	3.6	5.9	-0.001	-3.0	-0.1	-0.17	-3.0
		TP	mg/L	0.017	211,083	3.5	5.8	0.018	211,083	3.8	6.3	-0.002	-9.1	-0.3	-0.52	-9.1
	POR	TN	mg/L	0.11	217,103	24.6	40.7	0.10	217,103	22.2	36.7	0.011	9.9	2.4	4.01	9.9
	10/4/2006	TON	mg/L	0.08	217,103	16.7	27.6	0.07	217,103	15.4	25.6	0.006	7.4	1.2	2.05	7.4
	9/5/2007	TIN	mg/L	0.03	217,103	7.0	11.6	0.03	217,103	6.7	11.1	0.001	4.3	0.3	0.50	4.3
		SRP	mg/L	0.015	217,103	3.3	5.5	0.016	217,103	3.5	5.8	-0.001	-6.5	-0.2	-0.36	-6.5
		TP	mg/L	0.021	217,103	4.6	7.7	0.027	217,103	5.8	9.6	-0.005	-25.1	-1.2	-1.93	-25.1

Segment Areas: JC SEG 1 0.60 ha

TABLE 3-10
SUMMARY OF ESTIMATED PHASE 3 NUTRIENT MASS REMOVALS IN THE ALEXANDER SPRINGS CREEK SEGMENT

				Inflow				Outflow				Removal				
				Segment - Up				Segment - Down								
				Conc	Flow	Mass	Mass	Conc	Flow	Mass	Mass	Conc		Mass		
Site	Date	Parameter	Units	(mg/L)	(m^3/d)	(kg/d)	(kg/ha/d)	(mg/L)	(m^3/d)	(kg/d)	(kg/ha/d)	(mg/L)	(%)	(kg/d)	(kg/ha/d)	(%)
ASC-Seg1	Fall	TN	mg/L	0.16	234,017	37.4	9.1	0.08	234,017	19.1	4.6	0.079	49.1	18.4	4.45	49.1
	10/24/2006	TON	mg/L	0.13	234,017	29.6	7.2	0.06	234,017	13.9	3.4	0.067	53.0	15.7	3.80	53.0
	11/7/2006	TIN	mg/L	0.03	234,017	7.8	1.9	0.02	234,017	5.1	1.2	0.012	34.3	2.7	0.65	34.3
		SRP	mg/L	0.042	234,017	9.7	2.4	0.043	234,017	9.9	2.4	-0.001	-2.4	-0.2	-0.06	-2.4
		TP	mg/L	0.060	234,017	13.9	3.4	0.056	234,017	13.0	3.1	0.004	6.7	0.9	0.23	6.7
	Winter	TN	mg/L	0.61	285,633	174.5	42.3	0.70	285,633	199.5	48.3	-0.087	-14.3	-25.0	-6.05	-14.3
	1/23/2007	TON	mg/L	0.12	285,633	34.8	8.4	0.11	285,633	31.4	7.6	0.012	9.8	3.4	0.83	9.8
	2/5/2007	TIN	mg/L	0.49	285,633	139.7	33.8	0.59	285,633	168.1	40.7	-0.100	-20.3	-28.4	-6.88	-20.3
		SRP	mg/L	0.040	285,633	11.4	2.8	0.076	285,633	21.7	5.3	-0.036	-90.0	-10.3	-2.49	-90.0
		TP	mg/L	0.047	285,633	13.3	3.2	0.083	285,633	23.6	5.7	-0.036	-77.4	-10.3	-2.49	-77.4
	Spring	TN	mg/L	0.14	202,870	28.0	6.8	0.16	202,870	33.4	8.1	-0.027	-19.2	-5.4	-1.30	-19.2
	5/30/2007	TON	mg/L	0.09	202,870	19.1	4.6	0.13	202,870	26.0	6.3	-0.034	-36.2	-6.9	-1.67	-36.2
	6/19/2007	TIN	mg/L	0.04	202,870	8.9	2.2	0.04	202,870	7.4	1.8	0.008	17.0	1.5	0.37	17.0
		SRP	mg/L	0.042	202,870	8.4	2.0	0.043	202,870	8.7	2.1	-0.001	-3.6	-0.3	-0.07	-3.6
		TP	mg/L	0.045	202,870	9.1	2.2	0.042	202,870	8.5	2.1	0.003	6.7	0.6	0.15	6.7
	Summer	TN	mg/L	0.07	203,555	14.7	3.5	0.19	203,555	38.3	9.3	-0.116	-161.1	-23.6	-5.72	-161.1
	7/31/2007	TON	mg/L	0.05	203,555	10.1	2.4	0.17	203,555	33.8	8.2	-0.117	-235.4	-23.7	-5.74	-235.4
	8/15/2007	TIN	mg/L	0.02	203,555	4.6	1.1	0.02	203,555	4.5	1.1	0.001	2.2	0.1	0.02	2.2
		SRP	mg/L	0.040	203,555	8.1	2.0	0.040	203,555	8.0	1.9	0.001	1.3	0.1	0.02	1.3
		TP	mg/L	0.046	203,555	9.4	2.3	0.046	203,555	9.4	2.3	0.000	0.0	0.0	0.00	0.0
	POR	TN	mg/L	0.27	231,519	63.7	15.4	0.31	231,519	72.6	17.6	-0.038	-14.0	-8.9	-2.16	-14.0
	10/24/2006	TON	mg/L	0.10	231,519	23.4	5.7	0.11	231,519	26.3	6.4	-0.012	-12.3	-2.9	-0.70	-12.3
	8/15/2007	TIN	mg/L	0.17	231,519	40.3	9.8	0.20	231,519	46.3	11.2	-0.026	-15.0	-6.0	-1.46	-15.0
		SRP	mg/L	0.041	231,519	9.4	2.3	0.052	231,519	12.1	2.9	-0.012	-28.4	-2.7	-0.65	-28.4
		TP	mg/L	0.049	231,519	11.4	2.8	0.059	231,519	13.6	3.3	-0.009	-19.1	-2.2	-0.53	-19.1

Segment Areas: ASC SEG 1 4.13 ha

3.6 Upstream/Downstream Ecosystem Metabolism

3.6.1 Estimates of Oxygen Accrual from Side Inflows

The oxygen rate-of-change method uses measurements of upstream and downstream oxygen masses to estimate the net increase or decrease in dissolved oxygen due to community metabolism. Uncounted masses of dissolved oxygen arising from unquantified surface or groundwater inputs can in some cases contribute a significant mass of additional oxygen and produce errors in metabolism estimates. Upstream-downstream flows were examined for the existing segment datasets to determine whether an oxygen accrual correction was justified. The decision to apply this correction was made based on an examination of upstream and downstream flow data, the known occurrence of unaccounted inflows such as Sweetwater Spring in the Juniper Creek stream segment during the Phase 1 study period, and indications in the nighttime dissolved oxygen response at the downstream station that showed clear trends that were not accounted for by upstream dissolved oxygen patterns. In each case where this correction was made an average midnight oxygen rate-of-change was estimated based on typical daily values in the dataset and from estimated inflows. Oxygen accrual was then adjusted for all midnight values that differed substantially from this typical value and then intermediate hourly accrual values were interpolated between these daily estimates. When accrual corrections are applied to an oxygen-rate-of-change dataset it means that community respiration (CR) and net primary production (NPP) results for these water bodies are estimates.

Table 3-11 summarizes the dissolved oxygen accrual corrections applied to the seasonal metabolism estimates over the Phase 3 Study period. The oxygen accrual correction was applied to the Juniper Creek stream segment for all sampling periods and to the Wekiva River segment 1 during the winter 2007 event. The other stream segments did not require accrual corrections.

Both positive and negative accrual corrections were applied to Juniper Creek during the sampling events. The largest percentage accrual correction applied to Juniper Creek was during the fall sampling period (-20%), with other negative accrual corrections needed during the spring and summer periods (-14.5 and -5.7 %), as well as a small positive accrual correction (1.2%) during the winter period. It was assumed that these variations in estimated accrual are due to turbulent flow in this system resulting in discreet (unmixed) water masses arising from Juniper Creek or Sweetwater Springs reaching the monitoring points. The Juniper Creek segment generally required negative corrections, possibly due to variable water inputs from Sweetwater Spring which may contain relatively elevated oxygen concentrations.

The only other accrual correction during Phase 3 period-of-record was for the Wekiva River segment 1 during the winter period, which required a positive accrual correction of 9.5%. This segment is periodically affected by inflows of surface runoff with higher dissolved oxygen concentrations. There were no other corrections required during the other three seasons.

TABLE 3-11
WEKIVA PLRG – PHASE 3 STUDY METABOLISM DISSOLVED OXYGEN ACCRUAL CORRECTIONS

Segment	Event	Average DO Flux (kg/hr)		Percent Corrected
		Downstream Total	Estimated Accrual	
WR SEG 1	Fall	12.20	0.00	0.0
	Winter	15.07	1.44	9.5
	Spring	14.88	0.00	0.0
	Summer	11.10	0.00	0.0
WR SEG 2	Fall	157.65	0.00	0.0
	Winter	139.88	0.00	0.0
	Spring	98.95	0.00	0.0
	Summer	49.73	0.00	0.0
RSR SEG 1	Fall	29.83	0.00	0.0
	Winter	29.82	0.00	0.0
	Spring	27.86	0.00	0.0
	Summer	22.62	0.00	0.0
RSR SEG 2	Fall	33.20	0.00	0.0
	Winter	35.63	0.00	0.0
	Spring	34.31	0.00	0.0
	Summer	30.69	0.00	0.0
ASC SEG 1	Fall	57.22	0.00	0.0
	Winter	59.23	0.00	0.0
	Spring	37.21	0.00	0.0
	Summer	32.47	0.00	0.0
JC SEG 1	Fall	71.61	-14.31	-20.0
	Winter	63.36	0.77	1.2
	Spring	49.27	-7.15	-14.5
	Summer	53.83	-3.08	-5.7

3.6.2 Estimates of Color and Depth Effects on Light Attenuation

The attenuation of light is affected by the depth of the water column as well as any dissolved or particulate matter contained therein. Therefore, the supply of light and photosynthetically active radiation (PAR) available to primary producers can be greatly influenced by color and turbidity conditions in the water column. The light attenuation coefficient (k) can be used to estimate how much light is absorbed or transmitted through the water column per unit depth; and higher light attenuation values imply higher absorption and lower transmittance of light.

Light attenuation was measured at the upstream and downstream locations of each stream segment during each seasonal study period-of-record (October 2006 to September 2007). **Table 3-12** provides a summary of the Phase 3 Study period light attenuation data. Detailed light attenuation data and calculations are provided in **Appendix D**. For all stream segments, the diffuse attenuation coefficient (k) was found to increase from the upstream to the downstream locations, with the exception of Wekiva River segment 2 where there was a slight decrease. This pattern suggests that dissolved and particulate matter increase with distance downstream, as would be expected in productive lotic systems. The slight decrease in light attenuation coefficient for the lower Wekiva River segment may be attributed to a sinking of particulate matter within this wider, slower moving segment of the river. Based on the Phase 3 period-of-record average from both upstream and downstream locations, the highest light transmittance was measured in the Rock Springs Run upstream segment (64%), followed by the Wekiva River upstream segment (53%), the Juniper Creek segment (50%), the Alexander Springs Creek segment (45%), the Wekiva River downstream segment (40%), and the Rock Springs Run downstream segment (33%).

Water color was observed to vary in all of the streams in response to rainfall/runoff events and distance from the spring boil. Changes in color influence the amount of PAR reaching the primary producer community and estimates of ecological efficiency. To incorporate the effects of color over the course of each ecosystem metabolism monitoring event, specific conductance was used as a surrogate for color, as specific conductance was measure continuously by the multi-parameter data sonde. Color appears to be negatively correlated to specific conductance values due to the increasing fraction of rainwater and runoff in the streams under rainy conditions. This relationship was different for each stream due to the differing nature of the groundwater conductivity and watershed land use influences on each spring system. Subsequently, corrections were applied to the metabolism data using relationships between the light attenuation coefficient, color, and specific conductance in the Phase 1 and 2 studies (WSI 2006). During Phase 3 of this study, the occurrence of colored water inputs to these systems was dramatically reduced due to drought conditions and the correlations between specific conductance and color over the period-of-record declined, with R^2 values between 0.02 and 0.63 (**Figure 3-7**). Although water color was also found to be correlated with the diffuse attenuation coefficient (k) for the six stream segments, this strength of this correlation had also declined compared to prior estimates, from R^2=0.79 to R^2=0.58 (**Figure 3-8**).

Because of these declines in correlation between specific conductivity with color and color with light attenuation, the estimated k values using the modeled relationships between color and specific conductance did not adequately represent actual field measurements during Phase 3. For this reason, direct measures of light attenuation collected at the beginning and end of each ecosystem sampling event were interpolated over the time period that ecosystem data was collected during the Phase 3 study. These data in turn allowed the estimation of ecological efficiency for each stream segment.

Plant depth in each stream segment was documented during the transect studies of Phase 1 and used to estimate the depth of water that light had to travel through to reach the submersed aquatic vegetation community. The only change made during the Phase 3 study was to reduce the depth at WR-SEG1 from 1.5 to 1.2 m, corresponding to an increase in overall submersed aquatic vegetation height of water column inhabited.

Estimated plant depths used for each segment were:

- WR-SEG-1 1.20 m (4.9 ft)
- WR-SEG-2 0.10 m (0.33 ft)
- RSR-SEG-1 0.50 m (1.6 ft)
- RSR-SEG-2 0.25 m (0.82 ft)
- JC-SEG-1 0.50 m (1.6 ft)
- ASC-SEG-1 0.10 m (0.33 ft)

3.6.3 Summary of Stream Segment Metabolism Estimates

Table 3-13 provides a summary of the Wekiva River System and reference site stream segment ecosystem metabolism estimates by season for the Phase 1 through 3 period-of-record. Detailed spreadsheets that illustrate the data used to calculate the Phase 3 metabolism estimates are provided in **Appendix E**. An overlay of the average values for the period-of-record ecosystem metabolism data are presented for the six stream segments by date in **Figure 3-9**. The average, median, and percentiles for the period-of-record ecosystem metabolism data are presented for the six stream segments in **Figure 3-10**.

Estimated average gross primary productivity (GPP) for the Phase 3 period-of-record (October 2006 to September 2007) ranged from a low of 1.5 g $O_2/m^2/d$ in the downstream Rock Springs Run segment to a high of 7.6 g $O_2/m^2/d$ in the Juniper Creek segment. Average GPP was higher in the two reference site stream segments than in either of the Rock Springs Run segments and in the upstream Wekiva River segment. The downstream Wekiva River segment GPP (6.4 $O_2/m^2/d$) was intermediate of the Alexander Springs Creek segment (5.6 $O_2/m^2/d$) and the Juniper Creek segment (7.6 $O_2/m^2/d$).

Estimated annual average 24-hour net primary productivity (NPP24) was negative at all Wekiva River and Rock Springs Run segments during the Phase 3 period-of-record (-7.0 g $O_2/m^2/d$ at RSR-SEG2 to -2.5 g $O_2/m^2/d$ at WR-SEG1) and NPP24 was also lower in Rock Springs Run than in the Wekiva River. NPP24 was positive at the two reference stream segments (0.5 g $O_2/m^2/d$ at ASC-SEG1 to 3.0 g $O_2/m^2/d$ at JC-SEG1).

TABLE 3-12
WEKIVA PLRG – PHASE 3 STUDY LIGHT ATTENUATION ESTIMATES

STATION	DATE	Diffuse Attenuation Coefficient (k)	Transmittance (%)	Absorption (%)
WR1-Up	Fall	0.47	62.25	37.75
	Winter	0.66	52.21	47.79
	Spring	0.71	49.81	50.19
	Summer	0.54	58.25	41.75
	POR	**0.60**	**55.63**	**44.37**
WR1-Down	Fall	0.71	49.24	47.34
	Winter	0.79	46.78	63.98
	Spring	0.50	60.91	39.09
	Summer	0.89	41.27	58.73
	POR	**0.72**	**49.55**	**52.28**
WR-SEG1	**POR**	**0.66**	**52.59**	**48.33**
WR2-Up	Fall	0.87	41.73	58.27
	Winter	1.30	27.31	72.69
	Spring	0.74	48.10	51.90
	Summer	1.09	34.07	65.93
	POR	**1.00**	**37.80**	**62.20**
WR2-Down	Fall	0.52	61.53	38.47
	Winter	1.32	26.97	73.03
	Spring	0.72	48.82	51.18
	Summer	1.22	29.44	70.56
	POR	**0.95**	**41.69**	**58.31**
WR-SEG2	**POR**	**0.97**	**39.74**	**60.26**
RSR1-Up	Fall	0.32	74.43	25.57
	Winter	0.41	66.78	33.22
	Spring	0.40	67.83	32.17
	Summer	0.40	68.73	31.27
	POR	**0.38**	**69.44**	**30.56**
RSR1-Down	Fall	0.54	58.26	41.74
	Winter	0.79	46.04	53.96
	Spring	0.42	66.16	33.84
	Summer	0.43	65.20	34.80
	POR	**0.55**	**58.91**	**41.09**
RSR-SEG1	**POR**	**0.46**	**64.18**	**35.82**
RSR2-Up	Fall	1.13	32.53	67.47
	Winter	1.57	20.83	79.17
	Spring	0.95	39.20	60.80
	Summer	0.94	39.22	60.78
	POR	**1.15**	**32.95**	**67.05**
RSR2-Down	Fall	1.51	32.42	67.58
	Winter	1.16	34.16	65.84
	Spring	1.02	36.89	63.11
	Summer	1.32	29.99	70.01
	POR	**1.25**	**33.37**	**66.63**
RSR-SEG2	**POR**	**1.20**	**33.16**	**66.84**
JC1-Up	Fall	0.62	53.96	46.04
	Winter	0.97	38.00	62.00
	Spring	0.61	55.07	44.93
	Summer	0.53	59.41	40.59
	POR	**0.68**	**51.61**	**48.39**
JC1-Down	Fall	0.56	59.09	40.91
	Winter	1.06	35.07	64.93
	Spring	0.76	46.88	53.12
	Summer	0.69	50.56	49.44
	POR	**0.77**	**47.90**	**52.10**
JC-SEG1	**POR**	**0.73**	**49.76**	**50.24**
ASC1-Up	Fall	0.54	59.03	40.97
	Winter	1.11	34.21	65.79
	Spring	0.54	58.99	41.01
	Summer	0.79	45.41	54.59
	POR	**0.75**	**49.41**	**50.59**
ASC1-Down	Fall	0.52	64.75	35.25
	Winter	2.27	10.49	89.51
	Spring	0.50	61.05	38.95
	Summer	1.62	26.73	73.27
	POR	**1.23**	**40.76**	**59.24**
ASC-SEG1	**POR**	**0.99**	**45.08**	**54.92**
Wekiva River	**POR**	**0.82**	**46.17**	**54.29**
Rock Springs Run	**POR**	**0.83**	**48.67**	**51.33**
Juniper Creek	**POR**	**0.73**	**49.76**	**50.24**
Alexander Springs Creek	**POR**	**0.99**	**45.08**	**54.92**

POR = period-of-record average
Percent transmittance/absorption estimated at 1.0 m depth

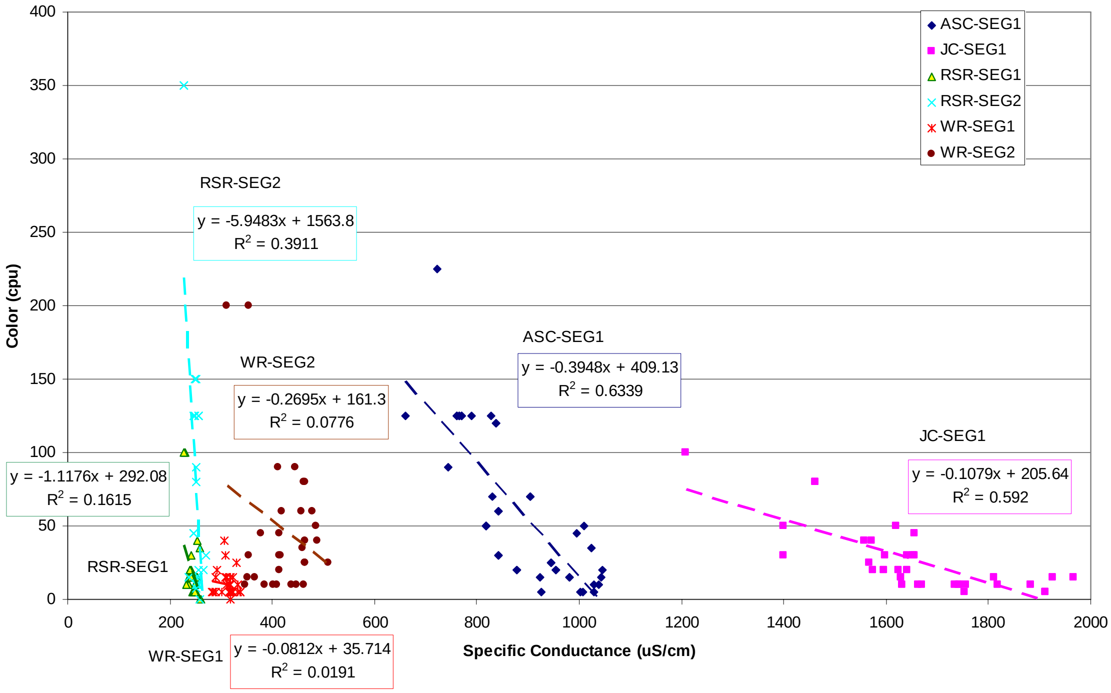


FIGURE 3-7
WEKIVA PLRG SEGMENTS - RELATIONSHIP BETWEEN SPECIFIC CONDUCTANCE AND COLOR FOR THE PHASE 1 THROUGH PHASE 3 PERIOD-OF-RECORD

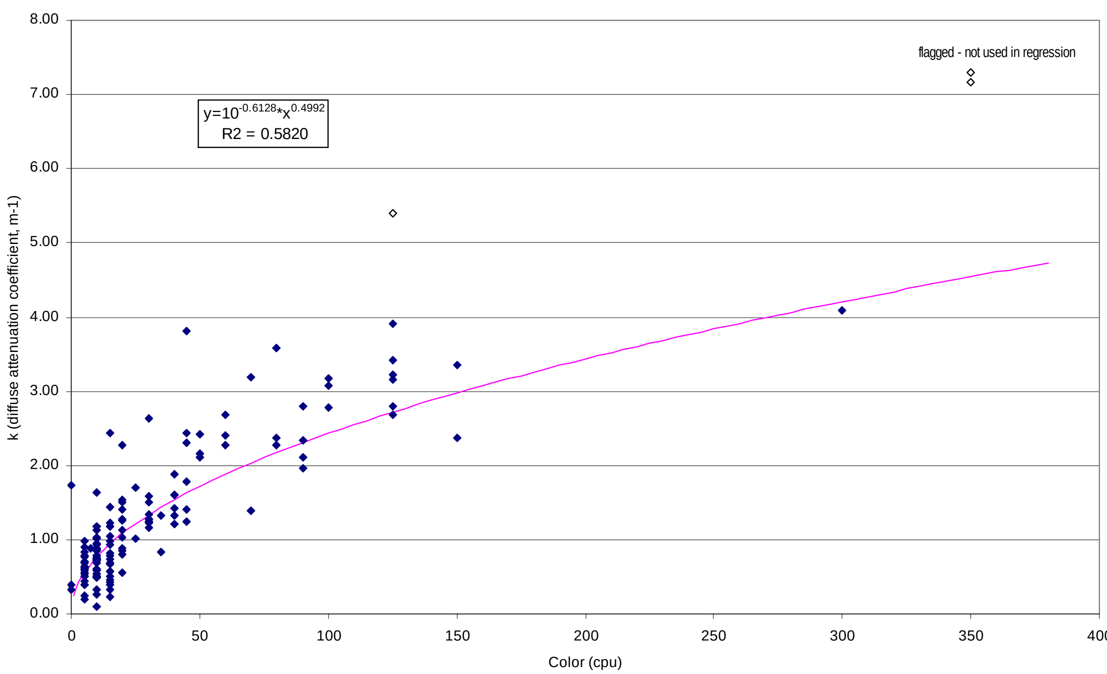


FIGURE 3-8
WEKIVA PLRG LIGHT ATTENUATION RELATIONSHIP WITH COLOR FOR PHASES 1 THROUGH 3

Estimated annual average community respiration (CR) ranged from a low of 4.7 g $O_2/m^2/d$ at Juniper Creek to a high of 9.2 g $O_2/m^2/d$ at the Wekiva River downstream segment. For the Phase 3 period-of-record, CR in the Wekiva River (6.0 and 9.2 g $O_2/m^2/d$) and Rock Springs Run (5.6 and 8.5 g $O_2/m^2/d$) exceeded the estimates from the reference sites (5.1 g $O_2/m^2/d$ at ASC-SEG1 and 4.7 g $O_2/m^2/d$ at JC-SEG1).

The estimated annual average photosynthetic quotient (P/R ratio) varied from a low of 0.18 in the Rocks Springs Run downstream segment to a high of 1.61 at Juniper Creek. All of the Wekiva River and Rock Springs Run stream segments had P/R ratios below unity (1), suggesting overall heterotrophic metabolism during this period-of-record. Both of the reference streams had values greater than unity indicating an overall autotrophic metabolism for these stream segments.

The estimated average PAR photosynthetic efficiency ranged from 0.08 to 0.44 g O_2/mol (0.64% to 3.53%), with the highest average values in the Juniper Creek and Wekiva River downstream segments (0.44 and 0.37 g O_2/mol). Rock Springs Run segments had the lowest estimated ecological efficiency values (0.08 g O_2/mol each).

To facilitate comparisons between stream segments, the average values for selected metabolism data are superimposed by stream segment and date in **Figure 3-9**, and shown utilizing box plots of the PLRG period-of-record (March 2005 – September 2007) data by stream segment in **Figure 3-10**. Detailed ecosystem metabolism results are described below for each stream segment and **Figures 3-11 through 3-16** illustrate differences within stream segments by date for selected community metabolism parameters. Letters above the box and whisker plots characterize statistical differences, those stream segments (or seasonal periods) not sharing the same letter are significantly different ($P < 0.05$). See **Appendix F** for additional detailed statistical comparisons.

3.6.4 Wekiva River Segment 1

Exhibits in **Appendix E** provide a visual and tabular summary of the detailed metabolic behavior of WR-SEG1 during the Phase 3 period-of-record (October 2006 to August 2007). Dissolved oxygen concentrations and pH readings at both the upstream and downstream stations in WR-SEG1 displayed a pronounced diurnal rhythm. Average GPP was highest in the spring and summer seasons (4.8 and 6.5 g $O_2/m^2/d$) suggesting a response to increased light availability during these seasons. Estimated CR was highest in the fall and summer periods (6.4 and 9. 5 g $O_2/m^2/d$), revealing a possible time lag following prior season GPP values (i.e., high GPP will be followed by increased community respiration in the subsequent season). This relationship would explain the only observed positive NPP value (1.3 g $O_2/m^2/d$) during the spring 2007 season, as a result of high spring GPP and low spring CR resulting from the prior seasons (winter) low GPP. Average P/R ratios less than unity were normally observed except for the spring season, when net primary production was positive. Ecological efficiency averaged between 0.17 and 0.43 g O_2/mol (1.38% to 3.48%) during the sampling periods.

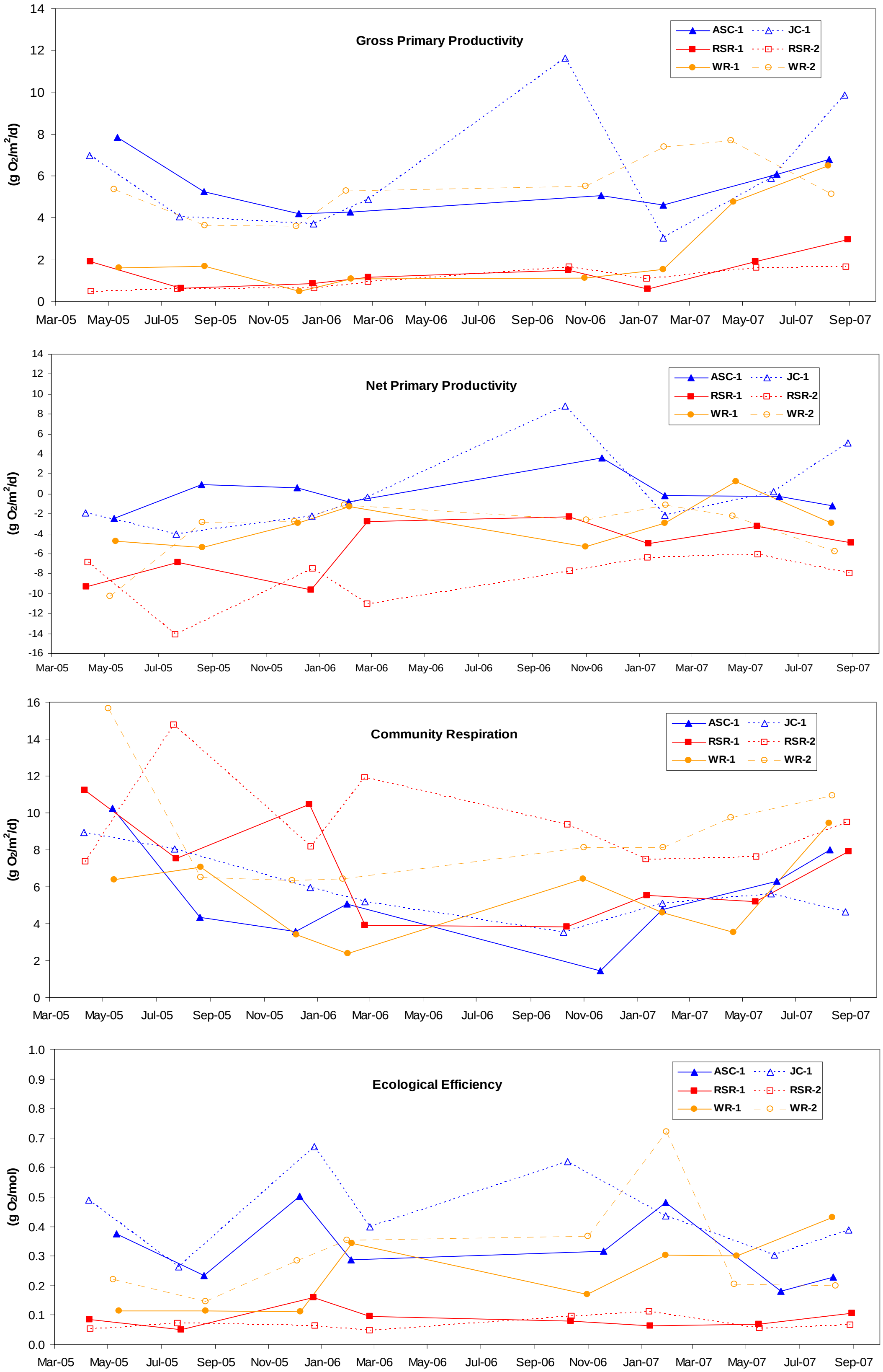


FIGURE 3-9
WEKIVA PLRG – OVERLAY PLOT OF AVERAGE METABOLISM ESTIMATES BY STREAM SEGMENT AND DATE

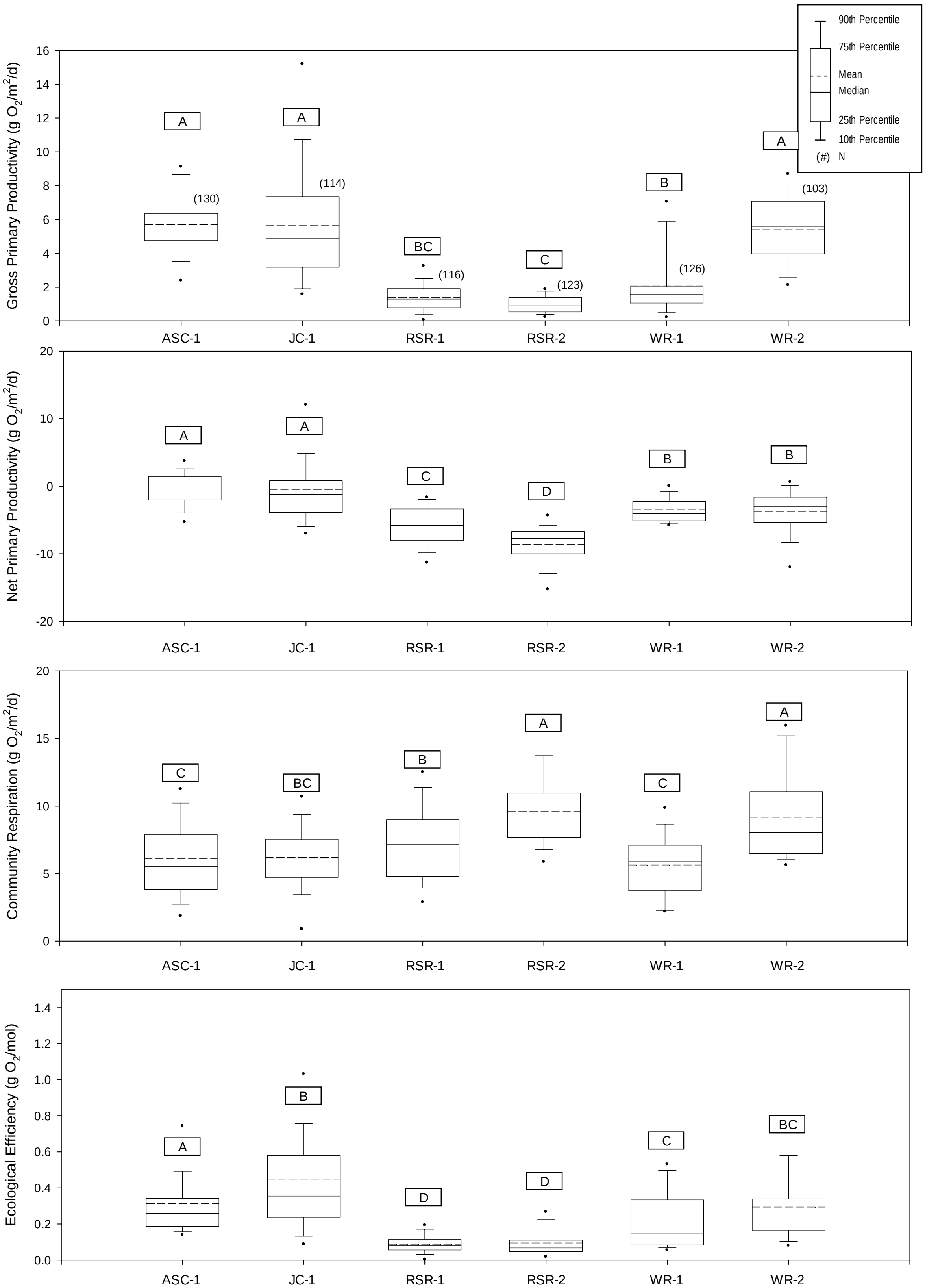


FIGURE 3-10
WEKIVA PLRG - PERIOD-OF-RECORD (MARCH 2005 - SEPTEMBER 2007) COMPARISION OF AVERAGE METABOLISM ESTIMATES BY STREAM SEGMENT
Stream segments not sharing the same letter are significantly different ($P < 0.05$).

TABLE 3-13
WEKIVA PLRG - METABOLISM SUMMARY (PHASE 1 AND 2)

Segment	GPP (g $O_2/m^2/d$)	NPP24 (g $O_2/m^2/d$)	R24 (g $O_2/m^2/d$)	Avg. P/R ratio	Plant Depth (m)	PAR corr. (mol/m²/d)	PAR Eff. (g O_2/mol)	PAR Eff. (%)	Velocity (cm/s)	HRT (hrs)	Color (cpu)	NOx (mg/L)	TP (mg/L)	Period-of-Record	
MARCH - MAY 2005															
WR SEG 1	1.63	-4.77	6.41	0.26	1.50	18.32	0.115	0.92	3.08	9.07	8.75	1.09	0.125	4/29/2005	5/27/2005
WR SEG 2	5.38	-10.27	15.64	0.35	0.10	28.75	0.222	1.79	11.25	1.88	40.0	0.300	0.118	4/28/2005	5/26/2005
RSR SEG 1	1.92	-9.30	11.28	0.18	0.50	23.64	0.086	0.69	7.51	3.05	26.3	1.15	0.091	4/1/2005	4/20/2005
RSR SEG 2	0.50	-6.87	7.42	0.07	0.25	10.10	0.052	0.42	12.60	2.82	193	0.270	0.096	4/1/2005	4/21/2005
ASC SEG 1	7.84	-2.42	10.28	0.77	0.10	27.01	0.375	3.03	7.73	2.54	58.8	0.009	0.045	4/29/2005	5/24/2005
JC SEG 1	6.98	-1.94	9.09	0.89	0.50	15.17	0.489	3.95	41.90	0.57	38.8	0.015	0.024	3/31/2005	4/18/2005
JULY - SEPTEMBER 2005															
WR SEG 1	1.70	-5.36	7.07	0.24	1.50	15.74	0.114	0.92	3.11	8.94	21.9	1.24	0.158	8/10/2005	8/31/2005
WR SEG 2	3.65	-2.88	6.56	0.57	0.10	26.38	0.146	1.18	11.11	1.90	96.3	0.365	0.141	8/9/2005	9/1/2005
RSR SEG 1	0.62	-6.90	7.57	0.08	0.50	14.64	0.049	0.40	7.52	3.04	77.5	1.03	0.097	7/12/2005	8/3/2005
RSR SEG 2	0.60	-14.15	14.99	0.04	0.25	8.54	0.072	0.58	14.76	2.48	350	0.045	0.180	7/12/2005	8/4/2005
ASC SEG 1	5.27	0.94	4.35	1.27	0.10	23.52	0.233	1.88	8.07	2.43	150	0.018	0.055	8/9/2005	8/29/2005
JC SEG 1	4.06	-4.00	7.97	0.52	0.50	16.35	0.263	2.12	25.93	0.92	65.0	0.023	0.025	7/11/2005	8/1/2005
NOVEMBER - DECEMBER 2005															
WR SEG 1	0.48	-2.92	3.39	0.18	1.50	4.20	0.111	0.90	3.77	7.38	21.3	1.17	0.128	11/30/2005	12/13/2005
WR SEG 2	2.10	-0.37	2.47	0.94	0.10	10.76	0.244	1.97	7.41	2.87	75.0	0.415	0.111	11/29/2005	12/15/2005
RSR SEG 1	0.86	-9.60	10.46	0.09	0.50	6.15	0.159	1.28	7.06	3.24	22.5	1.08	0.092	12/14/2005	12/30/2005
RSR SEG 2	0.63	-7.78	8.41	0.08	0.25	10.99	0.061	0.49	19.38	1.83	138	0.391	0.083	12/14/2005	1/3/2006
ASC SEG 1	4.21	0.65	3.56	1.20	0.10	10.60	0.504	4.07	7.31	2.68	109	0.024	0.052	11/29/2005	12/13/2005
JC SEG 1	3.70	-2.24	5.93	0.68	0.50	7.91	0.670	5.41	46.93	0.35	35.0	0.014	0.024	12/13/2005	1/3/2006
JANUARY - MARCH 2006															
WR SEG 1	1.08	-1.28	2.39	0.51	1.50	2.88	0.344	2.77	3.67	7.58	11.3	1.14	0.128	1/25/2006	2/15/2006
WR SEG 2	5.31	-1.11	6.42	0.85	0.10	16.97	0.353	2.85	9.57	2.21	60.0	0.453	0.101	1/24/2006	2/15/2006
RSR SEG 1	1.16	-2.73	3.89	0.31	0.50	14.25	0.095	0.77	7.00	3.27	13.8	1.30	0.094	2/16/2006	2/28/2006
RSR SEG 2	0.92	-11.00	11.92	0.08	0.25	24.45	0.047	0.38	21.82	1.63	85.0	0.590	0.078	2/15/2006	3/7/2006
ASC SEG 1	4.33	-0.52	4.84	1.15	0.10	17.04	0.283	2.28	7.00	2.80	37.5	0.017	0.049	1/23/2006	2/14/2006
JC SEG 1	4.90	-0.29	5.22	1.01	0.50	14.44	0.399	3.22	51.46	0.32	16.3	0.017	0.018	2/14/2006	3/7/2006
PERIOD-OF-RECORD															
WR SEG 1	1.22	-3.58	4.82	0.30	1.50	10.29	0.17	1.38	3.41	8.24	15.78	1.16	0.13	4/29/2005	2/15/2006
WR SEG 2	4.11	-3.66	7.77	0.68	0.10	20.72	0.24	1.95	9.83	2.21	67.81	0.38	0.12	4/28/2005	2/15/2006
RSR SEG 1	1.14	-7.13	8.30	0.16	0.50	14.67	0.10	0.78	7.27	3.15	35.00	1.14	0.09	4/1/2005	2/28/2006
RSR SEG 2	0.66	-9.95	10.68	0.07	0.25	13.52	0.06	0.47	17.14	2.19	191.25	0.32	0.11	4/1/2005	3/7/2006
ASC SEG 1	5.41	-0.34	5.76	1.10	0.10	19.54	0.35	2.81	7.53	2.61	88.75	0.02	0.05	4/29/2005	2/14/2006
JC SEG 1	4.91	-2.12	7.05	0.77	0.50	13.47	0.46	3.68	41.55	0.54	38.75	0.02	0.02	3/31/2005	3/7/2006

TABLE 3-13 CONTINUED

WEKIVA PLRG - METABOLISM SUMMARY (PHASE 3)

Segment	GPP	NPP24	R24	Avg.	Plant	PAR corr.	PAR Eff.		Velocity	HRT	Color	NOx	TP	Period-of-Record	
	(g $O_2/m^2/d$)			P/R ratio	Depth (m)	($mol/m^2/d$)	(g O_2/mol)	(%)	(cm/s)	(hrs)	(cpu)	(mg/L)	(mg/L)		
FALL (OCTOBER-NOVEMBER 2006)															
WR SEG 1	1.12	-5.29	6.42	0.18	1.20	8.80	0.172	1.38	4.89	4.46	7.5	0.91	0.127	10/24/2006	11/8/2006
WR SEG 2	5.52	-2.60	8.12	0.68	0.10	16.45	0.368	2.97	8.53	2.48	13.8	0.49	0.114	10/25/2006	11/7/2006
RSR SEG 1	1.52	-2.29	3.81	0.40	0.50	19.92	0.080	0.65	6.84	3.35	8.8	1.18	0.092	10/5/2006	10/18/2006
RSR SEG 2	1.66	-7.72	9.38	0.18	0.25	17.47	0.096	0.78	23.22	1.53	16.3	0.88	0.090	10/7/2006	10/18/2006
ASC SEG 1	5.07	3.61	1.46	3.48	0.10	15.82	0.317	2.56	6.13	3.20	7.5	0.02	0.058	11/16/2006	11/22/2006
JC SEG 1	11.65	8.77	3.55	3.29	0.50	19.89	0.619	5.00	41.23	0.39	11.3	0.01	0.024	10/4/2006	10/12/2006
WINTER (JANUARY-FEBRUARY 2007)															
WR SEG 1	1.54	-2.92	4.58	0.34	1.20	5.76	0.303	2.45	5.15	4.24	15.0	0.97	0.124	1/23/2007	2/5/2007
WR SEG 2	7.40	-1.15	8.14	0.91	0.10	12.03	0.720	5.81	6.85	3.09	38.8	0.45	0.107	1/24/2007	2/6/2007
RSR SEG 1	0.60	-5.01	5.54	0.11	0.50	10.42	0.065	0.52	6.75	3.39	8.8	1.15	0.105	1/4/2007	1/18/2007
RSR SEG 2	1.11	-6.38	7.49	0.15	0.25	10.12	0.113	0.91	21.42	1.66	17.5	0.81	0.088	1/3/2007	1/17/2007
ASC SEG 1	4.62	-0.15	4.77	0.97	0.10	11.54	0.482	3.90	6.05	3.25	42.5	0.53	0.065	1/23/2007	2/5/2007
JC SEG 1	3.05	-2.12	5.12	0.60	0.50	7.77	0.436	3.52	36.57	0.44	8.8	0.02	0.030	1/23/2007	2/5/2007
SPRING (APRIL-JUNE 2007)															
WR SEG 1	4.77	1.26	3.52	1.36	1.20	17.92	0.300	2.42	4.76	4.58	6.3	0.77	0.128	4/12/2007	4/24/2007
WR SEG 2	7.68	-2.23	9.75	0.79	0.10	38.40	0.205	1.65	5.59	3.78	10.0	0.33	0.113	4/10/2007	4/24/2007
RSR SEG 1	1.91	-3.27	5.18	0.37	0.50	29.94	0.068	0.55	6.67	3.43	10.0	1.15	0.094	5/8/2007	5/21/2007
RSR SEG 2	1.60	-6.09	7.63	0.21	0.25	29.29	0.056	0.46	25.32	1.40	10.6	0.86	0.090	5/9/2007	5/24/2007
ASC SEG 1	6.07	-0.22	6.29	0.96	0.10	35.83	0.181	1.46	5.62	3.49	10.0	0.01	0.044	5/30/2007	6/19/2007
JC SEG 1	5.88	0.24	5.60	1.05	0.50	25.32	0.303	2.45	35.98	0.45	12.5	0.01	0.025	5/30/2007	6/5/2007
SUMMER (AUGUST-SEPTEMBER 2007)															
WR SEG 1	6.50	-2.91	9.45	0.69	1.20	15.79	0.432	3.48	4.03	5.41	3.8	0.65	0.124	7/31/2007	8/15/2007
WR SEG 2	5.13	-5.79	10.92	0.47	0.10	31.51	0.200	1.61	3.58	5.91	21.3	0.22	0.117	8/1/2007	8/16/2007
RSR SEG 1	2.97	-4.88	7.90	0.38	0.50	28.35	0.105	0.85	6.10	3.75	5.0	1.15	0.087	8/23/2007	9/6/2007
RSR SEG 2	1.64	-7.98	9.50	0.17	0.25	24.75	0.068	0.55	20.78	1.73	5.0	0.87	0.089	8/22/2007	9/3/2007
ASC SEG 1	6.80	-1.18	7.98	0.85	0.10	31.87	0.229	1.85	5.34	3.69	25.0	0.01	0.046	7/31/2007	8/15/2007
JC SEG 1	9.87	5.14	4.62	2.14	0.50	25.78	0.389	3.14	36.56	0.44	8.8	0.02	0.017	8/22/2007	9/5/2007
PERIOD-OF-RECORD															
WR SEG 1	3.48	-2.47	5.99	0.58	1.20	12.07	0.30	2.43	4.71	4.67	8.13	0.83	0.13	10/24/2006	8/15/2007
WR SEG 2	6.43	-2.94	9.23	0.70	0.10	24.60	0.37	3.01	6.14	3.81	20.94	0.37	0.11	10/25/2006	8/16/2007
RSR SEG 1	1.75	-3.86	5.61	0.31	0.50	22.16	0.08	0.64	6.59	3.48	8.13	1.16	0.09	10/5/2006	9/6/2007
RSR SEG 2	1.50	-7.04	8.50	0.18	0.25	20.41	0.08	0.67	22.69	1.58	12.34	0.86	0.09	10/7/2006	9/3/2007
ASC SEG 1	5.64	0.51	5.13	1.10	0.10	23.77	0.30	2.44	5.78	3.41	21.25	0.14	0.05	11/16/2006	8/15/2007
JC SEG 1	7.61	3.01	4.72	1.61	0.50	19.69	0.44	3.53	37.59	0.43	10.31	0.02	0.02	10/4/2006	9/5/2007

Figure 3-11 provides a summary of the seasonal average ecosystem metabolism values and associated variance for WR-SEG1 for the entire period-of-record (May 2005 to August 2007, eight sampling events). Estimated average GPP was relatively low during the first four sampling periods. For the spring and summer 2005 sampling seasons, this likely was the result of post 2004 hurricane impacts (loss of submersed aquatic vegetation from flood scouring of sediments in conjunction with periods of highly colored water inputs, see WSI 2005). For the fall 2005 and winter 2005/2006 sampling seasons GPP would be expected to be low given the seasonally lower light and temperature levels. Indeed, the subsequent fall 2006 and winter 2007 seasons were nearly identical to the previous fall and winter values. Average community respiration was highest in the summer 2007 season (9.5 g $O_2/m^2/d$) and lowest during the winter 2006 season (2.4 g O2/m2/d). Net primary production displayed a sinusoidal curve negatively correlated to CR, and resulting NPP was lowest during the summer 2005 (-5.4 g O2/m2/d) and highest during spring 2007 (1.3 g $O_2/m^2/d$). The estimated P/R ratio was highest in the spring 2007 (1.36) and lowest in the fall 2006 (0.18). Ecological efficiency was highest in the summer 2007 (0.43 g O_2/mol, 3.48%) and lowest in the fall 2005 (0.11 g O_2/mol, 0.90%). See **Appendix F** for additional detailed statistical comparisons.

3.6.5 Wekiva River Segment 2

Exhibits in **Appendix E** provide a visual and tabular summary of the detailed metabolic behavior of WR-SEG2 during the Phase 3 period-of-record (October 2006 to August 2007). Dissolved oxygen concentrations and pH readings at both the upstream and downstream stations in WR-SEG2 displayed a strong daily rhythm. Average GPP ranged from 5.1 and 7.7 g $O_2/m^2/d$ during the summer and spring sampling events. Estimated CR ranged from 8.1 to 10.9 g $O_2/m^2/d$ in the fall and summer respectively, with corresponding negative NPP24 values (-2.6 and -5.8 g $O_2/m^2/d$). Average P/R ratios ranged from 0.47 and 0.91, in the summer and winter seasons, and were always below unity, suggesting a consistent heterotrophic metabolism in the lower segment of the Wekiva River. Ecological efficiency averaged between 0.20 and 0.72 g O_2/mol (1.61% to 5.81%) during the summer and winter sampling periods.

Figure 3-12 provides a summary of the seasonal average ecosystem metabolism values and associated variance for WR-SEG2 for the entire period-of-record (May 2005 to August 2007, eight sampling events). Gross primary productivity appeared to display a sinusoidal pattern with maximal values in the spring 2007 and minimal values in the summer 2005. Community respiration was highest in the spring 2005 season, possibly as a response to prior hurricane effects, by summer 2005 CR had declined and then appeared to follow a gradual increasing trend to an observed maximum in the summer of 2007. Resulting NPP was negatively correlated to CR trends, lowest during the spring 2005 season (-10.3 g $O_2/m^2/d$) and highest during the winter 2006 season (-1.1 g $O_2/m^2/d$). The estimated P/R ratio was highest in the winter 2007 season (0.91) and lowest in the spring 2005 season (0.35). Ecological efficiency was highest in the winter 2007 season (0.72 g O_2/mol, 5.81%) and lowest in the summer 2005 season (0.15 g O_2/mol, 1.18%). See **Appendix F** for additional detailed statistical comparisons.

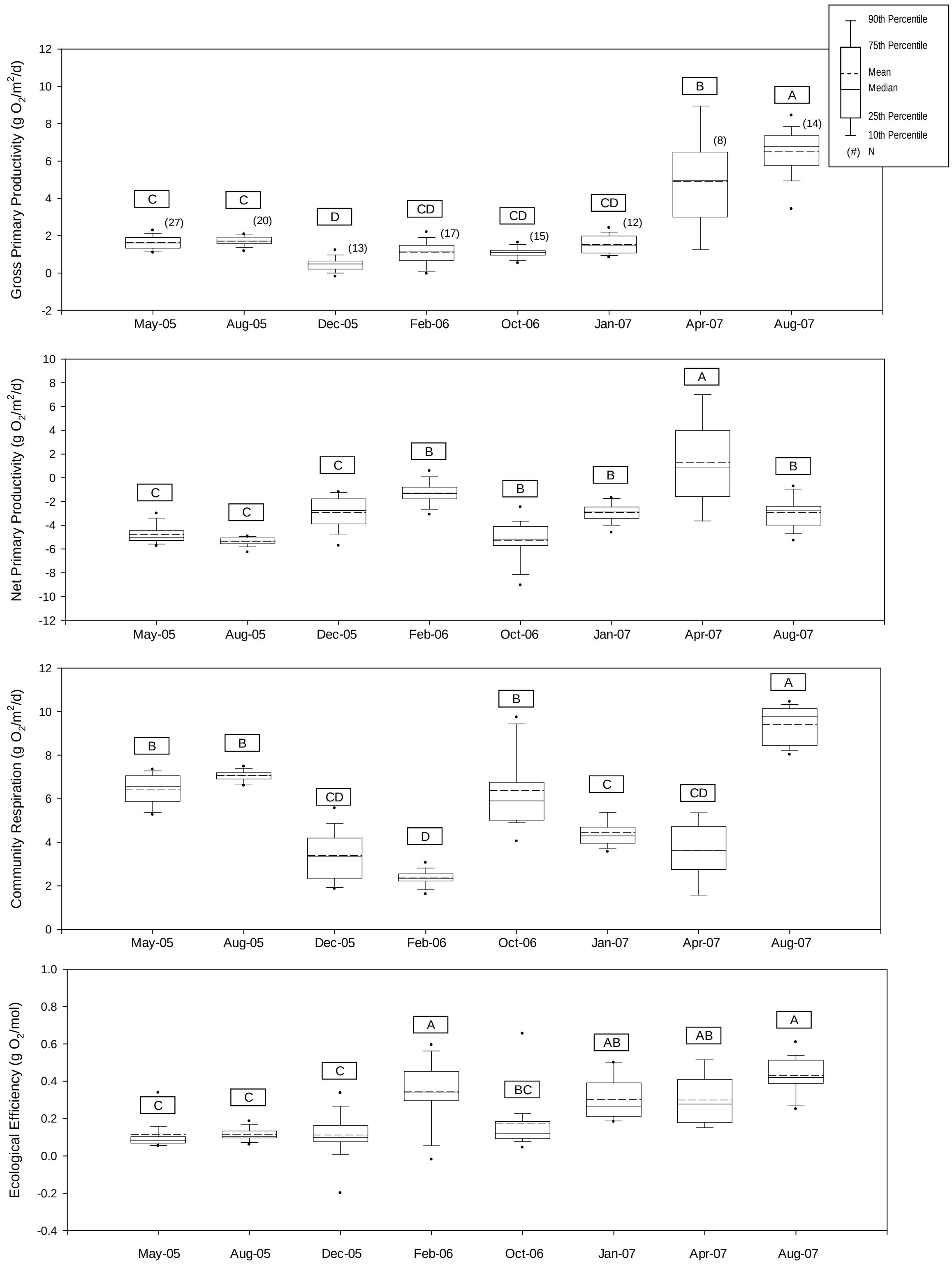


FIGURE 3-11
WEKIVA PLRG - WEKIVA RIVER SEGMENT 1 PERIOD-OF-RECORD SEASONAL METABOLISM ESTIMATES
Stream segments not sharing the same letter are significantly different ($P < 0.05$).

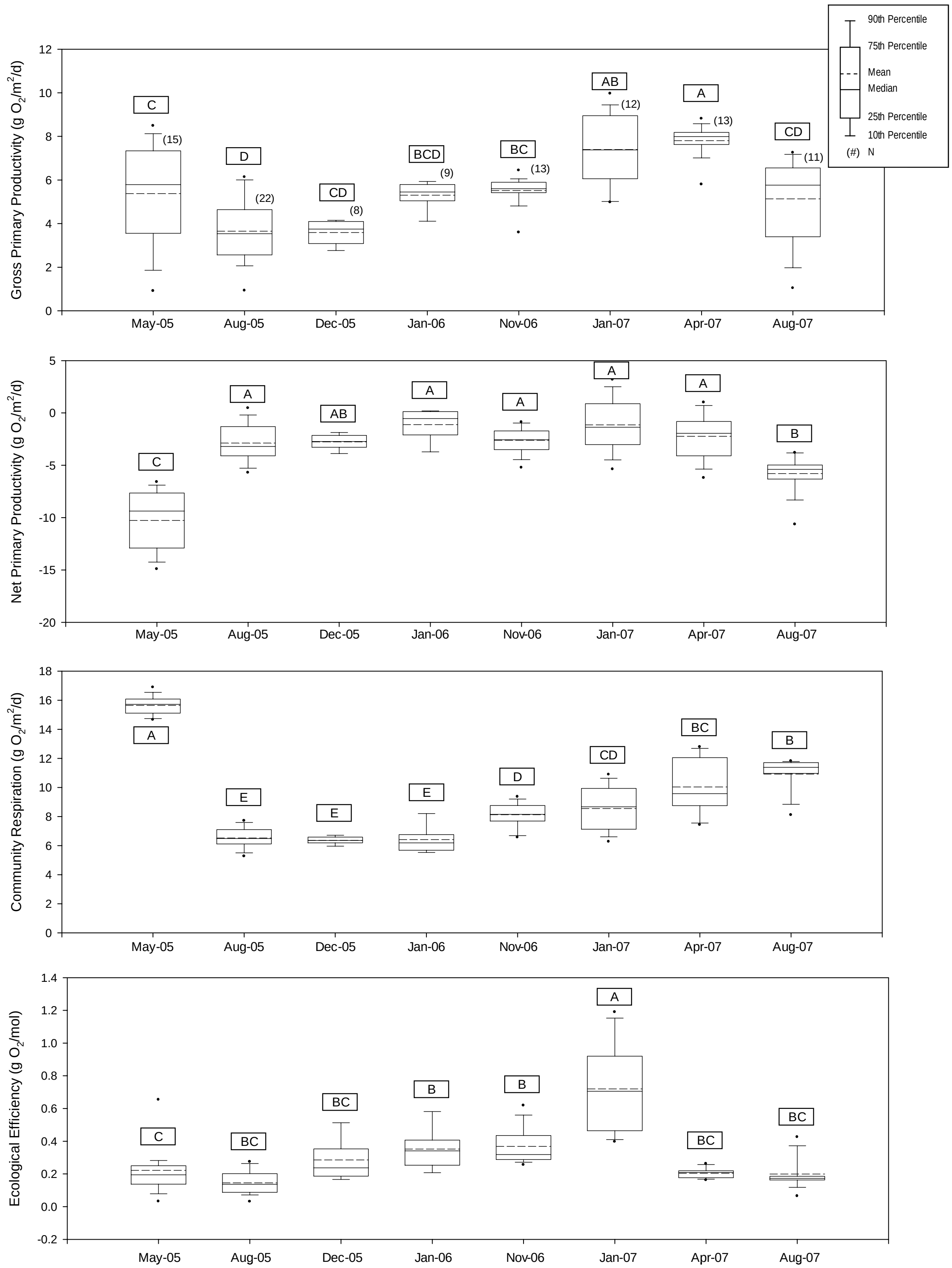


FIGURE 3-12
WEKIVA PLRG - WEKIVA RIVER SEGMENT 2 PERIOD-OF-RECORD SEASONAL METABOLISM ESTIMATES
Stream segments not sharing the same letter are significantly different ($P < 0.05$).

3.6.6 Rock Springs Run Segment 1

Exhibits in **Appendix E** provide a visual and tabular summary of the detailed metabolic behavior of RSR-SEG1 during the Phase 3 period-of-record (October 2006 to September 2007). Dissolved oxygen concentrations and pH readings at both the upstream and downstream stations in RSR-SEG1 displayed a moderate to low daily rhythm. Average GPP ranged between 0.6 and 3.0 g $O_2/m^2/d$ during the winter and summer sampling periods. Estimated CR averaged between 3.8 and 7.9 g $O_2/m^2/d$ for the fall and summer sampling periods, resulting in consistently negative NPP values (-5.0 and -2.3 g $O_2/m^2/d$). Average P/R ratios ranged from of 0.11 and 0.40 for the winter and fall seasons and were always below unity suggesting heterotrophic metabolism. Ecological efficiency averaged between 0.07 and 0.11 g O_2/mol (0.52% to 0.85%) during the winter and summer sampling periods.

Figure 3-13 provides a summary of the seasonal average ecosystem metabolism values and associated variance for RSR-SEG1 for the entire period-of-record (April 2005 to September 2007, eight sampling events). Gross primary production appeared to follow a sinusoidal pattern with the maximum observed during summer 2007 and minimum during winter 2007. Community respiration was elevated during the 2005 season, perhaps as a lingering response to prior hurricane detritus. By winter 2006, had dropped dramatically and appears to be gradually building, probably as detrital material accumulates in the system. NPP was lowest during the spring (-9.3 g$O_2/m^2/d$) and fall (-9.6 g $O_2/m^2/d$) of 2005, corresponding to high CR during these periods and NPP was highest during the fall 2006 season (-2.3 g $O_2/m^2/d$). The estimated P/R ratio was highest in the fall 2006 season (0.40) and lowest in the summer 2005 season (0.08), and consistently below unity, suggesting heterotrophic metabolism defines the community in the upper Rock Springs Run segment. Ecological efficiency was highest in the fall 2005 season (0.16 g O_2/mol, 1.28%) and lowest in the summer 2005 season (0.05 g O_2/mol, 0.40%). See **Appendix F** for additional detailed statistical comparisons.

3.6.7 Rock Springs Run Segment 2

Exhibits in **Appendix E** provide a visual and tabular summary of the detailed metabolic behavior of RSR-SEG2 during the Phase 3 period-of-record (October 2006 to September 2007). Dissolved oxygen concentrations and pH readings at both the upstream and downstream stations in RSR-SEG2 displayed a moderate daily rhythm. Average GPP ranged between 1.1 and 1.7 g $O_2/m^2/d$ during the winter and fall sampling events. Estimated CR averages ranged between 7.5 and 9.5 g $O_2/m^2/d$ during the winter and summer sampling periods. Resulting NPP values were always negative, ranging from -8.0 and -6.1 g $O_2/m^2/d$ during the summer and springs seasons. Average P/R ratios were very low, from 0.15 in the winter to 0.21 in the spring. Ecological efficiency averaged between 0.06 and 0.11 g O_2/mol (0.46% to 0.91%) during the spring and winter sampling periods.

Figure 3-14 provides a summary of the seasonal average ecosystem metabolism values and associated variance for RSR-SEG2 for the entire period-of-record (April 2005 to September 2007, eight sampling events). Gross primary productivity appears to have

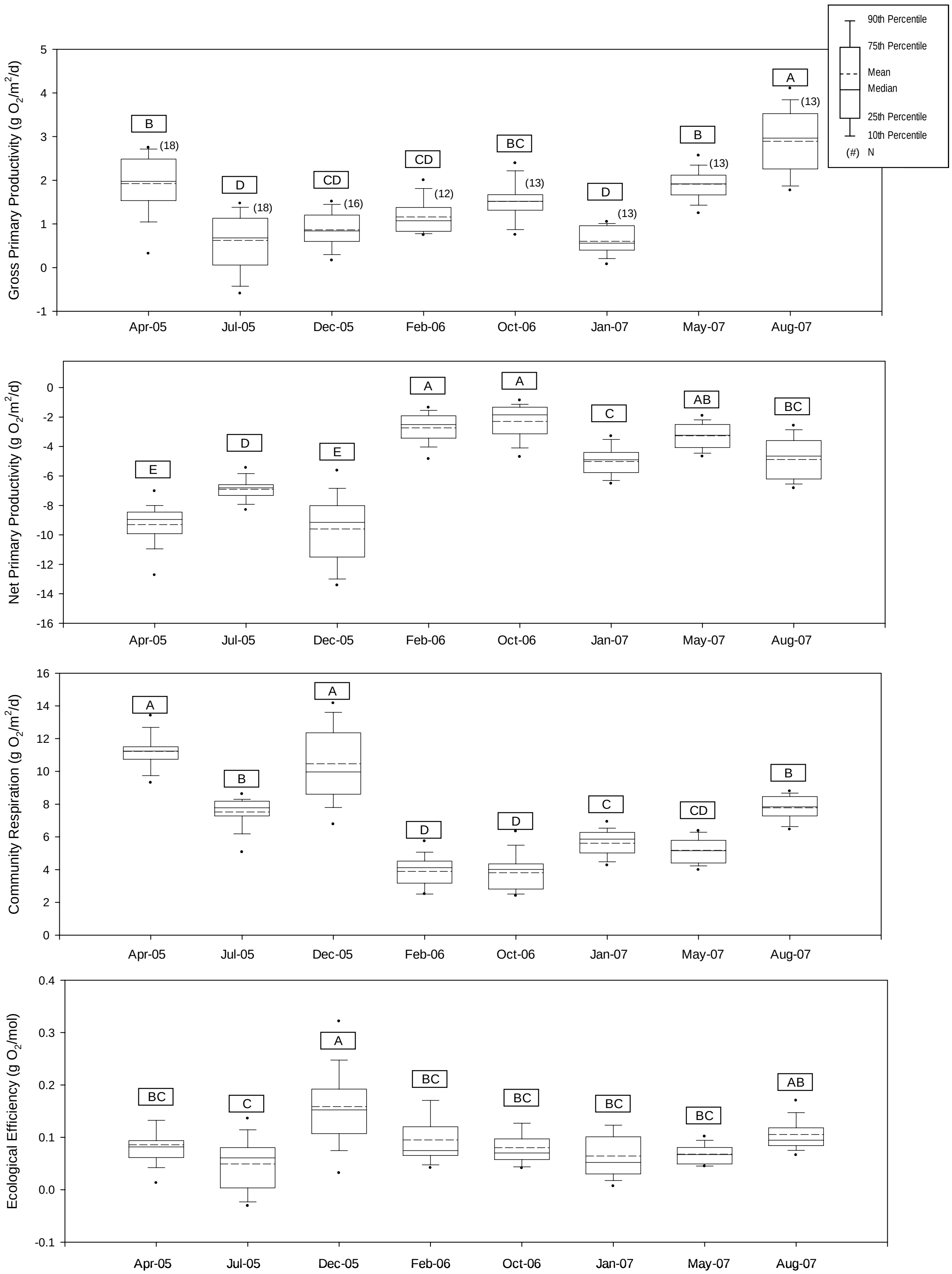


FIGURE 3-13
WEKIVA PLRG - ROCK SPRINGS RUN SEGMENT 1 PERIOD-OF-RECORD SEASONAL METABOLISM ESTIMATES Stream segments not sharing the same letter are significantly different ($P < 0.05$).

been reduced during the first three sampling periods in 2005, possibly as a result of loss of submersed aquatic vegetation following scouring and/or sedimentation during late 2004 hurricane related flood events. Estimated average GPP was highest during the fall 2006 sampling season (1.7 g $O_2/m^2/d$) and lowest during the spring 2005 period (0.5 g $O_2/m^2/d$). CR was highest during the summer of 2005 (15.0 g $O_2/m^2/d$) and lowest during the spring 2005 season (7.4 g $O_2/m^2/d$). Resulting NPP was highly variable during the first four seasonal periods and lowest during summer 2005 (-14.2 g $O_2/m^2/d$). NPP then appeared to stabilize during the last four seasonal periods, reaching a maximum during the spring (-6.1 g $O_2/m^2/d$). The estimated P/R ratio was highest in the spring 2007 season (0.21) and lowest in the summer of 2005 (0.04), reflecting the lowest P/R ratios of the six stream segments and suggesting that heterotrophic metabolism strongly characterizes this portion of Rock Springs Run. Ecological efficiency was highest in the winter 2007 season (0.11 g O_2/mol, 0.91%) and lowest in the spring 2005 season (0.05 g O_2/mol, 0.42%). See **Appendix F** for additional detailed statistical comparisons.

3.6.8 Juniper Creek Segment 1

Exhibits in **Appendix E** provide a visual and tabular summary of the detailed metabolic behavior of JC-SEG1 during the Phase 3 period-of-record (October 2006 to September 2007). Dissolved oxygen concentrations and pH readings at both the upstream and downstream stations in JC-SEG1 displayed strong daily rhythms. Average GPP ranged between 3.1 and 11.7 g $O_2/m^2/d$ during the winter and fall sampling events. Estimated CR averaged between 3.6 and 5.6 g $O_2/m^2/d$, during the fall and spring seasons, resulting in generally positive NPP values (-2.1 to 8.8 g $O_2/m^2/d$). Average P/R ratios ranged between 0.60 and 3.29 corresponding to winter and fall sampling periods, so that except for the winter season, autotrophic metabolism characterized the stream segment. Ecological efficiency averaged between 0.30 and 0.62 g O_2/mol (2.45% and 5.0%) for the spring and fall sampling periods.

Figure 3-15 provides a summary of the seasonal average ecosystem metabolism values and associated variance for JC-SEG1 for the entire period-of-record (April 2005 to September 2007, eight sampling events). Estimated average GPP appears to be highest during fall and summer seasons with maximum values observed during fall 2006 (11.7 g $O_2/m^2/d$) and lowest values observed during the winter 2007 period (3.1 g $O_2/m^2/d$). Estimated CR was highest during the spring 2005 season (9.1 g $O_2/m^2/d$), then exhibited a steady decline before reaching the minimum observed CR values during the fall 2006 season (3.6 g $O_2/m^2/d$). This pattern may be a result of elevated CR following the spike in allochthonous material delivered to the system during the proceeding hurricane season. Resulting NPP appears to have been slowly increasing over the period-of-record, with minimum NPP estimated during the summer 2005 season (-4.0 g$O_2/m^2/d$) and maximum NPP during the fall 2006 season (8.8 g $O_2/m^2/d$). The estimated P/R ratio was highest in the fall 2006 season (3.3) and lowest in the summer 2005 season (0.52), demonstrating a general P/R ratio above unity and overall autotrophic metabolism. Ecological efficiency was highest in the fall 2006 season (0.62 g O_2/mol, 5.00%) and lowest in the summer 2005 season (0.263 g O_2/mol, 2.12%), suggesting relatively stable primary production in the Juniper Creek stream segment. See **Appendix F** for additional detailed statistical comparisons.

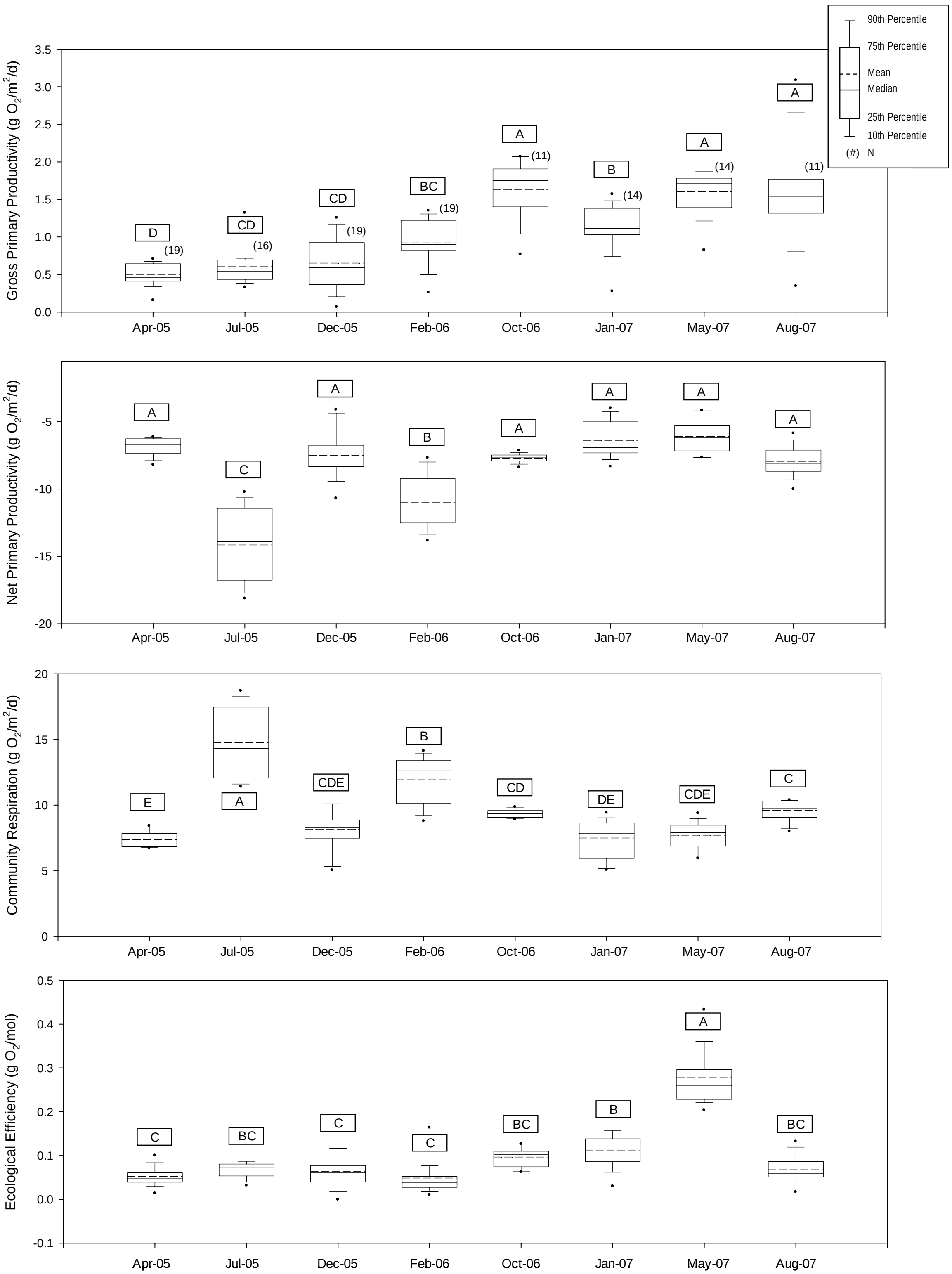


FIGURE 3-14
WEKIVA PLRG - ROCK SPRINGS RUN SEGMENT 2 PERIOD-OF-RECORD SEASONAL METABOLISM ESTIMATES Stream segments not sharing the same letter are significantly different (P < 0.05).

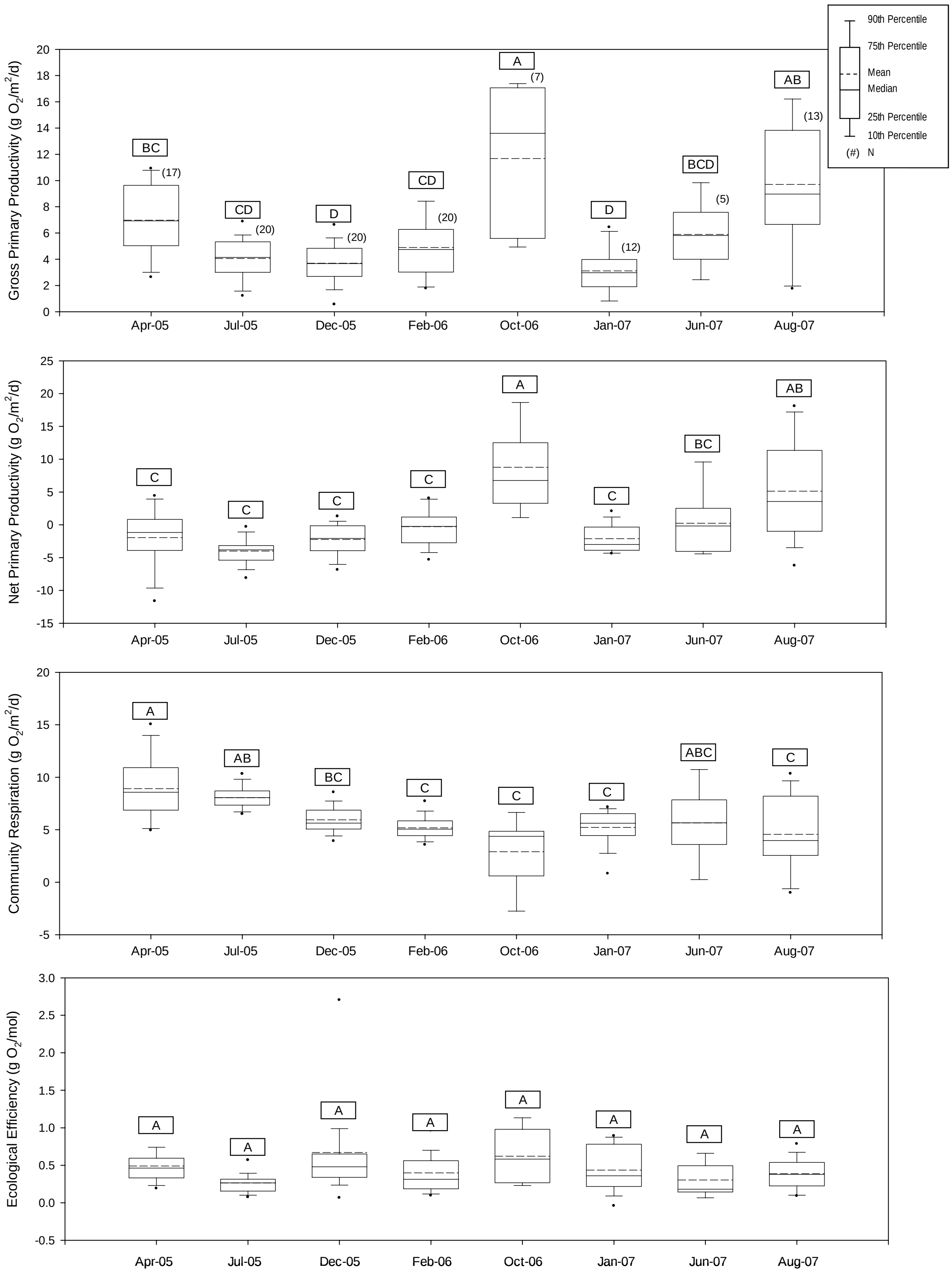


FIGURE 3-15
WEKIVA PLRG - JUNIPER CREEK SEGMENT 1 PERIOD-OF-RECORD SEASONAL METABOLISM ESTIMATES
Stream segments not sharing the same letter are significantly different (P < 0.05).

3.6.9 Alexander Springs Creek Segment 1

Exhibits in **Appendix E** provide a visual and tabular summary of the detailed metabolic behavior of ASC-SEG1 during the Phase 3 period-of-record (November 2006 to August 2007). Dissolved oxygen concentrations and pH readings at both the upstream and downstream stations in ASC-SEG1 displayed a strong daily rhythm. Average GPP ranged between 4.6 and 6.8 g $O_2/m^2/d$ during the winter and summer sampling events. Estimated CR averaged between 1.5 and 8.0 g $O_2/m^2/d$, during the fall and summer sampling events, resulting in a positive NPP value during the fall sampling period (3.6 g $O_2/m^2/d$) and a slightly negative NPP24 during the remaining seasons (-1.2 to –0.2 g $O_2/m^2/d$). Average estimated P/R ratios ranged from 0.85 to 3.48 and were always positive and characterized this stream segment as having autotrophic metabolism. Ecological efficiency averaged between 0.18 and 0.48 g O_2/mol (1.46% to 3.90%) during the spring and winter sampling periods.

Figure 3-16 provides a summary of the seasonal average ecosystem metabolism values and associated variance for ASC-SEG1 for the entire period-of-record (May 2005 to August 2007, eight sampling events). Estimated average GPP appears to be highest during the spring and summer seasons, with a maximum value observed during spring 2005 (7.8 g $O_2/m^2/d$) and lowest value during the fall 2005 period (4.2 g $O_2/m^2/d$). GPP appears relatively stable between these high and low values for the period-of-record. CR was highest during the spring 2005 season (10.3 g $O_2/m^2/d$) and lowest during the fall 2006 season (1.5 g $O_2/m^2/d$). Similar to the other stream segments, high CR values during the spring of 2005 may have been the result of increased community metabolism of allochthonous inputs from the proceeding hurricane season. Resulting NPP was lowest during the spring 2005 season (-2.4 g $O_2/m^2/d$) and highest during the fall 2006 season (3.6 g $O_2/m^2/d$), with slightly negative to small positive values for the remaining sampling periods. The estimated P/R ratio was highest during the fall 2006 sampling period (3.5) and lowest in the spring 2005 sampling period (0.77), with all P/R ratios above unity, the Alexander Springs Creek segment demonstrates overall autotrophic metabolism. Ecological efficiency was highest in the winter 2007 season (0.48 g O_2/mol, 3.90%) and lowest in the spring 2007 season (0.18 g O_2/mol, 1.46%). See **Appendix F** for additional detailed statistical comparisons.

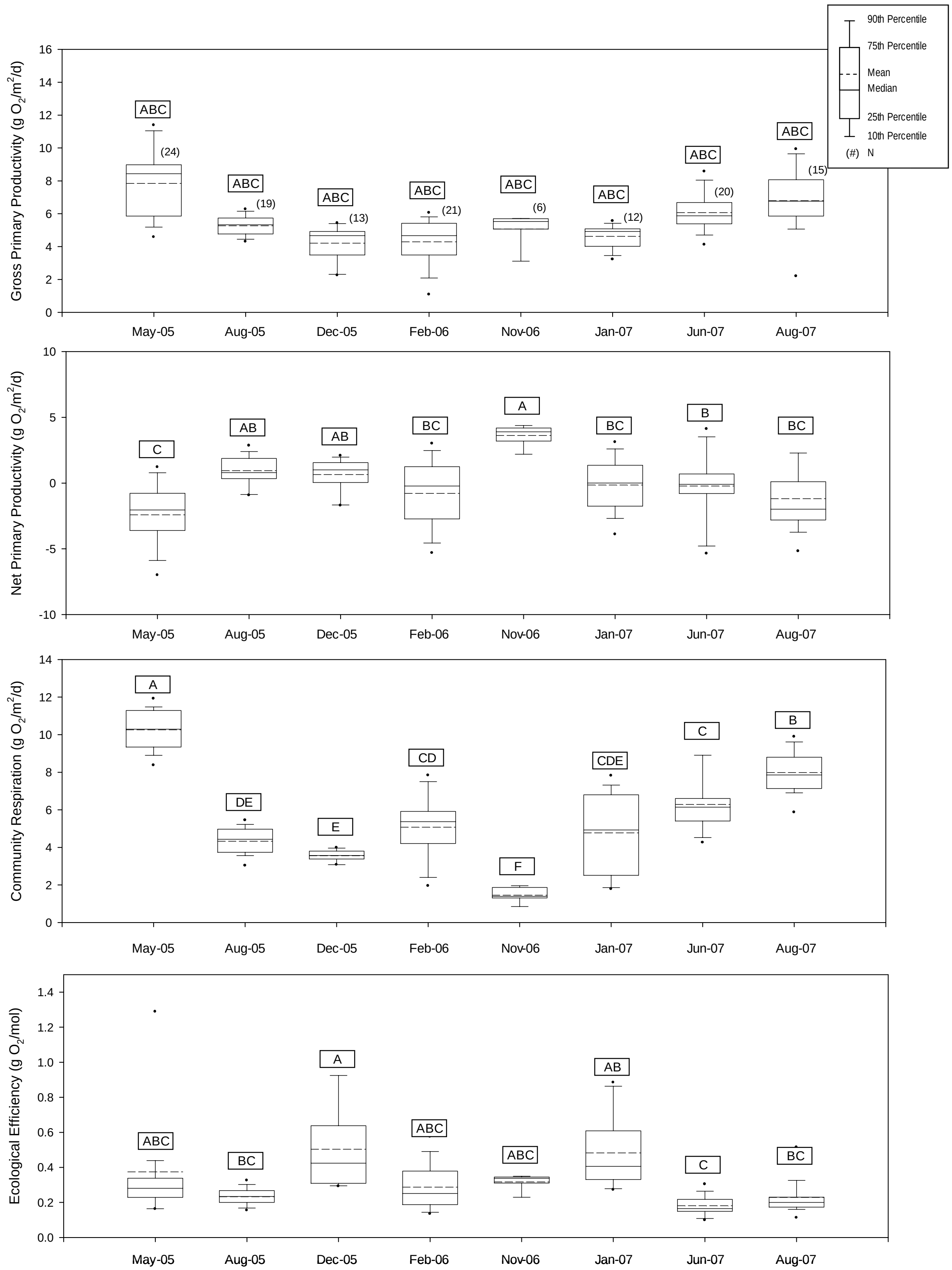


FIGURE 3-16
WEKIVA PLRG - ALEXANDER SPRINGS CREEK PERIOD-OF-RECORD SEGMENT 1 SEASONAL METABOLISM ESTIMATES Stream segments not sharing the same letter are significantly different ($P < 0.05$).

3.9 Community Export

3.9.1 Particulate Export

Particulate export data for the Phase 3 study are summarized in Table 3-14. Detailed data for the particulate export measurements are provided in Appendix G. During the Phase 3 (and Phase 2) study, particulate export was measured at both the upstream and downstream end of each stream segment to allow an alternative method for estimating net ecosystem production within the segment. These net particulate export rates include changes in the fixed organic matter resulting from combined autochthonous and allochthonous sources. For this reason, these net export rates are likely to be higher than the community net primary production rates reported earlier which largely reflect autochthonous sources of primary production.

Segment particulate organic matter export rates varied widely. For the Phase 3 period-of-record, net change export rates by segment were only positive for Wekiva River segment 1 (0.33 $g/m^2/d$). The other stream segments in declining order, were Rock Springs Run segment 2 (-0.008 $g/m^2/d$), Wekiva River segment 2 (-0.10 $g/m^2/d$), Rock Springs Run segment 1 -0.23 $g/m^2/d$), Alexander Springs Creek segment (-0.25 $g/m^2/d$), and Juniper Creek (-0.98 $g/m^2/d$). Positive organic matter export rates within seasons were noted for Wekiva River segment 1 (0.03 and 0.73 $g/m^2/d$) in the fall and summer seasons respectively. Rock Springs Run Segment 2 had positive particulate organic matter export rates during the winter and spring seasons (0.017 to 0.061 $g/m^2/d$), possibly corresponding to increased liter fall from this highly canopied stream segment during these seasons. Juniper Creek had positive particulate organic matter export during the fall season (1.64 $g/m^2/d$), which was the highest individual export observed during Phase 3 and also may have corresponded to increased litter fall. Estimated net organic matter export rates were negative for all other stream segments and seasons.

TABLE 3-14

WEKIVA PLRG - AVERAGE PARTICULATE EXPORT DURING PHASE 3 (2006-2007)

Station	Dry Matter (g/d)			Organic Matter (g/d)			Dry Matter ($g/m^2/d$)			Organic Matter ($g/m^2/d$)		
	Up	Down	Net Change	Up	Down	Net Change	Up	Down	Net Change	Up	Down	Net Change
FALL (OCTOBER-NOVEMBER 2006)												
WR SEG-1	13,440	12,474	-966	8,503	9,080	577	0.852	0.354	-0.050	0.539	0.258	0.030
WR SEG-2	40,460	35,813	-4,647	24,719	13,592	-11,127	0.064	0.050	-0.054	0.039	0.019	-0.128
RSR SEG-1	13,956	5,494	-8,463	10,124	3,360	-6,764	0.222	0.062	-0.333	0.161	0.038	-0.267
RSR SEG-2	64,696	60,098	-4,599	46,834	41,645	-5,189	0.178	0.146	-0.096	0.129	0.101	-0.108
ASC SEG-1	21,418	11,828	-9,589	13,396	6,186	-7,210	0.277	0.095	-0.201	0.173	0.050	-0.151
JC SEG-1	46,887	61,059	14,172	26,790	36,706	9,916	0.217	0.275	2.345	0.124	0.165	1.641
WINTER (JANUARY-FEBRUARY 2007)												
WR SEG-1	3,902	10,832	6,930	2,429	7,581	5,151	0.247	0.307	0.356	0.154	0.215	0.265
WR SEG-2	29,987	17,732	-12,255	17,758	10,234	-7,525	0.047	0.025	-0.141	0.028	0.014	-0.087
RSR SEG-1	12,091	5,076	-7,015	8,748	3,425	-5,323	0.193	0.058	-0.276	0.139	0.039	-0.210
RSR SEG-2	17,302	18,281	979	11,555	12,394	839	0.048	0.044	0.020	0.032	0.030	0.017
ASC SEG-1	29,884	11,000	-18,884	20,336	5,264	-15,072	0.387	0.088	-0.396	0.263	0.042	-0.316
JC SEG-1	125,694	77,975	-47,720	80,234	49,841	-30,393	0.581	0.351	-7.897	0.371	0.224	-5.029
SPRING (APRIL-JUNE 2007)												
WR SEG-1	4,077	18,729	14,652	2,395	8,023	5,628	0.258	0.531	0.753	0.152	0.228	0.289
WR SEG-2	50,479	24,814	-25,664	28,650	13,549	-15,101	0.080	0.035	-0.296	0.045	0.019	-0.174
RSR SEG-1	25,228	7,144	-18,084	13,285	5,136	-8,149	0.402	0.081	-0.713	0.212	0.058	-0.321
RSR SEG-2	27,548	29,011	1,463	16,306	19,242	2,936	0.076	0.070	0.030	0.045	0.047	0.061
ASC SEG-1	40,787	7,715	-33,072	20,810	3,844	-16,966	0.528	0.062	-0.694	0.269	0.031	-0.356
JC SEG-1	44,057	39,787	-4,270	25,358	23,576	-1,781	0.204	0.179	-0.707	0.117	0.106	-0.295
SUMMER (AUGUST-SEPTEMBER 2007)												
WR SEG-1	9,206	51,363	42,158	5,412	19,542	14,130	0.583	1.457	2.165	0.343	0.554	0.726
WR SEG-2	33,847	26,617	-7,230	19,029	16,841	-2,188	0.054	0.037	-0.083	0.030	0.023	-0.025
RSR SEG-1	25,060	15,731	-9,329	14,198	10,780	-3,418	0.399	0.178	-0.368	0.226	0.122	-0.135
RSR SEG-2	40,619	39,677	-942	26,134	25,990	-145	0.112	0.096	-0.020	0.072	0.063	-0.003
ASC SEG-1	20,375	8,777	-11,598	13,600	5,647	-7,952	0.264	0.070	-0.243	0.176	0.045	-0.167
JC SEG-1	39,288	39,553	264	26,137	24,804	-1,333	0.182	0.178	0.044	0.121	0.112	-0.221
PHASE 3 (OCTOBER 2006 - SEPTEMBER 2007)												
WR SEG-1	7,656	23,350	15,694	4,685	11,057	6,371	0.485	0.662	0.806	0.297	0.314	0.327
WR SEG-2	38,693	26,244	-12,449	22,539	13,554	-8,985	0.061	0.036	-0.144	0.036	0.019	-0.104
RSR SEG-1	19,084	8,361	-10,723	11,589	5,675	-5,913	0.304	0.095	-0.422	0.185	0.064	-0.233
RSR SEG-2	37,541	36,767	-775	25,208	24,818	-390	0.103	0.089	-0.016	0.069	0.060	-0.008
ASC SEG-1	28,116	9,830	-18,286	17,036	5,235	-11,800	0.364	0.079	-0.384	0.220	0.042	-0.248
JC SEG-1	63,982	54,593	-9,388	39,630	33,732	-5,898	0.296	0.246	-1.554	0.183	0.152	-0.976
PHASE 2 (NOVEMBER 2005 - MARCH 2006)												
WR SEG-1	600	9,721	9,121	315	7,111	6,796	0.378	0.276	0.468	0.198	0.202	0.349
WR SEG-2	30,802	25,109	-5,694	20,490	15,885	-4,605	0.049	0.035	-0.066	0.032	0.022	-0.053
RSR SEG-1	12,832	4,861	-7,971	9,583	3,430	-6,153	0.204	0.055	-0.314	0.153	0.039	-0.242
RSR SEG-2	17,698	30,828	13,131	12,033	22,507	10,475	0.049	0.075	0.273	0.033	0.055	0.218
ASC SEG-1	22,514	20,030	-2,483	13,805	9,665	-4,140	0.291	0.160	-0.052	0.179	0.077	-0.087
JC SEG-1	70,095	76,838	6,742	44,991	49,482	4,491	0.324	0.346	1.116	0.208	0.223	0.743

Segment	Area (m^2) Phase 2	Phase 3
WR-SEG1	33,665	19,469
WR-SEG2	86,640	86,640
RSR-SEG1	25,381	25,381
RSR-SEG2	48,018	48,018
ASC-SEG1	47,655	47,655
JC-SEG1	6,043	6,043

4.0 Updated Impairment Evaluation

4.1 Comparison of Wekiva System Nutrient Concentrations to Reference Sites

The water quality in the Wekiva River System and in the reference streams is generally similar and meets Class III water quality criteria with a few exceptions. This section highlights additional data concerning elevated nutrient concentrations in the target streams.

4.1.1 Comparison to Historic Data

Previous work has demonstrated that nitrate nitrogen levels in the Wekiva River and Rock Springs Run are elevated compared to reference spring-fed streams in the project area (Toth 1999, WSI 2004). In an examination of the period-of-record (1961-2002) data, Toth and Fortich (2002) concluded that the concentration of nitrate nitrogen in Wekiwa Springs increased beginning in the 1980s to a maximum of about 2.0 mg/L in 1995 and has generally been declining since that time (about 1.3 mg/L in 1999). Subsequent to that report, nitrate nitrogen concentrations declined to 0.8 mg/L in 2001 during drought conditions, and then increased to approximately 1.5 mg/L by 2005 (SJRWMD data). Rock Springs nitrate nitrogen concentrations appear less variable, having remained between 1 to 2 mg/L from 1985 and 2005 (SJRWMD data). Although nitrate nitrogen concentrations in the Wekiva River and Rock Springs Run are considerably higher than the reference streams, until additional analyses can be completed there is no definitive conclusion on current or future trends in nitrogen concentrations in these streams.

4.1.2 Comparison to Reference Streams

In the Phase 1 study Juniper Creek and Alexander Springs Creek were selected as the most scientifically defensible reference sites for the two streams in the Wekiva River System. This defensibility is based on the detailed data comparisons made previously (WSI 2004) and on the data collected during the initial nine month Phase 1 study period (WSI 2005). These data indicate that the Wekiva River and Rock Springs Run are primarily dependent upon artesian spring flows for their hydrology and ecology during most seasonal and annual periods. However, during rainy periods such as the 2005-2006 period, additional runoff and associated nutrients and reduced carbon are contributed by surrounding wetlands and uplands. The same hydrological conditions are evident in both Juniper Creek and Alexander Springs Creek. This comparison is especially obvious during dry years (such as the 2006-2007 period) when all four streams have relatively continuous clear, spring-dominated water.

The six stream segments that were the focus of the PLRG Study were selected to be the most autotrophic segments available that met other criteria for location and accessibility. Data collected during the PLRG study indicate that there are some site-specific differences between all six of the stream segments. Three of the four Wekiva System stream segments (for the lower Wekiva segment, autochthonous and allochthonous are similar), are dominated by forest canopy and/or emergent wetland macrophyte and floating aquatic plant growths compared to in-stream aquatic plant growths. These differences are especially acute for the respective contributions of fixed organic matter from either aquatic (autochthonous) sources or external (allochthonous) sources during wet years. While these differences between the treatment and the reference stream segments are significant and important, the two reference sites still appear to be the best available for comparison.

The water quality data from the Phase 3 study were used to update the entire period-of-record (2005-2007) comparisons of nutrient concentrations between the Wekiva River System stream segments and the two reference stream segments located in the Ocala National Forest. **Table 4-1** summarizes the updated water quality data for nutrients. The Wekiva River and Rock Springs Run segments continue to have measurably higher concentrations of total nitrogen and total phosphorus than the reference streams. Total nitrogen averages 1.28 and 1.23 mg/L in the Wekiva River and Rock Springs Run segments, respectively, compared to an average of 0.21 mg/L in the two reference stream segments. A large part of this difference is comprised of nitrate nitrogen with an average of 0.69 mg/L in the Wekiva River segments and 0.84 mg/L in the Rock Springs Run segments, compared to an average of 0.038 mg/L in the reference stream segments. Total phosphorus averaged 0.124 and 0.101 mg/L in the Wekiva River and Rock Springs Run segments, respectively, and 0.037 mg/L in the reference stream segments. Based on these data comparisons and on the assumption that the reference sites represent spring-fed streams that are similar to the Wekiva River System streams but without the influence of urban and agricultural development, it is still concluded that the Wekiva River System has “man-induced nutrient enrichment” as defined above and that this nutrient enrichment is “degradation” as also defined in Chapter 62-302.530.48 (a) and 62-302.700, F.A.C..

4.2 Assessment of Imbalance in Natural Populations of Flora and Fauna at the Ecosystem Level

4.2.1 Ecological Studies

A variety of ecological indices were re-examined and updated in this study to attempt to detect any measurable “imbalance” in the Wekiva River System streams compared to the reference streams. These ecological indices provide quantitative measures of how multiple components of the aquatic ecosystem are reacting in concert to environmental forcing functions. Data collected during the Phase 1 through Phase 3 PLRG ecosystem studies are presented in a comparative fashion to attempt to detect differences between the Wekiva River System streams and the reference sites, and upstream and downstream within the Wekiva River and Rock Springs Run stream segments.

Table 4-1 provides an overall summary of the data collected for this study comparing the Wekiva River System streams to the reference sites.

TABLE 4-1
SUMMARY COMPARISON OF ECOLOGICAL INDICES BETWEEN THE WEKIVA RIVER SYSTEM STREAMS AND THE REFERENCE STREAMS

PARAMETER GROUP	PARAMETER	UNITS	Phase	WR SEG 1	WR SEG 2	WR Average	RSR SEG 1	RSR SEG 2	RSR Average	Reference Stream Segments ASC	Reference Stream Segments JC	Reference Stream Segments Average
SEDIMENTS	Carbon	percent	1	2.30	1.14	1.72	1.38	0.93	1.15	0.98	0.03	0.50
	Nitrogen	percent	1	0.50	0.11	0.31	0.13	0.06	0.10	0.11	0.03	0.07
	Phosphorus	mg/kg DW	1	3,112	361	1,737	540	136	338	838	107	473
WATER QUALITY	Dissolved Oxygen	mg/L	1 - 3	1.93	6.81	4.37	5.67	6.40	6.03	5.54	6.81	6.17
	pH	s.u	1 - 3	7.47	7.71	7.59	7.84	7.67	7.76	7.97	7.82	7.90
	Specific Conductance	µS/cm	1 - 3	316	426	371	242	257	250	898	1,645	1,272
	Total Nitrogen	mg/L	1 - 3	1.20	1.36	1.28	1.31	1.15	1.23	0.25	0.17	0.21
	Nitrate+Nitrite N	mg/L	1 - 3	1.01	0.364	0.686	1.13	0.554	0.841	0.051	0.024	0.038
	Soluble Reactive P	mg/L	1 - 3	0.120	0.105	0.112	0.084	0.084	0.084	0.041	0.016	0.028
	Total Phosphorus	mg/L	1 - 3	0.130	0.118	0.124	0.095	0.101	0.098	0.049	0.024	0.037
MASS LOADS	TN Loading Rate	kg/ha/d	1 - 3	69.2	48.9	59.1	69.2	30.8	50.0	20.7	56.2	38.5
	TIN Loading Rate	kg/ha/d	1 - 3	62.0	24.1	43.1	64.1	16.10	40.1	6.12	9.94	8.03
	SRP Loading Rate	kg/ha/d	1 - 3	6.84	6.02	6.43	4.54	2.22	3.38	3.07	5.89	4.48
	TP Loading Rate	kg/ha/d	1 - 3	7.66	6.63	7.14	5.03	2.69	3.86	3.47	8.37	5.92
	TN Assimilation Rate	kg/ha/d	1 - 3	-0.11	2.55	1.22	0.64	0.35	0.49	1.57	6.06	3.81
	TIN Assimilation Rate	kg/ha/d	1 - 3	4.05	0.75	2.40	2.87	1.00	1.94	-0.24	-0.19	-0.21
	SRP Assimilation Rate	kg/ha/d	1 - 3	-0.33	-0.05	-0.19	-0.04	-0.10	-0.07	-0.04	0.18	0.07
	TP Assimilation Rate	kg/ha/d	1 - 3	-0.15	-0.14	-0.14	-0.19	-0.09	-0.14	-0.35	-0.52	-0.44
PLANT COMMUNITY	Algae	percent cover	1	37.7	7.3	22.5	20.2	0.0	10.1	1.8	1.8	1.8
	Submersed Vegetation	percent cover	1	1.4	27.9	14.7	4.5	0.0	2.2	48.6	4.2	26.4
	Emergent Plants	percent cover	1	5.0	9.1	7.1	10.0	37.1	23.6	19.2	1.2	10.2
	Floating Plants	percent cover	1	4.8	8.1	6.4	10.7	26.7	18.7	8.5	1.6	5.0
EXPORT	Macrophyte	$gDW/m^2/d$	1	1.67	0.033	0.85	0.006	0.003	0.005	0.373	0.018	0.196
	Fine Particulate	$gDW/m^2/d$	2 - 3	0.538	-0.105	0.217	-0.368	0.129	-0.120	-0.148	-0.219	-0.183
METABOLISM	Community GPP	$g\ O_2/m^2/d$	1 - 3	2.12	5.39	3.76	1.41	1.00	1.20	5.71	5.67	5.69
	Community NPP	$g\ O_2/m^2/d$	1 - 3	-3.50	-3.78	-3.64	-5.85	-8.59	-7.22	-0.39	-0.52	-0.46
	Community R	$g\ O_2/m^2/d$	1 - 3	5.62	9.18	7.40	7.26	9.58	8.42	6.10	6.19	6.15
	Community Ecol. Eff.	$g\ O_2/mol$	1 - 3	0.22	0.29	0.26	0.09	0.09	0.09	0.31	0.45	0.38
		percent	1 - 3	1.75	2.37	2.06	0.71	0.76	0.74	2.53	3.62	3.08
	Mesocosm GPP	g O2/kg DW/mol	1	1.31	1.15	1.23	0.59	0.91	0.75	0.40	0.80	0.60
	Mesocosm NPP	g O2/kg DW/mol	1	1.13	0.47	0.80	0.19	0.22	0.20	-0.02	0.21	0.10
	Mesocosm R	g O2/kg DW/d	1	4.30	20.85	12.57	12.81	7.22	10.02	10.28	14.27	12.27
	Mesocosm Ecol. Eff.	$g\ O_2/mol$	1	0.75	0.44	0.60	0.23	0.45	0.34	0.23	0.38	0.30
		percent	1	6.06	3.57	4.82	1.87	3.63	2.75	1.82	3.05	2.44
	Vallisneria GPP	g O2/kg DW/mol	1	0.85	0.52	0.68	0.32	0.69	0.51	0.34	0.62	0.48

4.2.2 Sediment Nutrient Levels

Phase 1 sampling determined that sediments in the upstream portions of the Wekiva River are enriched with nutrients compared to all other stream segments. This nutrient enrichment was confirmed by additional sampling near the end of Phase 1. These high sediment nutrient levels indicate that past activities in this area of the river (possibly herbicide applications) can sharply elevate nutrient concentrations in stream sediments. Rock Springs Run showed no similar upstream-downstream sediment nutrient enrichment. Since both upstream segments in these streams receive herbicide applications it is not known if the high nutrient levels that were noted were a transient response or an actual continuing difference between the two sites. Additional temporal and spatial sampling at both sites will be necessary to better understand the significance of these elevated sediment nutrient levels.

4.2.3 Water Quality Other than Nutrients

Water quality data for dissolved oxygen from the two-year PLRG study indicate that the reference sites have comparable or slightly higher average concentrations than the Wekiva River and Rock Springs segments. However this parameter is highly sensitive to factors other than just plant productivity (temperature, current velocity, water depth, etc.) and the range of dissolved oxygen concentration variability masks any true difference that might be considered impairment. The average pH values for the reference sites are slightly higher than in the Wekiva River System sites, possibly indicating a difference in plant productivity effects. Specific conductance data indicate that the reference stream segments are measurably higher than the Wekiva River System segments in terms of dissolved salt content.

4.2.4 Nutrient Loading Rates and Assimilation

Estimated average total nitrogen and total phosphorus mass loading rates to the Wekiva River System stream segments and to the reference stream segments were similar for the period-of-record (21 to 59 kg TN/ha/d and 3.5 to 8.4 kg TP/ha/d); however, the estimated mass loading rates for total inorganic nitrogen (TIN) were higher in both the upstream and downstream Wekiva River System segments (upstream = 63 kg TIN/ha/d and downstream = 20 kg TIN/ha/d) then in the reference stream segments (8.0 kg TIN/ha/d). This is one of the most obvious and consistent differences observed between the two sets of streams.

Total nitrogen assimilation rates were higher in the reference stream segments (average = 3.8 kg TN/ha/d) compared to the Wekiva River System segments (average = 0.86 kg/ha/d) while total phosphorus assimilation was negative (net increase in TP load) in all six segments, including the reference streams. Total inorganic nitrogen assimilation rates were considerably higher in the Wekiva River System segments (average = 2.2 kg TIN/ha/d) then in the reference stream segments (average = -0.21 kg TIN/ha/d). There was also a measurable decline in total inorganic nitrogen assimilation rate at the downstream Wekiva River and Rock Springs Run segments(0.88 kg TIN/ha/d) compared to the upstream segments (3.5 kg TIN/ha/d). These data indicate that the natural assimilation of total nitrogen and total phosphorus may be impaired in the Wekiva River segments compared to reference streams in the Ocala National Forest.

4.2.5 Ecosystem Metabolism

Long-term average estimated segment GPP and NPP24 was consistently higher in the reference stream segments than in the upstream Wekiva River segment and in both Rock Springs Run segments for the entire two-year study period (Phases 1 through 3). The downstream Wekiva River segment appeared to recover during the second year of study compared to the first year, resulting in an average GPP during Phase 3 comparable or higher than the GPP rates measured at the reference sites. Although most ecosystem measures were generally quite similar during the two annual parts of this PLRG study, several segments appeared to recover somewhat after the relative devastation of the submerged aquatic plant communities during the hurricanes of 2004 and 2005. This observation was repeated with fairly marked increases in ecological efficiency in both Wekiva River segments between Phase 1-2 and Phase 3. Average ecological efficiencies for the entire period-of-record were similar in the upstream Wekiva River segment after a period of recovery and in the downstream segment, and were significantly higher in both Wekiva River segments compared to the Rock Springs Run segments. Ecological efficiencies measured in the two Wekiva River segments were in the range of those measured at the two reference stream segments (Juniper Creek and Alexander Springs Creek).

4.2.6 Summary

The Wekiva PLRG data summarized in **Table 4-1** and specifically the data for nutrient concentrations, nutrient assimilation rates, plant community, fine particulate export, and ecosystem community metabolism indicate that an impact or “imbalance” is measurable for the existing populations of flora and fauna in the Wekiva River System as compared to appropriate reference stream segments. The Phase 3 Wekiva PLRG study generally validated many of the ecosystem-level indicators of impairment identified during the Phase 1-2 PLRG study. These data indicate that some of the impairment observed in the Wekiva River segments during the first year of study may have been due to impacts from flood flows. Nevertheless, estimates of ecological efficiency as well as net and gross primary productivity for the upstream Wekiva River System stream segments are statistically lower than those of the reference stream segments. These observations further support the findings of this work as well as similar work at Silver Springs that elevated nutrient concentrations are correlated with reduced gross and net primary production and ecological efficiency in spring run ecosystems.

These key findings of reduced primary productivity and ecological efficiency as a consequence of increasing nutrients may appear unusual. A commonly assumed response of an aquatic ecosystem to increasing nutrient concentrations may be an increase in photoautotrophic productivity or abundance, and this relationship has been demonstrated in both marine and freshwater systems (see a review by Rabalais 2002). However primary productivity is a culmination of interactions between physical, chemical, and biological conditions, and the response of stream systems to nutrient enrichment has been difficult to generalize (*e.g.* Tank and Dodds 2003). In a cross-system analysis of temperate streams Dodds *et al.* (1997) established that total nitrogen and total phosphorus in the water column were significantly related to benthic algal biomass, however Francoeur (2001) performed a meta-analysis of 237 nutrient enrichment studies in temperate streams and reported that 16.5% indicated a nitrogen

(N) response, 18.1% indicated a phosphorus (P) response, 23.2% required N and P be added together for a response, 5% had N or P inhibition, and 43% had no response to N or P.

As the examples above illustrate, traditional measures of the photosynthetic community structure which utilize biomass metrics, allow few generalizations about the response of primary producers to elevated nutrient conditions in stream systems. This dilemma supports the use of ecosystem-level metabolism functional measures, which integrate the overall functional response of the ecosystem components and may reduce variance caused by site-specific conditions. The observations in this project of reduced primary productivity and ecological efficiency in correlation with increasing nutrients may have multiple explanations. First, Florida's spring run ecosystems were likely adapted to naturally lower ambient nutrient conditions, and although higher nutrient levels could be a subsidy in a simple, mono-culture plant community (such as an attached filamentous algae community), they represent an imbalance or stress in the natural order of a complex aquatic ecosystem with a long period of community adaptation and optimization. Support for this concept was provided in an ecosystem-level metabolism study of Silver Springs, where ecosystem production and efficiency were also reduced in inverse proportion to rising nitrate nitrogen concentrations (Munch *et al.* 2006).

A second possible mechanism that might help to explain a decline in ecosystem primary production could be reduced macrophyte photosynthesis resulting from increased epiphytic algae growth and shading as a result of elevated water column nutrients. While epiphytic growths can reduce the light energy available to host plants (Drake *et al.* 2003) and declines in host photosynthesis and growth have been observed for marine macroalgae (Ruesink 1998), other researches observed these effects were primarily observed at low light levels (< 40 μE m^2/s), as neither light attenuation nor impedance of gas exchange altered host photosynthetic rates at typical midday intensities (> 300 μE/m^2/s) (Sand-Jensen and Revsbech 1987). In an experimental manipulation of epiphytes and light levels, Asaeda *et al.* (2004) noted that both epiphytic algae and low light reduce growth and production, plants tended to optimize low light-created shade by changing their physiology and morphology, but were unable to do the same when epiphytic algae-created shade occurred on the leaf surface.

A third alternative explanation to reduced primary productivity in macrophytes in relation to elevated nitrate concentrations was provided by Boedeltje *et al.* (2005) who reported high water column concentrations can significantly reduce the growth of ammonia preferring rooted submerged species such as *Potamogeton alpinus*, because the uptake and reduction of nitrate has a much higher energy and carbon requirement than ammonia uptake and assimilation (Runge 1986, Marschner 1998). Boedeltje *et al.* (2005) hypothesized that nitrate dominated nitrogen assimilation may lead to strong metabolic disturbances in species adapted to ammonia uptake by the roots (such as *P. alpinus*) resulting in the observed reduction in growth under high water column nitrate concentrations, although further experiments are needed to assess potential negative effects on other species and the underlying physiological mechanisms.

Although the causative mechanisms which result in reduced primary productivity and ecological efficiency in correlation with increasing water column nutrient (especially nitrate and perhaps phosphorus) concentrations remain unknown; the averages, extremes, and seasonal patterns for these ecological measures are becoming more apparent in these four spring-fed stream ecosystems. Year-to-year measures are remarkably consistent compared to structural measures such as plant or fish populations and provide a valuable database for comparison to other springs, spring runs, and streams in Florida.

5.0 Acceptable Nutrient Concentration Targets

5.1 Introduction

Based on data collected during Phases 1, 2 and 3 (January 2005 to September 2007) of the Wekiva River System PLRG Study, it is apparent that nutrient concentrations are elevated in the Wekiva River and Rock Springs Run compared to reference spring runs in the Ocala National Forest. These data and data from other springs' references described in the Phase 1 report provide various lines of evidence for identifying nutrient concentration targets that would not result in measurable impairment in these streams (WSI 2005).

Mattson *et al.* (2006) provides a comprehensive basis for establishing PLRGs for Wekiva River and Rock Springs Run. Based on their examination of these lines of evidence: the Phase 1 and 2 ecosystem studies by WSI (2005, 2006), data demonstrating the relationship between total phosphorus and blue green algae in the Wekiva River and Rock Springs Run collected by GreenWater Labs, Inc. (2005), and on a thorough review of literature related to nitrate toxicity in aquatic ecosystems (Mattson *et al.* 2007); Mattson *et al.* (2006) concluded that target nitrate nitrogen and total phosphorus concentrations in the Wekiva River should be 0.216 and 0.059 mg/L, respectively and 0.221 and 0.061 mg/L in Rock Springs Run. These quantitative amounts are similar to those suggested by Dodds *et al.* (1997) for control of nuisance algal growth in the Clark Fork River, Montana, in which the authors suggested the maintenance of average stream total nitrogen concentrations below 0.350 mg/L and total phosphorus below 0.030 mg/L would result in average benthic algal chlorophyll *a* density below nuisance levels of 100 mg/m^2 for most of those streams. Based on the updated ecosystem metabolism data and regressions provided in this report, the following sections refine and update estimates of the possible effects of these critical nutrient levels to the ecological functioning of the Wekiva River and Rock Springs Run.

5.2 Nitrogen

5.2.1 Total Nitrogen

The ecosystem data collected for this study indicate that gross primary productivity, net primary productivity, P/R ratio, and ecological efficiency were measurably reduced in the Wekiva River System streams compared to the Reference Site streams in general proportion to their total nitrogen concentrations (**Figure 5-1**). The negative correlations between total nitrogen and gross primary productivity (R^2 = 0.56), net primary production (R^2 = 0.41), P/R ratio (R^2 = 0.42), and ecological efficiency (R^2 = 0.45) were all significant at an alpha level less than 0.05. Community respiration was positively correlated to total nitrogen concentrations, but only weakly so (R^2 = 0.04) at an alpha level of 0.15. These regressions indicate that total nitrogen in the Wekiva River System stream segments would need to be lowered to less than about 0.6 mg/L to achieve a predicted ecological response within the observed range of the reference streams. See **Appendix F** for additional detailed statistical comparisons.

5.2.2 Nitrate Nitrogen

Figure 5-2 illustrates the observed relationships between ecological functioning in the various spring run segments and nitrate nitrogen concentrations. These data indicate that gross primary productivity, P/R ratio, and ecological efficiency were measurably reduced in the Wekiva River System streams compared to the Reference Site streams in general proportion to their nitrate nitrogen concentrations. The strongest negative correlations between nitrate nitrogen and ecosystem function were for gross primary productivity (R^2 = 0.43), P/R ratio (R^2 = 0.28), ecological efficiency (R^2 = 0.29), and net primary productivity (R^2 = 0.15) and were all significant at an alpha level less than 0.05. Community respiration showed no strong correlation to nitrate nitrogen concentrations. These regressions indicate that nitrate nitrogen in the Wekiva River System stream segments would need to be lowered to less than about 0.2 mg/L to achieve a predicted ecological response within the observed range of the reference stream segments. See **Appendix F** for additional detailed statistical comparisons.

5.3 Total Phosphorus

5.3.1 Total Phosphorus

Figure 5-3 illustrates the observed relationships between ecological functioning in the various spring run segments and total phosphorus concentrations. These data indicate that gross primary productivity, net primary productivity, P/R ratio, and ecological efficiency were measurably reduced in the Wekiva River System streams compared to the Reference Site streams in general proportion to their total phosphorus concentrations. The strongest negative correlations between total phosphorus and ecosystem function were for gross primary productivity (R^2 = 0.24), net primary productivity (R^2 = 0.27), P/R ratio (R^2 = 0.24), and ecological efficiency (R^2 = 0.20) and were all significant at an alpha level less than 0.05. Community respiration showed a slight positive correlation to total phosphorus concentrations (R^2 = 0.07) significant at the alpha level of 0.06. These regressions indicate that total phosphorus in the Wekiva River System stream segments would need to be lowered to less than about 0.06 mg/L to achieve a predicted ecological response within the observed range of the reference stream segments. See **Appendix F** for additional detailed statistical comparisons.

5.3.2 Soluble Reactive Phosphorus

Figure 5-4 illustrates the observed relationships between ecological functioning in the various spring run segments and soluble reactive phosphorus (SRP) concentrations. These data indicate that gross primary productivity, net primary productivity, P/R ratio, and ecological efficiency were measurably reduced in the Wekiva River System streams compared to the Reference Site streams in general proportion to their SRP concentrations. The strongest negative correlations between SRP and ecosystem function were for gross primary productivity (R^2 = 0.21), net primary productivity (R^2 = 0.20), P/R ratio (R^2 = 0.23), and ecological efficiency (R^2 = 0.14) and were all significant at an alpha level less than 0.05. Community respiration showed a slight positive correlation to soluble reactive phosphorus concentrations ($R^2 = 0.04$) but was not significant (alpha level of 0.17). Recommended SRP concentrations should be lower than total phosphorus (< 0.06 mg/L), however specific recommendations for concentrations of SRP are problematic due the uncertainty in the rate of uptake and rapid cycling of this form of total phosphorus as well as the variability in the ratio of SRP:TP at low total phosphorus concentrations (Dodds 2003). See **Appendix F** for additional detailed statistical comparisons.

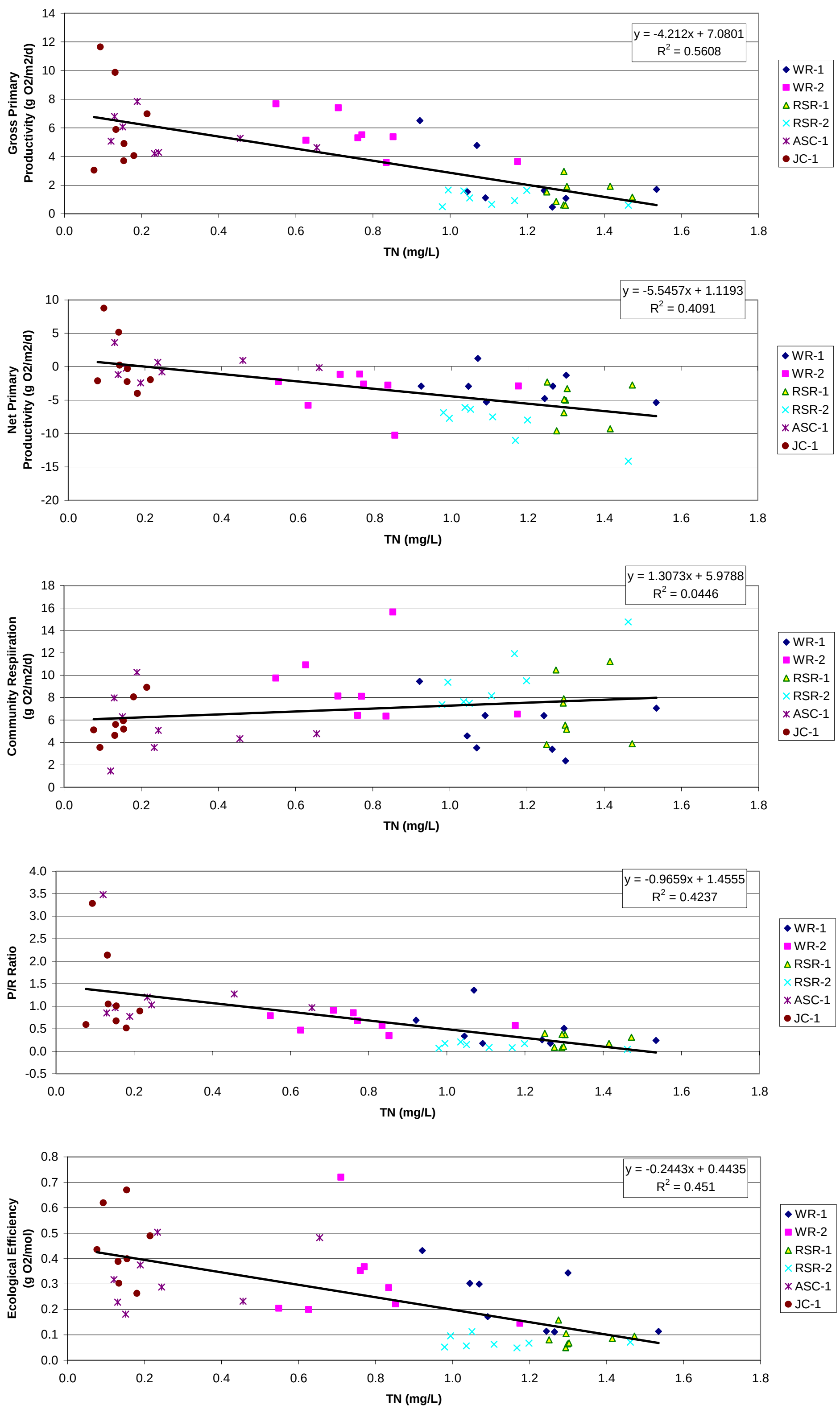


FIGURE 5-1
WEKIVA PLRG PERIOD-OF-RECORD - OBSERVED RELATIONSHIPS BETWEEN TOTAL NITROGEN CONCENTRATIONS AND ECOSYSTEM METABOLISM INDICES

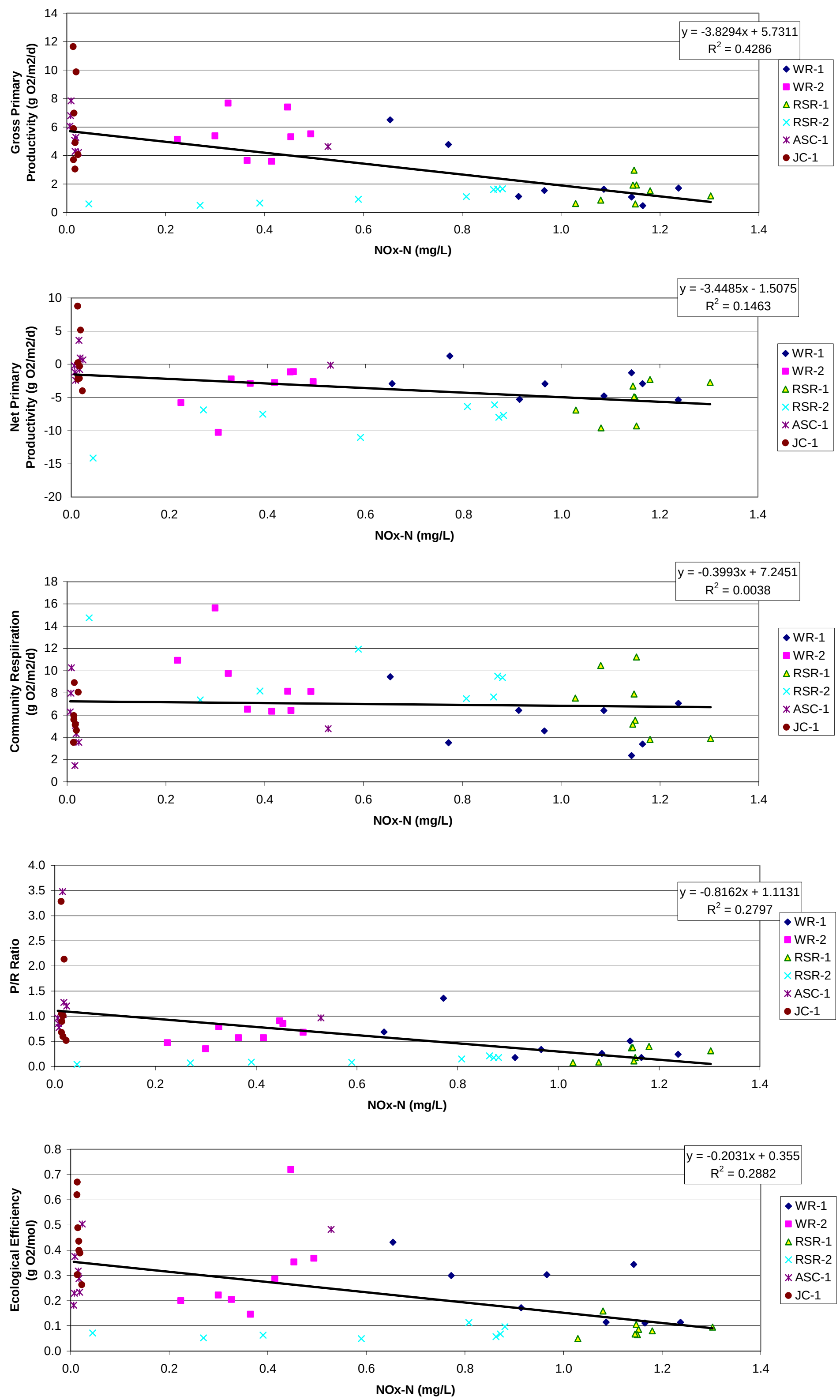


FIGURE 5-2
WEKIVA PLRG PERIOD-OF-RECORD - OBSERVED RELATIONSHIPS BETWEEN NITRATE+NITRITE NITROGEN CONCENTRATIONS AND ECOSYSTEM METABOLISM INDICES

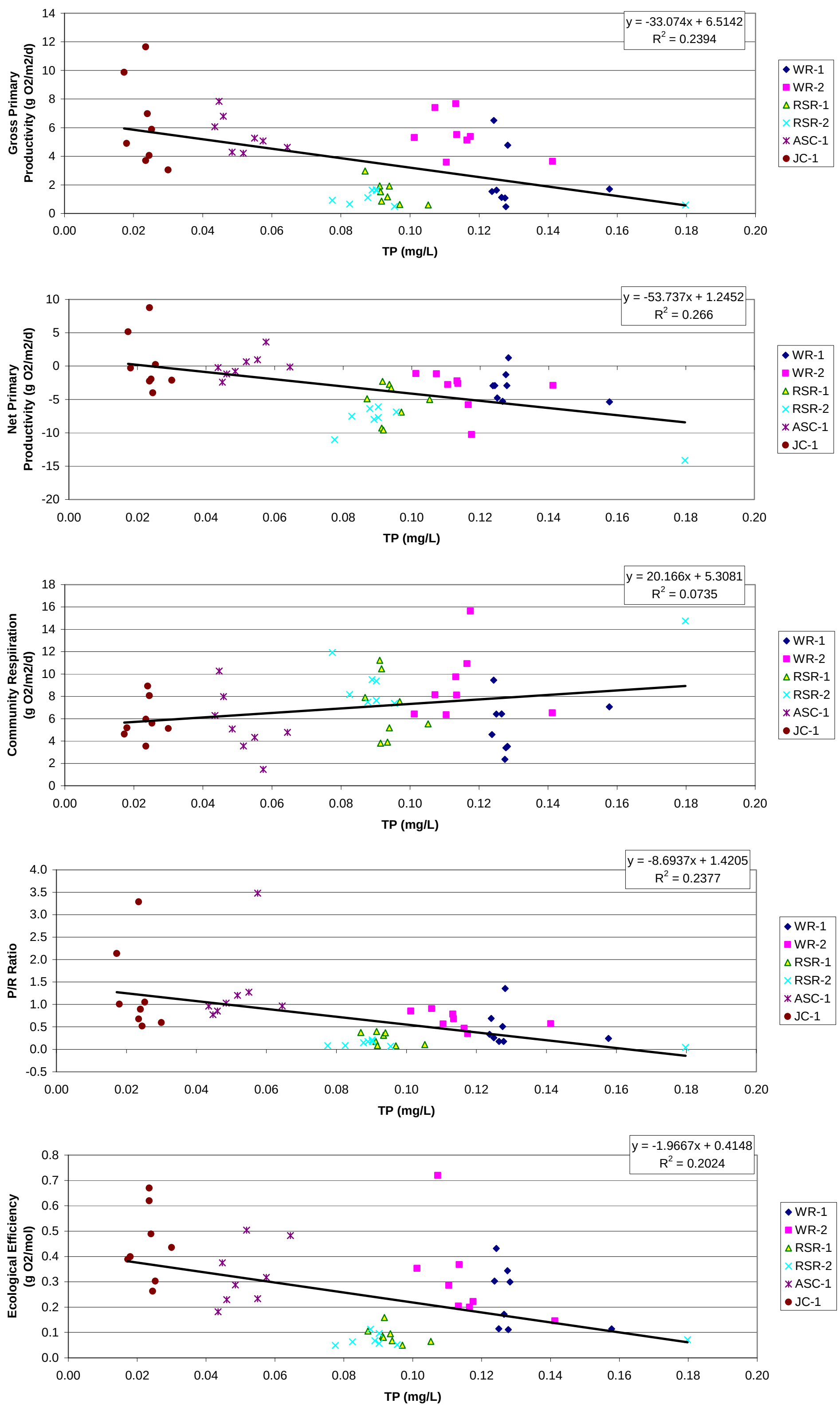


FIGURE 5-3
WEKIVA PLRG PERIOD-OF-RECORD - OBSERVED RELATIONSHIPS BETWEEN TOTAL PHOSPHORUS CONCENTRATIONS AND ECOSYSTEM METABOLISM INDICES

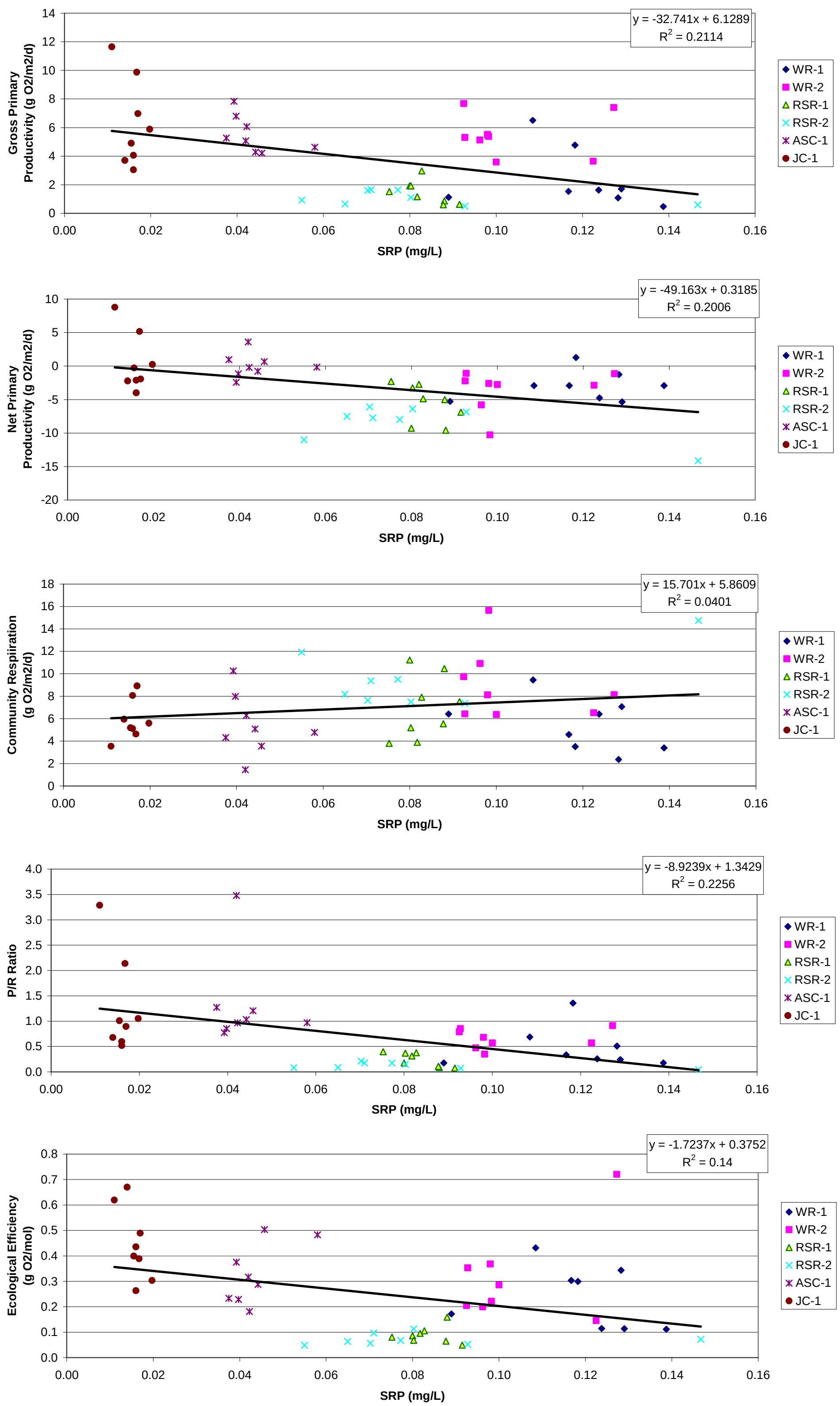


FIGURE 5-4
WEKIVA PLRG PERIOD-OF-RECORD - OBSERVED RELATIONSHIPS BETWEEN SOLUBLE REACTIVE PHOSPHORUS CONCENTRATIONS AND ECOSYSTEM METABOLISM INDICES

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Appendix A

Monthly Climatological Data: Solar Insolation, Photosynthetically Active Radiation, and Precipitation measured at Wekiwa Springs

Appendix A

Monthly Climatological Data: Solar Insolation, Photosynthetically Active Radiation, and Precipitation measured at Wekiwa Springs

	Rainfall (inches)			PAR (uE/s/m^2)				Total Insolation (J/s/m^2)			
Month	Total	Max	Count	Average	Max	StdDev	Count	Average	Max	StdDev	Count
Dec-04	1.53	1.04	18	---	---	---	---	---	---	---	---
Jan-05	2.04	1.14	31	229	1,498	389	142	113	758	197	142
Feb-05	1.56	1.29	28	287	1,663	468	672	142	841	236	672
Mar-05	4.16	1.09	31	342	1,913	559	744	171	982	285	744
Apr-05	1.21	0.56	30	475	1,988	655	720	242	1,022	337	720
May-05	5.27	3.23	31	441	2,013	595	744	220	1,001	299	744
Jun-05	11.70	2.52	30	352	1,981	499	720	171	960	246	720
Jul-05	9.47	2.09	31	423	1,864	573	744	213	955	291	744
Aug-05	3.34	1.02	31	402	1,840	558	712	204	945	286	712
Sep-05	5.98	1.82	30	328	1,714	492	707	163	854	248	707
Oct-05	5.78	2.43	31	269	1,619	422	744	136	788	216	744
Nov-05	1.50	0.71	30	241	1,354	394	720	123	712	204	720
Dec-05	1.64	0.74	31	178	1,249	332	745	94	678	179	745
Jan-06	0.44	0.18	31	237	1,366	389	743	121	754	203	743
Feb-06	2.81	1.07	28	288	1,567	465	672	147	834	243	672
Mar-06	0.10	0.05	31	412	1,632	578	161	212	861	303	161
Apr-06	0.02	0.01	30	---	---	---	---	---	---	---	---
May-06	0.10	0.06	31	---	---	---	---	---	---	---	---
Jun-06	5.06	1.10	30	360	1,738	504	319	193	923	274	319
Jul-06	4.96	1.55	31	366	1,895	505	744	199	990	276	744
Aug-06	4.00	1.17	31	331	1,599	465	744	186	886	262	744
Sep-06	4.57	1.67	30	312	1,651	454	717	181	870	265	717
Oct-06	1.64	0.73	31	279	1,377	417	745	163	795	246	745
Nov-06	1.91	1.58	30	187	1,157	307	720	118	709	198	720
Dec-06	2.85	0.88	31	128	947	220	744	81	605	142	744
Jan-07	1.42	0.83	31	157	1,096	268	744	103	739	179	744
Feb-07	1.65	0.89	28	228	1,286	368	672	150	853	246	672
Mar-07	1.05	0.42	31	354	1,872	533	735	198	1,015	299	735
Apr-07	1.77	0.85	30	440	1,977	618	720	235	1,073	332	720
May-07	1.56	0.71	31	453	1,933	598	744	239	1,016	318	744
Jun-07	4.18	1.74	30	445	2,015	600	720	225	1,012	305	720
Jul-07	10.53	2.55	31	411	1,975	575	744	202	958	283	744
Aug-07	5.93	2.63	31	432	1,924	592	744	215	946	295	744
Sep-07	0.07	0.07	5	366	1,729	573	129	179	848	280	129
Total	111.8	---	---	---	---	---	---	---	---	---	---
Average	3.29	---	---	328	---	---	---	172	---	---	---
Max	11.7	3.2	---	475	2,015	---	---	242	1,073	---	---

Appendix B

Detailed Discharge Measurement Data for the Wekiva River System and Reference Sites

APPENDIX B

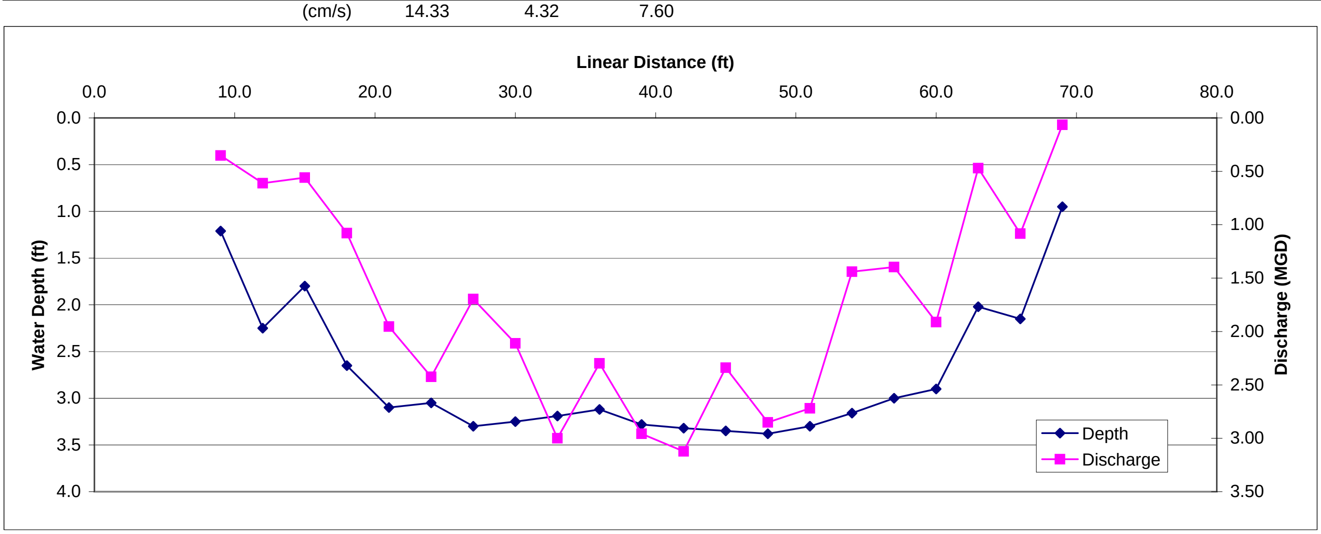
Wekiva PLRG Segments - Marsh McBirney Cross Sectional Flow Summary

Station	Date	Transect Width (ft)	Average Depth (ft)	Surface Velocity (cm/s)	Flow Weighted Velocity (cm/s)	Discharge (cfs)	Avg Discharge (cfs)	Closest Gauged Stn (cfs)	Difference (cfs)	Difference (%)
WR1-DOWN	10/24/2006	63.0	2.75	11.47	14.29	56.38	56.38	56.64	-0.26	-0.46
WR1-UP	11/8/2006	85.5	3.01	9.71	12.68	67.37	67.47	64.33	3.14	4.89
WR-1-DOWN	11/8/2006	69.5	2.8	11.29	14.76	67.58				
WR1-UP	1/23/2007	65.0	3.17	11.37	13.10	60.58	61.51	62.63	-1.12	-1.78
WR-1-DOWN	1/23/2007	69.0	3.03	11.92	14.46	62.44				
WR1-UP	2/5/2007	90.0	2.99	7.82	9.83	53.10	50.79	*64.39*	-13.60	-21.12
WR-1-DOWN	2/5/2007	61.0	3.17	8.86	11.91	48.48				
WR1-UP	4/11/2007	88.0	2.93	11.45	12.33	61.72	61.89	*58.75*	3.14	5.34
WR-1-DOWN	4/11/2007	66.5	2.72	11.80	15.92	62.06				
WR1-UP	4/24/2007	68.0	2.12	13.38	15.05	62.94	57.84	*54.76*	3.08	5.62
WR-1-DOWN	4/24/2007	67.0	2.84	10.36	14.13	52.73				
WR1-UP	8/15/2007	98.5	2.99	8.67	10.88	48.86	48.18	---	---	---
WR-1-DOWN	8/15/2007	72.0	2.62	8.60	14.35	47.49				
WR2-UP	10/25/2006	548.0	1.96	4.61	14.96	225.06	196.75		-47.25	-19.37
WR2-DOWN	10/25/2006	204.0	4.24	6.51	7.82	168.43		*244*		
WR2-UP	1/24/2007	436.0	2.14	6.16	16.42	197.33	193.38		-7.62	-3.79
WR2-DOWN	1/24/2007	204.0	4.36	6.07	7.58	189.43		*201*		
WR2-UP	2/6/2007	432.0	1.97	4.89	8.37	120.65	174.76		-50.24	-22.33
WR2-DOWN	2/6/2007	204.0	4.34	6.89	9.97	228.86		*225*		
WR2-UP	4/10/2007	460.0	1.77	5.33	10.33	159.46	153.48		-6.52	-4.08
WR2-DOWN	4/10/2007	202.0	4.18	5.11	7.05	147.49		*160*		
WR2-UP	4/24/2007	463.0	1.73	5.30	11.49	151.84	164.01		20.01	13.89
WR2-DOWN	4/24/2007	212.0	4.43	6.58	7.42	176.18		*144*		
WR2-UP	8/16/2007	455.0	1.72	3.62	9.01	92.38	104.13	---	---	---
WR2-DOWN	8/16/2007	200.0	4.25	5.27	6.63	115.88				
RSR1-UP	10/5/2006	108.0	1.33	9.71	17.44	49.2	48.4	53.9	-5.52	-10.23
RSR1-DOWN	10/5/2006	99.0	2.47	5.36	9.88	47.6				
RSR1-UP	1/4/2007	102.0	1.09	8.63	11.64	32.7	43.8	51.8	-8.06	-15.56
RSR1-DOWN	1/4/2007	142.0	2.20	5.56	7.22	54.8				
RSR1-UP	1/18/2007	107.0	1.13	10.97	17.71	52.3	53.2	51.0	2.19	4.29
RSR1-DOWN	1/18/2007	134.0	1.99	5.72	7.92	54.1				
RSR1-UP	5/8/2007	106.0	1.23	8.82	18.26	45.5	52.1	*48.3*	3.88	8.05
RSR1-DOWN	5/8/2007	134.0	1.80	7.00	9.54	58.8				
RSR1-DOWN	5/24/2004	95.0	2.27	6.77	10.47	51.4	51.4	---	---	---
RSR1-UP	8/23/2007	117.0	0.89	7.90	25.61	38.3	39.3	---	---	---
RSR1-DOWN	8/23/2007	137.0	1.55	4.65	9.40	40.3				
RSR1-UP	9/6/2007	100.0	0.96	11.05	29.42	47.7	45.2	---	---	---
RSR1-DOWN	9/6/2007	107.0	2.17	5.66	11.14	42.7				
RSR2-UP	10/4/2006	26.0	2.04	20.62	31.17	44.6	52.12		6.29	13.73
RSR2-MB	10/4/2006	58.5	1.33	18.54	31.14	59.6		45.83		
RSR2-UP	1/3/2007	31.5	1.90	24.36	33.84	54.01	53.47		6.45	13.71
RSR2-MB	1/3/2007	56.5	1.48	16.97	28.59	52.92		47.02		
RSR2-UP	5/9/2007	31.5	1.81	20.87	29.94	44.36	42.50		-2.33	-5.20
RSR2-MB	5/9/2007	51.5	1.30	15.68	21.97	40.63		44.83		
RSR2-UP	8/22/2007	21.0	2.10	28.84	32.15	41.69	36.99		-8.64	-18.94
RSR2-MB	8/22/2007	46.0	0.97	14.27	29.05	32.28		45.63		
RSR2-UP	9/5/2007	25.0	2.01	25.16	32.82	44.99	44.61		-1.61	-3.49
RSR2-MB	9/5/2007	51.5	1.44	15.71	25.18	44.23		46.22		
JC1-UP	10/4/2006	44.5	4.61	11.67	20.83	110.0	109.21		13.95	14.65
JC1-DOWN	10/4/2006	98.0	1.28	25.70	33.02	108.39		95.25		
JC1-UP	1/3/2007	44.0	4.33	7.19	24.75	89.62	92.24		3.88	4.39
JC1-DOWN	1/3/2007	90.0	1.13	24.74	33.81	94.86		88.36		
JC1-UP	1/17/2007	38.0	4.69	15.75	44.03	97.43	91.74		4.62	5.31
JC1-DOWN	1/17/2007	100.0	1.07	21.67	32.09	86.05		87.11		
JC1-UP	5/30/2007	42.0	4.79	12.80	15.23	82.56	78.31		-0.66	-0.84
JC1-DOWN	5/30/2007	90.0	1.12	20.45	28.24	74.06		78.97		
JC1-DOWN	6/19/2007	96.0	1.27	18.14	24.63	79.36	79.36	80.22	-0.86	-1.07
JC1-UP	8/22/2007	37.0	3.51	25.01	33.02	94.52	92.57		7.96	9.41
JC1-DOWN	8/22/2007	89.0	1.18	23.23	31.41	90.62		84.61		
JC1-UP	9/5/2007	38.0	3.77	17.83	26.26	82.63	87.92		2.69	3.16
JC1-DOWN	9/5/2007	97.0	1.19	20.74	31.43	93.22		85.23		
ASC1-UP	10/24/2006	210.0	2.30	6.90	14.29	100.62	93.34	94.71	-1.37	-1.44
ASC1-DOWN	10/24/2006	210.0	1.85	6.87	10.46	86.06				
ASC1-UP	1/23/2007	206.0	2.37	10.15	20.38	135.87	117.08	96.30	20.78	21.58
ASC1-DOWN	1/23/2007	214.0	1.98	6.53	9.05	98.29		(1/16/07)		
ASC1-UP	2/5/2007	208.0	2.45	7.56	13.85	120.89	116.42	92.40	24.02	25.99
ASC1-DOWN	2/5/2007	222.0	2.14	7.33	10.11	111.94		(2/12/07)		
ASC1-UP	5/30/2007	198.5	2.16	7.49	14.74	85.97	81.20	---	---	---
ASC1-DOWN	5/30/2007	205.0	1.85	5.75	8.80	76.44				
ASC1-DOWN	6/19/2007	210	2.0	6.4	9.3	86.36	86.36	---	---	---
ASC1-DOWN	7/31/2007	207.5	2.0	6.3	8.9	91.64	91.64	---	---	---
ASC1-UP	8/15/2007	207.0	2.41	7.27	16.39	65.31	70.04	---	---	---
ASC1-DOWN	8/15/2007	211.0	2.02	4.95	7.66	74.77				

Provisional data

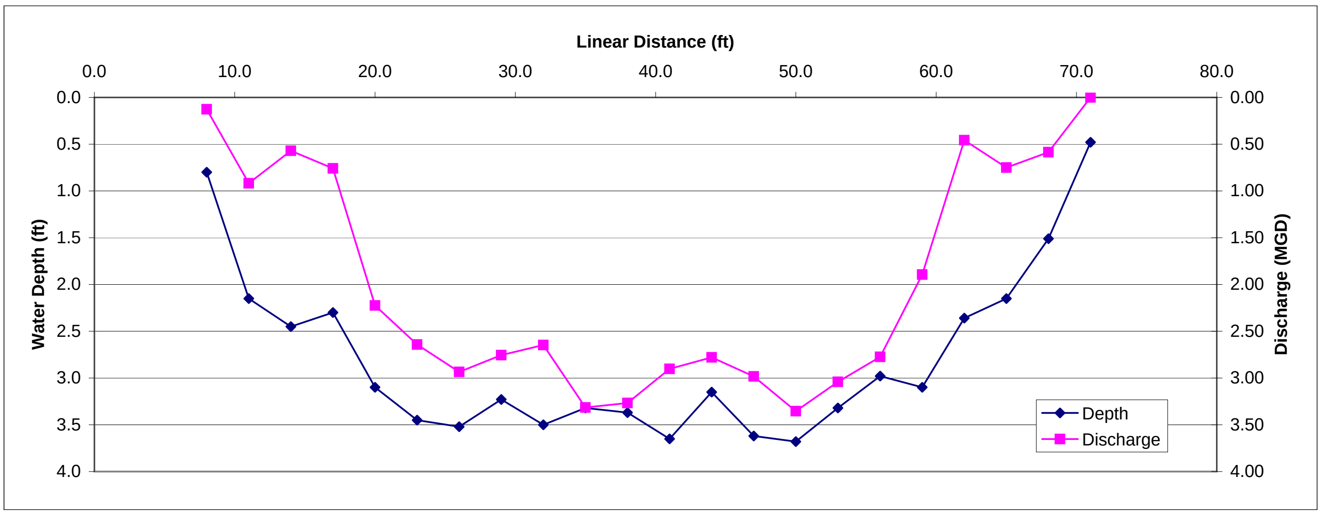
APPENDIX B
WR-SEG1-DOWN Marsh McBirney Cross Sectional Flow - 10/24/06

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	6.0												
	9.0	4.5	1.21		0.10		5.45	0.54	1332	0.35	3.05	0.97%	0.03
	12.0	3.0	2.25		0.14		6.75	0.95	2312	0.61	4.27	1.68%	0.07
	15.0	3.0	1.80		0.16		5.40	0.86	2114	0.56	4.88	1.53%	0.07
	18.0	3.0	2.65	0.31		0.11	7.95	1.67	4085	1.08	9.45	2.96%	0.28
	21.0	3.0	3.10	0.42		0.23	9.30	3.02	7395	1.95	12.80	5.36%	0.69
	24.0	3.0	3.05	0.57		0.25	9.15	3.75	9178	2.42	17.37	6.65%	1.16
	27.0	3.0	3.30	0.30		0.23	9.90	2.62	6419	1.70	9.14	4.65%	0.43
	30.0	3.0	3.25	0.34		0.33	9.75	3.27	7991	2.11	10.36	5.79%	0.60
	33.0	3.0	3.19	0.48		0.49	9.57	4.64	11356	3.00	14.63	8.23%	1.20
	36.0	3.0	3.12	0.64		0.12	9.36	3.56	8702	2.30	19.51	6.31%	1.23
	39.0	3.0	3.28	0.65		0.28	9.84	4.58	11195	2.96	19.81	8.12%	1.61
	42.0	3.0	3.32	0.64		0.33	9.96	4.83	11818	3.12	19.51	8.57%	1.67
	45.0	3.0	3.35	0.66		0.06	10.05	3.62	8852	2.34	20.12	6.42%	1.29
	48.0	3.0	3.38	0.51		0.36	10.14	4.41	10792	2.85	15.54	7.82%	1.22
	51.0	3.0	3.30	0.40		0.45	9.90	4.21	10294	2.72	12.19	7.46%	0.91
	54.0	3.0	3.16	0.37		0.10	9.48	2.23	5450	1.44	11.28	3.95%	0.45
	57.0	3.0	3.00	0.26		0.22	9.00	2.16	5285	1.40	7.92	3.83%	0.30
	60.0	3.0	2.90	0.50		0.18	8.70	2.96	7237	1.91	15.24	5.25%	0.80
	63.0	3.0	2.02		0.12		6.06	0.73	1779	0.47	3.66	1.29%	0.05
	66.0	3.0	2.15		0.26		6.45	1.68	4103	1.08	7.92	2.97%	0.24
	69.0	1.5	0.95		0.07		1.43	0.10	244	0.06	2.13	0.18%	0.00
End	69.0												
		63.0	2.75	0.47	0.14	0.25	173.58	56.38	137931	36.44	11.47	100%	14.29
			(cm/s)	14.33	4.32	7.60							



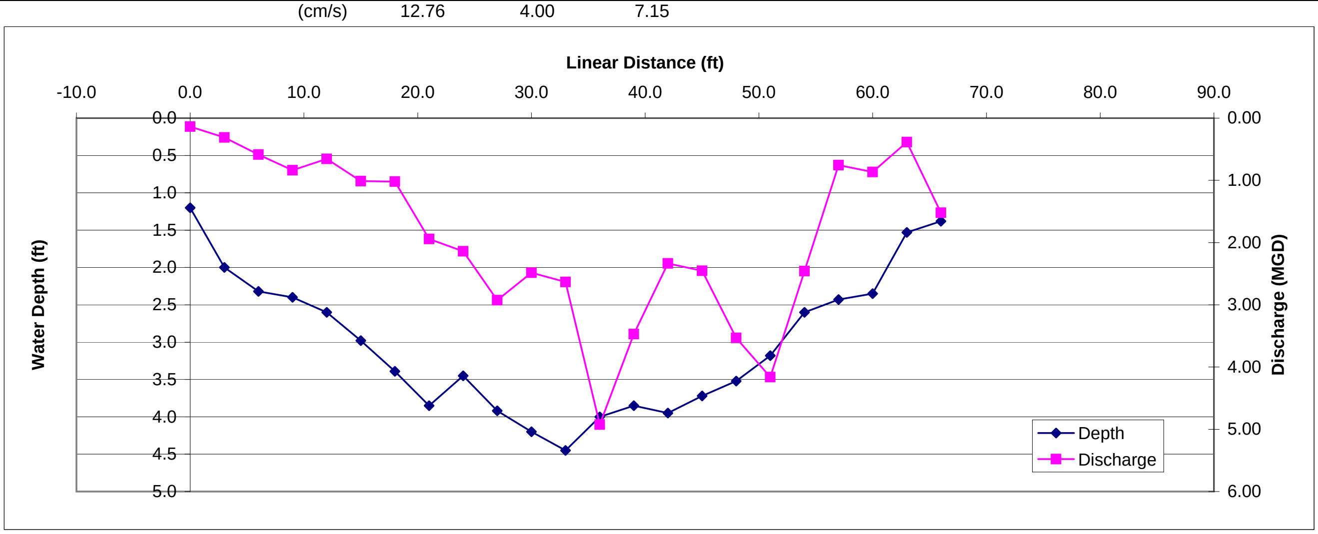
APPENDIX B
WR-SEG1-DOWN Marsh McBirney Cross Sectional Flow - 11/08/06

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	6.0												
	8.0	3.5	0.80		0.07		2.80	0.20	480	0.13	2.13	0.29%	0.01
	11.0	3.0	2.15		0.22		6.45	1.42	3472	0.92	6.71	2.10%	0.14
	14.0	3.0	2.45		0.12		7.35	0.88	2158	0.57	3.66	1.31%	0.05
	17.0	3.0	2.30		0.17		6.90	1.17	2870	0.76	5.18	1.74%	0.09
	20.0	3.0	3.10	0.49		0.25	9.30	3.44	8419	2.22	14.94	5.09%	0.76
	23.0	3.0	3.45	0.53		0.26	10.35	4.09	10002	2.64	16.15	6.05%	0.98
	26.0	3.0	3.52	0.54		0.32	10.56	4.54	11109	2.93	16.46	6.72%	1.11
	29.0	3.0	3.23	0.49		0.39	9.69	4.26	10431	2.76	14.94	6.31%	0.94
	32.0	3.0	3.50	0.53		0.25	10.50	4.10	10019	2.65	16.15	6.06%	0.98
	35.0	3.0	3.32	0.55		0.48	9.96	5.13	12549	3.32	16.76	7.59%	1.27
	38.0	3.0	3.37	0.61		0.39	10.11	5.06	12367	3.27	18.59	7.48%	1.39
	41.0	3.0	3.65	0.66		0.16	10.95	4.49	10984	2.90	20.12	6.64%	1.34
	44.0	3.0	3.15	0.64		0.27	9.45	4.30	10520	2.78	19.51	6.36%	1.24
	47.0	3.0	3.62	0.60		0.25	10.86	4.62	11292	2.98	18.29	6.83%	1.25
	50.0	3.0	3.68	0.53		0.41	11.04	5.19	12695	3.35	16.15	7.68%	1.24
	53.0	4.5	3.32	0.39		0.24	14.94	4.71	11514	3.04	11.89	6.96%	0.83
	56.0	4.5	2.98	0.39		0.25	13.41	4.29	10499	2.77	11.89	6.35%	0.75
	59.0	4.5	3.10	0.14		0.28	13.95	2.93	7167	1.89	4.27	4.33%	0.18
	62.0	3.0	2.36		0.10		7.08	0.71	1732	0.46	3.05	1.05%	0.03
	65.0	3.0	2.15		0.18		6.45	1.16	2840	0.75	5.49	1.72%	0.09
	68.0	3.0	1.51		0.20		4.53	0.91	2217	0.59	6.10	1.34%	0.08
	71.0	1.5	0.48		0.00		0.72	0.00	0	0.00	0.00	0.00%	0.00
End	71.0												
		69.5	2.78	0.51	0.13	0.30	197.35	67.58	165336	43.68	11.29	100%	14.76
			(cm/s)	15.44	4.04	9.14							



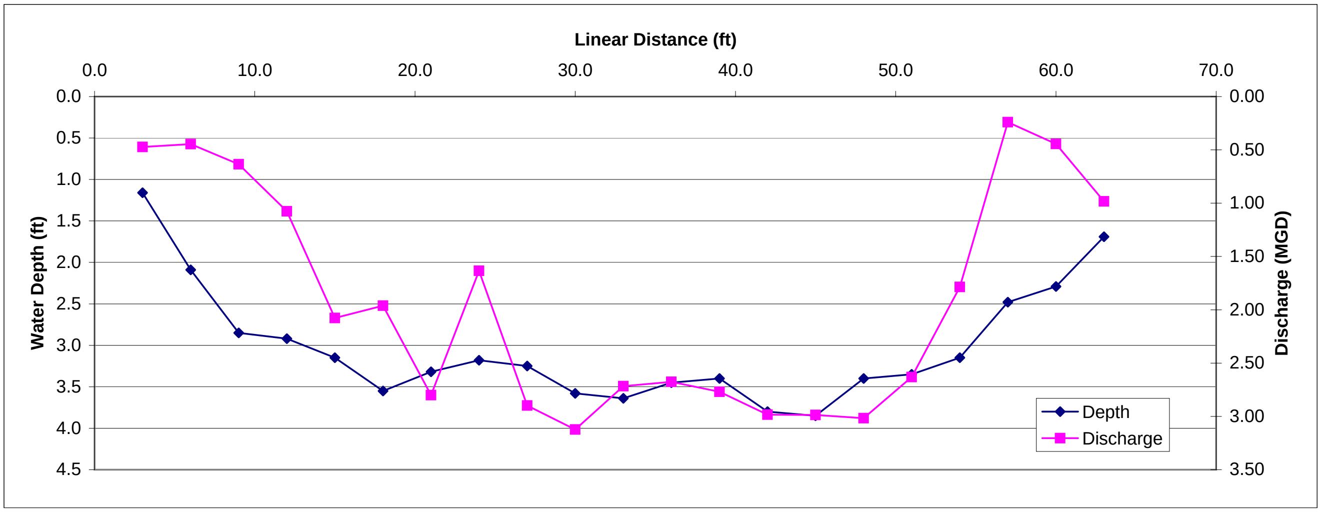
APPENDIX B
WR-SEG1-UP Marsh McBirney Cross Sectional Flow - 11/08/06

	Distance from Initial Point (ft)	Segment Width (ft)	Total Depth (ft)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	-1.0												
	0.0	2.5	1.20		0.07		3.00	0.21	514	0.14	2.13	0.31%	0.01
	3.0	3.0	2.00		0.08		6.00	0.48	1174	0.31	2.44	0.71%	0.02
	6.0	3.0	2.32		0.13		6.96	0.90	2214	0.58	3.96	1.34%	0.05
	9.0	3.0	2.40		0.18		7.20	1.30	3171	0.84	5.49	1.92%	0.11
	12.0	3.0	2.60	0.26		0.00	7.80	1.01	2481	0.66	7.92	1.51%	0.12
	15.0	3.0	2.98	0.30		0.05	8.94	1.56	3828	1.01	9.14	2.32%	0.21
	18.0	3.0	3.39	0.26		0.05	10.17	1.58	3857	1.02	7.92	2.34%	0.19
	21.0	3.0	3.85	0.38		0.14	11.55	3.00	7347	1.94	11.58	4.46%	0.52
	24.0	3.0	3.45	0.56		0.08	10.35	3.31	8103	2.14	17.07	4.92%	0.84
	27.0	3.0	3.92	0.46		0.31	11.76	4.53	11077	2.93	14.02	6.72%	0.94
	30.0	3.0	4.20	0.38		0.23	12.60	3.84	9402	2.48	11.58	5.70%	0.66
	33.0	3.0	4.45	0.47		0.14	13.35	4.07	9962	2.63	14.33	6.04%	0.87
	36.0	3.0	4.00	0.69		0.58	12.00	7.62	18643	4.93	21.03	11.31%	2.38
	39.0	3.0	3.85	0.46		0.47	11.55	5.37	13140	3.47	14.02	7.97%	1.12
	42.0	3.0	3.95	0.39		0.22	11.85	3.61	8843	2.34	11.89	5.37%	0.64
	45.0	3.0	3.72	0.47		0.21	11.16	3.79	9283	2.45	14.33	5.63%	0.81
	48.0	4.5	3.52	0.41		0.28	15.84	5.46	13370	3.53	12.50	8.11%	1.01
	51.0	4.5	3.18	0.41		0.49	14.31	6.44	15755	4.16	12.50	9.56%	1.19
	54.0	4.5	2.60	0.38		0.27	11.70	3.80	9303	2.46	11.58	5.64%	0.65
	57.0	3.0	2.43		0.16		7.29	1.17	2854	0.75	4.88	1.73%	0.08
	60.0	3.0	2.35		0.19		7.05	1.34	3277	0.87	5.79	1.99%	0.12
	63.0	3.0	1.53		0.13		4.59	0.60	1460	0.39	3.96	0.89%	0.04
	66.0	15.5	1.38		0.11		21.39	2.35	5757	1.52	3.35	3.49%	0.12
End	80.0												
		85.5	3.01	0.42	0.13	0.23	238.41	67.36	164813	43.54	9.71	100%	12.68
			(cm/s)	12.76	4.00	7.15							



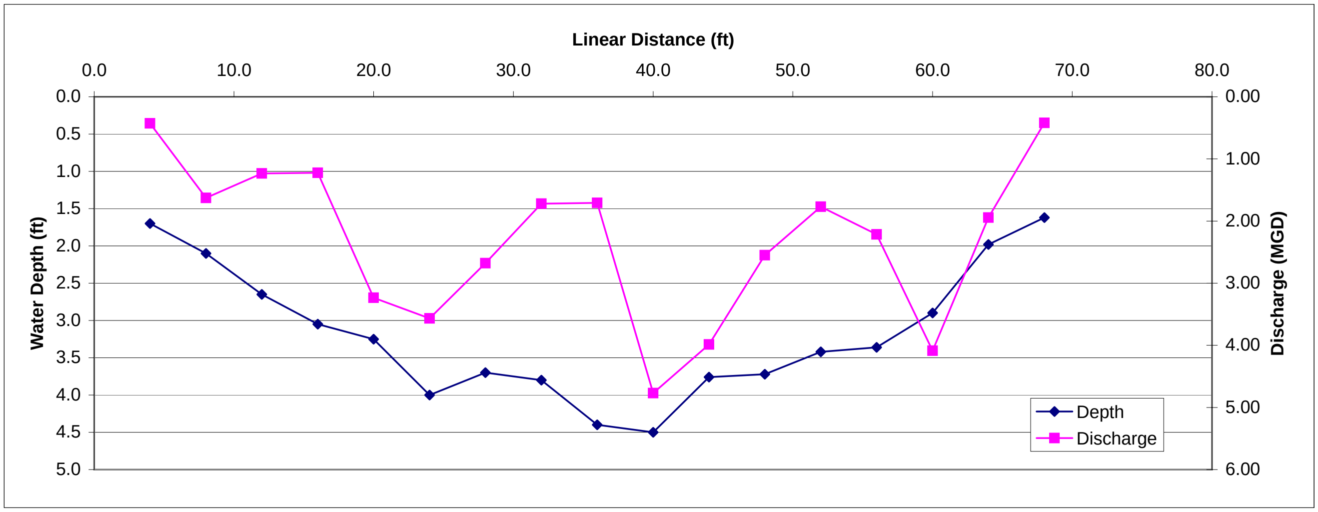
APPENDIX B
WR-SEG1-DOWN Marsh McBirney Cross Sectional Flow - 1/23/2007

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	3.0	4.5	1.16		0.14		5.22	0.73	1788	0.47	4.27	1.17%	0.05
	6.0	3.0	2.09		0.11		6.27	0.69	1687	0.45	3.35	1.10%	0.04
	9.0	3.0	2.85	0.23		0.00	8.55	0.98	2406	0.64	7.01	1.57%	0.11
	12.0	3.0	2.92	0.37		0.01	8.76	1.66	4072	1.08	11.28	2.67%	0.30
	15.0	3.0	3.15	0.47		0.21	9.45	3.21	7861	2.08	14.33	5.15%	0.74
	18.0	3.0	3.55	0.43		0.14	10.65	3.04	7426	1.96	13.11	4.86%	0.64
	21.0	3.0	3.32	0.52		0.35	9.96	4.33	10600	2.80	15.85	6.94%	1.10
	24.0	3.0	3.18	0.45		0.08	9.54	2.53	6185	1.63	13.72	4.05%	0.56
	27.0	3.0	3.25	0.33		0.59	9.75	4.49	10973	2.90	10.06	7.18%	0.72
	30.0	3.0	3.58	0.60		0.30	10.74	4.83	11824	3.12	18.29	7.74%	1.42
	33.0	3.0	3.64	0.67		0.10	10.92	4.20	10286	2.72	20.42	6.73%	1.37
	36.0	3.0	3.45	0.54		0.26	10.35	4.14	10129	2.68	16.46	6.63%	1.09
	39.0	3.0	3.40	0.62		0.22	10.20	4.28	10481	2.77	18.90	6.86%	1.30
	42.0	3.0	3.80	0.66		0.15	11.40	4.62	11296	2.98	20.12	7.39%	1.49
	45.0	3.0	3.85	0.54		0.26	11.55	4.62	11303	2.99	16.46	7.40%	1.22
	48.0	4.5	3.40	0.42		0.19	15.30	4.67	11417	3.02	12.80	7.47%	0.96
	51.0	4.5	3.35	0.34		0.20	15.08	4.07	9958	2.63	10.36	6.52%	0.68
	54.0	4.5	3.15	0.32		0.07	14.18	2.76	6763	1.79	9.75	4.43%	0.43
	57.0	3.0	2.48		0.05		7.44	0.37	910	0.24	1.52	0.60%	0.01
	60.0	3.0	2.29		0.10		6.87	0.69	1681	0.44	3.05	1.10%	0.03
	63.0	3.0	1.69		0.30		5.07	1.52	3721	0.98	9.14	2.44%	0.22
End	66.0												
		69.0	3.03	0.47	0.14	0.20	207.24	62.44	152767	40.36	11.92	100%	14.46
			(cm/s)	14.31	4.27	5.96							



APPENDIX B
WR-SEG1-UP Marsh McBirney Cross Sectional Flow - 1/23/2007

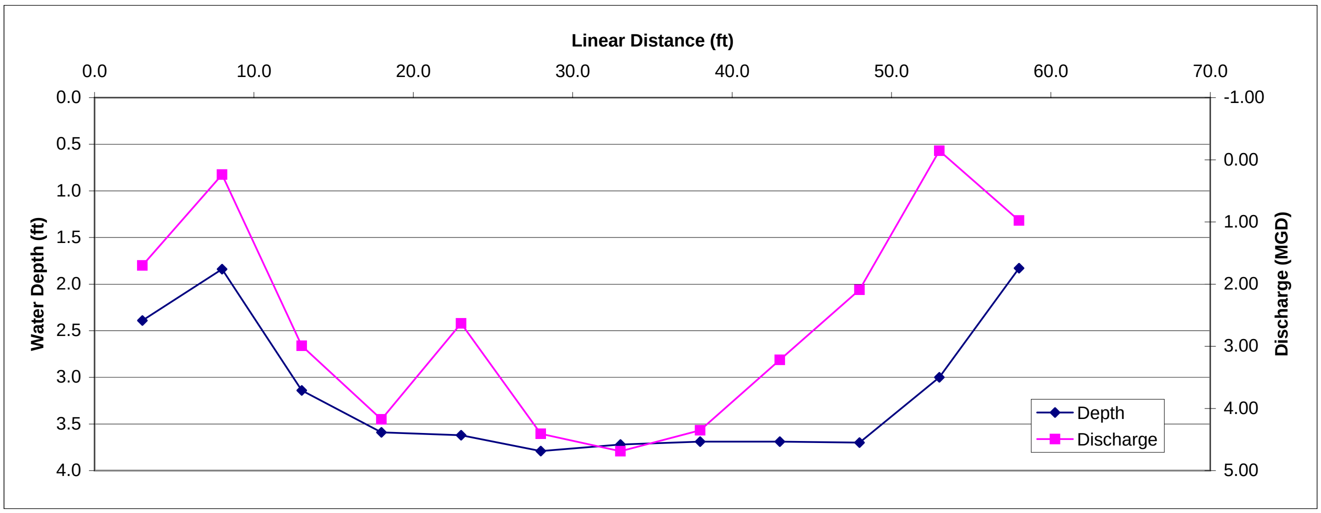
	Distance from Initial Point (ft)	Segment Width (ft)	Total Depth (ft)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	3.0												
	4.0	3.0	1.70		0.13		5.10	0.66	1622	0.43	3.96	1.09%	0.04
	8.0	4.0	2.10		0.30		8.40	2.52	6165	1.63	9.14	4.16%	0.38
	12.0	4.0	2.65	0.36		0.00	10.60	1.91	4668	1.23	10.97	3.15%	0.35
	16.0	4.0	3.05	0.31		0.00	12.20	1.89	4626	1.22	9.45	3.12%	0.29
	20.0	4.0	3.25	0.41		0.36	13.00	5.01	12245	3.23	12.50	8.26%	1.03
	24.0	4.0	4.00	0.36		0.33	16.00	5.52	13505	3.57	10.97	9.11%	1.00
	28.0	4.0	3.70	0.41		0.15	14.80	4.14	10139	2.68	12.50	6.84%	0.85
	32.0	4.0	3.80	0.34		0.01	15.20	2.66	6508	1.72	10.36	4.39%	0.46
	36.0	4.0	4.40	0.25		0.05	17.60	2.64	6459	1.71	7.62	4.36%	0.33
	40.0	4.0	4.50	0.45		0.37	18.00	7.38	18056	4.77	13.72	12.18%	1.67
	44.0	4.0	3.76	0.65		0.17	15.04	6.17	15087	3.99	19.81	10.18%	2.02
	48.0	4.0	3.72	0.42		0.11	14.88	3.94	9647	2.55	12.80	6.51%	0.83
	52.0	4.0	3.42	0.40		0.00	13.68	2.74	6694	1.77	12.19	4.52%	0.55
	56.0	4.0	3.36	0.30		0.21	13.44	3.43	8385	2.22	9.14	5.66%	0.52
	60.0	4.0	2.90	0.67		0.42	11.60	6.32	15467	4.09	20.42	10.44%	2.13
	64.0	4.0	1.98		0.38		7.92	3.01	7363	1.95	11.58	4.97%	0.58
	68.0	2.0	1.62		0.20		3.24	0.65	1585	0.42	6.10	1.07%	0.07
End	68.0												
		65.0	3.17	0.41	0.25	0.17	210.70	60.58	148222	39.16	11.37	100%	13.10
			(cm/s)	12.50	7.70	5.11							



*Near transect 3, downstream of lagoon

APPENDIX B
WR-SEG1-DOWN Marsh McBirney Cross Sectional Flow - 2/5/2007

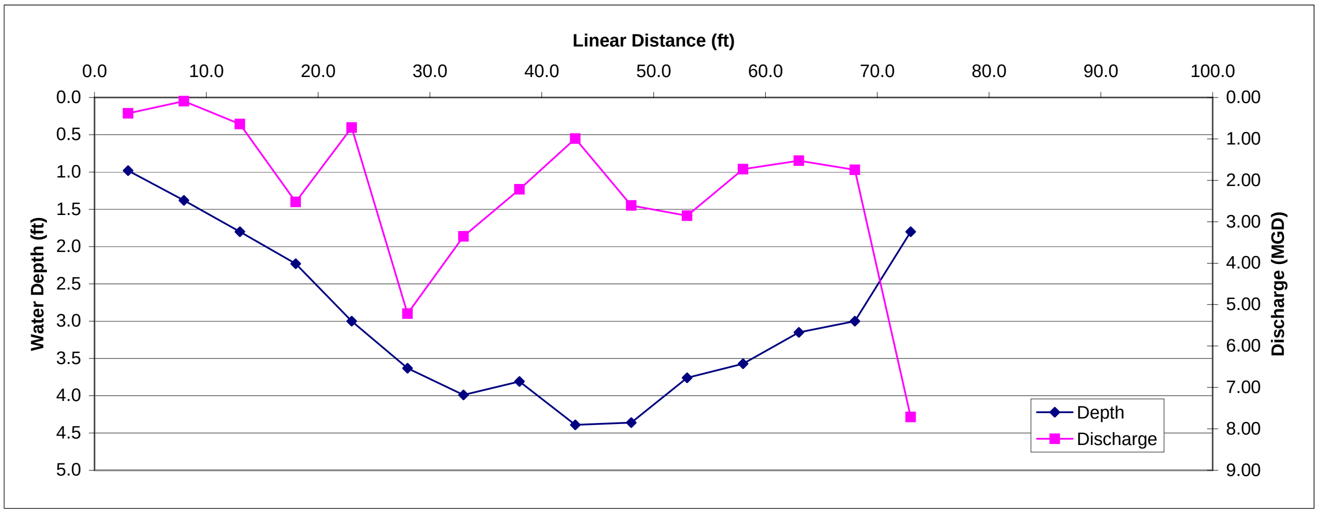
	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	3.0	5.5	2.39		0.20		13.15	2.63	6432	1.70	6.10	5.42%	0.33
	8.0	5.0	1.84		0.04		9.20	0.37	900	0.24	1.22	0.76%	0.01
	13.0	5.0	3.14	0.55		0.04	15.70	4.63	11331	2.99	16.76	9.55%	1.60
	18.0	5.0	3.59	0.45		0.27	17.95	6.46	15810	4.18	13.72	13.33%	1.83
	23.0	5.0	3.62	0.30		0.15	18.10	4.07	9964	2.63	9.14	8.40%	0.77
	28.0	5.0	3.79	0.41		0.31	18.95	6.82	16691	4.41	12.50	14.07%	1.76
	33.0	5.0	3.72	0.49		0.29	18.60	7.25	17747	4.69	14.94	14.96%	2.23
	38.0	5.0	3.69	0.46		0.27	18.45	6.73	16476	4.35	14.02	13.89%	1.95
	43.0	5.0	3.69	0.22		0.32	18.45	4.98	12188	3.22	6.71	10.28%	0.69
	48.0	5.0	3.70	0.29		0.06	18.50	3.24	7921	2.09	8.84	6.68%	0.59
	53.0	5.0	3.00	-0.07		0.04	15.00	-0.23	-550	-0.15	-2.13	-0.46%	0.01
	58.0	5.5	1.83		0.15		10.07	1.51	3694	0.98	4.57	3.11%	0.14
End	64.0												
		61.0	3.17	0.34	0.13	0.19	192.11	48.48	118603	31.33	8.86	100%	11.91
			(cm/s)	10.50	3.96	5.93							



APPENDIX B

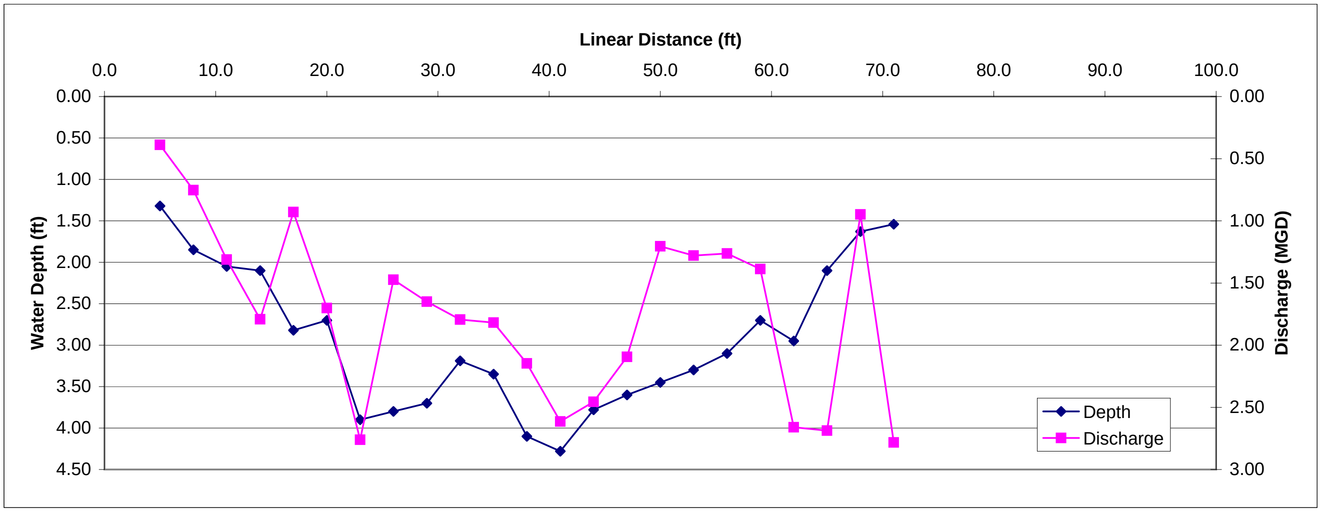
WR-SEG1-UP Marsh McBirney Cross Sectional Flow - 2/5/2007

	Distance from Initial Point	Segment Width	Total Depth	Velocity (ft/s)			Segment Area	Discharge			Surface Velocity	Flow proportion	Weighted Velocity
	(ft)	(ft)	(ft)	0.2 x depth	0.6 x depth	0.8 x depth	(ft^2)	(ft^3/s)	(m^3/d)	(MGD)	(cm/s)	(%)	(cm/s)
Start	0.0												
	3.0	5.5	0.98		0.11		5.39	0.59	1451	0.38	3.35	1.12%	0.04
	8.0	5.0	1.38		0.02		6.90	0.14	338	0.09	0.61	0.26%	0.00
	13.0	5.0	1.80		0.11		9.00	0.99	2422	0.64	3.35	1.86%	0.06
	18.0	5.0	2.23		0.35		11.15	3.90	9548	2.52	10.67	7.35%	0.78
	23.0	5.0	3.00	0.17		-0.02	15.00	1.13	2752	0.73	5.18	2.12%	0.11
	28.0	5.0	3.63	0.42		0.47	18.15	8.08	19760	5.22	12.80	15.21%	1.95
	33.0	5.0	3.99	0.28		0.24	19.95	5.19	12690	3.35	8.53	9.77%	0.83
	38.0	5.0	3.81	0.23		0.13	19.05	3.43	8389	2.22	7.01	6.46%	0.45
	43.0	5.0	4.39	0.18		-0.04	21.95	1.54	3759	0.99	5.49	2.89%	0.16
	48.0	5.0	4.36	0.30		0.07	21.80	4.03	9867	2.61	9.14	7.59%	0.69
	53.0	5.0	3.76	0.42		0.05	18.80	4.42	10809	2.86	12.80	8.32%	1.07
	58.0	5.0	3.57	0.30		0.00	17.85	2.68	6551	1.73	9.14	5.04%	0.46
	63.0	5.0	3.15	0.35		-0.05	15.75	2.36	5780	1.53	10.67	4.45%	0.47
	68.0	5.0	3.00	0.27		0.09	15.00	2.70	6606	1.75	8.23	5.08%	0.42
	73.0	19.5	1.80		0.34		35.10	11.93	29197	7.71	10.36	22.47%	2.33
End	90.0												
		90.0	2.99	0.29	0.19	0.09	250.84	53.10	129920	34.32	7.82	100%	9.83
			(cm/s)	8.90	5.67	2.87							



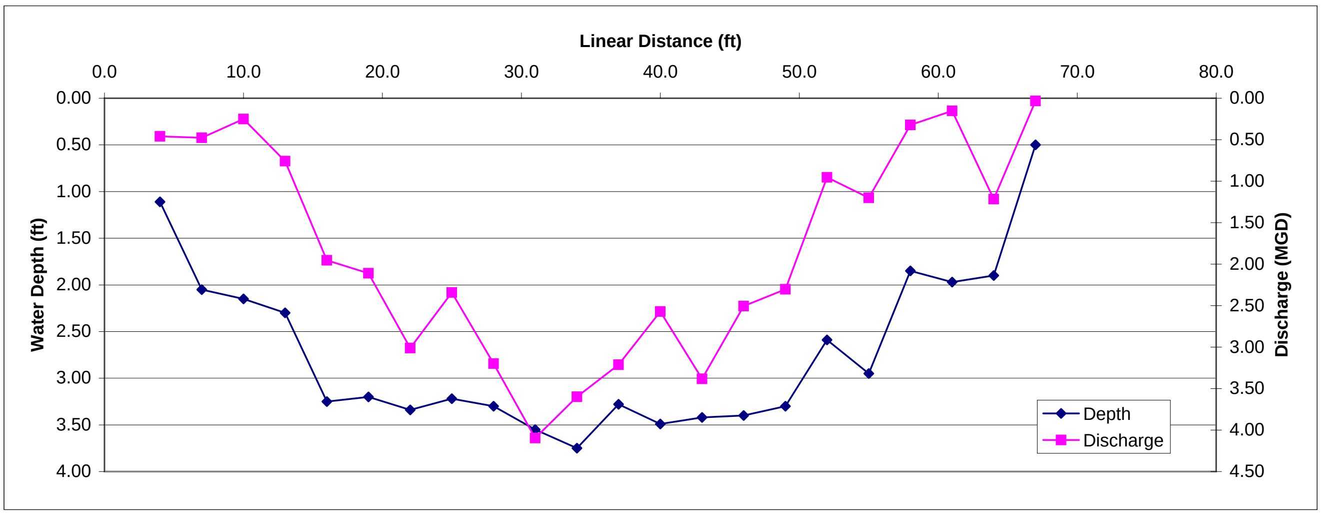
APPENDIX B
WR-SEG1-UP Marsh McBirney Cross Sectional Flow - 4/11/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	3.0												
	5.0	3.5	1.32		0.13		4.62	0.60	1469	0.39	3.96	0.97%	0.04
	8.0	3.0	1.85		0.21		5.55	1.17	2851	0.75	6.40	1.89%	0.12
	11.0	3.0	2.05		0.33		6.15	2.03	4965	1.31	10.06	3.29%	0.33
	14.0	3.0	2.10		0.44		6.30	2.77	6782	1.79	13.41	4.49%	0.60
	17.0	3.0	2.82	0.32		0.02	8.46	1.44	3519	0.93	9.75	2.33%	0.23
	20.0	3.0	2.70	0.49		0.16	8.10	2.63	6441	1.70	14.94	4.27%	0.64
	23.0	3.0	3.90	0.55		0.18	11.70	4.27	10448	2.76	16.76	6.92%	1.16
	26.0	3.0	3.80	0.23		0.17	11.40	2.28	5578	1.47	7.01	3.69%	0.26
	29.0	3.0	3.70	0.23		0.23	11.10	2.55	6246	1.65	7.01	4.14%	0.29
	32.0	3.0	3.19	0.35		0.23	9.57	2.78	6790	1.79	10.67	4.50%	0.48
	35.0	3.0	3.35	0.35		0.21	10.05	2.81	6885	1.82	10.67	4.56%	0.49
	38.0	3.0	4.10	0.34		0.20	12.30	3.32	8125	2.15	10.36	5.38%	0.56
	41.0	3.0	4.28	0.45		0.18	12.84	4.04	9895	2.61	13.72	6.55%	0.90
	44.0	3.0	3.78	0.44		0.23	11.34	3.80	9294	2.46	13.41	6.15%	0.83
	47.0	3.0	3.60	0.55		0.05	10.80	3.24	7927	2.09	16.76	5.25%	0.88
	50.0	3.0	3.45	0.35		0.01	10.35	1.86	4558	1.20	10.67	3.02%	0.32
	53.0	3.0	3.30	0.37		0.03	9.90	1.98	4844	1.28	11.28	3.21%	0.36
	56.0	3.0	3.10	0.39		0.03	9.30	1.95	4778	1.26	11.89	3.16%	0.38
	59.0	3.0	2.70	0.48		0.05	8.10	2.15	5252	1.39	14.63	3.48%	0.51
	62.0	3.0	2.95	0.55		0.38	8.85	4.12	10068	2.66	16.76	6.67%	1.12
	65.0	3.0	2.10		0.66		6.30	4.16	10173	2.69	20.12	6.74%	1.36
	68.0	3.0	1.63		0.30		4.89	1.47	3589	0.95	9.14	2.38%	0.22
	71.0	21.5	1.54		0.13		33.11	4.30	10531	2.78	3.96	6.97%	0.28
End	91.0												
		88.0	2.93	0.40	0.31	0.15	231.08	61.72	151009	39.89	11.45	100%	12.33
			(cm/s)	12.27	9.58	4.50							



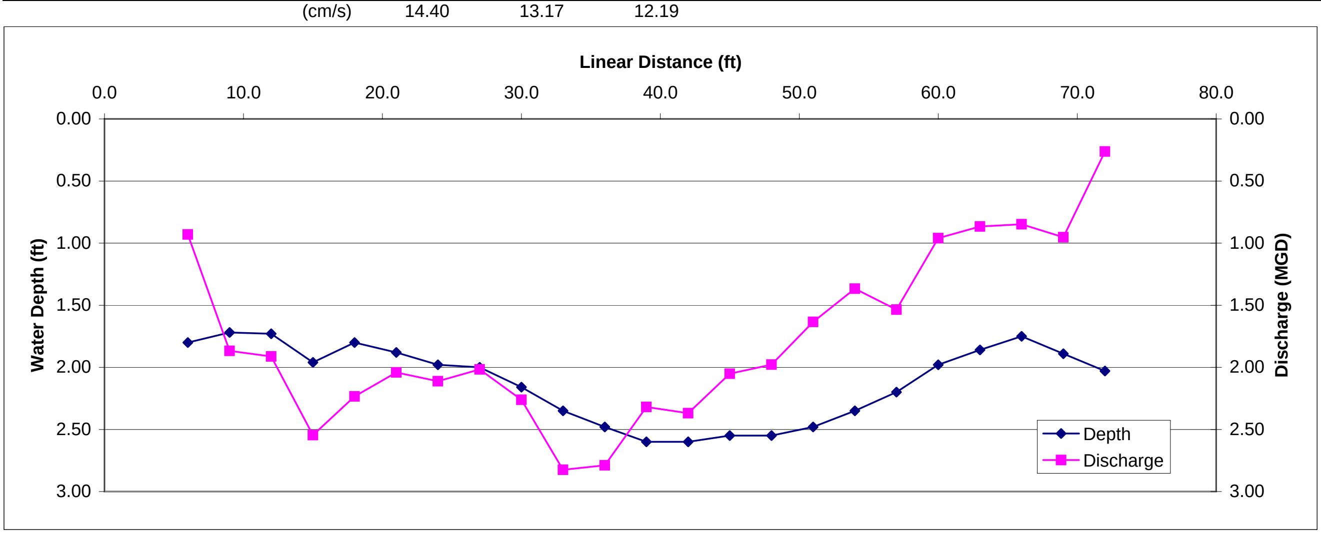
APPENDIX B
WR-SEG1-DOWN Marsh McBirney Cross Sectional Flow - 4/11/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	1.5												
	4.0	4.0	1.11		0.16		4.44	0.71	1738	0.46	4.88	1.14%	0.06
	7.0	3.0	2.05		0.12		6.15	0.74	1806	0.48	3.66	1.19%	0.04
	10.0	3.0	2.15		0.06		6.45	0.39	947	0.25	1.83	0.62%	0.01
	13.0	3.0	2.30		0.17		6.90	1.17	2870	0.76	5.18	1.89%	0.10
	16.0	3.0	3.25	0.47		0.15	9.75	3.02	7395	1.95	14.33	4.87%	0.70
	19.0	3.0	3.20	0.55		0.13	9.60	3.26	7986	2.11	16.76	5.26%	0.88
	22.0	3.0	3.34	0.49		0.44	10.02	4.66	11399	3.01	14.94	7.51%	1.12
	25.0	3.0	3.22	0.55		0.20	9.66	3.62	8863	2.34	16.76	5.84%	0.98
	28.0	3.0	3.30	0.47		0.53	9.90	4.95	12111	3.20	14.33	7.98%	1.14
	31.0	3.0	3.55	0.63		0.56	10.65	6.34	15503	4.10	19.20	10.21%	1.96
	34.0	3.0	3.75	0.66		0.33	11.25	5.57	13624	3.60	20.12	8.97%	1.81
	37.0	3.0	3.28	0.70		0.31	9.84	4.97	12158	3.21	21.34	8.01%	1.71
	40.0	3.0	3.49	0.54		0.22	10.47	3.98	9734	2.57	16.46	6.41%	1.06
	43.0	3.0	3.42	0.76		0.26	10.26	5.23	12802	3.38	23.16	8.43%	1.95
	46.0	3.0	3.40	0.50		0.26	10.20	3.88	9483	2.51	15.24	6.25%	0.95
	49.0	3.0	3.30	0.47		0.25	9.90	3.56	8720	2.30	14.33	5.74%	0.82
	52.0	3.0	2.59	0.22		0.16	7.77	1.48	3612	0.95		2.38%	
	55.0	3.0	2.95	0.33		0.09	8.85	1.86	4547	1.20	10.06	2.99%	0.30
	58.0	3.0	1.85		0.09		5.55	0.50	1222	0.32	2.74	0.80%	0.02
	61.0	3.0	1.97		0.04		5.91	0.24	578	0.15	1.22	0.38%	0.00
	64.0	3.0	1.90		0.33		5.70	1.88	4602	1.22	10.06	3.03%	0.30
	67.0	2.5	0.50		0.04		1.25	0.05	122	0.03	1.22	0.08%	0.00
End	68.0												
		66.5	2.72	0.52	0.13	0.28	180.47	62.05	151821	40.11	11.80	100%	15.92
			(cm/s)	15.98	3.85	8.47							



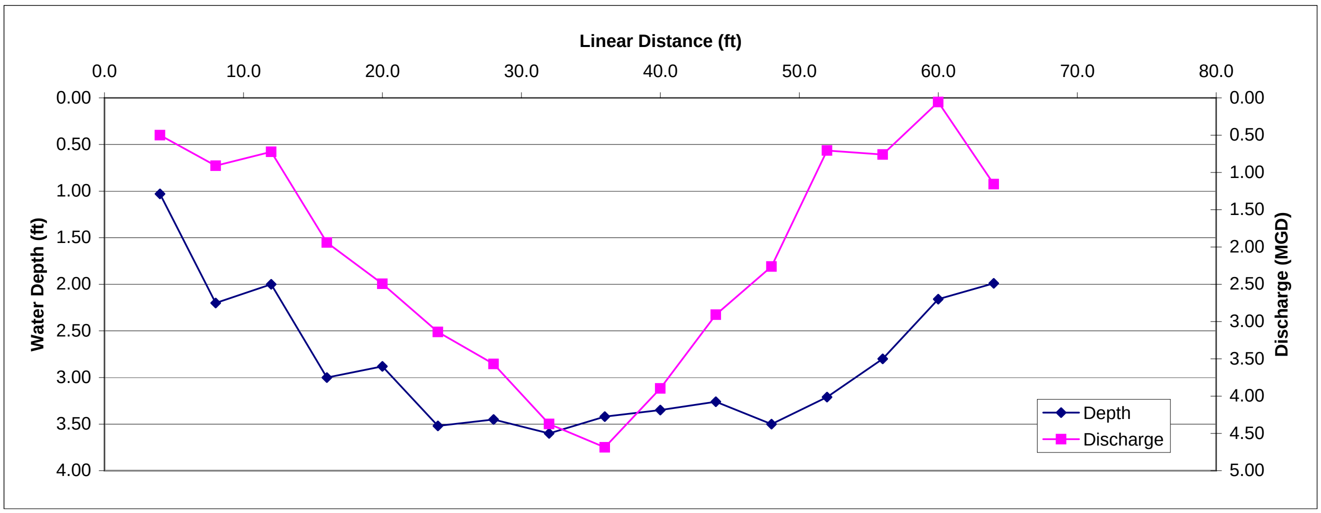
APPENDIX B
WR-SEG1-UP (@ Bridge near Boil) Marsh McBirney Cross Sectional Flow - 4/24/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	5.0												
	6.0	2.5	1.80		0.32		4.50	1.44	3523	0.93	9.75	2.29%	0.22
	9.0	3.0	1.72		0.56		5.16	2.89	7070	1.87	17.07	4.59%	0.78
	12.0	3.0	1.73		0.57		5.19	2.96	7238	1.91	17.37	4.70%	0.82
	15.0	3.0	1.96		0.67		5.88	3.94	9639	2.55	20.42	6.26%	1.28
	18.0	3.0	1.80		0.64		5.40	3.46	8455	2.23	19.51	5.49%	1.07
	21.0	3.0	1.88		0.56		5.64	3.16	7727	2.04	17.07	5.02%	0.86
	24.0	3.0	1.98		0.55		5.94	3.27	7993	2.11	16.76	5.19%	0.87
	27.0	3.0	2.00		0.52		6.00	3.12	7633	2.02	15.85	4.96%	0.79
	30.0	3.0	2.16		0.54		6.48	3.50	8561	2.26	16.46	5.56%	0.92
	33.0	3.0	2.35		0.62		7.05	4.37	10694	2.83	18.90	6.94%	1.31
	36.0	3.0	2.48		0.58		7.44	4.32	10557	2.79	17.68	6.86%	1.21
	39.0	3.0	2.60	0.49		0.43	7.80	3.59	8778	2.32	14.94	5.70%	0.85
	42.0	3.0	2.60	0.49		0.45	7.80	3.67	8969	2.37	14.94	5.82%	0.87
	45.0	3.0	2.55	0.46		0.37	7.65	3.17	7767	2.05	14.02	5.04%	0.71
	48.0	3.0	2.55	0.45		0.35	7.65	3.06	7487	1.98	13.72	4.86%	0.67
	51.0	3.0	2.48		0.34		7.44	2.53	6189	1.63	10.36	4.02%	0.42
	54.0	3.0	2.35		0.30		7.05	2.12	5175	1.37	9.14	3.36%	0.31
	57.0	3.0	2.20		0.36		6.60	2.38	5813	1.54	10.97	3.77%	0.41
	60.0	3.0	1.98		0.25		5.94	1.49	3633	0.96	7.62	2.36%	0.18
	63.0	3.0	1.86		0.24		5.58	1.34	3276	0.87	7.32	2.13%	0.16
	66.0	3.0	1.75		0.25		5.25	1.31	3211	0.85	7.62	2.09%	0.16
	69.0	3.0	1.89		0.26		5.67	1.47	3607	0.95	7.92	2.34%	0.19
	72.0	2.5	2.03		0.08		5.08	0.41	993	0.26	2.44	0.65%	0.02
End	73.0												
		68.0	2.12	0.47	0.43	0.40	144.19	62.94	153989	40.68	13.38	100%	15.05
			(cm/s)	14.40	13.17	12.19							



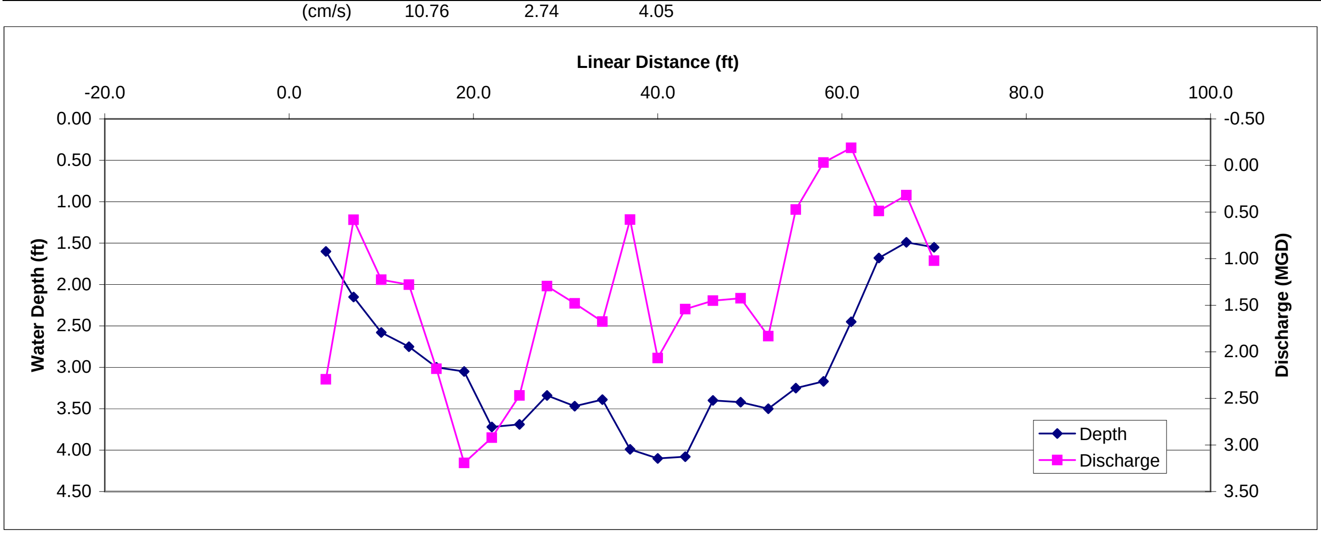
APPENDIX B
WR-SEG1-DOWN Marsh McBirney Cross Sectional Flow - 4/24/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	1.0												
	4.0	5.0	1.03		0.15		5.15	0.77	1890	0.50	4.57	1.47%	0.07
	8.0	4.0	2.20		0.16		8.80	1.41	3445	0.91	4.88	2.67%	0.13
	12.0	4.0	2.00		0.14		8.00	1.12	2740	0.72	4.27	2.12%	0.09
	16.0	4.0	3.00	0.38		0.12	12.00	3.00	7340	1.94	11.58	5.69%	0.66
	20.0	4.0	2.88	0.52		0.15	11.52	3.86	9442	2.49	15.85	7.32%	1.16
	24.0	4.0	3.52	0.47		0.22	14.08	4.86	11884	3.14	14.33	9.21%	1.32
	28.0	4.0	3.45	0.46		0.34	13.80	5.52	13505	3.57	14.02	10.47%	1.47
	32.0	4.0	3.60	0.48		0.46	14.40	6.77	16558	4.37	14.63	12.84%	1.88
	36.0	4.0	3.42	0.65		0.41	13.68	7.25	17739	4.69	19.81	13.75%	2.72
	40.0	4.0	3.35	0.54		0.36	13.40	6.03	14753	3.90	16.46	11.44%	1.88
	44.0	4.0	3.26	0.62		0.07	13.04	4.50	11007	2.91	18.90	8.53%	1.61
	48.0	4.0	3.50	0.38		0.12	14.00	3.50	8563	2.26	11.58	6.64%	0.77
	52.0	4.0	3.21	0.15		0.02	12.84	1.09	2670	0.71	4.57	2.07%	0.09
	56.0	4.0	2.80	0.18		0.03	11.20	1.18	2877	0.76	5.49	2.23%	0.12
	60.0	4.0	2.16		0.01		8.64	0.09	211	0.06	0.30	0.16%	0.00
	64.0	6.0	1.99		0.15		11.94	1.79	4382	1.16	4.57	3.40%	0.16
End	68.0												
		67.0	2.84	0.44	0.12	0.21	186.49	52.73	129006	34.08	10.36	100%	14.13
			(cm/s)	13.38	3.72	6.37							



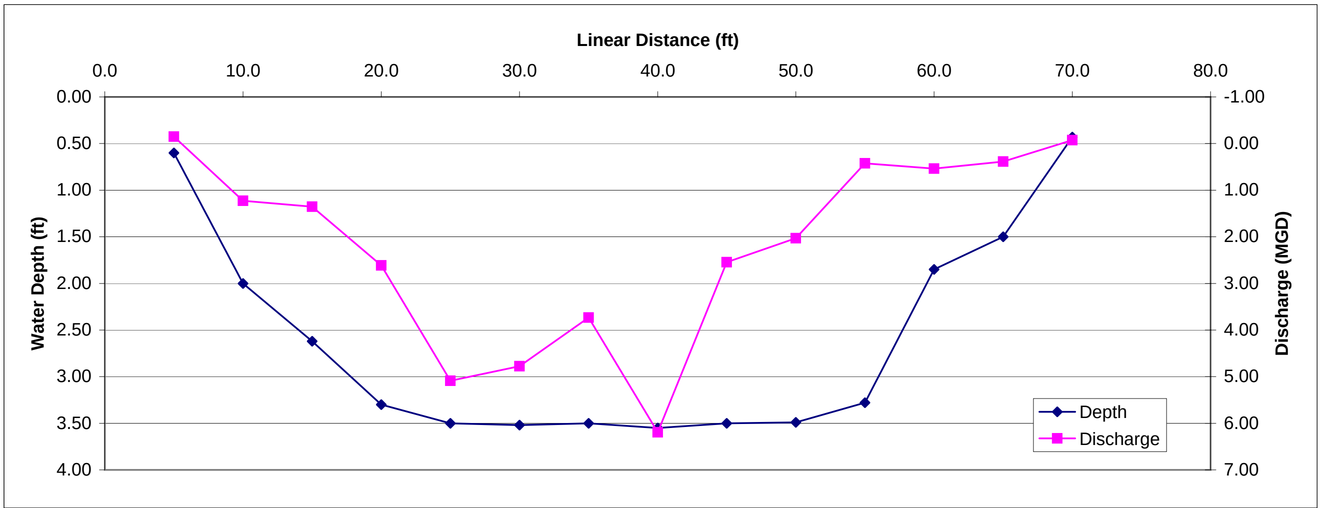
APPENDIX B
WR-SEG1-UP Marsh McBirney Cross Sectional Flow - 08/15/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	-13.0												
	4.0	18.5	1.60		0.12		29.60	3.55	8690	2.30	3.66	7.27%	0.27
	7.0	3.0	2.15		0.14		6.45	0.90	2209	0.58	4.27	1.85%	0.08
	10.0	3.0	2.58	0.35		0.14	7.74	1.90	4639	1.23	10.67	3.88%	0.41
	13.0	3.0	2.75	0.36		0.12	8.25	1.98	4844	1.28	10.97	4.05%	0.44
	16.0	3.0	3.00	0.44		0.31	9.00	3.38	8257	2.18	13.41	6.91%	0.93
	19.0	3.0	3.05	0.44		0.64	9.15	4.94	12089	3.19	13.41	10.11%	1.36
	22.0	3.0	3.72	0.41		0.40	11.16	4.52	11058	2.92	12.50	9.25%	1.16
	25.0	3.0	3.69	0.43		0.26	11.07	3.82	9344	2.47	13.11	7.82%	1.02
	28.0	3.0	3.34	0.35		0.05	10.02	2.00	4903	1.30	10.67	4.10%	0.44
	31.0	3.0	3.47	0.13		0.31	10.41	2.29	5603	1.48	3.96	4.69%	0.19
	34.0	3.0	3.39	0.33		0.18	10.17	2.59	6345	1.68	10.06	5.31%	0.53
	37.0	3.0	3.99	0.26		-0.11	11.97	0.90	2196	0.58	7.92	1.84%	0.15
	40.0	3.0	4.10	0.38		0.14	12.30	3.20	7824	2.07	11.58	6.55%	0.76
	43.0	3.0	4.08	0.46		-0.07	12.24	2.39	5839	1.54	14.02	4.89%	0.68
	46.0	3.0	3.40	0.52		-0.08	10.20	2.24	5490	1.45	15.85	4.59%	0.73
	49.0	3.0	3.42	0.33		0.10	10.26	2.21	5397	1.43	10.06	4.51%	0.45
	52.0	3.0	3.50	0.58		-0.04	10.50	2.84	6936	1.83	17.68	5.80%	1.03
	55.0	3.0	3.25	0.20		-0.05	9.75	0.73	1789	0.47	6.10	1.50%	0.09
	58.0	3.0	3.17	0.03		-0.04	9.51	-0.05	-116	-0.03	0.91	-0.10%	0.00
	61.0	3.0	2.45		-0.04		7.35	-0.29	-719	-0.19	-1.22	-0.60%	0.01
	64.0	3.0	1.68		0.15		5.04	0.76	1850	0.49	4.57	1.55%	0.07
	67.0	3.0	1.49		0.11		4.47	0.49	1203	0.32	3.35	1.01%	0.03
	70.0	17.0	1.55		0.06		26.35	1.58	3868	1.02	1.83	3.24%	0.06
End	85.5												
		98.5	2.99	0.35	0.09	0.13	252.96	48.86	119539	31.58	8.67	100%	10.88
			(cm/s)	10.76	2.74	4.05							



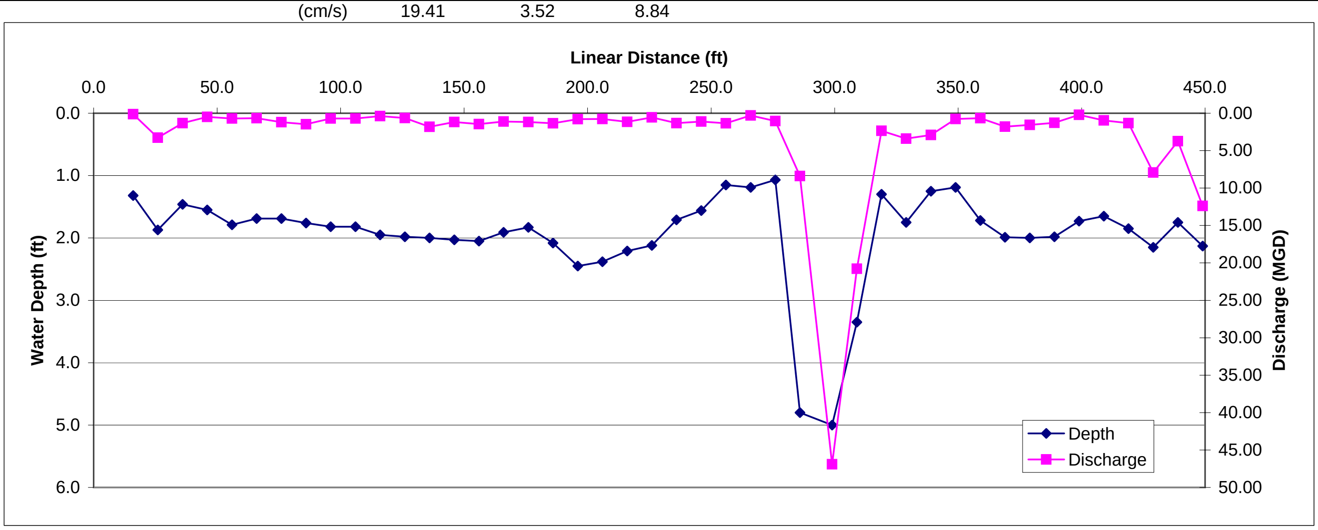
APPENDIX B
WR-SEG1-DOWN Marsh McBirney Cross Sectional Flow - 08/15/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	2.0												
	5.0	5.5	0.60		-0.07		3.30	-0.23	-565	-0.15	-2.13	-0.49%	0.01
	10.0	5.0	2.00		0.19		10.00	1.90	4648	1.23	5.79	4.00%	0.23
	15.0	5.0	2.62	0.30		0.02	13.10	2.10	5128	1.35	9.14	4.41%	0.40
	20.0	5.0	3.30	0.29		0.20	16.50	4.04	9890	2.61	8.84	8.51%	0.75
	25.0	5.0	3.50	0.60		0.30	17.50	7.88	19267	5.09	18.29	16.58%	3.03
	30.0	5.0	3.52	0.51		0.33	17.60	7.39	18085	4.78	15.54	15.57%	2.42
	35.0	5.0	3.50	0.50		0.16	17.50	5.78	14129	3.73	15.24	12.16%	1.85
	40.0	5.0	3.55	0.62		0.46	17.75	9.59	23450	6.20	18.90	20.18%	3.81
	45.0	5.0	3.50	0.35		0.10	17.50	3.94	9633	2.54	10.67	8.29%	0.88
	50.0	5.0	3.49	0.40		-0.04	17.45	3.14	7685	2.03	12.19	6.61%	0.81
	55.0	5.0	3.28	0.13		-0.05	16.40	0.66	1605	0.42	3.96	1.38%	0.05
	60.0	5.0	1.85		0.09		9.25	0.83	2037	0.54	2.74	1.75%	0.05
	65.0	5.0	1.50		0.08		7.50	0.60	1468	0.39	2.44	1.26%	0.03
	70.0	6.5	0.43		-0.04		2.80	-0.11	-274	-0.07	-1.22	-0.24%	0.00
End	74.0												
		72.0	2.62	0.41	0.05	0.16	184.15	47.49	116187	30.69	8.60	100%	14.35
			(cm/s)	12.53	1.52	5.01							



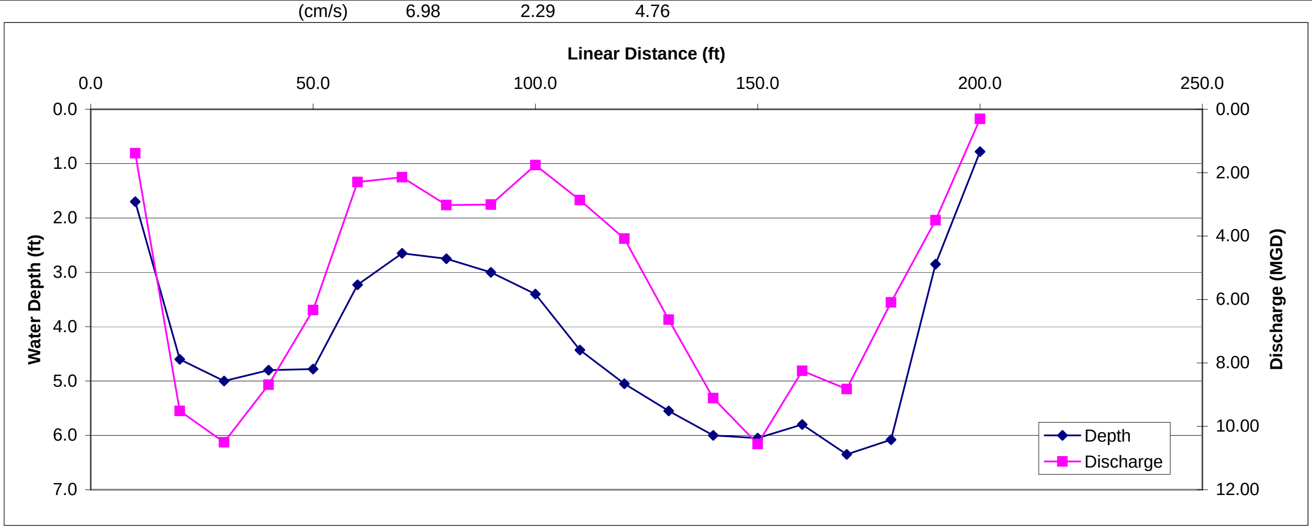
APPENDIX B
WR-SEG2-UP Marsh McBirney Cross Sectional Flow - 10/25/2006

	Distance from Initial Point (ft)	Segment Width (ft)	Total Depth (ft)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	6.0												
	16.0	15.0	1.32		0.01		19.80	0.20	484	0.13	0.30	0.09%	0.00
	26.0	10.0	1.87		0.27		18.70	5.05	12353	3.26	8.23	2.24%	0.18
	36.0	10.0	1.46		0.14		14.60	2.04	5001	1.32	4.27	0.91%	0.04
	46.0	10.0	1.55		0.05		15.50	0.78	1896	0.50	1.52	0.34%	0.01
	56.0	10.0	1.79		0.06		17.90	1.07	2628	0.69	1.83	0.48%	0.01
	66.0	10.0	1.69		0.06		16.90	1.01	2481	0.66	1.83	0.45%	0.01
	76.0	10.0	1.69		0.11		16.90	1.86	4548	1.20	3.35	0.83%	0.03
	86.0	10.0	1.76		0.13		17.60	2.29	5598	1.48	3.96	1.02%	0.04
	96.0	10.0	1.82		0.06		18.20	1.09	2672	0.71	1.83	0.49%	0.01
	106.0	10.0	1.82		0.06		18.20	1.09	2672	0.71	1.83	0.49%	0.01
	116.0	10.0	1.95		0.03		19.50	0.59	1431	0.38	0.91	0.26%	0.00
	126.0	10.0	1.98		0.05		19.80	0.99	2422	0.64	1.52	0.44%	0.01
	136.0	10.0	2.00		0.14		20.00	2.80	6850	1.81	4.27	1.24%	0.05
	146.0	10.0	2.03		0.09		20.30	1.83	4470	1.18	2.74	0.81%	0.02
	156.0	10.0	2.05		0.11		20.50	2.26	5517	1.46	3.35	1.00%	0.03
	166.0	10.0	1.91		0.09		19.10	1.72	4206	1.11	2.74	0.76%	0.02
	176.0	10.0	1.83		0.10		18.30	1.83	4477	1.18	3.05	0.81%	0.02
	186.0	10.0	2.08		0.10		20.80	2.08	5089	1.34	3.05	0.92%	0.03
	196.0	10.0	2.45		0.05		24.50	1.23	2997	0.79	1.52	0.54%	0.01
	206.0	10.0	2.38		0.05		23.80	1.19	2911	0.77	1.52	0.53%	0.01
	216.0	10.0	2.21		0.08		22.10	1.77	4326	1.14	2.44	0.79%	0.02
	226.0	10.0	2.12		0.04		21.20	0.85	2075	0.55	1.22	0.38%	0.00
	236.0	10.0	1.71		0.12		17.10	2.05	5020	1.33	3.66	0.91%	0.03
	246.0	10.0	1.56		0.11		15.60	1.72	4198	1.11	3.35	0.76%	0.03
	256.0	10.0	1.15		0.18		11.50	2.07	5064	1.34	5.49	0.92%	0.05
	266.0	10.0	1.19		0.04		11.90	0.48	1165	0.31	1.22	0.21%	0.00
	276.0	10.0	1.07		0.15		10.70	1.61	3927	1.04	4.57	0.71%	0.03
	286.0	11.5	4.80	0.27		0.20	55.20	12.97	31737	8.38	8.23	5.76%	0.47
	299.0	21.5	5.00	0.77		0.58	107.50	72.56	177530	46.90	23.47	32.24%	7.57
	309.0	20.0	3.35	0.87		0.09	67.00	32.16	78682	20.79	26.52	14.29%	3.79
	319.0	20.0	1.30		0.14		26.00	3.64	8906	2.35	4.27	1.62%	0.07
	329.0	20.0	1.75		0.15		35.00	5.25	12845	3.39	4.57	2.33%	0.11
	339.0	20.0	1.25		0.18		25.00	4.50	11010	2.91	5.49	2.00%	0.11
	349.0	20.0	1.19		0.05		23.80	1.19	2911	0.77	1.52	0.53%	0.01
	359.0	20.0	1.72		0.03		34.40	1.03	2525	0.67	0.91	0.46%	0.00
	369.0	20.0	1.99		0.07		39.80	2.79	6816	1.80	2.13	1.24%	0.03
	379.0	10.0	2.00		0.12		20.00	2.40	5872	1.55	3.66	1.07%	0.04
	389.0	10.0	1.98		0.10		19.80	1.98	4844	1.28	3.05	0.88%	0.03
	399.0	10.0	1.73		0.02		17.30	0.35	847	0.22	0.61	0.15%	0.00
	409.0	10.0	1.65		0.09		16.50	1.49	3633	0.96	2.74	0.66%	0.02
	419.0	10.0	1.85		0.11		18.50	2.04	4979	1.32	3.35	0.90%	0.03
	429.0	10.0	2.15		0.57		21.50	12.26	29983	7.92	17.37	5.45%	0.95
	439.0	10.0	1.75		0.33		17.50	5.78	14129	3.73	10.06	2.57%	0.26
	449.0	30.0	2.13		0.30		63.90	19.17	46901	12.39	9.14	8.52%	0.78
End	474.0												
		548.0	1.96	0.64	0.12	0.29	1099.70	225.06	550625	145.46	4.61	100%	14.96
			(cm/s)	19.41	3.52	8.84							



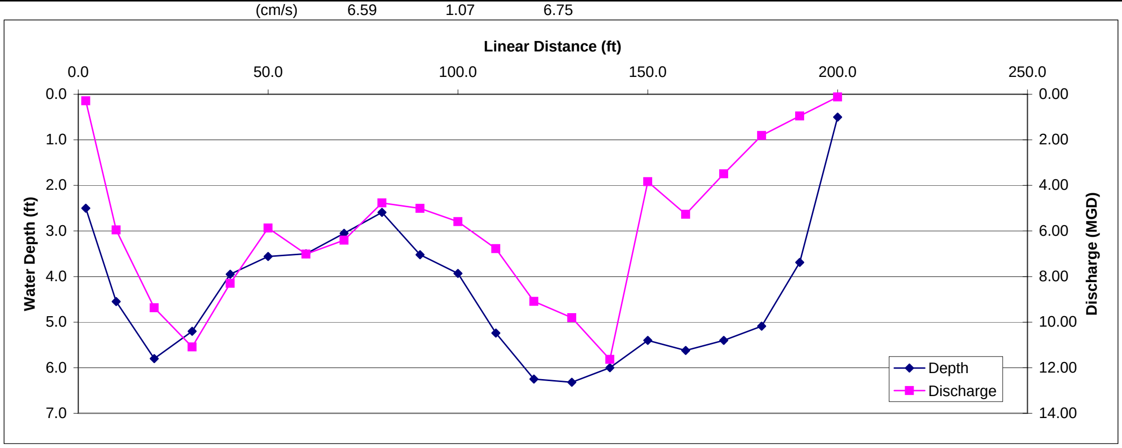
APPENDIX B
WR SEG2-DOWN Marsh McBirney Cross Sectional Flow - 10/25/06

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	1.0												
	10.0	14.0	1.70		0.09		23.80	2.14	5241	1.38	2.74	1.27%	0.03
	20.0	10.0	4.60	0.35		0.29	46.00	14.72	36014	9.51	10.67	8.74%	0.93
	30.0	10.0	5.00	0.34		0.31	50.00	16.25	39757	10.50	10.36	9.65%	1.00
	40.0	10.0	4.80	0.31		0.25	48.00	13.44	32882	8.69	9.45	7.98%	0.75
	50.0	10.0	4.78	0.26		0.15	47.80	9.80	23974	6.33	7.92	5.82%	0.46
	60.0	10.0	3.23	0.11		0.11	32.30	3.55	8693	2.30	3.35	2.11%	0.07
	70.0	10.0	2.65	0.15		0.10	26.50	3.31	8104	2.14	4.57	1.97%	0.09
	80.0	10.0	2.75	0.26		0.08	27.50	4.68	11438	3.02	7.92	2.78%	0.22
	90.0	10.0	3.00	0.23		0.08	30.00	4.65	11377	3.01	7.01	2.76%	0.19
	100.0	10.0	3.40	0.12		0.04	34.00	2.72	6655	1.76	3.66	1.61%	0.06
	110.0	10.0	4.43	0.12		0.08	44.30	4.43	10838	2.86	3.66	2.63%	0.10
	120.0	10.0	5.05	0.13		0.12	50.50	6.31	15444	4.08	3.96	3.75%	0.15
	130.0	10.0	5.55	0.21		0.16	55.50	10.27	25120	6.64	6.40	6.10%	0.39
	140.0	10.0	6.00	0.27		0.20	60.00	14.10	34497	9.11	8.23	8.37%	0.69
	150.0	10.0	6.05	0.27		0.27	60.50	16.34	39965	10.56	8.23	9.70%	0.80
	160.0	10.0	5.80	0.28		0.16	58.00	12.76	31218	8.25	8.53	7.58%	0.65
	170.0	10.0	6.35	0.23		0.20	63.50	13.65	33402	8.82	7.01	8.11%	0.57
	180.0	10.0	6.08	0.27		0.04	60.80	9.42	23057	6.09	8.23	5.60%	0.46
	190.0	10.0	2.85	0.21		0.17	28.50	5.42	13248	3.50	6.40	3.22%	0.21
	200.0	10.0	0.78		0.06		7.80	0.47	1145	0.30	1.83	0.28%	0.01
End	205.0												
		204.0	4.2	0.23	0.08	0.16	855.3	168.4	412067	108.9	6.51	100%	7.82
			(cm/s)	6.98	2.29	4.76							



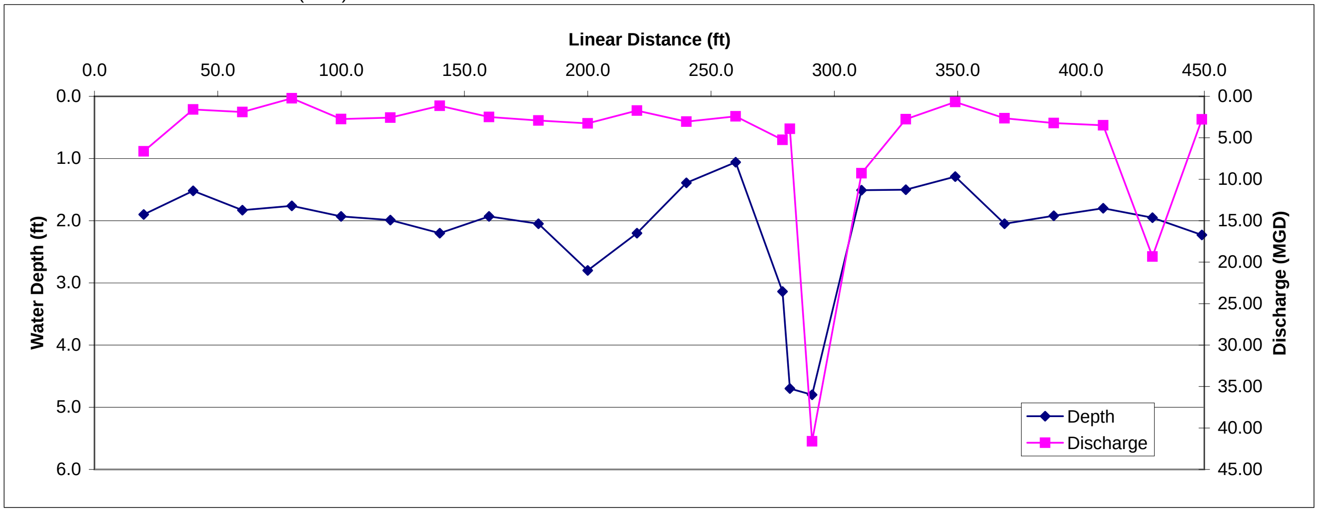
APPENDIX B
WR SEG2-DOWN Marsh McBirney Cross Sectional Flow - 1/24/2007

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)	
Start	0.0													
	2.0	6.0	2.50		0.03		15.00	0.45	1101	0.29	0.91	0.24%	0.00	
	10.0	9.0	4.55	0.18		0.27	40.95	9.21	22542	5.96	5.49	4.86%	0.27	Heavy floating vegetation
	20.0	10.0	5.80	0.22		0.28	58.00	14.50	35475	9.37	6.71	7.65%	0.51	
	30.0	10.0	5.20	0.33		0.33	52.00	17.16	41983	11.09	10.06	9.06%	0.91	
	40.0	10.0	3.95	0.31		0.34	39.50	12.84	31408	8.30	9.45	6.78%	0.64	
	50.0	10.0	3.56	0.19		0.32	35.60	9.08	22210	5.87	5.79	4.79%	0.28	
	60.0	10.0	3.50	0.32		0.30	35.00	10.85	26545	7.01	9.75	5.73%	0.56	At signpost
	70.0	10.0	3.05	0.31		0.34	30.50	9.91	24252	6.41	9.45	5.23%	0.49	
	80.0	10.0	2.59	0.32		0.25	25.90	7.38	18059	4.77	9.75	3.90%	0.38	
	90.0	10.0	3.52	0.24		0.20	35.20	7.74	18946	5.01	7.32	4.09%	0.30	
	100.0	10.0	3.93	0.22		0.22	39.30	8.65	21153	5.59	6.71	4.56%	0.31	
	110.0	10.0	5.24	0.24		0.16	52.40	10.48	25640	6.77	7.32	5.53%	0.40	
	120.0	10.0	6.25	0.25		0.20	62.50	14.06	34405	9.09	7.62	7.42%	0.57	
	130.0	10.0	6.32	0.26		0.22	63.20	15.17	37110	9.80	7.92	8.01%	0.63	
	140.0	10.0	6.00	0.32		0.28	60.00	18.00	44038	11.63	9.75	9.50%	0.93	
	150.0	10.0	5.40	0.07		0.15	54.00	5.94	14533	3.84	2.13	3.14%	0.07	
	160.0	10.0	5.62	0.19		0.10	56.20	8.15	19937	5.27	5.79	4.30%	0.25	
	170.0	10.0	5.40	0.06		0.14	54.00	5.40	13212	3.49	1.83	2.85%	0.05	
	180.0	10.0	5.09	0.05		0.06	50.90	2.80	6849	1.81	1.52	1.48%	0.02	
	190.0	10.0	3.69	0.03		0.05	36.90	1.48	3611	0.95	0.91	0.78%	0.01	
	200.0	9.0	0.50		0.04		4.50	0.18	440	0.12	1.22	0.10%	0.00	
End	204.0													
		204.0	4.4	0.22	0.04	0.22	901.6	189.4	463451	122.4	6.07	100%	7.58	
			(cm/s)	6.59	1.07	6.75								



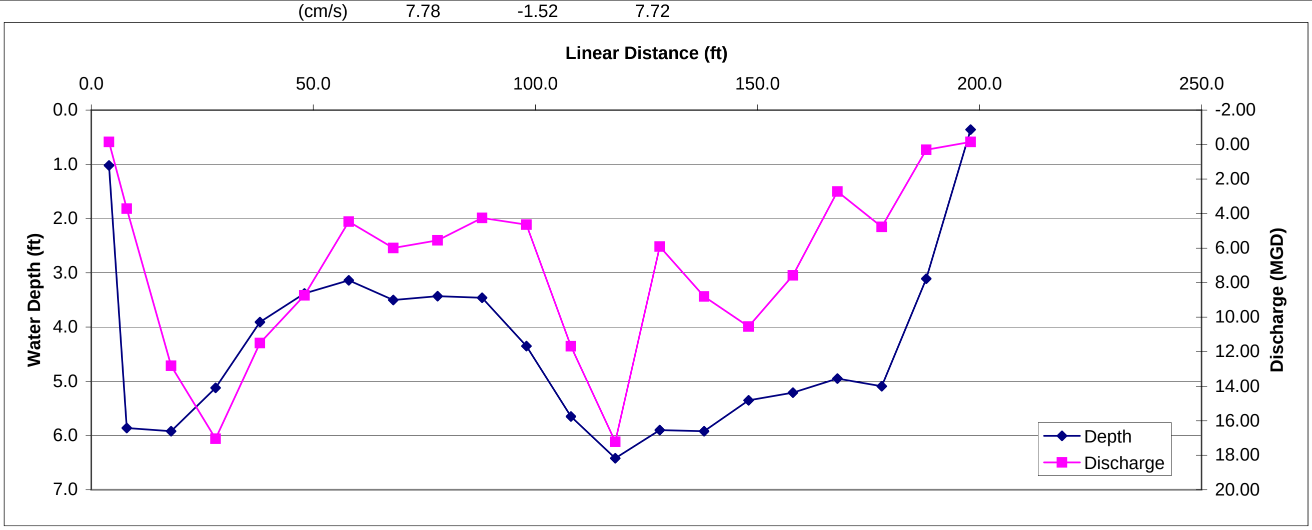
APPENDIX B
WR-SEG2-UP Marsh McBirney Cross Sectional Flow - 01/24/2007

	Distance from Initial Point (ft)	Segment Width (ft)	Total Depth (ft)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	3.0												
	20.0	27.0	1.90		0.20		51.30	10.26	25102	6.63	6.10	5.20%	0.32
	40.0	20.0	1.52		0.08		30.40	2.43	5950	1.57	2.44	1.23%	0.03
	60.0	20.0	1.83		0.08		36.60	2.93	7164	1.89	2.44	1.48%	0.04
	80.0	20.0	1.76		0.01		35.20	0.35	861	0.23	0.30	0.18%	0.00
	100.0	20.0	1.93		0.11		38.60	4.25	10388	2.74	3.35	2.15%	0.07
	120.0	20.0	1.99		0.10		39.80	3.98	9737	2.57	3.05	2.02%	0.06
	140.0	20.0	2.20		0.04		44.00	1.76	4306	1.14	1.22	0.89%	0.01
	160.0	20.0	1.93		0.10		38.60	3.86	9444	2.49	3.05	1.96%	0.06
	180.0	20.0	2.05		0.11		41.00	4.51	11034	2.91	3.35	2.29%	0.08
	200.0	20.0	2.80	0.16		0.02	56.00	5.04	12331	3.26	4.88	2.55%	0.12
	220.0	20.0	2.20		0.06		44.00	2.64	6459	1.71	1.83	1.34%	0.02
	240.0	20.0	1.39		0.17		27.80	4.73	11563	3.05	5.18	2.39%	0.12
	260.0	19.5	1.06		0.18		20.67	3.72	9103	2.40	5.49	1.89%	0.10
	279.0	11.0	3.14	0.22		0.25	34.54	8.12	19859	5.25	6.71	4.11%	0.28
	282.0	6.0	4.70	0.27		0.16	28.20	6.06	14834	3.92	8.23	3.07%	0.25
	291.0	14.5	4.80	0.95		0.90	69.60	64.38	157511	41.61	28.96	32.63%	9.45
	311.0	19.0	1.51		0.50		28.69	14.35	35096	9.27	15.24	7.27%	1.11
	329.0	19.0	1.50		0.15		28.50	4.28	10459	2.76	4.57	2.17%	0.10
	349.0	20.0	1.29		0.04		25.80	1.03	2525	0.67	1.22	0.52%	0.01
	369.0	20.0	2.05		0.10		41.00	4.10	10031	2.65	3.05	2.08%	0.06
	389.0	20.0	1.92		0.13		38.40	4.99	12213	3.23	3.96	2.53%	0.10
	409.0	20.0	1.80		0.15		36.00	5.40	13212	3.49	4.57	2.74%	0.13
	429.0	20.0	1.95		0.83		36.00	29.88	73104	19.31	25.30	15.14%	3.83
	449.0	10.0	2.23		0.11		39.00	4.29	10496	2.77	3.35	2.17%	0.07
End	449.0												
		436.0	2.14	0.40	0.16	0.33	909.70	197.33	482779	127.54	6.16	100%	16.42
			(cm/s)	12.19	4.95	10.13							



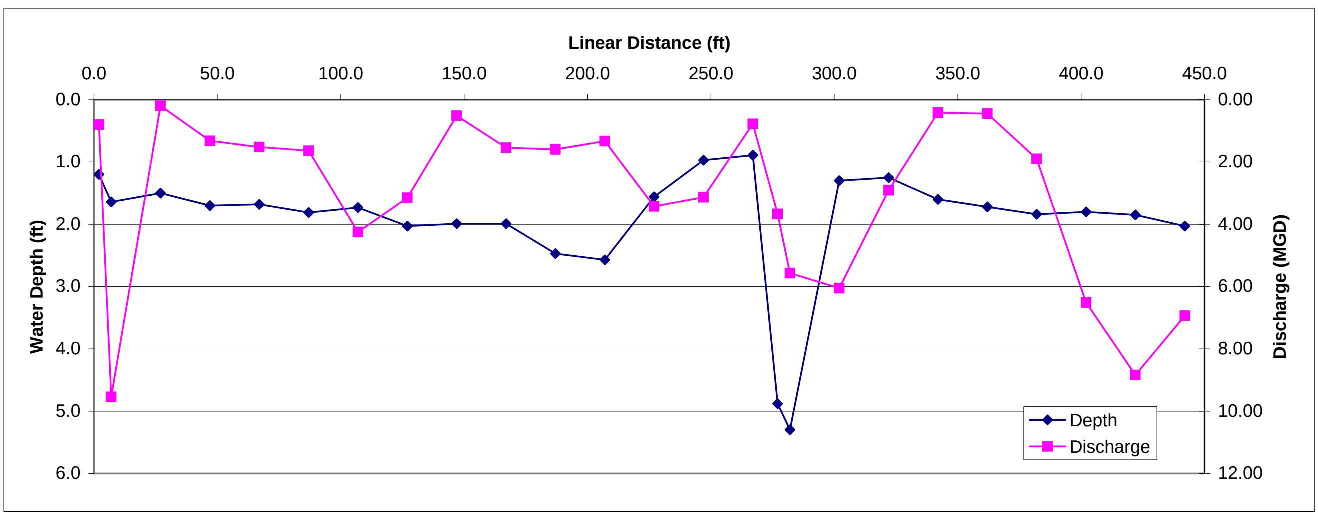
APPENDIX B
WR SEG2-DOWN Marsh McBirney Cross Sectional Flow - 2/6/2007

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	4.0	6.0	1.02		-0.04		6.12	-0.24	-599	-0.16	-1.22	-0.11%	0.00
	8.0	7.0	5.86	0.15		0.13	41.02	5.74	14050	3.71	4.57	2.51%	0.11
	18.0	10.0	5.92	0.29		0.38	59.20	19.83	48520	12.82	8.84	8.67%	0.77
	28.0	10.0	5.12	0.48		0.55	51.20	26.37	64511	17.04	14.63	11.52%	1.69
	38.0	10.0	3.91	0.45		0.46	39.10	17.79	43526	11.50	13.72	7.77%	1.07
	48.0	10.0	3.38	0.36		0.44	33.80	13.52	33078	8.74	10.97	5.91%	0.65
	58.0	10.0	3.14	0.23		0.21	31.40	6.91	16901	4.46	7.01	3.02%	0.21
	68.0	10.0	3.50	0.25		0.28	35.00	9.28	22692	5.99	7.62	4.05%	0.31
	78.0	10.0	3.43	0.24		0.26	34.30	8.58	20979	5.54	7.32	3.75%	0.27
	88.0	10.0	3.46	0.23		0.15	34.60	6.57	16084	4.25	7.01	2.87%	0.20
	98.0	10.0	4.35	0.20		0.13	43.50	7.18	17560	4.64	6.10	3.14%	0.19
	108.0	10.0	5.65	0.37		0.27	56.50	18.08	44234	11.69	11.28	7.90%	0.89
	118.0	10.0	6.42	0.47		0.36	64.20	26.64	65184	17.22	14.33	11.64%	1.67
	128.0	10.0	5.90	0.08		0.23	59.00	9.15	22374	5.91	2.44	4.00%	0.10
	138.0	10.0	5.92	0.31		0.15	59.20	13.62	33313	8.80	9.45	5.95%	0.56
	148.0	10.0	5.35	0.33		0.28	53.50	16.32	39922	10.55	10.06	7.13%	0.72
	158.0	10.0	5.21	0.27		0.18	52.10	11.72	28680	7.58	8.23	5.12%	0.42
	168.0	10.0	4.95	0.02		0.15	49.50	4.21	10294	2.72	0.61	1.84%	0.01
	178.0	10.0	5.09	0.13		0.16	50.90	7.38	18057	4.77	3.96	3.22%	0.13
	188.0	10.0	3.11	-0.01		0.04	31.10	0.47	1141	0.30	-0.30	0.20%	0.00
	198.0	11.0	0.36		-0.06		3.96	-0.24	-581	-0.15	-1.83	-0.10%	0.00
End	204.0												
		204.0	4.34	0.26	-0.05	0.25	889.2	228.9	559921	147.9	6.89	100%	9.97
			(cm/s)	7.78	-1.52	7.72							



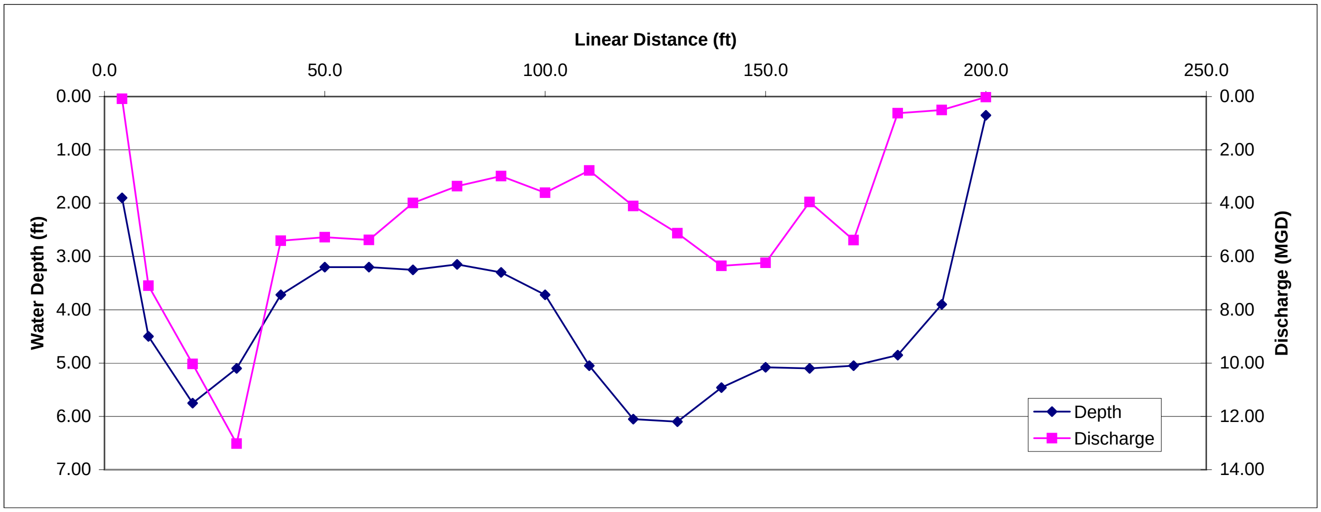
APPENDIX B
WR-SEG2-UP Marsh McBirney Cross Sectional Flow - 2/6/2007

	Distance from Initial Point (ft)	Segment Width (ft)	Total Depth (ft)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	2.0	4.5	1.20		0.23		5.40	1.24	3039	0.80	7.01	1.03%	0.07
	7.0	12.5	1.64		0.72		20.50	14.76	36111	9.54	21.95	12.23%	2.68
	27.0	20.0	1.50		0.01		30.00	0.30	734	0.19	0.30	0.25%	0.00
	47.0	20.0	1.70		0.06		34.00	2.04	4991	1.32	1.83	1.69%	0.03
	67.0	20.0	1.68		0.07		33.60	2.35	5754	1.52	2.13	1.95%	0.04
	87.0	20.0	1.81		0.07		36.20	2.53	6200	1.64	2.13	2.10%	0.04
	107.0	20.0	1.73		0.19		34.60	6.57	16084	4.25	5.79	5.45%	0.32
	127.0	20.0	2.03		0.12		40.60	4.87	11920	3.15	3.66	4.04%	0.15
	147.0	20.0	1.99		0.02		39.80	0.80	1947	0.51	0.61	0.66%	0.00
	167.0	20.0	1.99		0.06		39.80	2.39	5842	1.54	1.83	1.98%	0.04
	187.0	20.0	2.47		0.05		49.40	2.47	6043	1.60	1.52	2.05%	0.03
	207.0	20.0	2.57	0.04		0.04	51.40	2.06	5030	1.33	1.22	1.70%	0.02
	227.0	20.0	1.56		0.17		31.20	5.30	12977	3.43	5.18	4.40%	0.23
	247.0	20.0	0.97		0.25		19.40	4.85	11866	3.13	7.62	4.02%	0.31
	267.0	15.0	0.89		0.09		13.35	1.20	2940	0.78	2.74	1.00%	0.03
	277.0	7.5	4.88	0.13		0.18	36.60	5.67	13879	3.67	3.96	4.70%	0.19
	282.0	12.5	5.30	0.12		0.14	66.25	8.61	21071	5.57	3.66	7.14%	0.26
	302.0	20.0	1.30		0.36		26.00	9.36	22900	6.05	10.97	7.76%	0.85
	322.0	20.0	1.25		0.18		25.00	4.50	11010	2.91	5.49	3.73%	0.20
	342.0	20.0	1.60		0.02		32.00	0.64	1566	0.41	0.61	0.53%	0.00
	362.0	20.0	1.72		0.02		34.40	0.69	1683	0.44	0.61	0.57%	0.00
	382.0	20.0	1.84		0.08		36.80	2.94	7203	1.90	2.44	2.44%	0.06
	402.0	20.0	1.80		0.28		36.00	10.08	24661	6.52	8.53	8.35%	0.71
	422.0	20.0	1.85		0.38		36.00	13.68	33469	8.84	11.58	11.34%	1.31
	442.0	25.0	2.03		0.29		37.00	10.73	26252	6.94	8.84	8.89%	0.79
End	457.0												
		432.0	1.97	0.10	0.17	0.12	845.30	120.65	295172	77.98	4.89	100%	8.37
			(cm/s)	2.95	5.15	3.66							



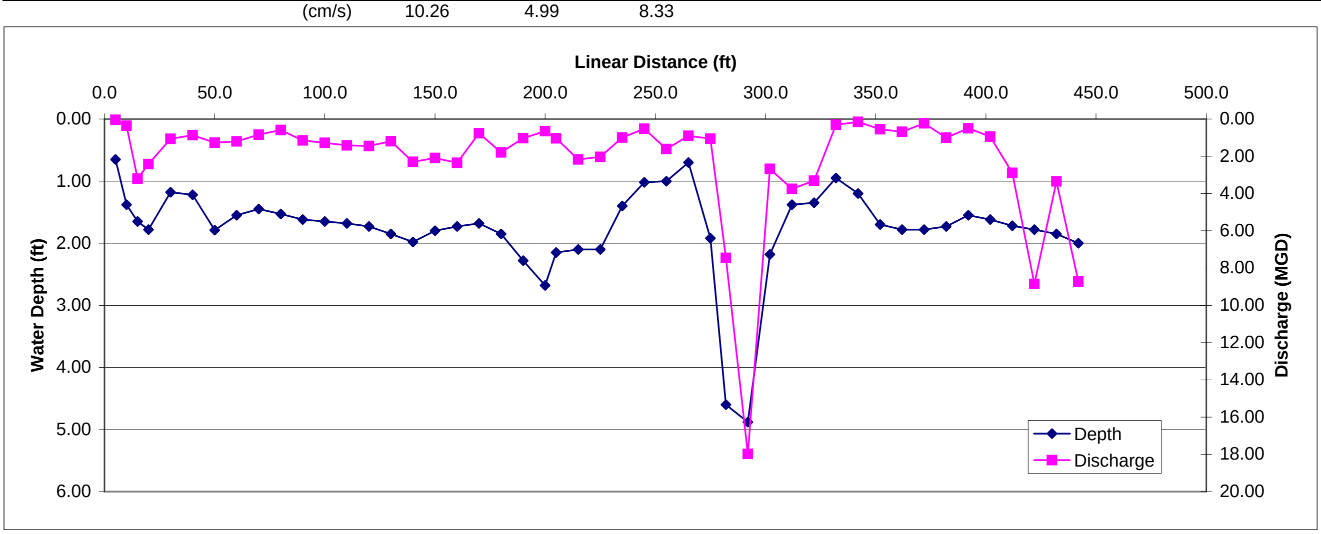
APPENDIX B
WR-SEG2-DOWN Marsh McBirney Cross Sectional Flow - 4/10/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft²)	Discharge (ft³/s)	Discharge (m³/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	4.0	7.0	1.90		0.01		13.30	0.13	325	0.09	0.30	0.09%	0.00
	10.0	8.0	4.50	0.36		0.25	36.00	10.98	26863	7.10	10.97	7.44%	0.82
	20.0	10.0	5.75	0.29		0.25	57.50	15.53	37983	10.03	8.84	10.53%	0.93
	30.0	10.0	5.10	0.39		0.40	51.00	20.15	49286	13.02	11.89	13.66%	1.62
	40.0	10.0	3.72	0.20		0.25	37.20	8.37	20478	5.41	6.10	5.68%	0.35
	50.0	10.0	3.20	0.26		0.25	32.00	8.16	19964	5.27	7.92	5.53%	0.44
	60.0	10.0	3.20	0.30		0.22	32.00	8.32	20356	5.38	9.14	5.64%	0.52
	70.0	10.0	3.25	0.21		0.17	32.50	6.18	15108	3.99	6.40	4.19%	0.27
	80.0	10.0	3.15	0.15		0.18	31.50	5.20	12716	3.36	4.57	3.52%	0.16
	90.0	10.0	3.30	0.14		0.14	33.00	4.62	11303	2.99	4.27	3.13%	0.13
	100.0	10.0	3.72	0.17		0.13	37.20	5.58	13652	3.61	5.18	3.78%	0.20
	110.0	10.0	5.05	0.07		0.10	50.50	4.29	10502	2.77	2.13	2.91%	0.06
	120.0	10.0	6.05	0.11		0.10	60.50	6.35	15542	4.11	3.35	4.31%	0.14
	130.0	10.0	6.10	0.15		0.11	61.00	7.93	19401	5.13	4.57	5.38%	0.25
	140.0	10.0	5.46	0.14		0.22	54.60	9.83	24045	6.35	4.27	6.66%	0.28
	150.0	10.0	5.08	0.19		0.19	50.80	9.65	23614	6.24	5.79	6.54%	0.38
	160.0	10.0	5.10	0.12		0.12	51.00	6.12	14973	3.96	3.66	4.15%	0.15
	170.0	10.0	5.05	0.20		0.13	50.50	8.33	20386	5.39	6.10	5.65%	0.34
	180.0	10.0	4.85	0.03		0.01	48.50	0.97	2373	0.63	0.91	0.66%	0.01
	190.0	10.0	3.90	0.02		0.02	39.00	0.78	1908	0.50	0.61	0.53%	0.00
	200.0	7.0	0.35		0.01		2.45	0.02	60	0.02	0.30	0.02%	0.00
End	202.0												
		202.0	4.18	0.18	0.01	0.17	862.05	147.49	360839	95.33	5.11	100%	7.05
			(cm/s)	5.61	0.30	5.20							



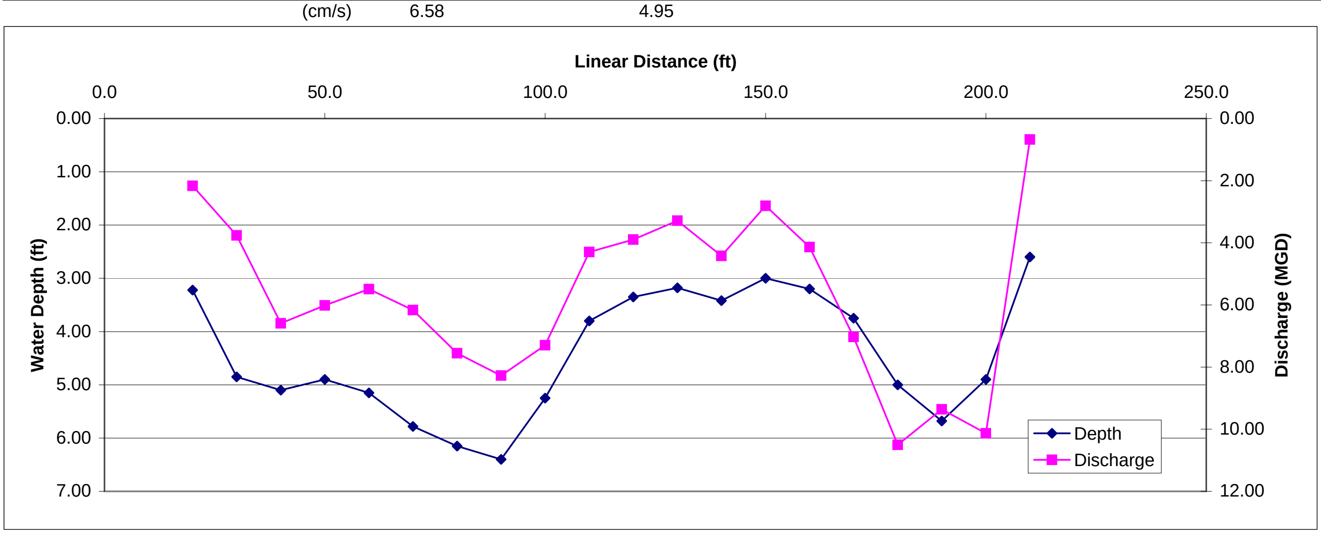
APPENDIX B
WR-SEG2-UP Marsh McBirney Cross Sectional Flow - 4/10/07

	Distance from Initial Point	Segment Width	Total Depth	Velocity (ft/s)			Segment Area	Discharge			Surface Velocity	Flow proportion	Weighted Velocity
	(ft.)	(ft.)	(ft.)	0.2 x depth	0.6 x depth	0.8 x depth	(ft^2)	(ft^3/s)	(m^3/d)	(MGD)	(cm/s)	(%)	(cm/s)
Start	2.0												
	5.0	5.5	0.65		0.02		3.58	0.07	175	0.05	0.61	0.04%	0.00
	10.0	5.0	1.38		0.08		6.90	0.55	1351	0.36	2.44	0.35%	0.01
	15.0	5.0	1.65		0.60		8.25	4.95	12111	3.20	18.29	3.10%	0.57
	20.0	7.5	1.78		0.28		13.35	3.74	9145	2.42	8.53	2.34%	0.20
	30.0	10.0	1.18		0.14		11.80	1.65	4042	1.07	4.27	1.04%	0.04
	40.0	10.0	1.22		0.11		12.20	1.34	3283	0.87	3.35	0.84%	0.03
	50.0	10.0	1.79		0.11		17.90	1.97	4817	1.27	3.35	1.23%	0.04
	60.0	10.0	1.55		0.12		15.50	1.86	4551	1.20	3.66	1.17%	0.04
	70.0	10.0	1.45		0.09		14.50	1.31	3193	0.84	2.74	0.82%	0.02
	80.0	10.0	1.53		0.06		15.30	0.92	2246	0.59	1.83	0.58%	0.01
	90.0	10.0	1.62		0.11		16.20	1.78	4360	1.15	3.35	1.12%	0.04
	100.0	10.0	1.65		0.12		16.50	1.98	4844	1.28	3.66	1.24%	0.05
	110.0	10.0	1.68		0.13		16.80	2.18	5343	1.41	3.96	1.37%	0.05
	120.0	10.0	1.73		0.13		17.30	2.25	5502	1.45	3.96	1.41%	0.06
	130.0	10.0	1.85		0.10		18.50	1.85	4526	1.20	3.05	1.16%	0.04
	140.0	10.0	1.98		0.18		19.80	3.56	8720	2.30	5.49	2.24%	0.12
	150.0	10.0	1.80		0.18		18.00	3.24	7927	2.09	5.49	2.03%	0.11
	160.0	10.0	1.73		0.21		17.30	3.63	8888	2.35	6.40	2.28%	0.15
	170.0	10.0	1.68		0.07		16.80	1.18	2877	0.76	2.13	0.74%	0.02
	180.0	10.0	1.85		0.15		18.50	2.78	6789	1.79	4.57	1.74%	0.08
	190.0	10.0	2.28		0.07		22.80	1.60	3905	1.03	2.13	1.00%	0.02
	200.0	7.5	2.68	0.03		0.07	20.10	1.01	2459	0.65	0.91	0.63%	0.01
	205.0	7.5	2.15		0.10		16.13	1.61	3945	1.04	3.05	1.01%	0.03
	215.0	10.0	2.10		0.16		21.00	3.36	8220	2.17	4.88	2.11%	0.10
	225.0	10.0	2.10		0.15		21.00	3.15	7707	2.04	4.57	1.98%	0.09
	235.0	10.0	1.40		0.11		14.00	1.54	3768	1.00	3.35	0.97%	0.03
	245.0	10.0	1.02		0.08		10.20	0.82	1996	0.53	2.44	0.51%	0.01
	255.0	10.0	1.00		0.25		10.00	2.50	6116	1.62	7.62	1.57%	0.12
	265.0	10.0	0.70		0.20		7.00	1.40	3425	0.90	6.10	0.88%	0.05
	275.0	8.5	1.92		0.10		16.32	1.63	3993	1.05	3.05	1.02%	0.03
	282.0	8.5	4.60	0.43		0.16	39.10	11.53	28220	7.46	13.11	7.23%	0.95
	292.0	10.0	4.88	0.55		0.59	48.80	27.82	68054	17.98	16.76	17.44%	2.92
	302.0	10.0	2.18		0.19		21.80	4.14	10134	2.68	5.79	2.60%	0.15
	312.0	10.0	1.38		0.42		13.80	5.80	14180	3.75	12.80	3.63%	0.47
	322.0	10.0	1.35		0.38		13.50	5.13	12551	3.32	11.58	3.22%	0.37
	332.0	10.0	0.95		0.05		9.50	0.48	1162	0.31	1.52	0.30%	0.00
	342.0	10.0	1.20		0.02		12.00	0.24	587	0.16	0.61	0.15%	0.00
	352.0	10.0	1.70		0.05		17.00	0.85	2080	0.55	1.52	0.53%	0.01
	362.0	10.0	1.78		0.06		17.80	1.07	2613	0.69	1.83	0.67%	0.01
	372.0	10.0	1.78		0.02		17.80	0.36	871	0.23	0.61	0.22%	0.00
	382.0	10.0	1.73		0.09		17.30	1.56	3809	1.01	2.74	0.98%	0.03
	392.0	10.0	1.55		0.05		15.50	0.78	1896	0.50	1.52	0.49%	0.01
	402.0	10.0	1.62		0.09		16.20	1.46	3567	0.94	2.74	0.91%	0.03
	412.0	10.0	1.72		0.26		17.20	4.47	10941	2.89	7.92	2.80%	0.22
	422.0	10.0	1.78		0.77		17.80	13.71	33533	8.86	23.47	8.60%	2.02
	432.0	10.0	1.85		0.28		18.50	5.18	12673	3.35	8.53	3.25%	0.28
	442.0	25.0	2.00		0.27		50.00	13.50	33029	8.73	8.23	8.47%	0.70
End	462.0												
		460.0	1.77	0.34	0.16	0.27	817.12	159.46	390125	103.06	5.33	100%	10.33
			(cm/s)	10.26	4.99	8.33							



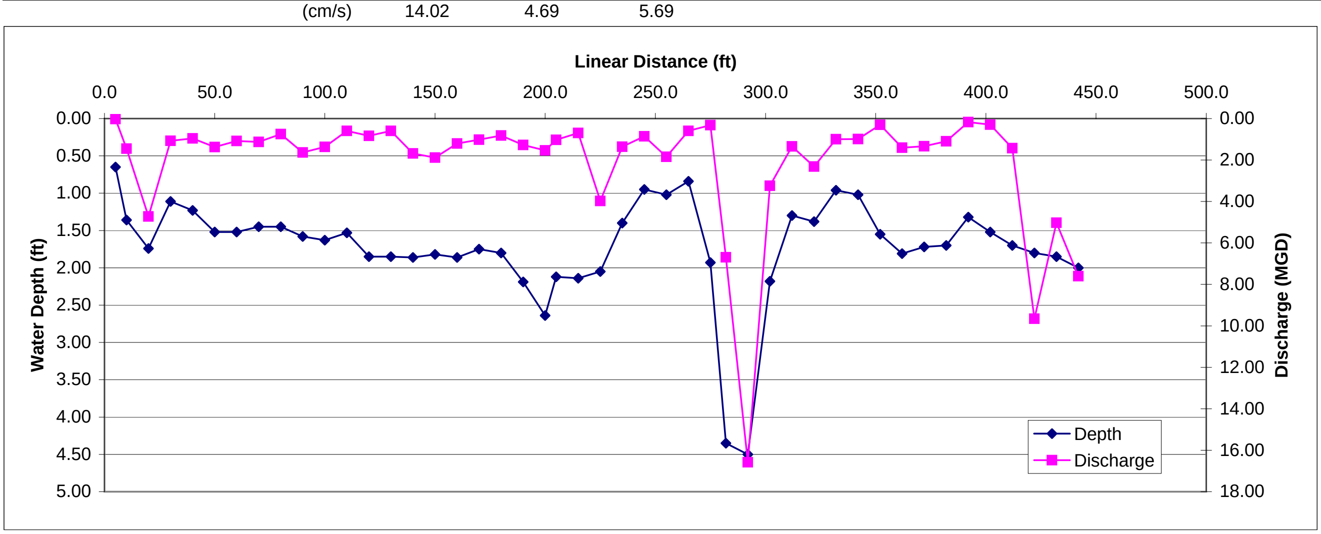
APPENDIX B
WR-SEG2-DOWN Marsh McBirney Cross Sectional Flow - 4/24/07

	Distance from Initial Point	Segment Width	Total Depth	Velocity (ft/s)			Segment Area	Discharge			Surface Velocity	Flow proportion	Weighted Velocity
	(ft.)	(ft.)	(ft.)	0.2 x depth	0.6 x depth	0.8 x depth	(ft^2)	(ft^3/s)	(m^3/d)	(MGD)	(cm/s)	(%)	(cm/s)
Start	9.0												
	20.0	16.0	3.22	0.10		0.03	51.52	3.35	8193	2.16	3.05	1.90%	0.06
	30.0	10.0	4.85	0.21		0.03	48.50	5.82	14239	3.76	6.40	3.30%	0.21
	40.0	10.0	5.10	0.23		0.17	51.00	10.20	24955	6.59	7.01	5.79%	0.41
	50.0	10.0	4.90	0.21		0.17	49.00	9.31	22778	6.02	6.40	5.28%	0.34
	60.0	10.0	5.15	0.20		0.13	51.50	8.50	20790	5.49	6.10	4.82%	0.29
	70.0	10.0	5.78	0.21		0.12	57.80	9.54	23333	6.16	6.40	5.41%	0.35
	80.0	10.0	6.15	0.23		0.15	61.50	11.69	28588	7.55	7.01	6.63%	0.46
	90.0	10.0	6.40	0.24		0.16	64.00	12.80	31316	8.27	7.32	7.27%	0.53
	100.0	10.0	5.25	0.22		0.21	52.50	11.29	27616	7.30	6.71	6.41%	0.43
	110.0	10.0	3.80	0.17		0.18	38.00	6.65	16270	4.30	5.18	3.77%	0.20
	120.0	10.0	3.35	0.23		0.13	33.50	6.03	14753	3.90	7.01	3.42%	0.24
	130.0	10.0	3.18	0.22		0.10	31.80	5.09	12448	3.29	6.71	2.89%	0.19
	140.0	10.0	3.42	0.24		0.16	34.20	6.84	16735	4.42	7.32	3.88%	0.28
	150.0	10.0	3.00	0.14		0.15	30.00	4.35	10643	2.81	4.27	2.47%	0.11
	160.0	10.0	3.20	0.20		0.20	32.00	6.40	15658	4.14	6.10	3.63%	0.22
	170.0	10.0	3.75	0.30		0.28	37.50	10.88	26607	7.03	9.14	6.17%	0.56
	180.0	10.0	5.00	0.36		0.29	50.00	16.25	39757	10.50	10.97	9.22%	1.01
	190.0	10.0	5.68	0.25		0.26	56.80	14.48	35436	9.36	7.62	8.22%	0.63
	200.0	10.0	4.90	0.33		0.31	49.00	15.68	38362	10.13	10.06	8.90%	0.90
	210.0	16.0	2.60	0.03		0.02	41.60	1.04	2544	0.67	0.91	0.59%	0.01
End	221.0												
		212.0	4.43	0.22		0.16	921.72	176.17	431020	113.87	6.58	100%	7.42
			(cm/s)	6.58		4.95							



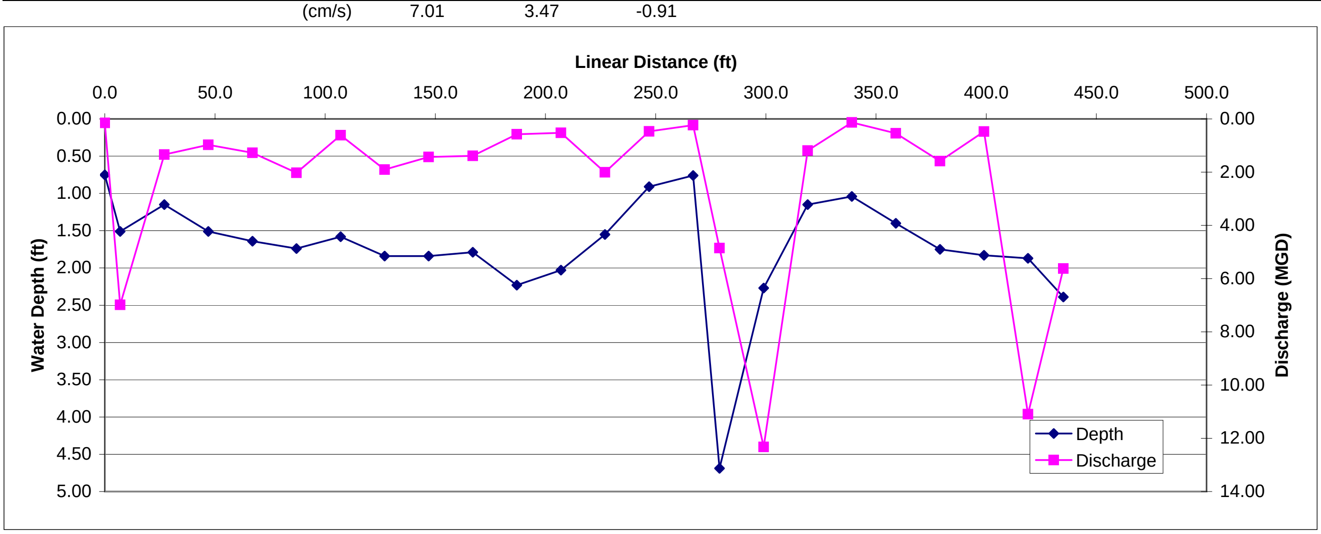
APPENDIX B
WR-SEG2-UP Marsh McBirney Cross Sectional Flow - 4/24/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	2.0												
	5.0	5.5	0.65		0.01		3.58	0.04	87	0.02	0.30	0.02%	0.00
	10.0	7.5	1.36		0.22		10.20	2.24	5490	1.45	6.71	1.48%	0.10
	20.0	10.0	1.74		0.42		17.40	7.31	17880	4.72	12.80	4.81%	0.62
	30.0	10.0	1.11		0.15		11.10	1.67	4074	1.08	4.57	1.10%	0.05
	40.0	10.0	1.23		0.12		12.30	1.48	3611	0.95	3.66	0.97%	0.04
	50.0	10.0	1.52		0.14		15.20	2.13	5206	1.38	4.27	1.40%	0.06
	60.0	10.0	1.52		0.11		15.20	1.67	4091	1.08	3.35	1.10%	0.04
	70.0	10.0	1.45		0.12		14.50	1.74	4257	1.12	3.66	1.15%	0.04
	80.0	10.0	1.45		0.08		14.50	1.16	2838	0.75	2.44	0.76%	0.02
	90.0	10.0	1.58		0.16		15.80	2.53	6185	1.63	4.88	1.66%	0.08
	100.0	10.0	1.63		0.13		16.30	2.12	5184	1.37	3.96	1.40%	0.06
	110.0	10.0	1.53		0.06		15.30	0.92	2246	0.59	1.83	0.60%	0.01
	120.0	10.0	1.85		0.07		18.50	1.30	3168	0.84	2.13	0.85%	0.02
	130.0	10.0	1.85		0.05		18.50	0.93	2263	0.60	1.52	0.61%	0.01
	140.0	10.0	1.86		0.14		18.60	2.60	6371	1.68	4.27	1.72%	0.07
	150.0	10.0	1.82		0.16		18.20	2.91	7124	1.88	4.88	1.92%	0.09
	160.0	10.0	1.86		0.10		18.60	1.86	4551	1.20	3.05	1.23%	0.04
	170.0	10.0	1.75		0.09		17.50	1.58	3853	1.02	2.74	1.04%	0.03
	180.0	10.0	1.80		0.07		18.00	1.26	3083	0.81	2.13	0.83%	0.02
	190.0	10.0	2.19		0.09		21.90	1.97	4822	1.27	2.74	1.30%	0.04
	200.0	7.5	2.64	0.14		0.10	19.80	2.38	5813	1.54	4.27	1.56%	0.07
	205.0	7.5	2.12		0.10		15.90	1.59	3890	1.03	3.05	1.05%	0.03
	215.0	10.0	2.14		0.05		21.40	1.07	2618	0.69	1.52	0.70%	0.01
	225.0	10.0	2.05		0.30		20.50	6.15	15046	3.97	9.14	4.05%	0.37
	235.0	10.0	1.40		0.15		14.00	2.10	5138	1.36	4.57	1.38%	0.06
	245.0	10.0	0.95		0.14		9.50	1.33	3254	0.86	4.27	0.88%	0.04
	255.0	10.0	1.02		0.28		10.20	2.86	6987	1.85	8.53	1.88%	0.16
	265.0	10.0	0.84		0.11		8.40	0.92	2261	0.60	3.35	0.61%	0.02
	275.0	8.5	1.93		0.03		16.41	0.49	1204	0.32	0.91	0.32%	0.00
	282.0	8.5	4.35	0.49		0.07	36.98	10.35	25329	6.69	14.94	6.82%	1.02
	292.0	10.0	4.50	0.75		0.39	45.00	25.65	62755	16.58	22.86	16.89%	3.86
	302.0	10.0	2.18		0.23		21.80	5.01	12267	3.24	7.01	3.30%	0.23
	312.0	10.0	1.30		0.16		13.00	2.08	5089	1.34	4.88	1.37%	0.07
	322.0	10.0	1.38		0.26		13.80	3.59	8778	2.32	7.92	2.36%	0.19
	332.0	10.0	0.96		0.16		9.60	1.54	3758	0.99	4.88	1.01%	0.05
	342.0	10.0	1.02		0.15		10.20	1.53	3743	0.99	4.57	1.01%	0.05
	352.0	10.0	1.55		0.03		15.50	0.47	1138	0.30	0.91	0.31%	0.00
	362.0	10.0	1.81		0.12		18.10	2.17	5314	1.40	3.66	1.43%	0.05
	372.0	10.0	1.72		0.12		17.20	2.06	5050	1.33	3.66	1.36%	0.05
	382.0	10.0	1.70		0.10		17.00	1.70	4159	1.10	3.05	1.12%	0.03
	392.0	10.0	1.32		0.02		13.20	0.26	646	0.17	0.61	0.17%	0.00
	402.0	10.0	1.52		0.03		15.20	0.46	1116	0.29	0.91	0.30%	0.00
	412.0	10.0	1.70		0.13		17.00	2.21	5407	1.43	3.96	1.46%	0.06
	422.0	10.0	1.80		0.83		18.00	14.94	36552	9.66	25.30	9.84%	2.49
	432.0	10.0	1.85		0.42		18.50	7.77	19010	5.02	12.80	5.12%	0.66
	442.0	28.0	2.00		0.21		56.00	11.76	28772	7.60	6.40	7.75%	0.50
End	465.0												
		463.0	1.73	0.46	0.15	0.19	803.36	151.84	371478	98.14	5.30	100%	11.49
			(cm/s)	14.02	4.69	5.69							



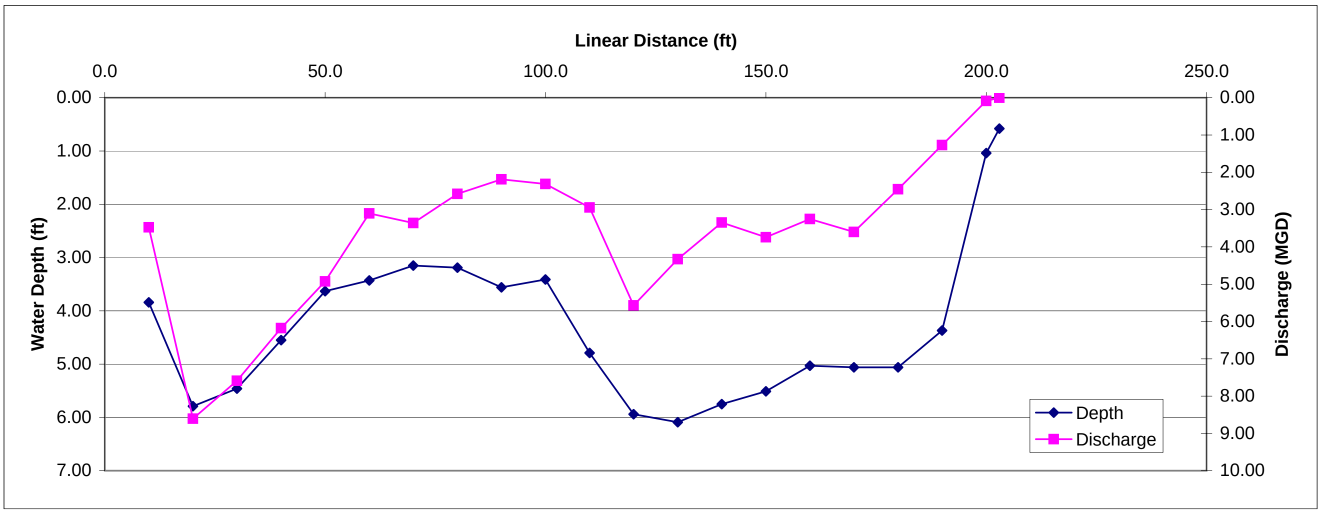
APPENDIX B
WR-SEG2-UP Marsh McBirney Cross Sectional Flow - 08/16/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0	3.5	0.75		0.09		2.63	0.24	578	0.15	2.74	0.26%	0.01
	7.0	13.5	1.51		0.53		20.39	10.80	26433	6.98	16.15	11.70%	1.89
	27.0	20.0	1.15		0.09		23.00	2.07	5064	1.34	2.74	2.24%	0.06
	47.0	20.0	1.51		0.05		30.20	1.51	3694	0.98	1.52	1.63%	0.02
	67.0	20.0	1.64		0.06		32.80	1.97	4815	1.27	1.83	2.13%	0.04
	87.0	20.0	1.74		0.09		34.80	3.13	7663	2.02	2.74	3.39%	0.09
	107.0	20.0	1.58		0.03		31.60	0.95	2319	0.61	0.91	1.03%	0.01
	127.0	20.0	1.84		0.08		36.80	2.94	7203	1.90	2.44	3.19%	0.08
	147.0	20.0	1.84		0.06		36.80	2.21	5402	1.43	1.83	2.39%	0.04
	167.0	20.0	1.79		0.06		35.80	2.15	5255	1.39	1.83	2.33%	0.04
	187.0	20.0	2.23		0.02		44.60	0.89	2182	0.58	0.61	0.97%	0.01
	207.0	20.0	2.03		0.02		40.60	0.81	1987	0.52	0.61	0.88%	0.01
	227.0	20.0	1.55		0.10		31.00	3.10	7584	2.00	3.05	3.36%	0.10
	247.0	20.0	0.91		0.04		18.20	0.73	1781	0.47	1.22	0.79%	0.01
	267.0	16.0	0.76		0.03		12.16	0.36	893	0.24	0.91	0.39%	0.00
	279.0	16.0	4.69	0.23		-0.03	75.04	7.50	18359	4.85	7.01	8.12%	0.57
	299.0	20.0	2.27		0.42		45.40	19.07	46651	12.32	12.80	20.64%	2.64
	319.0	20.0	1.15		0.08		23.00	1.84	4502	1.19	2.44	1.99%	0.05
	339.0	20.0	1.04		0.01		20.80	0.21	509	0.13	0.30	0.23%	0.00
	359.0	20.0	1.40		0.03		28.00	0.84	2055	0.54	0.91	0.91%	0.01
	379.0	20.0	1.75		0.07		35.00	2.45	5994	1.58	2.13	2.65%	0.06
	399.0	20.0	1.83		0.02		36.60	0.73	1791	0.47	0.61	0.79%	0.00
	419.0	18.0	1.87		0.51		33.66	17.17	41999	11.10	15.54	18.58%	2.89
	435.0	28.0	2.39		0.13		66.92	8.70	21284	5.62	3.96	9.42%	0.37
End	455.0												
		455.0	1.72	0.23	0.11	-0.03	795.79	92.37	225998	59.70	3.62	100%	9.01
			(cm/s)	7.01	3.47	-0.91							



APPENDIX B
WR-SEG2-DOWN Marsh McBirney Cross Sectional Flow -08/16/07

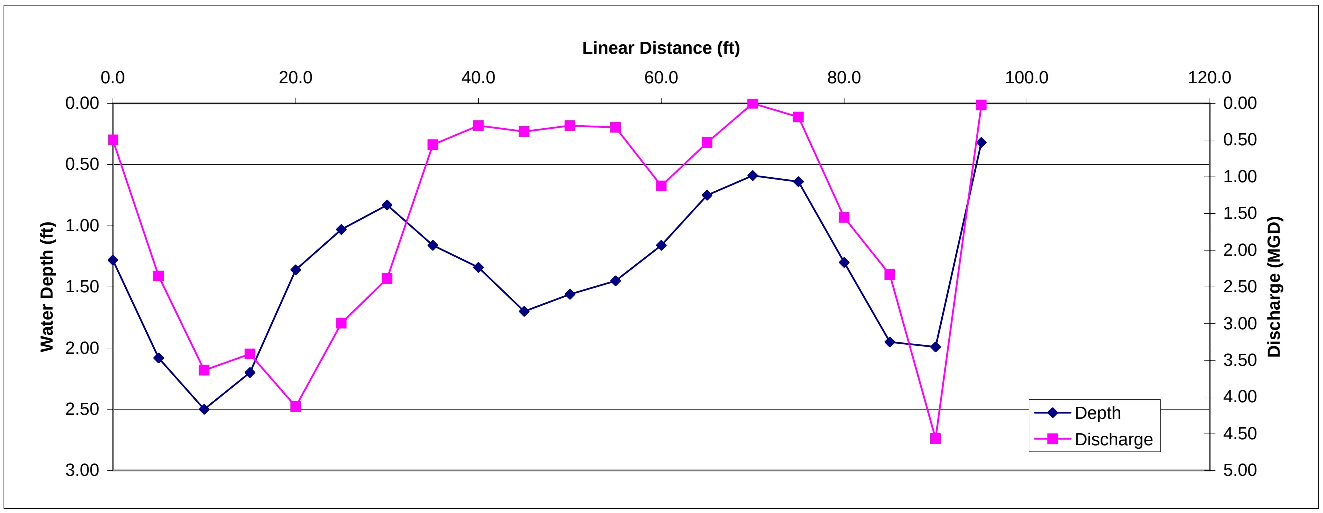
	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	8.0												
	10.0	7.0	3.84	0.21		0.19	26.88	5.38	13153	3.47	6.40	4.64%	0.30
	20.0	10.0	5.79	0.33		0.13	57.90	13.32	32581	8.61	10.06	11.49%	1.16
	30.0	10.0	5.46	0.29		0.14	54.60	11.74	28720	7.59	8.84	10.13%	0.90
	40.0	10.0	4.55	0.28		0.14	45.50	9.56	23377	6.18	8.53	8.25%	0.70
	50.0	10.0	3.63	0.26		0.16	36.30	7.62	18650	4.93	7.92	6.58%	0.52
	60.0	10.0	3.43	0.21		0.07	34.30	4.80	11748	3.10	6.40	4.14%	0.27
	70.0	10.0	3.15	0.25		0.08	31.50	5.20	12716	3.36	7.62	4.49%	0.34
	80.0	10.0	3.19	0.14		0.11	31.90	3.99	9756	2.58	4.27	3.44%	0.15
	90.0	10.0	3.56	0.13		0.06	35.60	3.38	8274	2.19	3.96	2.92%	0.12
	100.0	10.0	3.41	0.17		0.04	34.10	3.58	8760	2.31	5.18	3.09%	0.16
	110.0	10.0	4.79	0.15		0.04	47.90	4.55	11133	2.94	4.57	3.93%	0.18
	120.0	10.0	5.94	0.23		0.06	59.40	8.61	21072	5.57	7.01	7.43%	0.52
	130.0	10.0	6.09	0.17		0.05	60.90	6.70	16390	4.33	5.18	5.78%	0.30
	140.0	10.0	5.75	0.11		0.07	57.50	5.18	12661	3.34	3.35	4.47%	0.15
	150.0	10.0	5.51	0.16		0.05	55.10	5.79	14155	3.74	4.88	4.99%	0.24
	160.0	10.0	5.03	0.14		0.06	50.30	5.03	12306	3.25	4.27	4.34%	0.19
	170.0	10.0	5.06	0.20		0.02	50.60	5.57	13618	3.60	6.10	4.80%	0.29
	180.0	10.0	5.06	0.12		0.03	50.60	3.80	9285	2.45	3.66	3.28%	0.12
	190.0	10.0	4.37	0.06		0.03	43.70	1.97	4811	1.27	1.83	1.70%	0.03
	200.0	6.5	1.04		0.02		6.76	0.14	331	0.09	0.61	0.12%	0.00
	203.0	6.5	0.58		0.00		3.77	0.00	0	0.00	0.00	0.00%	0.00
End	208.0												
		200.0	4.25	0.19	0.01	0.08	875.11	115.88	283497	74.89	5.27	100%	6.63
			(cm/s)	5.79	0.30	2.45							



APPENDIX B

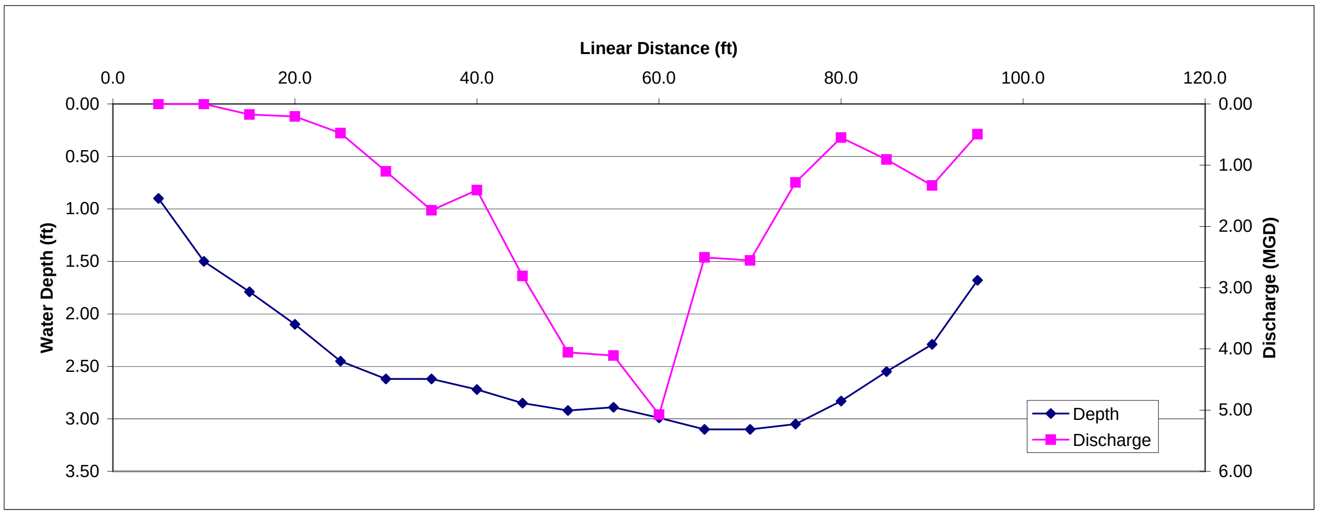
RSR - Segment 1 Up - Marsh McBirney Cross Sectional Flow - 10/05/2006

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	5.0	7.5	0.65		0.06		4.88	0.29	716	0.19	1.83	0.59%	0.01
	10.0	5.0	1.28		0.12		6.40	0.77	1879	0.50	3.66	1.56%	0.06
	15.0	5.0	2.08		0.35		10.40	3.64	8906	2.35	10.67	7.40%	0.79
	20.0	5.0	2.50		0.45		12.50	5.63	13762	3.64	13.72	11.43%	1.57
	25.0	5.0	2.20		0.48		11.00	5.28	12918	3.41	14.63	10.73%	1.57
	30.0	5.0	1.36		0.94		6.80	6.39	15639	4.13	28.65	12.99%	3.72
	35.0	5.0	1.03		0.90		5.15	4.64	11340	3.00	27.43	9.42%	2.58
	40.0	5.0	0.83		0.89		4.15	3.69	9036	2.39	27.13	7.51%	2.04
	45.0	5.0	1.16		0.15		5.80	0.87	2129	0.56	4.57	1.77%	0.08
	50.0	5.0	1.34		0.07		6.70	0.47	1147	0.30	2.13	0.95%	0.02
	55.0	5.0	1.70		0.07		8.50	0.60	1456	0.38	2.13	1.21%	0.03
	60.0	5.0	1.56		0.06		7.80	0.47	1145	0.30	1.83	0.95%	0.02
	65.0	5.0	1.45		0.07		7.25	0.51	1242	0.33	2.13	1.03%	0.02
	70.0	5.0	1.16		0.30		5.80	1.74	4257	1.12	9.14	3.54%	0.32
	75.0	5.0	0.75		0.22		3.75	0.83	2018	0.53	6.71	1.68%	0.11
	80.0	5.0	0.59		0.00		2.95	0.00	0	0.00	0.00	0.00%	0.00
	85.0	5.0	0.64		0.09		3.20	0.29	705	0.19	2.74	0.59%	0.02
	90.0	5.0	1.30		0.37		6.50	2.41	5884	1.55	11.28	4.89%	0.55
	95.0	5.0	1.95		0.37		9.75	3.61	8826	2.33	11.28	7.33%	0.83
	100.0	5.0	1.99		0.71		9.95	7.06	17284	4.57	21.64	14.36%	3.11
	105.0	5.5	0.32		0.02		1.75	0.04	86	0.02	0.61	0.07%	0.00
End	108.0												
		108.0	1.33		0.32		140.98	49.20	120373	31.80	9.71	100%	17.44
			(cm/s)		9.71								



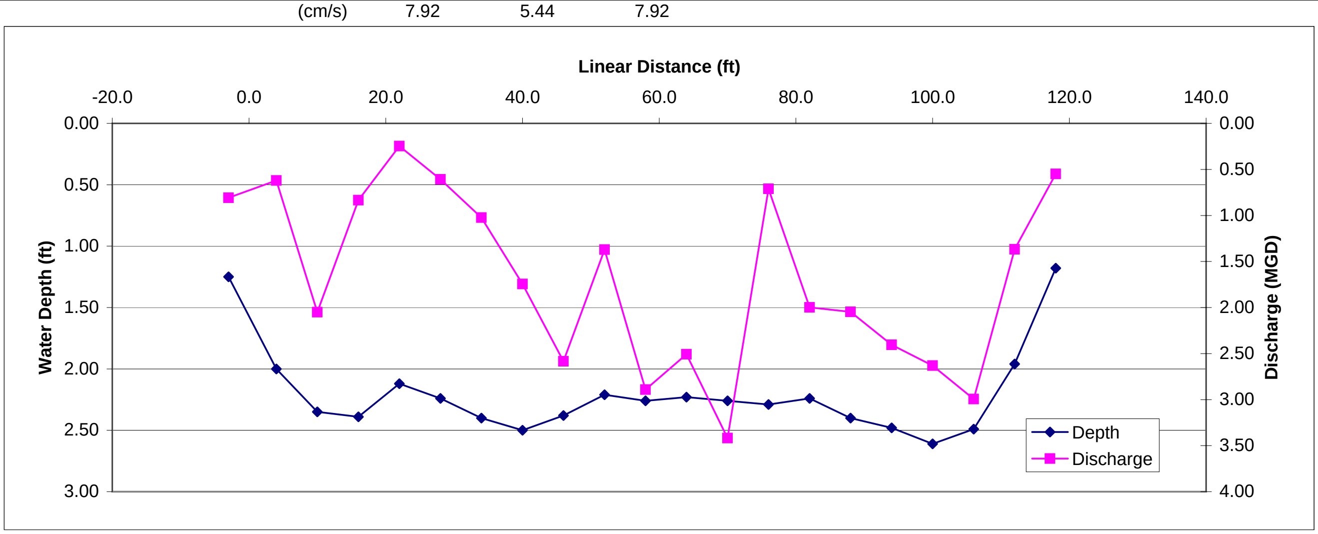
APPENDIX B
RSR - Segment 1 Down - Marsh McBirney Cross Sectional Flow - 10/05/2006

	Distance from Initial Point	Segment Width	Total Depth	Velocity (ft/s)			Segment Area	Discharge			Surface Velocity	Flow proportion	Weighted Velocity
	(ft.)	(ft.)	(ft.)	0.2 x depth	0.6 x depth	0.8 x depth	(ft^2)	(ft^3/s)	(m^3/d)	(MGD)	(cm/s)	(%)	(cm/s)
Start	5.0												
	10.0	7.5	0.90		0.00		6.75	0.00	0	0.00	0.00	0.00%	0.00
	15.0	5.0	1.50		0.00		7.50	0.00	0	0.00	0.00	0.00%	0.00
	20.0	5.0	1.79		0.03		8.95	0.27	657	0.17	0.91	0.56%	0.01
	25.0	5.0	2.10		0.03		10.50	0.32	771	0.20	0.91	0.66%	0.01
	30.0	5.0	2.45		0.06		12.25	0.74	1798	0.48	1.83	1.54%	0.03
	35.0	5.0	2.62	0.14		0.12	13.10	1.70	4167	1.10	4.27	3.58%	0.15
	40.0	5.0	2.62	0.14		0.27	13.10	2.69	6570	1.74	4.27	5.64%	0.24
	45.0	5.0	2.72	0.16		0.16	13.60	2.18	5324	1.41	4.88	4.57%	0.22
	50.0	5.0	2.85	0.29		0.32	14.25	4.35	10633	2.81	8.84	9.13%	0.81
	55.0	5.0	2.92	0.45		0.41	14.60	6.28	15360	4.06	13.72	13.19%	1.81
	60.0	5.0	2.89	0.44		0.44	14.45	6.36	15555	4.11	13.41	13.36%	1.79
	65.0	5.0	2.99	0.59		0.46	14.95	7.85	19203	5.07	17.98	16.49%	2.97
	70.0	5.0	3.10	0.25		0.25	15.50	3.88	9480	2.50	7.62	8.14%	0.62
	75.0	5.0	3.10	0.29		0.22	15.50	3.95	9670	2.55	8.84	8.30%	0.73
	80.0	5.0	3.05	0.12		0.14	15.25	1.98	4850	1.28	3.66	4.16%	0.15
	85.0	5.0	2.83	0.04		0.08	14.15	0.85	2077	0.55	1.22	1.78%	0.02
	90.0	5.0	2.55	0.06		0.16	12.75	1.40	3431	0.91	1.83	2.95%	0.05
	95.0	5.0	2.29		0.18		11.45	2.06	5042	1.33	5.49	4.33%	0.24
	100.0	6.5	1.68		0.07		10.92	0.76	1870	0.49	2.13	1.61%	0.03
End	104												
		99.0	2.47	0.25	0.05	0.25	239.52	47.60	116459	30.77	5.36	100%	9.88
			(cm/s)	7.54	1.61	7.70							



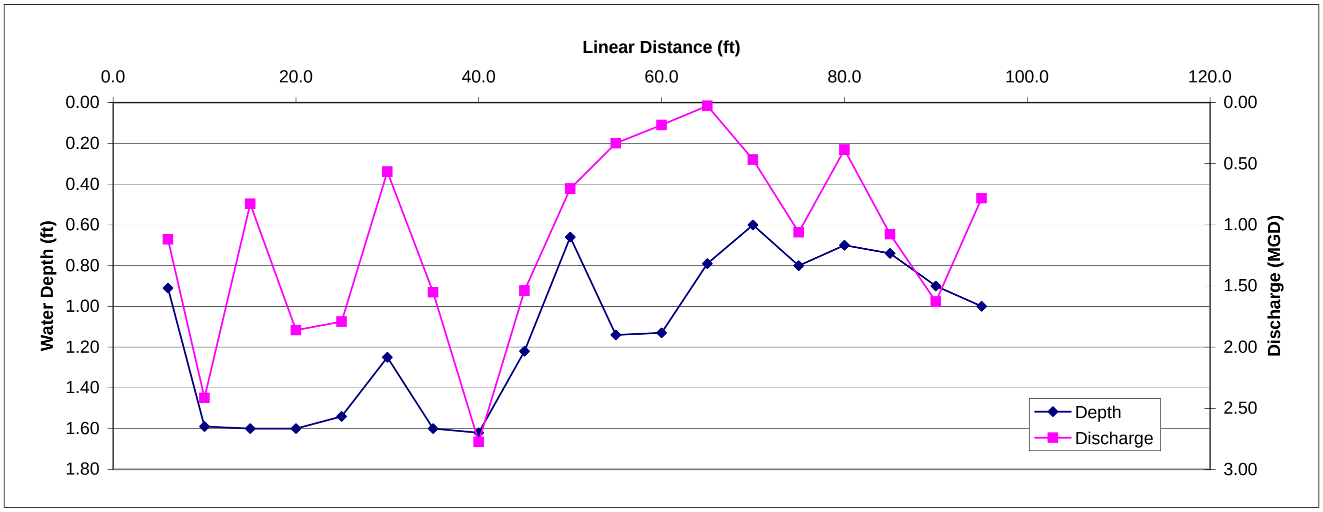
APPENDIX B
RSR - Segment 1 Down - Marsh McBirney Cross Sectional Flow - 1/04/2007

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	-3.0												
	4.0	10.0	1.25		0.10		12.50	1.25	3058	0.81	3.05	2.28%	0.07
	10.0	6.0	2.00		0.08		12.00	0.96	2349	0.62	2.44	1.75%	0.04
	16.0	9.0	2.35		0.15		21.15	3.17	7762	2.05	4.57	5.79%	0.26
	22.0	9.0	2.39		0.06		21.51	1.29	3158	0.83	1.83	2.36%	0.04
	28.0	9.0	2.12		0.02		19.08	0.38	934	0.25	0.61	0.70%	0.00
	34.0	6.0	2.24		0.07		13.44	0.94	2302	0.61	2.13	1.72%	0.04
	40.0	6.0	2.40		0.11		14.40	1.58	3875	1.02	3.35	2.89%	0.10
	46.0	6.0	2.50		0.18		15.00	2.70	6606	1.75	5.49	4.93%	0.27
	52.0	6.0	2.38		0.28		14.28	4.00	9782	2.58	8.53	7.30%	0.62
	58.0	6.0	2.21		0.16		13.26	2.12	5191	1.37	4.88	3.87%	0.19
	64.0	6.0	2.26		0.33		13.56	4.47	10948	2.89	10.06	8.17%	0.82
	70.0	6.0	2.23		0.29		13.38	3.88	9493	2.51	8.84	7.08%	0.63
	76.0	6.0	2.26		0.39		13.56	5.29	12938	3.42	11.89	9.65%	1.15
	82.0	6.0	2.29		0.08		13.74	1.10	2689	0.71	2.44	2.01%	0.05
	88.0	6.0	2.24		0.23		13.44	3.09	7563	2.00	7.01	5.64%	0.40
	94.0	6.0	2.40		0.22		14.40	3.17	7751	2.05	6.71	5.78%	0.39
	100.0	6.0	2.48		0.25		14.88	3.72	9101	2.40	7.62	6.79%	0.52
	106.0	6.0	2.61	0.26		0.26	15.66	4.07	9961	2.63	7.92	7.43%	0.59
	112.0	6.0	2.49		0.31		14.94	4.63	11331	2.99	9.45	8.45%	0.80
	118.0	6.0	1.96		0.18		11.76	2.12	5179	1.37	5.49	3.86%	0.21
	124.0	9.0	1.18		0.08		10.62	0.85	2079	0.55	2.44	1.55%	0.04
End	130.0												
		142.0	2.20	0.26	0.18	0.26	306.56	54.79	134050	35.41	5.56	100%	7.22
			(cm/s)	7.92	5.44	7.92							



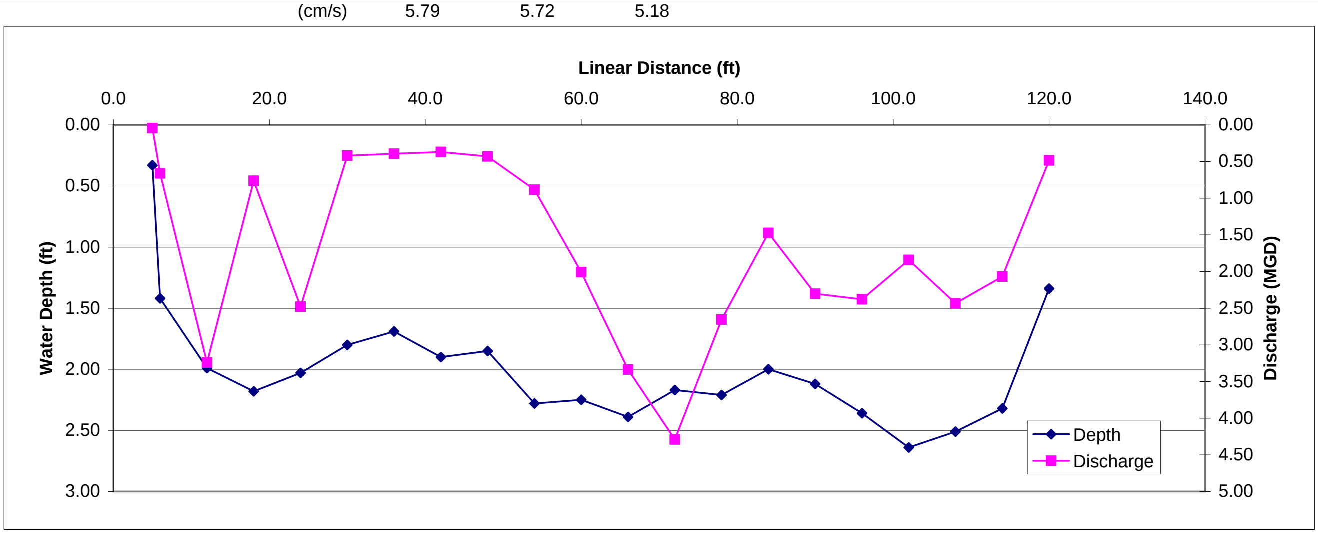
APPENDIX B
RSR - Segment 1 Up - Marsh McBirney Cross Sectional Flow - 1/4/2007

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	6.0												
	10.0	6.5	0.40		0.04		2.60	0.10	254	0.07	1.22	0.32%	0.00
	15.0	5.0	0.91		0.38		4.55	1.73	4230	1.12	11.58	5.28%	0.61
	20.0	5.0	1.59		0.47		7.95	3.74	9142	2.42	14.33	11.42%	1.64
	25.0	5.0	1.60		0.16		8.00	1.28	3132	0.83	4.88	3.91%	0.19
	30.0	5.0	1.60		0.36		8.00	2.88	7046	1.86	10.97	8.80%	0.97
	35.0	5.0	1.54		0.36		7.70	2.77	6782	1.79	10.97	8.47%	0.93
	40.0	5.0	1.25		0.14		6.25	0.88	2141	0.57	4.27	2.67%	0.11
	45.0	5.0	1.60		0.30		8.00	2.40	5872	1.55	9.14	7.33%	0.67
	50.0	5.0	1.62		0.53		8.10	4.29	10503	2.77	16.15	13.12%	2.12
	55.0	5.0	1.22		0.39		6.10	2.38	5820	1.54	11.89	7.27%	0.86
	60.0	5.0	0.66		0.33		3.30	1.09	2664	0.70	10.06	3.33%	0.33
	65.0	5.0	1.14		0.09		5.70	0.51	1255	0.33	2.74	1.57%	0.04
	70.0	5.0	1.13		0.05		5.65	0.28	691	0.18	1.52	0.86%	0.01
	75.0	5.0	0.79		0.01		3.95	0.04	97	0.03	0.30	0.12%	0.00
	80.0	5.0	0.60		0.24		3.00	0.72	1762	0.47	7.32	2.20%	0.16
	85.0	5.0	0.80		0.41		4.00	1.64	4012	1.06	12.50	5.01%	0.63
	90.0	5.0	0.70		0.17		3.50	0.60	1456	0.38	5.18	1.82%	0.09
	95.0	5.0	0.74		0.45		3.70	1.67	4074	1.08	13.72	5.09%	0.70
	100.0	5.0	0.90		0.56		4.50	2.52	6165	1.63	17.07	7.70%	1.31
	105.0	5.5	1.00		0.22		5.50	1.21	2960	0.78	6.71	3.70%	0.25
End	108.0												
		102.0	1.09		0.28		110.05	32.72	80058	21.15	8.63	100%	11.64
			(cm/s)		8.63								



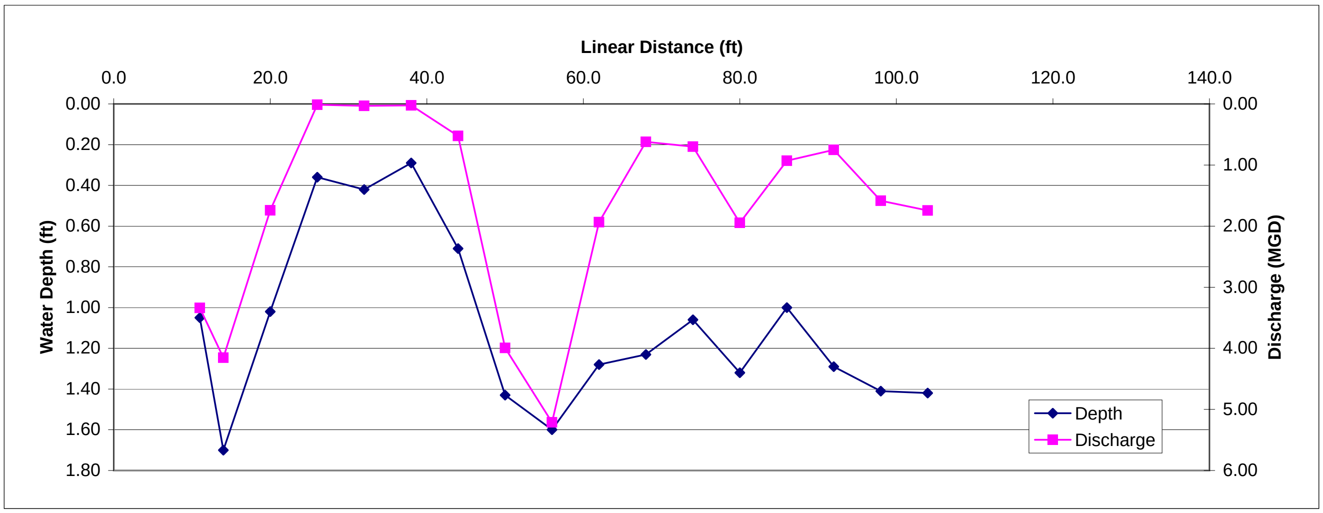
APPENDIX B
RSR - Segment 1 Down - Marsh McBirney Cross Sectional Flow - 1/18/2007

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	5.0												
	6.0	4.0	0.33		0.05		1.32	0.07	161	0.04	1.52	0.12%	0.00
	12.0	6.0	1.42		0.12		8.52	1.02	2501	0.66	3.66	1.89%	0.07
	18.0	9.0	1.99		0.28		17.91	5.01	12269	3.24	8.53	9.27%	0.79
	24.0	9.0	2.18		0.06		19.62	1.18	2880	0.76	1.83	2.18%	0.04
	30.0	9.0	2.03		0.21		18.27	3.84	9387	2.48	6.40	7.09%	0.45
	36.0	6.0	1.80		0.06		10.80	0.65	1585	0.42	1.83	1.20%	0.02
	42.0	6.0	1.69		0.06		10.14	0.61	1488	0.39	1.83	1.12%	0.02
	48.0	6.0	1.90		0.05		11.40	0.57	1395	0.37	1.52	1.05%	0.02
	54.0	6.0	1.85		0.06		11.10	0.67	1629	0.43	1.83	1.23%	0.02
	60.0	6.0	2.28		0.10		13.68	1.37	3347	0.88	3.05	2.53%	0.08
	66.0	6.0	2.25		0.23		13.50	3.11	7597	2.01	7.01	5.74%	0.40
	72.0	6.0	2.39		0.36		14.34	5.16	12630	3.34	10.97	9.54%	1.05
	78.0	6.0	2.17		0.51		13.02	6.64	16246	4.29	15.54	12.28%	1.91
	84.0	6.0	2.21		0.31		13.26	4.11	10057	2.66	9.45	7.60%	0.72
	90.0	6.0	2.00		0.19		12.00	2.28	5578	1.47	5.79	4.22%	0.24
	96.0	6.0	2.12		0.28		12.72	3.56	8714	2.30	8.53	6.58%	0.56
	102.0	6.0	2.36		0.26		14.16	3.68	9007	2.38	7.92	6.81%	0.54
	108.0	6.0	2.64	0.19		0.17	15.84	2.85	6976	1.84		5.27%	
	114.0	6.0	2.51		0.25		15.06	3.77	9211	2.43	7.62	6.96%	0.53
	120.0	6.0	2.32		0.23		13.92	3.20	7833	2.07	7.01	5.92%	0.41
	126.0	7.0	1.34		0.08		9.38	0.75	1836	0.49	2.44	1.39%	0.03
End	130.0												
		134.0	1.99	0.19	0.19	0.17	269.96	54.09	132328	34.96	5.72	100%	7.92
			(cm/s)	5.79	5.72	5.18							



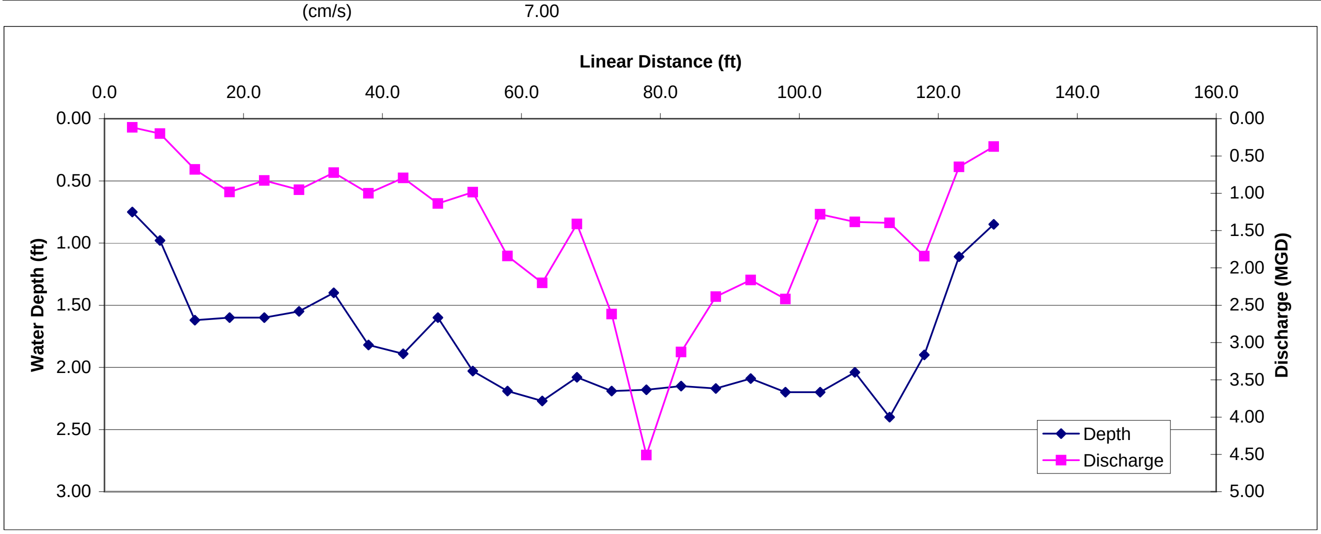
APPENDIX B
RSR - Segment 1 Up - Marsh McBirney Cross Sectional Flow - 1/18/2007

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	11.0												
	14.0	6.0	1.78		0.66		10.68	7.05	17245	4.56	20.12	13.48%	2.71
	20.0	6.0	1.05		0.82		6.30	5.17	12639	3.34	24.99	9.88%	2.47
	26.0	6.0	1.70		0.63		10.20	6.43	15722	4.15	19.20	12.29%	2.36
	32.0	6.0	1.02		0.44		6.12	2.69	6588	1.74	13.41	5.15%	0.69
	38.0	6.0	0.36		0.01		2.16	0.02	53	0.01	0.30	0.04%	0.00
	44.0	6.0	0.42		0.02		2.52	0.05	123	0.03	0.61	0.10%	0.00
	50.0	6.0	0.29		0.02		1.74	0.03	85	0.02	0.61	0.07%	0.00
	56.0	6.0	0.71		0.19		4.26	0.81	1980	0.52	5.79	1.55%	0.09
	62.0	6.0	1.43		0.72		8.58	6.18	15114	3.99	21.95	11.81%	2.59
	68.0	6.0	1.60		0.84		9.60	8.06	19729	5.21	25.60	15.42%	3.95
	74.0	6.0	1.28		0.39		7.68	3.00	7328	1.94	11.89	5.73%	0.68
	80.0	6.0	1.23		0.13		7.38	0.96	2347	0.62	3.96	1.83%	0.07
	86.0	6.0	1.06		0.17		6.36	1.08	2645	0.70	5.18	2.07%	0.11
	92.0	6.0	1.32		0.38		7.92	3.01	7363	1.95	11.58	5.76%	0.67
	98.0	6.0	1.00		0.24		6.00	1.44	3523	0.93	7.32	2.75%	0.20
	104.0	6.0	1.29		0.15		7.74	1.16	2840	0.75	4.57	2.22%	0.10
	110.0	6.0	1.41		0.29		8.46	2.45	6002	1.59	8.84	4.69%	0.41
	116.0	5.0	1.42		0.38		7.10	2.70	6601	1.74	11.58	5.16%	0.60
End	118.0												
		107.0	1.13		0.36		120.80	52.29	127930	33.80	10.97	100%	17.71
			(cm/s)		10.97								



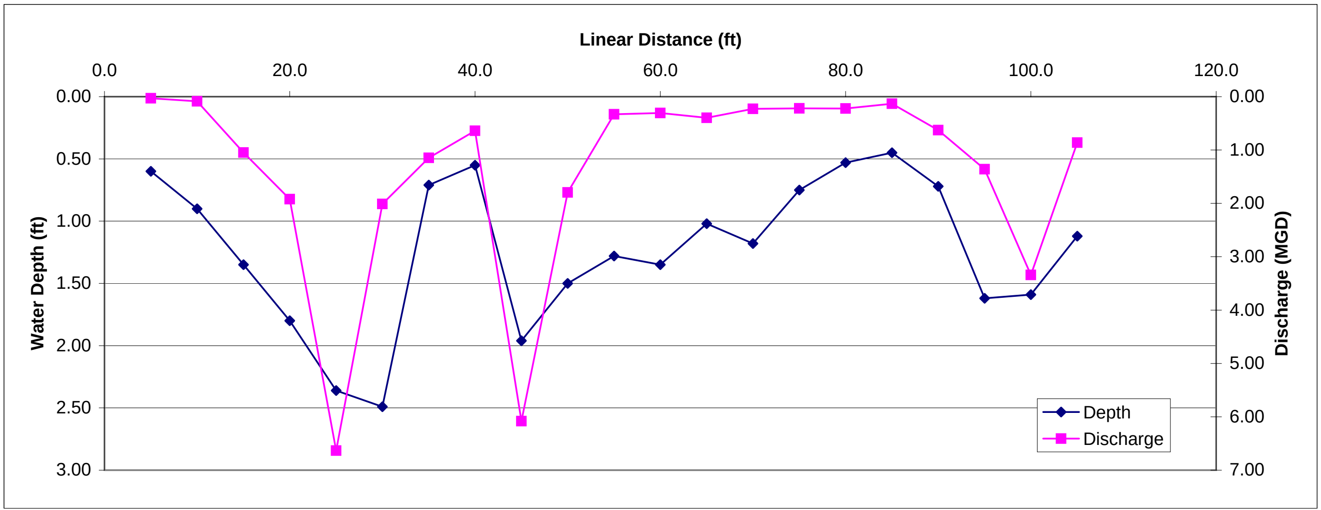
APPENDIX B
RSR-SEG1-DOWN Marsh McBirney Cross Sectional Flow - 05/08/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	4.0	6.0	0.75		0.04		4.50	0.18	440	0.12	1.22	0.31%	0.00
	8.0	4.5	0.98		0.07		4.41	0.31	755	0.20	2.13	0.53%	0.01
	13.0	5.0	1.62		0.13		8.10	1.05	2576	0.68	3.96	1.79%	0.07
	18.0	5.0	1.60		0.19		8.00	1.52	3719	0.98	5.79	2.59%	0.15
	23.0	5.0	1.60		0.16		8.00	1.28	3132	0.83	4.88	2.18%	0.11
	28.0	5.0	1.55		0.19		7.75	1.47	3603	0.95	5.79	2.51%	0.15
	33.0	5.0	1.40		0.16		7.00	1.12	2740	0.72	4.88	1.91%	0.09
	38.0	5.0	1.82		0.17		9.10	1.55	3785	1.00	5.18	2.63%	0.14
	43.0	5.0	1.89		0.13		9.45	1.23	3006	0.79	3.96	2.09%	0.08
	48.0	5.0	1.60		0.22		8.00	1.76	4306	1.14	6.71	2.99%	0.20
	53.0	5.0	2.03		0.15		10.15	1.52	3725	0.98	4.57	2.59%	0.12
	58.0	5.0	2.19		0.26		10.95	2.85	6965	1.84	7.92	4.84%	0.38
	63.0	5.0	2.27		0.30		11.35	3.41	8331	2.20	9.14	5.79%	0.53
	68.0	5.0	2.08		0.21		10.40	2.18	5343	1.41	6.40	3.72%	0.24
	73.0	5.0	2.19		0.37		10.95	4.05	9912	2.62	11.28	6.89%	0.78
	78.0	5.0	2.18		0.64		10.90	6.98	17067	4.51	19.51	11.87%	2.32
	83.0	5.0	2.15		0.45		10.75	4.84	11835	3.13	13.72	8.23%	1.13
	88.0	5.0	2.17		0.34		10.85	3.69	9025	2.38	10.36	6.28%	0.65
	93.0	5.0	2.09		0.32		10.45	3.34	8181	2.16	9.75	5.69%	0.55
	98.0	5.0	2.20		0.34		11.00	3.74	9150	2.42	10.36	6.36%	0.66
	103.0	5.0	2.20		0.18		11.00	1.98	4844	1.28	5.49	3.37%	0.18
	108.0	5.0	2.04		0.21		10.20	2.14	5241	1.38	6.40	3.64%	0.23
	113.0	5.0	2.40		0.18		12.00	2.16	5285	1.40	5.49	3.68%	0.20
	118.0	5.0	1.90		0.30		9.50	2.85	6973	1.84	9.14	4.85%	0.44
	123.0	5.0	1.11		0.18		5.55	1.00	2444	0.65	5.49	1.70%	0.09
	128.0	8.5	0.85		0.08		7.23	0.58	1414	0.37	2.44	0.98%	0.02
End	134.0												
		134.0	1.80		0.23		237.54	58.78	143798	37.99	7.00	100%	9.54
			(cm/s)		7.00								



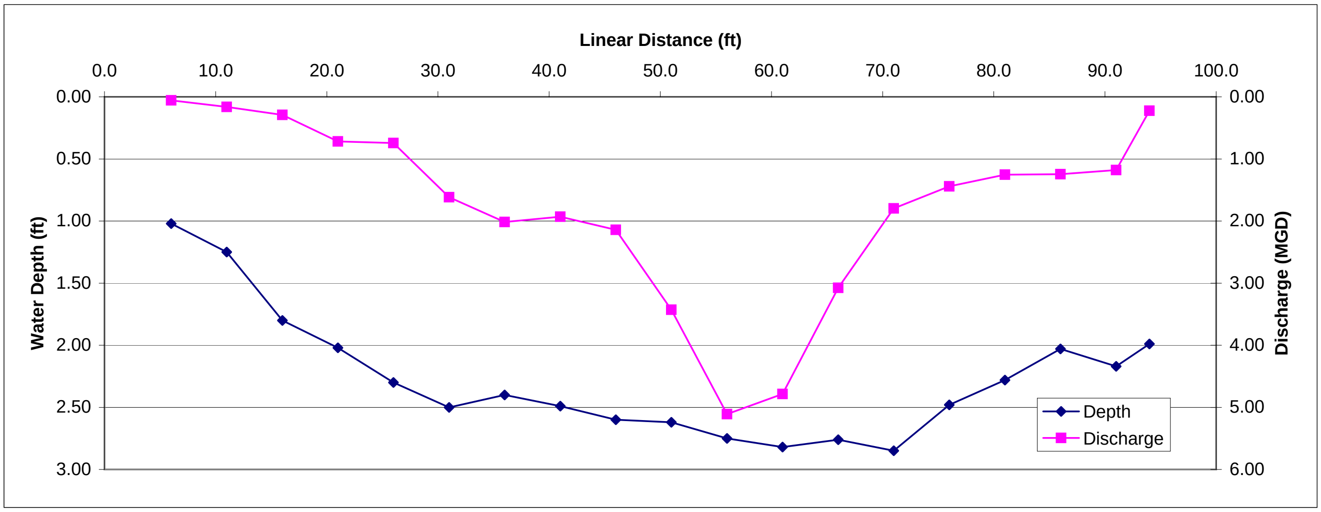
APPENDIX B
RSR-SEG1-UP Marsh McBirney Cross Sectional Flow - 05/08/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	5.0	7.5	0.60		0.01		4.50	0.05	110	0.03	0.30	0.10%	0.00
	10.0	5.0	0.90		0.03		4.50	0.14	330	0.09	0.91	0.30%	0.00
	15.0	5.0	1.35		0.24		6.75	1.62	3963	1.05	7.32	3.56%	0.26
	20.0	5.0	1.80		0.33		9.00	2.97	7266	1.92	10.06	6.53%	0.66
	25.0	5.0	2.36		0.87		11.80	10.27	25117	6.64	26.52	22.56%	5.98
	30.0	5.0	2.49		0.25		12.45	3.11	7615	2.01	7.62	6.84%	0.52
	35.0	5.0	0.71		0.50		3.55	1.78	4343	1.15	15.24	3.90%	0.59
	40.0	5.0	0.55		0.36		2.75	0.99	2422	0.64	10.97	2.18%	0.24
	45.0	5.0	1.96		0.96		9.80	9.41	23017	6.08	29.26	20.67%	6.05
	50.0	5.0	1.50		0.37		7.50	2.78	6789	1.79	11.28	6.10%	0.69
	55.0	5.0	1.28		0.08		6.40	0.51	1253	0.33	2.44	1.13%	0.03
	60.0	5.0	1.35		0.07		6.75	0.47	1156	0.31	2.13	1.04%	0.02
	65.0	5.0	1.02		0.12		5.10	0.61	1497	0.40	3.66	1.34%	0.05
	70.0	5.0	1.18		0.06		5.90	0.35	866	0.23	1.83	0.78%	0.01
	75.0	5.0	0.75		0.09		3.75	0.34	826	0.22	2.74	0.74%	0.02
	80.0	5.0	0.53		0.13		2.65	0.34	843	0.22	3.96	0.76%	0.03
	85.0	5.0	0.45		0.09		2.25	0.20	495	0.13	2.74	0.44%	0.01
	90.0	5.0	0.72		0.27		3.60	0.97	2378	0.63	8.23	2.14%	0.18
	95.0	5.0	1.62		0.26		8.10	2.11	5152	1.36	7.92	4.63%	0.37
	100.0	5.0	1.59		0.65		7.95	5.17	12643	3.34	19.81	11.35%	2.25
	105.0	3.5	1.12		0.34		3.92	1.33	3261	0.86	10.36	2.93%	0.30
End	106.0												
		106.0	1.23		0.29		128.97	45.51	111343	29.41	8.82	100%	18.26
			(cm/s)		8.82								



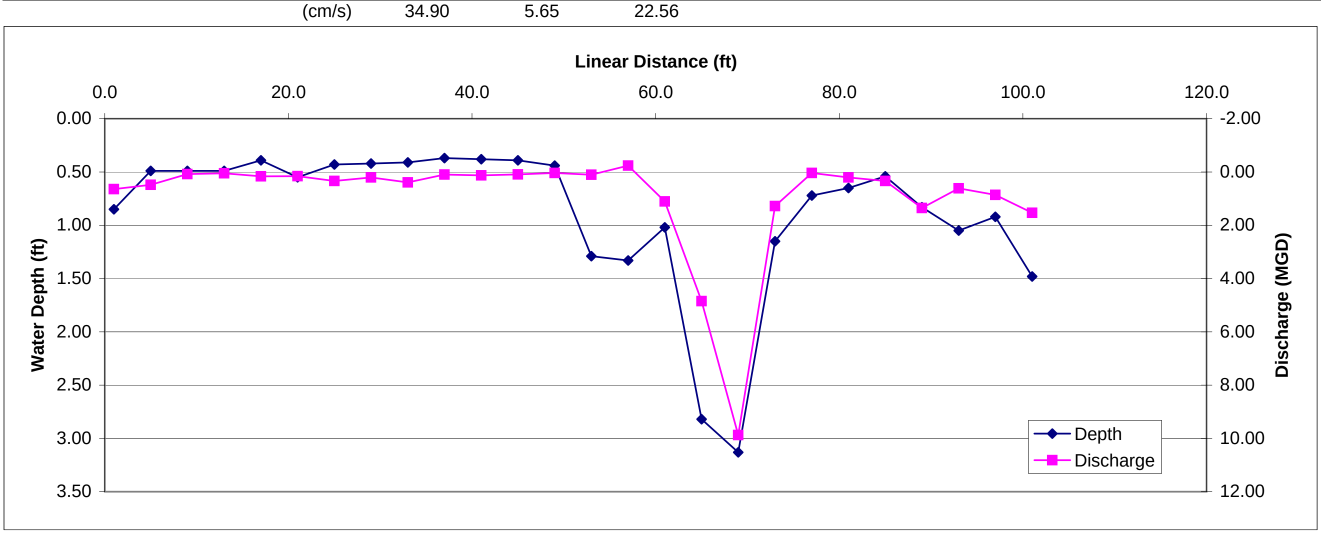
APPENDIX B
RSR-SEG1-DOWN Marsh McBirney Cross Sectional Flow - 05/24/07

	Distance from Initial Point	Segment Width	Total Depth	Velocity (ft/s)			Segment Area	Discharge			Surface Velocity	Flow proportion	Weighted Velocity
	(ft.)	(ft.)	(ft.)	0.2 x depth	0.6 x depth	0.8 x depth	(ft^2)	(ft^3/s)	(m^3/d)	(MGD)	(cm/s)	(%)	(cm/s)
Start	0.0												
	6.0	8.5	1.02		0.01		8.67	0.09	212	0.06	0.30	0.17%	0.00
	11.0	5.0	1.25		0.04		6.25	0.25	612	0.16	1.22	0.49%	0.01
	16.0	5.0	1.80		0.05		9.00	0.45	1101	0.29	1.52	0.88%	0.01
	21.0	5.0	2.02		0.11		10.10	1.11	2718	0.72	3.35	2.16%	0.07
	26.0	5.0	2.30		0.10		11.50	1.15	2814	0.74	3.05	2.24%	0.07
	31.0	5.0	2.50		0.20		12.50	2.50	6116	1.62	6.10	4.86%	0.30
	36.0	5.0	2.40		0.26		12.00	3.12	7633	2.02	7.92	6.07%	0.48
	41.0	5.0	2.49		0.24		12.45	2.99	7310	1.93	7.32	5.81%	0.43
	46.0	5.0	2.60	0.26		0.25	13.00	3.32	8110	2.14	7.92	6.45%	0.51
	51.0	5.0	2.62	0.41		0.40	13.10	5.31	12980	3.43	12.50	10.32%	1.29
	56.0	5.0	2.75	0.56		0.59	13.75	7.91	19343	5.11	17.07	15.38%	2.63
	61.0	5.0	2.82	0.50		0.55	14.10	7.40	18111	4.78	15.24	14.40%	2.20
	66.0	5.0	2.76	0.43		0.26	13.80	4.76	11648	3.08	13.11	9.26%	1.21
	71.0	5.0	2.85	0.23		0.16	14.25	2.78	6798	1.80	7.01	5.41%	0.38
	76.0	5.0	2.48		0.18		12.40	2.23	5461	1.44	5.49	4.34%	0.24
	81.0	5.0	2.28		0.17		11.40	1.94	4741	1.25	5.18	3.77%	0.20
	86.0	5.0	2.03		0.19		10.15	1.93	4718	1.25	5.79	3.75%	0.22
	91.0	4.0	2.17		0.21		8.68	1.82	4460	1.18	6.40	3.55%	0.23
	94.0	2.5	1.99		0.07		4.98	0.35	852	0.23	2.13	0.68%	0.01
End	95.0												
		95.0	2.27	0.40	0.14	0.37	212.08	51.39	125740	33.22	6.77	100%	10.47
			(cm/s)	12.14	4.29	11.23							



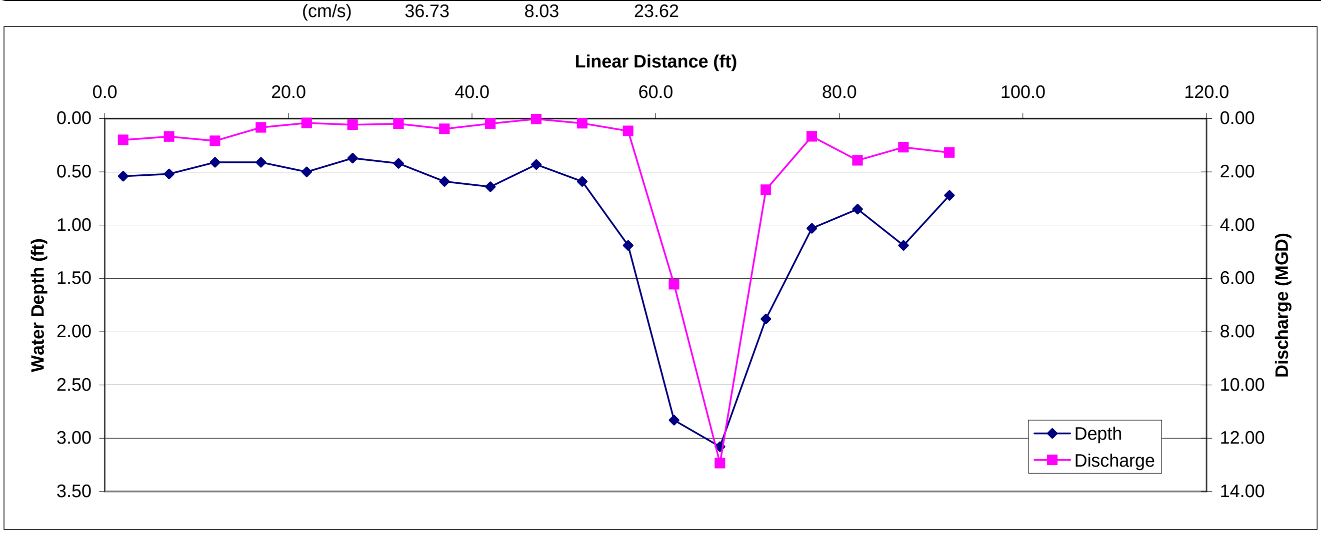
APPENDIX B
RSR-SEG1-UP Marsh McBirney Cross Sectional Flow - 08/23/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	1.0	3.0	0.85		0.39		2.55	0.99	2433	0.64	11.89	2.60%	0.31
	5.0	4.0	0.49		0.38		1.96	0.74	1822	0.48	11.58	1.95%	0.23
	9.0	4.0	0.49		0.06		1.96	0.12	288	0.08	1.83	0.31%	0.01
	13.0	4.0	0.49		0.04		1.96	0.08	192	0.05	1.22	0.20%	0.00
	17.0	4.0	0.39		0.16		1.56	0.25	611	0.16	4.88	0.65%	0.03
	21.0	4.0	0.55		0.11		2.20	0.24	592	0.16	3.35	0.63%	0.02
	25.0	4.0	0.43		0.30		1.72	0.52	1262	0.33	9.14	1.35%	0.12
	29.0	4.0	0.42		0.19		1.68	0.32	781	0.21	5.79	0.83%	0.05
	33.0	4.0	0.41		0.37		1.64	0.61	1485	0.39	11.28	1.59%	0.18
	37.0	4.0	0.37		0.10		1.48	0.15	362	0.10	3.05	0.39%	0.01
	41.0	4.0	0.38		0.13		1.52	0.20	483	0.13	3.96	0.52%	0.02
	45.0	4.0	0.39		0.09		1.56	0.14	343	0.09	2.74	0.37%	0.01
	49.0	4.0	0.44		0.03		1.76	0.05	129	0.03	0.91	0.14%	0.00
	53.0	4.0	1.29		0.03		5.16	0.15	379	0.10	0.91	0.40%	0.00
	57.0	4.0	1.33		-0.07		5.32	-0.37	-911	-0.24	-2.13	-0.97%	0.02
	61.0	4.0	1.02		0.42		4.08	1.71	4192	1.11	12.80	4.48%	0.57
	65.0	4.0	2.82	0.96		0.37	11.28	7.50	18352	4.85	29.26	19.60%	5.73
	69.0	4.0	3.13	1.33		1.11	12.52	15.27	37370	9.87	40.54	39.91%	16.18
	73.0	4.0	1.15		0.43		4.60	1.98	4839	1.28	13.11	5.17%	0.68
	77.0	4.0	0.72		0.02		2.88	0.06	141	0.04	0.61	0.15%	0.00
	81.0	4.0	0.65		0.12		2.60	0.31	763	0.20	3.66	0.82%	0.03
	85.0	4.0	0.54		0.24		2.16	0.52	1268	0.34	7.32	1.35%	0.10
	89.0	6.0	0.83		0.42		4.98	2.09	5117	1.35	12.80	5.46%	0.70
	93.0	6.0	1.05		0.15		6.30	0.95	2312	0.61	4.57	2.47%	0.11
	97.0	8.0	0.92		0.18		7.36	1.32	3241	0.86	5.49	3.46%	0.19
	101.0	10.0	1.48		0.16		14.80	2.37	5793	1.53	4.88	6.19%	0.30
End	109.0												
		117.0	0.89	1.15	0.19	0.74	107.59	38.27	93642	24.74	7.90	100%	25.61
			(cm/s)	34.90	5.65	22.56							



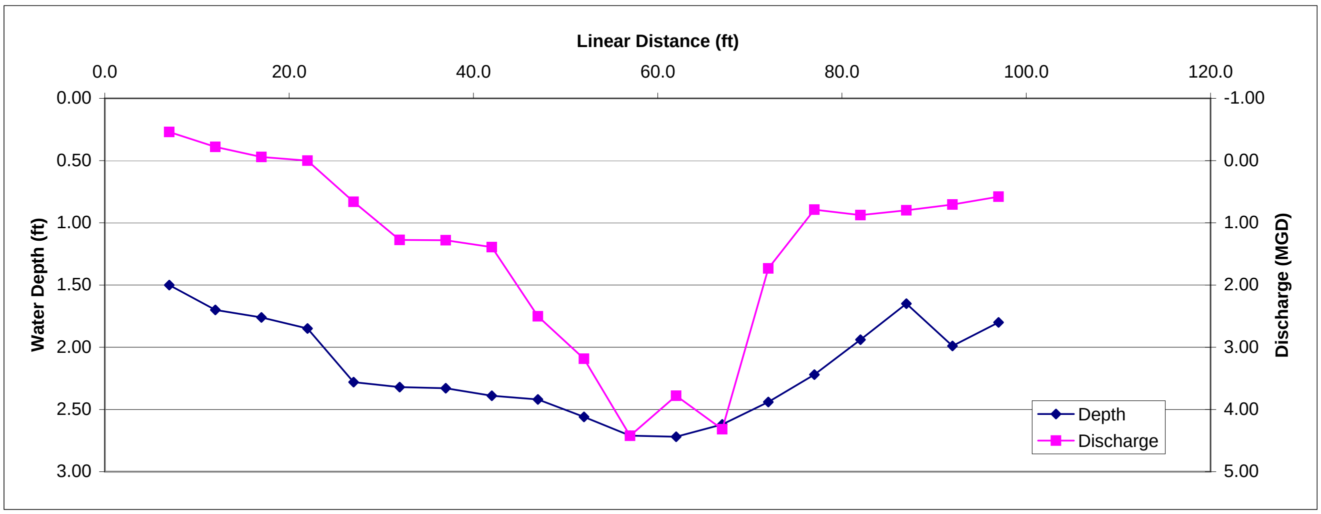
APPENDIX B
RSR-SEG1-UP Marsh McBirney Cross Sectional Flow - 09/06/07

	Distance from Initial Point	Segment Width	Total Depth	Velocity (ft/s)			Segment Area	Discharge			Surface Velocity	Flow proportion	Weighted Velocity
	(ft.)	(ft.)	(ft.)	0.2 x depth	0.6 x depth	0.8 x depth	(ft^2)	(ft^3/s)	(m^3/d)	(MGD)	(cm/s)	(%)	(cm/s)
Start	0.0												
	2.0	4.5	0.54		0.51		2.43	1.24	3032	0.80	15.54	2.60%	0.40
	7.0	5.0	0.52		0.40		2.60	1.04	2544	0.67	12.19	2.18%	0.27
	12.0	5.0	0.41		0.63		2.05	1.29	3160	0.83	19.20	2.71%	0.52
	17.0	5.0	0.41		0.25		2.05	0.51	1254	0.33	7.62	1.07%	0.08
	22.0	5.0	0.50		0.10		2.50	0.25	612	0.16	3.05	0.52%	0.02
	27.0	5.0	0.37		0.19		1.85	0.35	860	0.23	5.79	0.74%	0.04
	32.0	5.0	0.42		0.14		2.10	0.29	719	0.19	4.27	0.62%	0.03
	37.0	5.0	0.59		0.20		2.95	0.59	1443	0.38	6.10	1.24%	0.08
	42.0	5.0	0.64		0.09		3.20	0.29	705	0.19	2.74	0.60%	0.02
	47.0	5.0	0.43		0.01		2.15	0.02	53	0.01	0.30	0.05%	0.00
	52.0	5.0	0.59		0.09		2.95	0.27	650	0.17	2.74	0.56%	0.02
	57.0	5.0	1.19		0.12		5.95	0.71	1747	0.46	3.66	1.50%	0.05
	62.0	5.0	2.83	0.86		0.50	14.15	9.62	23541	6.22	26.21	20.16%	5.29
	67.0	5.0	3.08	1.55		1.05	15.40	20.02	48980	12.94	47.24	41.95%	19.82
	72.0	5.0	1.88		0.44		9.40	4.14	10119	2.67	13.41	8.67%	1.16
	77.0	5.0	1.03		0.20		5.15	1.03	2520	0.67	6.10	2.16%	0.13
	82.0	5.0	0.85		0.57		4.25	2.42	5927	1.57	17.37	5.08%	0.88
	87.0	5.0	1.19		0.28		5.95	1.67	4076	1.08	8.53	3.49%	0.30
	92.0	10.5	0.72		0.26		7.56	1.97	4809	1.27	7.92	4.12%	0.33
End	100.0												
		100.0	0.96	1.21	0.26	0.78	94.64	47.72	116750	30.84	11.05	100%	29.42
			(cm/s)	36.73	8.03	23.62							



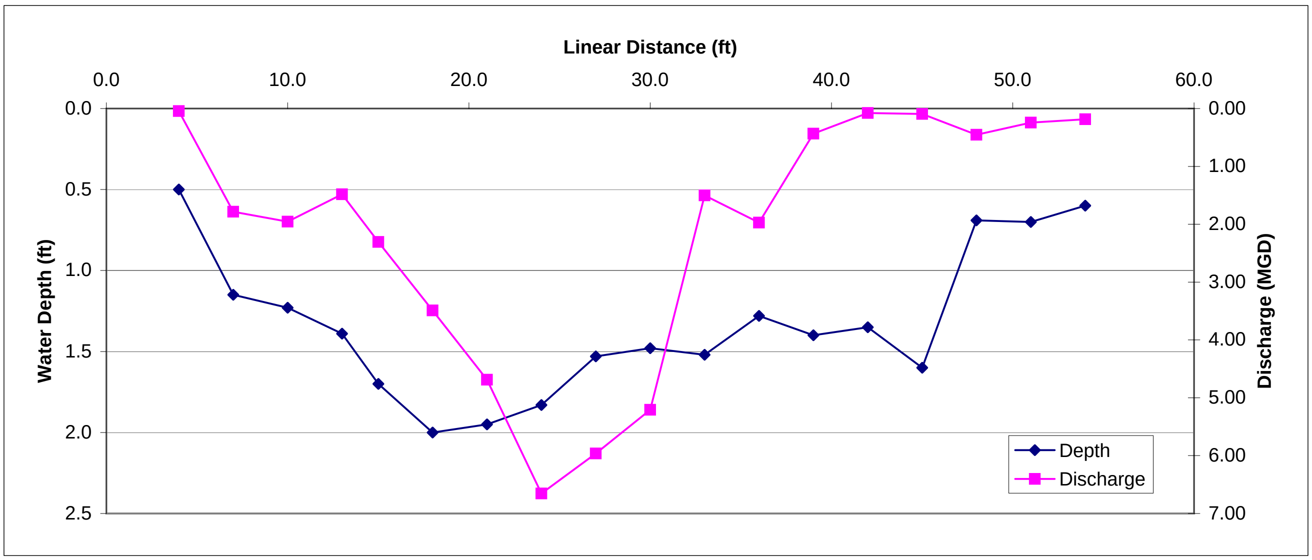
APPENDIX B
RSR-SEG1-DOWN Marsh McBirney Cross Sectional Flow - 09/06/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	0.6 x depth	0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	(m^3/d)	(MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	7.0	9.5	1.50		-0.05		14.25	-0.71	-1743	-0.46	-1.52	-1.67%	0.03
	12.0	5.0	1.70		-0.04		8.50	-0.34	-832	-0.22	-1.22	-0.80%	0.01
	17.0	5.0	1.76		-0.01		8.80	-0.09	-215	-0.06	-0.30	-0.21%	0.00
	22.0	5.0	1.85		0.00		9.25	0.00	0	0.00	0.00	0.00%	0.00
	27.0	5.0	2.28		0.09		11.40	1.03	2510	0.66	2.74	2.41%	0.07
	32.0	5.0	2.32		0.17		11.60	1.97	4825	1.27	5.18	4.62%	0.24
	37.0	5.0	2.33		0.17		11.65	1.98	4845	1.28	5.18	4.64%	0.24
	42.0	5.0	2.39		0.18		11.95	2.15	5263	1.39	5.49	5.04%	0.28
	47.0	5.0	2.42		0.32		12.10	3.87	9473	2.50	9.75	9.08%	0.89
	52.0	5.0	2.56	0.39		0.38	12.80	4.93	12057	3.19	11.89	11.55%	1.37
	57.0	5.0	2.71	0.53		0.48	13.55	6.84	16741	4.42	16.15	16.04%	2.59
	62.0	5.0	2.72	0.49		0.37	13.60	5.85	14308	3.78	14.94	13.71%	2.05
	67.0	5.0	2.62	0.52		0.50	13.10	6.68	16346	4.32	15.85	15.66%	2.48
	72.0	5.0	2.44		0.22		12.20	2.68	6567	1.73	6.71	6.29%	0.42
	77.0	5.0	2.22		0.11		11.10	1.22	2987	0.79	3.35	2.86%	0.10
	82.0	5.0	1.94		0.14		9.70	1.36	3322	0.88	4.27	3.18%	0.14
	87.0	5.0	1.65		0.15		8.25	1.24	3028	0.80	4.57	2.90%	0.13
	92.0	5.0	1.99		0.11		9.95	1.09	2678	0.71	3.35	2.57%	0.09
	97.0	12.5	1.80		0.04		22.50	0.90	2202	0.58	1.22	2.11%	0.03
End	107.0												
		107.0	2.17	0.48	0.11	0.43	226.25	42.66	104361	27.57	5.66	100%	11.14
			(cm/s)	14.71	3.25	13.18							



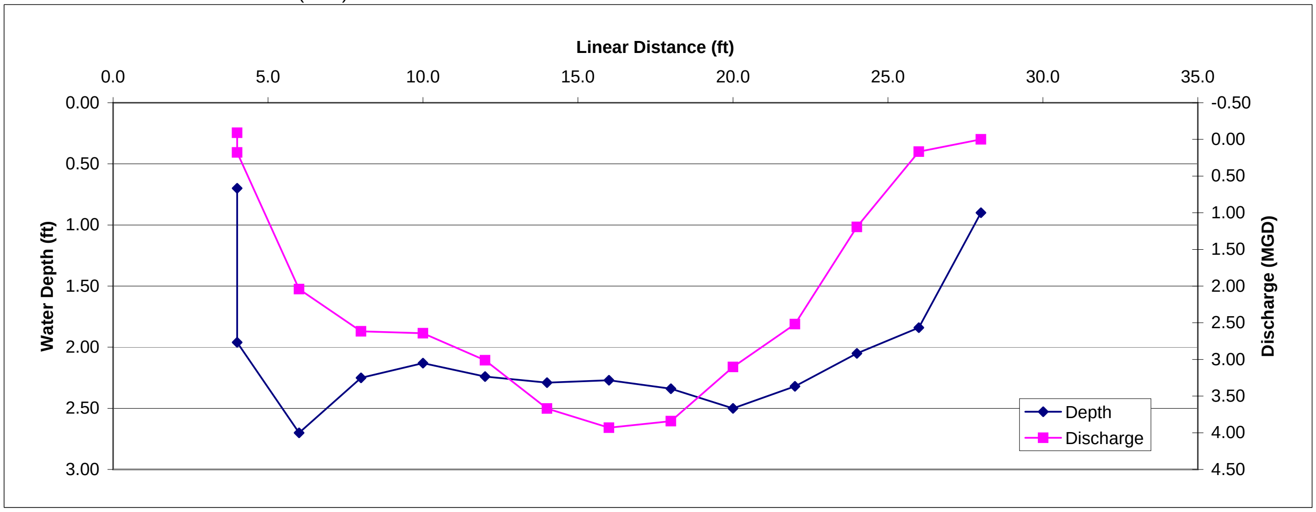
APPENDIX B
RSR-MB2 Marsh McBirney Cross Sectional Flow - 10/04/06

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	4.0												
	4.0	1.5	0.50		0.09		0.75	0.07	165	0.04	2.74	0.11%	0.00
	7.0	3.0	1.15		0.80		3.45	2.76	6753	1.78	24.38	4.63%	1.13
	10.0	3.0	1.23		0.82		3.69	3.03	7403	1.96	24.99	5.07%	1.27
	13.0	2.5	1.39		0.66		3.48	2.29	5611	1.48	20.12	3.85%	0.77
	15.0	2.5	1.70		0.84		4.25	3.57	8734	2.31	25.60	5.99%	1.53
	18.0	3.0	2.00		0.90		6.00	5.40	13212	3.49	27.43	9.06%	2.48
	21.0	3.0	1.95		1.24		5.85	7.25	17747	4.69	37.80	12.16%	4.60
	24.0	4.5	1.83		1.25		8.24	10.29	25184	6.65	38.10	17.26%	6.58
	27.0	4.5	1.53		1.34		6.89	9.23	22572	5.96	40.84	15.47%	6.32
	30.0	4.5	1.48		1.21		6.66	8.06	19716	5.21	36.88	13.51%	4.98
	33.0	4.5	1.52		0.34		6.84	2.33	5690	1.50	10.36	3.90%	0.40
	36.0	4.5	1.28		0.53		5.76	3.05	7469	1.97	16.15	5.12%	0.83
	39.0	3.0	1.40		0.16		4.20	0.67	1644	0.43	4.88	1.13%	0.05
	42.0	3.0	1.35		0.03		4.05	0.12	297	0.08	0.91	0.20%	0.00
	45.0	3.0	1.60		0.03		4.80	0.14	352	0.09	0.91	0.24%	0.00
	48.0	3.0	0.69		0.34		2.07	0.70	1722	0.45	10.36	1.18%	0.12
	51.0	3.0	0.70		0.18		2.10	0.38	925	0.24	5.49	0.63%	0.03
	54.0	2.5	0.60		0.19		1.50	0.29	697	0.18	5.79	0.48%	0.03
End	55.0												
		58.5	1.3		0.61		80.57	59.63	145894	38.54	18.54	100%	31.14
			(cm/s)		18.54								



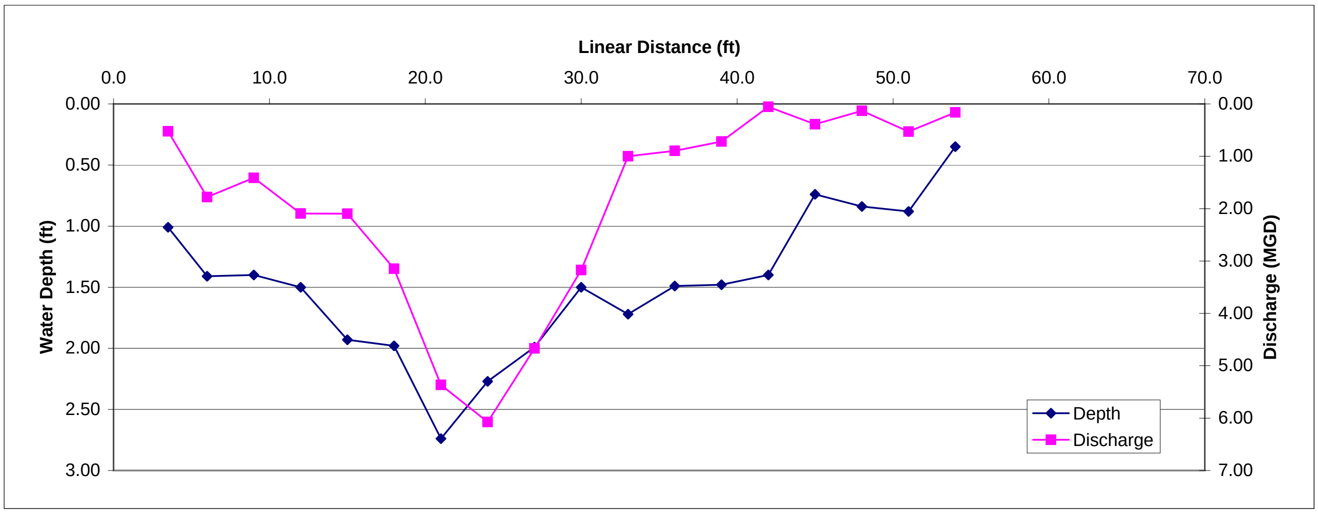
APPENDIX B
RSR - Segment 2 Up - Marsh McBirney Cross Sectional Flow -10/04/06

	Distance from Initial Point	Segment Width	Total Depth	Velocity (ft/s)			Segment Area	Discharge			Surface Velocity	Flow proportion	Weighted Velocity
	(ft.)	(ft.)	(ft.)	0.2 x depth	0.6 x depth	0.8 x depth	(ft^2)	(ft^3/s)	(m^3/d)	(MGD)	(cm/s)	(%)	(cm/s)
Start	4.0												
	4.0	1.0	0.70		-0.20		0.70	-0.14	-343	-0.09	-6.10	-0.31%	0.02
	6.0	2.0	1.96		0.07		3.92	0.27	671	0.18	2.13	0.62%	0.01
	8.0	2.0	2.70	0.53		0.64	5.40	3.16	7729	2.04	16.15	7.08%	1.14
	10.0	2.0	2.25		0.90		4.50	4.05	9909	2.62	27.43	9.08%	2.49
	12.0	2.0	2.13		0.96		4.26	4.09	10006	2.64	29.26	9.17%	2.68
	14.0	2.0	2.24		1.04		4.48	4.66	11399	3.01	31.70	10.45%	3.31
	16.0	2.0	2.29		1.24		4.58	5.68	13895	3.67	37.80	12.73%	4.81
	18.0	2.0	2.27		1.34		4.54	6.08	14884	3.93	40.84	13.64%	5.57
	20.0	2.0	2.34		1.27		4.68	5.94	14541	3.84	38.71	13.33%	5.16
	22.0	2.0	2.50		0.96		5.00	4.80	11744	3.10	29.26	10.76%	3.15
	24.0	2.0	2.32		0.84		4.64	3.90	9536	2.52	25.60	8.74%	2.24
	26.0	2.0	2.05		0.45		4.10	1.85	4514	1.19	13.72	4.14%	0.57
	28.0	2.0	1.84		0.07		3.68	0.26	630	0.17	2.13	0.58%	0.01
	30.0	1.0	0.90		0.00		0.90	0.00	0	0.00	0.00	0.00%	0.00
End	30.0												
		26.0	2.04	0.53	0.69	0.64	55.38	44.60	109114	28.83	20.62	100%	31.17
			(cm/s)	16.15	20.96	19.51							



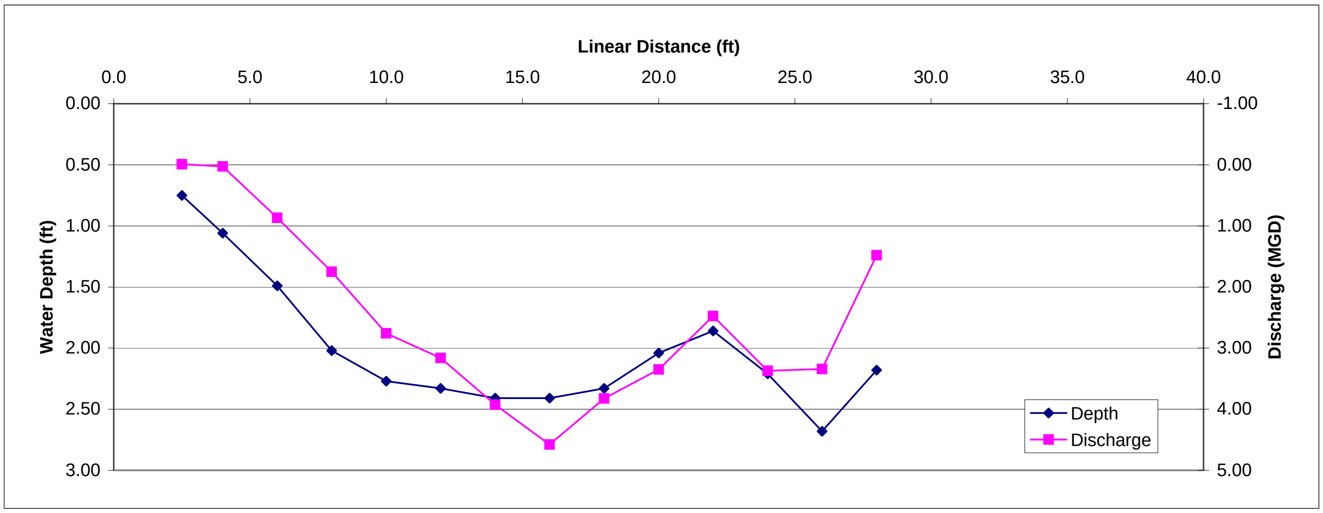
APPENDIX B
RSR-MB2 - Marsh McBirney Cross Sectional Flow - 1/3/2007

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	3.5												
	6.0	4.0	1.01		0.20		4.04	0.81	1977	0.52	6.10	1.53%	0.09
	9.0	3.0	1.41		0.65		4.23	2.75	6727	1.78	19.81	5.20%	1.03
	12.0	3.0	1.40		0.52		4.20	2.18	5343	1.41	15.85	4.13%	0.65
	15.0	3.0	1.50		0.72		4.50	3.24	7927	2.09	21.95	6.12%	1.34
	18.0	3.0	1.93		0.56		5.79	3.24	7933	2.10	17.07	6.13%	1.05
	21.0	3.0	1.98		0.82		5.94	4.87	11917	3.15	24.99	9.20%	2.30
	24.0	3.0	2.74	1.17		0.85	8.22	8.30	20312	5.37	35.66	15.69%	5.59
	27.0	3.0	2.27		1.38		6.81	9.40	22992	6.07	42.06	17.76%	7.47
	30.0	3.0	1.99		1.21		5.97	7.22	17673	4.67	36.88	13.65%	5.03
	33.0	3.0	1.50		1.09		4.50	4.91	12000	3.17	33.22	9.27%	3.08
	36.0	3.0	1.72		0.30		5.16	1.55	3787	1.00	9.14	2.93%	0.27
	39.0	3.0	1.49		0.31		4.47	1.39	3390	0.90	9.45	2.62%	0.25
	42.0	3.0	1.48		0.25		4.44	1.11	2716	0.72	7.62	2.10%	0.16
	45.0	3.0	1.40		0.02		4.20	0.08	206	0.05	0.61	0.16%	0.00
	48.0	3.0	0.74		0.27		2.22	0.60	1466	0.39	8.23	1.13%	0.09
	51.0	3.0	0.84		0.08		2.52	0.20	493	0.13	2.44	0.38%	0.01
	54.0	3.0	0.88		0.31		2.64	0.82	2002	0.53	9.45	1.55%	0.15
	57.0	4.5	0.35		0.16		1.58	0.25	617	0.16	4.88	0.48%	0.02
End	60.0												
		56.5	1.48	1.17	0.52	0.85	81.43	52.92	129479	34.21	16.97	100%	28.59
			(cm/s)	35.66	15.87	25.91							



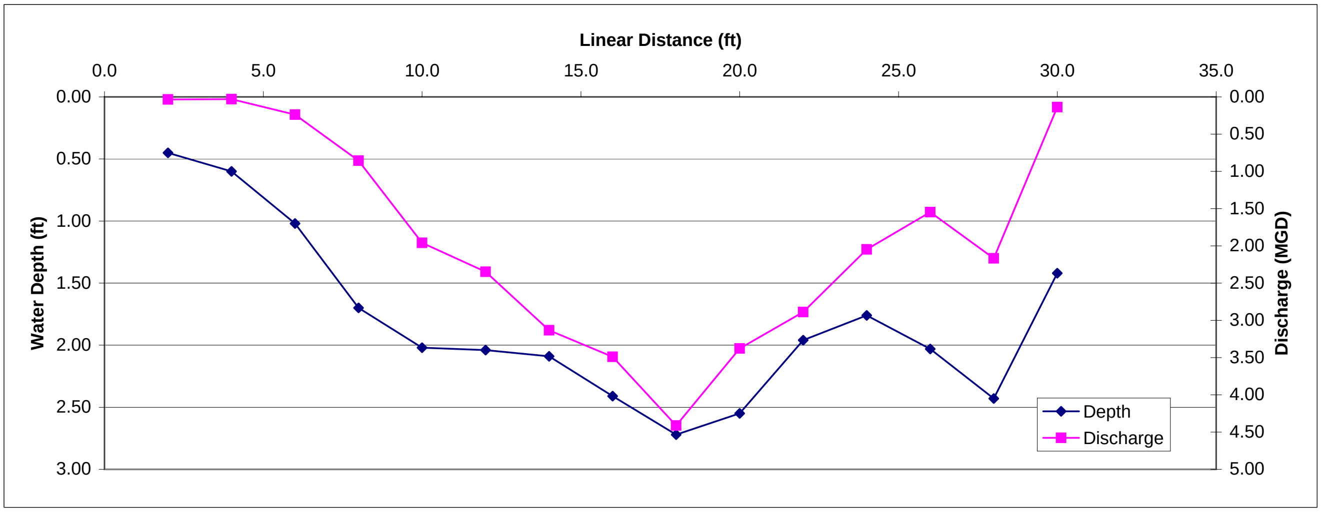
APPENDIX B
RSR - Segment 2 Up - Marsh McBirney Cross Sectional Flow - 1/03/2007

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	2.5												
	4.0	2.5	0.39		0.01		0.98	0.01	24	0.01	0.30	0.02%	0.00
	6.0	2.0	0.75		-0.01		1.50	-0.02	-37	-0.01	-0.30	-0.03%	0.00
	8.0	2.0	1.06		0.02		2.12	0.04	104	0.03	0.61	0.08%	0.00
	10.0	2.0	1.49		0.45		2.98	1.34	3281	0.87	13.72	2.48%	0.34
	12.0	2.0	2.02		0.67		4.04	2.71	6622	1.75	20.42	5.01%	1.02
	14.0	2.0	2.27		0.94		4.54	4.27	10441	2.76	28.65	7.90%	2.26
	16.0	2.0	2.33		1.05		4.66	4.89	11971	3.16	32.00	9.06%	2.90
	18.0	2.0	2.41		1.26		4.82	6.07	14859	3.93	38.40	11.24%	4.32
	20.0	2.0	2.41		1.47		4.82	7.09	17335	4.58	44.81	13.12%	5.88
	22.0	2.0	2.33		1.27		4.66	5.92	14479	3.83	38.71	10.96%	4.24
	24.0	2.0	2.04		1.27		4.08	5.18	12677	3.35	38.71	9.59%	3.71
	26.0	2.0	1.86		1.03		3.72	3.83	9374	2.48	31.39	7.09%	2.23
	28.0	2.0	2.21		1.18		4.42	5.22	12760	3.37	35.97	9.66%	3.47
	30.0	2.0	2.68	1.03		0.90	5.36	5.17	12655	3.34	31.39	9.58%	3.01
	32.0	3.0	2.18		0.35		6.54	2.29	5600	1.48	10.67	4.24%	0.45
End	34.0												
		31.5	1.90	1.03	0.78	0.90	59.24	54.01	132146	34.91	24.36	100%	33.84
			(cm/s)	31.39	23.86	27.43							



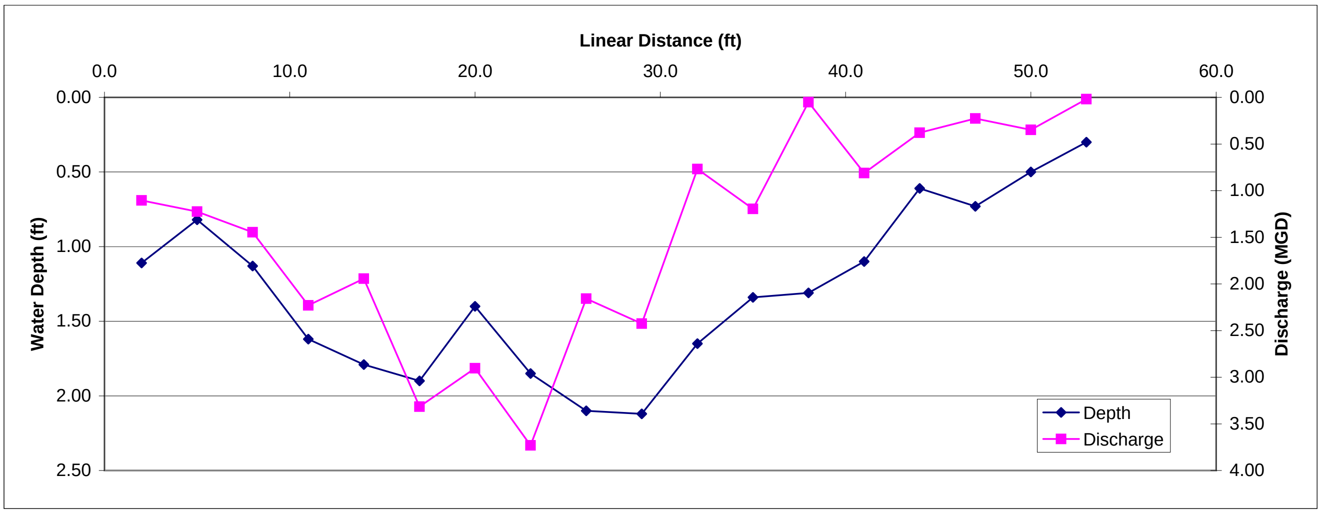
APPENDIX B
RSR-SEG2-UP Marsh McBirney Cross Sectional Flow - 05/09/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	2.0	3.0	0.45		0.04		1.35	0.05	132	0.03	1.22	0.12%	0.00
	4.0	2.0	0.60		0.04		1.20	0.05	117	0.03	1.22	0.11%	0.00
	6.0	2.0	1.02		0.18		2.04	0.37	898	0.24	5.49	0.83%	0.05
	8.0	2.0	1.70		0.39		3.40	1.33	3244	0.86	11.89	2.99%	0.36
	10.0	2.0	2.02		0.75		4.04	3.03	7413	1.96	22.86	6.83%	1.56
	12.0	2.0	2.04		0.89		4.08	3.63	8884	2.35	27.13	8.19%	2.22
	14.0	2.0	2.09		1.16		4.18	4.85	11863	3.13	35.36	10.93%	3.86
	16.0	2.0	2.41		1.12		4.82	5.40	13208	3.49	34.14	12.17%	4.15
	18.0	2.0	2.72	1.25		1.26	5.44	6.83	16703	4.41	38.10	15.39%	5.86
	20.0	2.0	2.55	1.07		0.98	5.10	5.23	12789	3.38	32.61	11.79%	3.84
	22.0	2.0	1.96		1.14		3.92	4.47	10933	2.89	34.75	10.07%	3.50
	24.0	2.0	1.76		0.90		3.52	3.17	7751	2.05	27.43	7.14%	1.96
	26.0	2.0	2.03		0.59		4.06	2.40	5861	1.55	17.98	5.40%	0.97
	28.0	2.0	2.43		0.69		4.86	3.35	8204	2.17	21.03	7.56%	1.59
	30.0	2.5	1.42		0.06		3.55	0.21	521	0.14	1.83	0.48%	0.01
End	31.5												
		31.5	1.81	1.16	0.61	1.12	55.56	44.36	108523	28.67	20.87	100%	29.94
			(cm/s)	35.36	18.64	34.14							



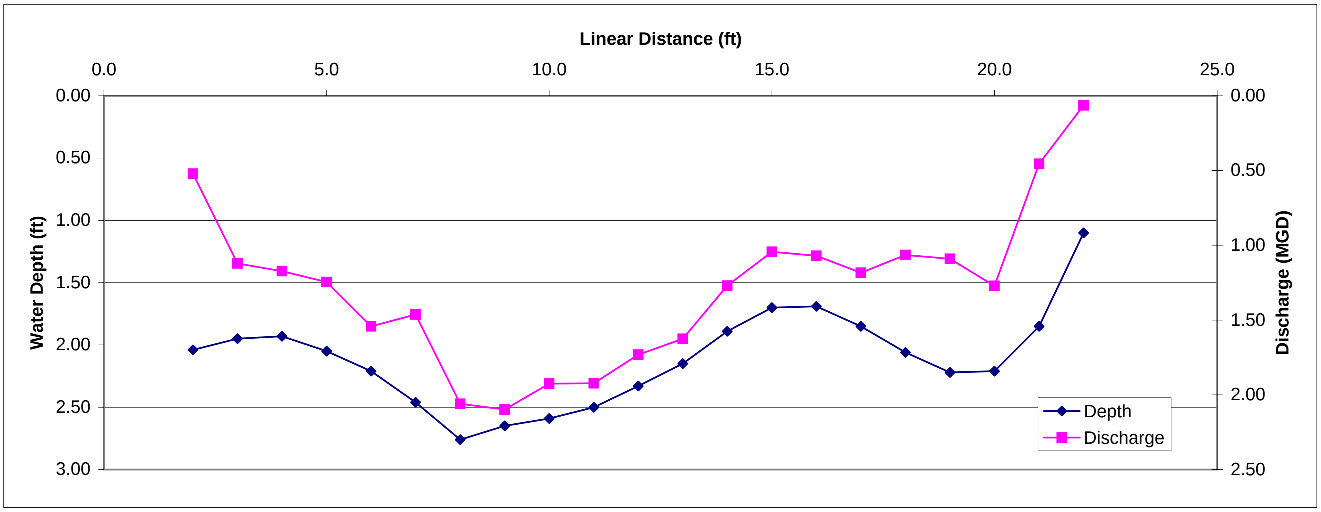
APPENDIX B
RSR-MB2 Marsh McBirney Cross Sectional Flow - 05/09/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	2.0	3.5	1.11		0.44		3.89	1.71	4182	1.10	13.41	4.21%	0.56
	5.0	3.0	0.82		0.77		2.46	1.89	4634	1.22	23.47	4.66%	1.09
	8.0	3.0	1.13		0.66		3.39	2.24	5474	1.45	20.12	5.51%	1.11
	11.0	3.0	1.62		0.71		4.86	3.45	8442	2.23	21.64	8.49%	1.84
	14.0	3.0	1.79		0.56		5.37	3.01	7357	1.94	17.07	7.40%	1.26
	17.0	3.0	1.90		0.90		5.70	5.13	12551	3.32	27.43	12.63%	3.46
	20.0	3.0	1.40		1.07		4.20	4.49	10995	2.90	32.61	11.06%	3.61
	23.0	3.0	1.85		1.04		5.55	5.77	14122	3.73	31.70	14.21%	4.50
	26.0	3.0	2.10		0.53		6.30	3.34	8169	2.16	16.15	8.22%	1.33
	29.0	3.0	2.12		0.59		6.36	3.75	9181	2.43	17.98	9.24%	1.66
	32.0	3.0	1.65		0.24		4.95	1.19	2907	0.77	7.32	2.92%	0.21
	35.0	3.0	1.34		0.46		4.02	1.85	4524	1.20	14.02	4.55%	0.64
	38.0	3.0	1.31		0.02		3.93	0.08	192	0.05	0.61	0.19%	0.00
	41.0	3.0	1.10		0.38		3.30	1.25	3068	0.81	11.58	3.09%	0.36
	44.0	3.0	0.61		0.32		1.83	0.59	1433	0.38	9.75	1.44%	0.14
	47.0	3.0	0.73		0.16		2.19	0.35	857	0.23	4.88	0.86%	0.04
	50.0	3.0	0.50		0.36		1.50	0.54	1321	0.35	10.97	1.33%	0.15
	53.0	2.0	0.30		0.05		0.60	0.03	73	0.02	1.52	0.07%	0.00
End	53.5												
		51.5	1.30		0.51		69.80	40.63	99409	26.26	15.68	100%	21.97
			(cm/s)		15.68								



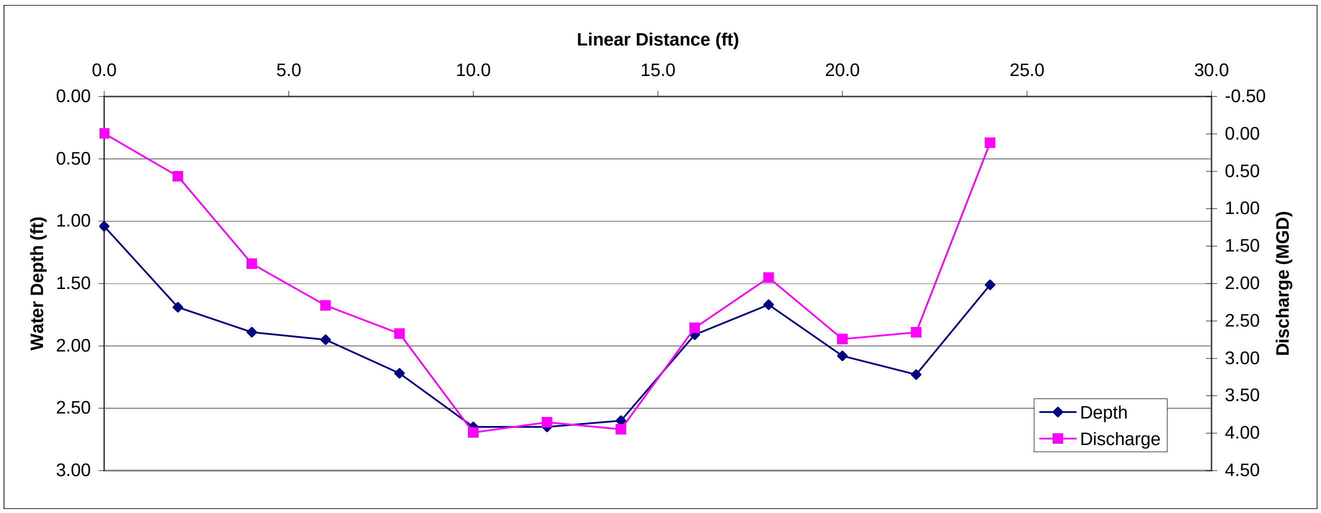
APPENDIX B
RSR-SEG2-UP Marsh McBirney Cross Sectional Flow - 08/22/07

	Distance from Initial Point	Segment Width	Total Depth	Velocity (ft/s)			Segment Area	Discharge			Surface Velocity	Flow proportion	Weighted Velocity
	(ft.)	(ft.)	(ft.)	0.2 x depth	0.6 x depth	0.8 x depth	(ft^2)	(ft^3/s)	(m^3/d)	(MGD)	(cm/s)	(%)	(cm/s)
Start	2.0	0.5	2.04		0.79		1.02	0.81	1971	0.52	24.08	1.93%	0.47
	3.0	1.0	1.95		0.89		1.95	1.74	4246	1.12	27.13	4.16%	1.13
	4.0	1.0	1.93		0.94		1.93	1.81	4439	1.17	28.65	4.35%	1.25
	5.0	1.0	2.05		0.94		2.05	1.93	4715	1.25	28.65	4.62%	1.32
	6.0	1.0	2.21		1.08		2.21	2.39	5839	1.54	32.92	5.73%	1.88
	7.0	1.0	2.46		0.92		2.46	2.26	5537	1.46	28.04	5.43%	1.52
	8.0	1.0	2.76	1.34		0.97	2.76	3.19	7799	2.06	40.84	7.65%	3.12
	9.0	1.0	2.65	1.36		1.09	2.65	3.25	7942	2.10	41.45	7.79%	3.23
	10.0	1.0	2.59	1.25		1.05	2.59	2.98	7287	1.93	38.10	7.14%	2.72
	11.0	1.0	2.50		1.19		2.50	2.98	7279	1.92	36.27	7.14%	2.59
	12.0	1.0	2.33		1.15		2.33	2.68	6556	1.73	35.05	6.43%	2.25
	13.0	1.0	2.15		1.17		2.15	2.52	6154	1.63	35.66	6.03%	2.15
	14.0	1.0	1.89		1.04		1.89	1.97	4809	1.27	31.70	4.72%	1.49
	15.0	1.0	1.70		0.95		1.70	1.62	3951	1.04	28.96	3.87%	1.12
	16.0	1.0	1.69		0.98		1.69	1.66	4052	1.07	29.87	3.97%	1.19
	17.0	1.0	1.85		0.99		1.85	1.83	4481	1.18	30.18	4.39%	1.33
	18.0	1.0	2.06		0.80		2.06	1.65	4032	1.07	24.38	3.95%	0.96
	19.0	1.0	2.22		0.76		2.22	1.69	4128	1.09	23.16	4.05%	0.94
	20.0	1.0	2.21		0.89		2.21	1.97	4812	1.27	27.13	4.72%	1.28
	21.0	1.0	1.85		0.38		1.85	0.70	1720	0.45	11.58	1.69%	0.20
	22.0	1.5	1.10		0.06		1.65	0.10	242	0.06	1.83	0.24%	0.00
End	23.0												
		21.0	2.10	1.32	0.88	1.04	43.72	41.69	101992	26.94	28.84	100%	32.15
			(cm/s)	40.13	26.96	31.60							



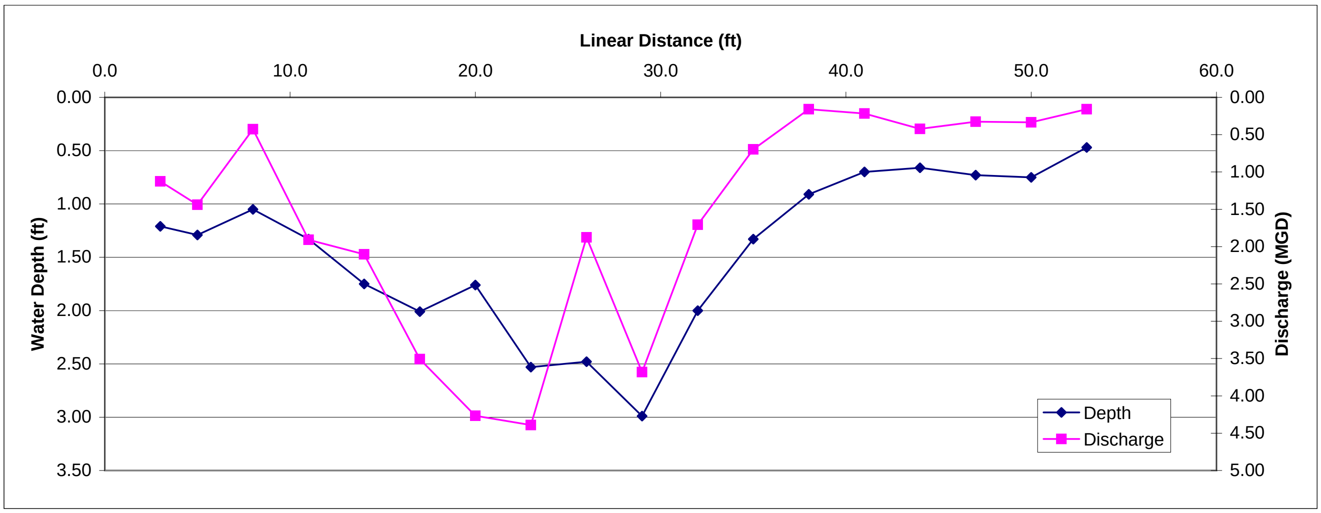
APPENDIX B
RSR-SEG2-UP Marsh McBirney Cross Sectional Flow - 08/22/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0	1.0	1.04		-0.01		1.04	-0.01	-25	-0.01	-0.30	-0.02%	0.00
	2.0	2.0	1.69		0.26		3.38	0.88	2150	0.57	7.92	1.95%	0.15
	4.0	2.0	1.89		0.71		3.78	2.68	6566	1.73	21.64	5.97%	1.29
	6.0	2.0	1.95		0.91		3.90	3.55	8683	2.29	27.74	7.89%	2.19
	8.0	2.0	2.22		0.93		4.44	4.13	10102	2.67	28.35	9.18%	2.60
	10.0	2.0	2.65	1.37		0.96	5.30	6.17	15106	3.99	41.76	13.72%	5.73
	12.0	2.0	2.65	1.36		0.89	5.30	5.96	14588	3.85	41.45	13.25%	5.49
	14.0	2.0	2.60	1.26		1.09	5.20	6.11	14949	3.95	38.40	13.58%	5.22
	16.0	2.0	1.91		1.05		3.82	4.01	9813	2.59	32.00	8.92%	2.85
	18.0	2.0	1.67		0.89		3.34	2.97	7273	1.92	27.13	6.61%	1.79
	20.0	2.0	2.08		1.02		4.16	4.24	10381	2.74	31.09	9.43%	2.93
	22.0	2.0	2.23		0.92		4.46	4.10	10039	2.65	28.04	9.12%	2.56
	24.0	2.0	1.51		0.06		3.02	0.18	443	0.12	1.83	0.40%	0.01
End	25.0												
		25.0	2.01	1.33	0.67	0.98	51.14	44.99	110068	29.08	25.16	100%	32.82
			(cm/s)	40.54	20.54	29.87							



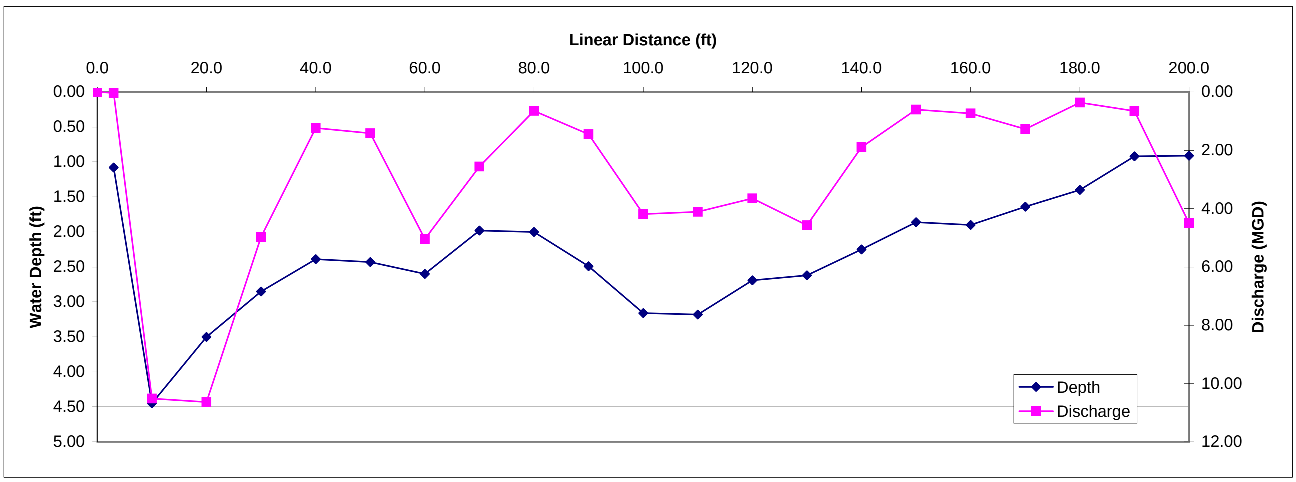
APPENDIX B
RSR-MB2 Marsh McBirney Cross Sectional Flow - 09/05/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	3.0	4.0	1.21		0.36		4.84	1.74	4263	1.13	10.97	3.94%	0.43
	5.0	2.5	1.29		0.69		3.23	2.23	5444	1.44	21.03	5.03%	1.06
	8.0	3.0	1.05		0.21		3.15	0.66	1618	0.43	6.40	1.50%	0.10
	11.0	3.0	1.33		0.74		3.99	2.95	7224	1.91	22.56	6.68%	1.51
	14.0	3.0	1.75		0.62		5.25	3.26	7964	2.10	18.90	7.36%	1.39
	17.0	3.0	2.01		0.90		6.03	5.43	13278	3.51	27.43	12.27%	3.37
	20.0	3.0	1.76		1.25		5.28	6.60	16147	4.27	38.10	14.92%	5.69
	23.0	3.0	2.53	1.30		0.49	7.59	6.79	16620	4.39	39.62	15.36%	6.09
	26.0	3.0	2.48		0.39		7.44	2.90	7099	1.88	11.89	6.56%	0.78
	29.0	3.0	2.99	0.86		0.41	8.97	5.70	13936	3.68	26.21	12.88%	3.38
	32.0	3.0	2.00		0.44		6.00	2.64	6459	1.71	13.41	5.97%	0.80
	35.0	3.0	1.33		0.27		3.99	1.08	2636	0.70	8.23	2.44%	0.20
	38.0	3.0	0.91		0.09		2.73	0.25	601	0.16	2.74	0.56%	0.02
	41.0	3.0	0.70		0.16		2.10	0.34	822	0.22	4.88	0.76%	0.04
	44.0	3.0	0.66		0.33		1.98	0.65	1599	0.42	10.06	1.48%	0.15
	47.0	3.0	0.73		0.23		2.19	0.50	1232	0.33	7.01	1.14%	0.08
	50.0	3.0	0.75		0.23		2.25	0.52	1266	0.33	7.01	1.17%	0.08
	53.0	2.5	0.47		0.21		1.18	0.25	604	0.16	6.40	0.56%	0.04
End	54.0												
		51.5	1.44	1.08	0.45	0.45	77.01	44.23	108207	28.59	15.71	101%	25.18
			(cm/s)	32.92	13.56	13.72							



APPENDIX B
ASC-SEG1-UP Marsh McBirney Cross Sectional Flow - 10/24/06

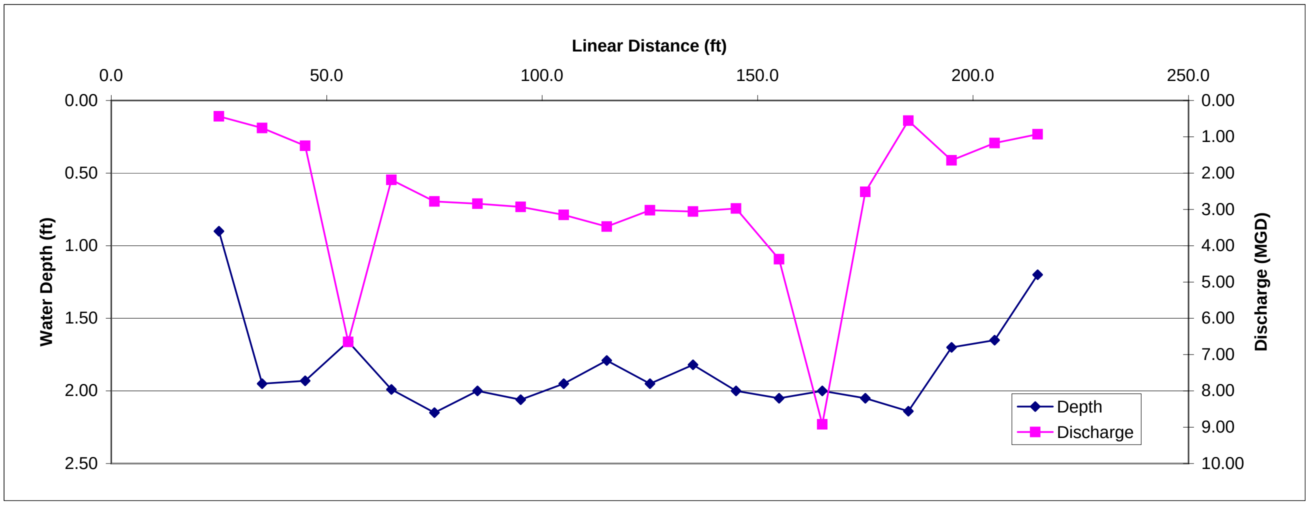
	Distance from Initial Point	Segment Width	Total Depth	Velocity (ft/s)			Segment Area	Discharge			Surface Velocity	Flow proportion	Weighted Velocity
	(ft)	(ft)	(ft)	0.2 x depth	0.6 x depth	0.8 x depth	(ft^2)	(ft^3/s)	(m^3/d)	(MGD)	(cm/s)	(%)	(cm/s)
Start	0.0	1.5					0.00	0.00	0	0.00	0.00	0.00%	0.00
	3.0	5.0	1.08		0.01		5.40	0.05	132	0.03	0.00	0.05%	0.00
	10.0	8.5	4.45	0.61		0.25	37.83	16.26	39793	10.51	18.59	16.16%	3.01
	20.0	10.0	3.50	0.93		0.01	35.00	16.45	40246	10.63	28.35	16.35%	4.63
	30.0	10.0	2.85	0.39		0.15	28.50	7.70	18826	4.97	11.89	7.65%	0.91
	40.0	10.0	2.39		0.08		23.90	1.91	4678	1.24	0.00	1.90%	0.00
	50.0	10.0	2.43		0.09		24.30	2.19	5351	1.41	0.00	2.17%	0.00
	60.0	10.0	2.60	0.55		0.05	26.00	7.80	19083	5.04	16.76	7.75%	1.30
	70.0	10.0	1.98		0.20		19.80	3.96	9688	2.56	0.00	3.94%	0.00
	80.0	10.0	2.00		0.05		20.00	1.00	2447	0.65	0.00	0.99%	0.00
	90.0	10.0	2.49		0.09		24.90	2.24	5483	1.45	0.00	2.23%	0.00
	100.0	10.0	3.16	0.41		0.00	31.60	6.48	15849	4.19	12.50	6.44%	0.80
	110.0	10.0	3.18	0.36		0.04	31.80	6.36	15560	4.11	10.97	6.32%	0.69
	120.0	10.0	2.69	0.40		0.02	26.90	5.65	13821	3.65	12.19	5.61%	0.68
	130.0	10.0	2.62	0.49		0.05	26.20	7.07	17307	4.57	14.94	7.03%	1.05
	140.0	10.0	2.25		0.13		22.50	2.93	7156	1.89	0.00	2.91%	0.00
	150.0	10.0	1.86		0.05		18.60	0.93	2275	0.60	0.00	0.92%	0.00
	160.0	10.0	1.90		0.06		19.00	1.14	2789	0.74	1.83	1.13%	0.02
	170.0	10.0	1.64		0.12		16.40	1.97	4815	1.27	3.66	1.96%	0.07
	180.0	10.0	1.40		0.04		14.00	0.56	1370	0.36	1.22	0.56%	0.01
	190.0	10.0	0.92		0.11		9.20	1.01	2476	0.65	3.35	1.01%	0.03
	200.0	15.0	0.91		0.51		13.65	6.96	17032	4.50	15.54	6.92%	1.08
End	210.0												
		210.0	2.30	0.52	0.12	0.07	475.48	100.62	246178	65.03	6.90	100%	14.289
			cm/s	15.77	3.61	2.17							



APPENDIX B

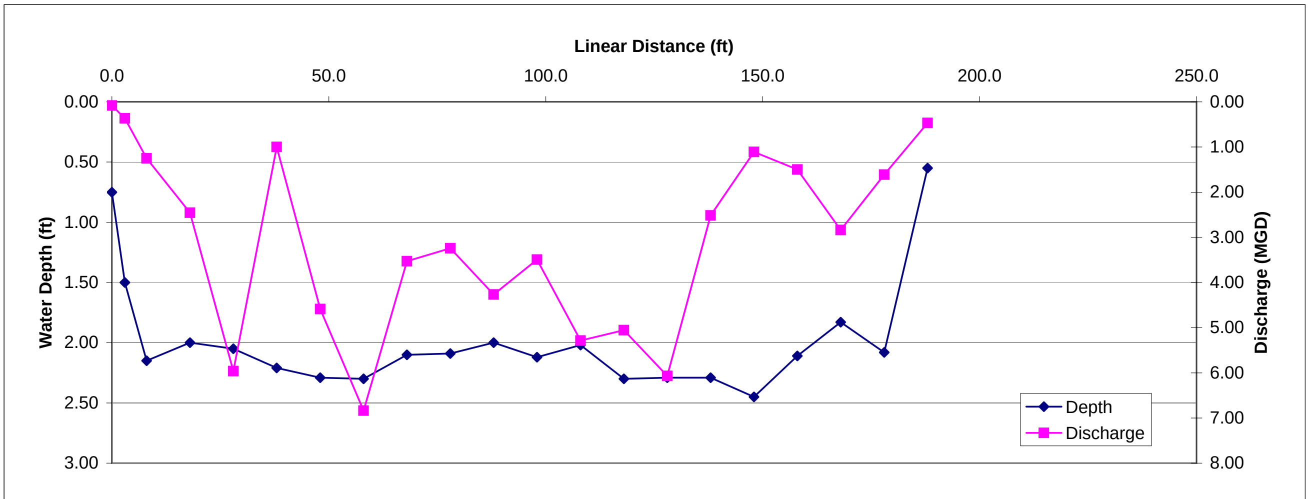
ASC - Seg 1 Down - Marsh McBirney Cross Sectional Flow - 10/24/06

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	25.0												
	35.0	15.0	0.90		0.05		13.50	0.68	1651	0.44	1.52	0.78%	0.01
	45.0	10.0	1.95		0.06		19.50	1.17	2862	0.76	1.83	1.36%	0.02
	55.0	10.0	1.93		0.10		19.30	1.93	4722	1.25	3.05	2.24%	0.07
	65.0	10.0	1.66		0.62		16.60	10.29	25180	6.65	18.90	11.96%	2.26
	75.0	10.0	1.99		0.17		19.90	3.38	8277	2.19	5.18	3.93%	0.20
	85.0	10.0	2.15		0.20		21.50	4.30	10520	2.78	6.10	5.00%	0.30
	95.0	10.0	2.00		0.22		20.00	4.40	10765	2.84	6.71	5.11%	0.34
	105.0	10.0	2.06		0.22		20.60	4.53	11088	2.93	6.71	5.27%	0.35
	115.0	10.0	1.95		0.25		19.50	4.88	11927	3.15	7.62	5.66%	0.43
	125.0	10.0	1.79		0.30		17.90	5.37	13138	3.47	9.14	6.24%	0.57
	135.0	10.0	1.95		0.24		19.50	4.68	11450	3.02	7.32	5.44%	0.40
	145.0	10.0	1.82		0.26		18.20	4.73	11577	3.06	7.92	5.50%	0.44
	155.0	10.0	2.00		0.23		20.00	4.60	11254	2.97	7.01	5.35%	0.37
	165.0	10.0	2.05		0.33		20.50	6.77	16551	4.37	10.06	7.86%	0.79
	175.0	10.0	2.00		0.69		20.00	13.80	33763	8.92	21.03	16.04%	3.37
	185.0	10.0	2.05		0.19		20.50	3.90	9529	2.52	5.79	4.53%	0.26
	195.0	10.0	2.14		0.04		21.40	0.86	2094	0.55	1.22	0.99%	0.01
	205.0	10.0	1.70		0.15		17.00	2.55	6239	1.65	4.57	2.96%	0.14
	215.0	10.0	1.65		0.11		16.50	1.82	4441	1.17	3.35	2.11%	0.07
	225.0	15.0	1.20		0.08		18.00	1.44	3523	0.93	2.44	1.67%	0.04
End	235.0												
		210.0	1.85		0.23		379.90	86.06	210552	55.62	6.87	100%	10.46
			(cm/s)		6.87								



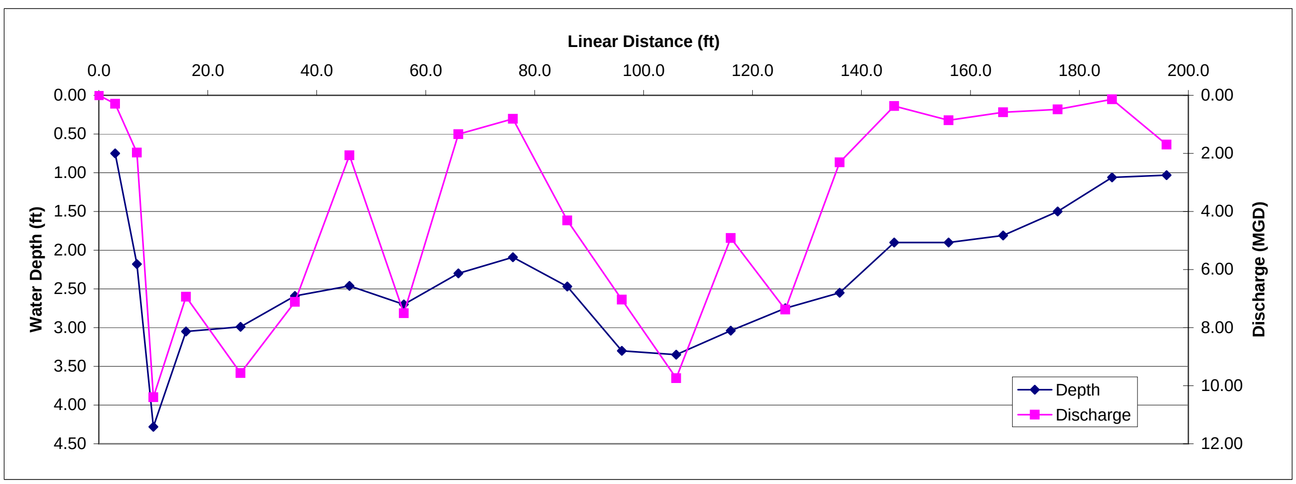
APPENDIX B
ASC - Seg 1 Down - Marsh McBirney Cross Sectional Flow - 1/23/2007

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	3.0	5.5	0.75		0.03		4.13	0.12	303	0.08	0.91	0.13%	0.00
	8.0	7.5	1.50		0.05		11.25	0.56	1376	0.36	1.52	0.57%	0.01
	18.0	10.0	2.15		0.09		21.50	1.94	4734	1.25	2.74	1.97%	0.05
	28.0	10.0	2.00		0.19		20.00	3.80	9297	2.46	5.79	3.87%	0.22
	38.0	10.0	2.05		0.45		20.50	9.23	22570	5.96	13.72	9.39%	1.29
	48.0	10.0	2.21		0.07		22.10	1.55	3785	1.00	2.13	1.57%	0.03
	58.0	10.0	2.29		0.31		22.90	7.10	17368	4.59	9.45	7.22%	0.68
	68.0	10.0	2.30		0.46		23.00	10.58	25885	6.84	14.02	10.76%	1.51
	78.0	10.0	2.10		0.26		21.00	5.46	13358	3.53	7.92	5.56%	0.44
	88.0	10.0	2.09		0.24		20.90	5.02	12272	3.24	7.32	5.10%	0.37
	98.0	10.0	2.00		0.33		20.00	6.60	16147	4.27	10.06	6.72%	0.68
	108.0	15.0	2.12		0.17		31.80	5.41	13226	3.49	5.18	5.50%	0.28
	118.0	15.0	2.02		0.27		30.30	8.18	20015	5.29	8.23	8.32%	0.68
	128.0	10.0	2.30		0.34		23.00	7.82	19132	5.05	10.36	7.96%	0.82
	138.0	10.0	2.29		0.41		22.90	9.39	22971	6.07	12.50	9.55%	1.19
	148.0	10.0	2.29		0.17		22.90	3.89	9525	2.52	5.18	3.96%	0.21
	158.0	10.0	2.45		0.07		24.50	1.72	4196	1.11	2.13	1.74%	0.04
	168.0	10.0	2.11		0.11		21.10	2.32	5679	1.50	3.35	2.36%	0.08
	178.0	10.0	1.83		0.24		18.30	4.39	10745	2.84	7.32	4.47%	0.33
	188.0	10.0	2.08		0.12		20.80	2.50	6107	1.61	3.66	2.54%	0.09
	198.0	11.0	0.55		0.12		6.05	0.73	1776	0.47	3.66	0.74%	0.03
End	204.0												
		214.0	1.98		0.21		428.93	98.29	240467	63.53	6.53	100%	9.05
			(cm/s)		6.53								



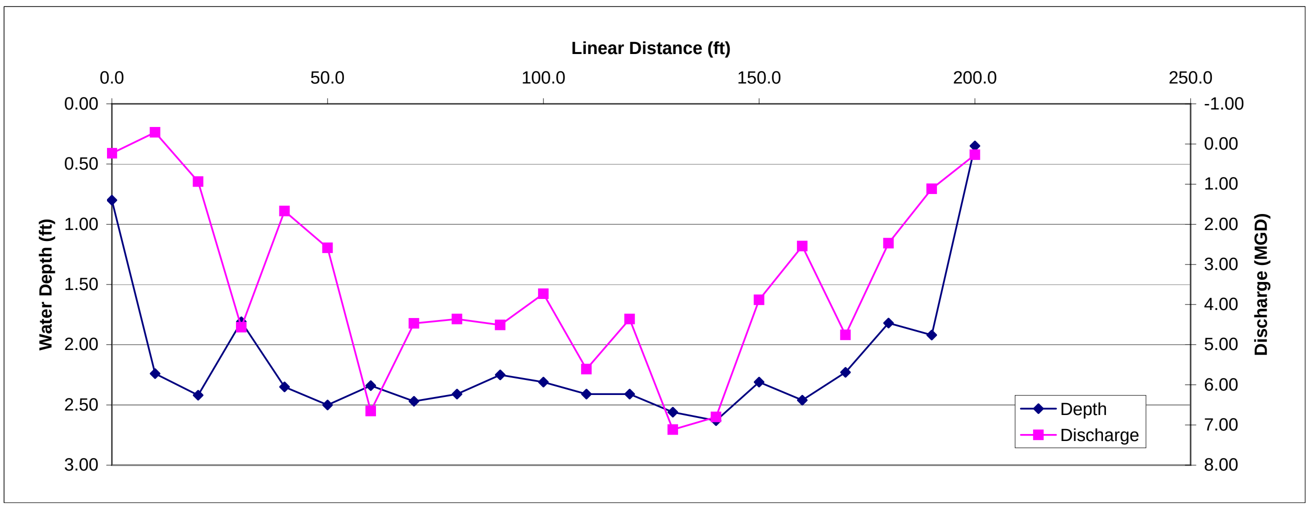
APPENDIX B
ASC-SEG1-UP Marsh McBirney Cross Sectional Flow - 1/23/2007

	Distance from Initial Point (ft)	Segment Width (ft)	Total Depth (ft)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0						0.00	0.00	0	0.00	0.00	0.00%	0.00
	3.0	5.0	0.75		0.12		3.75	0.45	1101	0.29	0.00	0.33%	0.00
	7.0	3.5	2.18		0.40		7.63	3.05	7467	1.97	0.00	2.25%	0.00
	10.0	4.5	4.28	1.10		0.57	19.26	16.08	39346	10.39	33.53	11.84%	3.97
	16.0	8.0	3.05	0.83		0.05	24.40	10.74	26266	6.94	25.30	7.90%	2.00
	26.0	10.0	2.99	0.90		0.09	29.90	14.80	36211	9.57	27.43	10.89%	2.99
	36.0	10.0	2.59	0.78		0.07	25.90	11.01	26931	7.11	23.77	8.10%	1.93
	46.0	10.0	2.46		0.13		24.60	3.20	7824	2.07	0.00	2.35%	0.00
	56.0	10.0	2.70	0.83		0.03	27.00	11.61	28405	7.50	25.30	8.54%	2.16
	66.0	10.0	2.30		0.09		23.00	2.07	5064	1.34	0.00	1.52%	0.00
	76.0	10.0	2.09		0.06		20.90	1.25	3068	0.81	0.00	0.92%	0.00
	86.0	10.0	2.47		0.27		24.70	6.67	16316	4.31	0.00	4.91%	0.00
	96.0	10.0	3.30	0.61		0.05	33.00	10.89	26643	7.04	18.59	8.02%	1.49
	106.0	10.0	3.35	0.83		0.07	33.50	15.08	36882	9.74	25.30	11.10%	2.81
	116.0	10.0	3.04	0.47		0.03	30.40	7.60	18594	4.91	14.33	5.59%	0.80
	126.0	10.0	2.75	0.77		0.06	27.50	11.41	27922	7.38	23.47	8.40%	1.97
	136.0	10.0	2.55	0.15		0.13	25.50	3.57	8734	2.31	4.57	2.63%	0.12
	146.0	10.0	1.90		0.03		19.00	0.57	1395	0.37	0.91	0.42%	0.00
	156.0	10.0	1.90		0.07		19.00	1.33	3254	0.86	2.13	0.98%	0.02
	166.0	10.0	1.81		0.05		18.10	0.91	2214	0.58	1.52	0.67%	0.01
	176.0	10.0	1.50		0.05		15.00	0.75	1835	0.48	1.52	0.55%	0.01
	186.0	10.0	1.06		0.02		10.60	0.21	519	0.14	0.61	0.16%	0.00
	196.0	15.0	1.03		0.17		15.45	2.63	6426	1.70	5.18	1.93%	0.10
End	206.0												
		206.0	2.37	0.73	0.12	0.12	478.09	135.87	332417	87.82	10.15	100%	20.378
			cm/s	22.16	3.71	3.51							



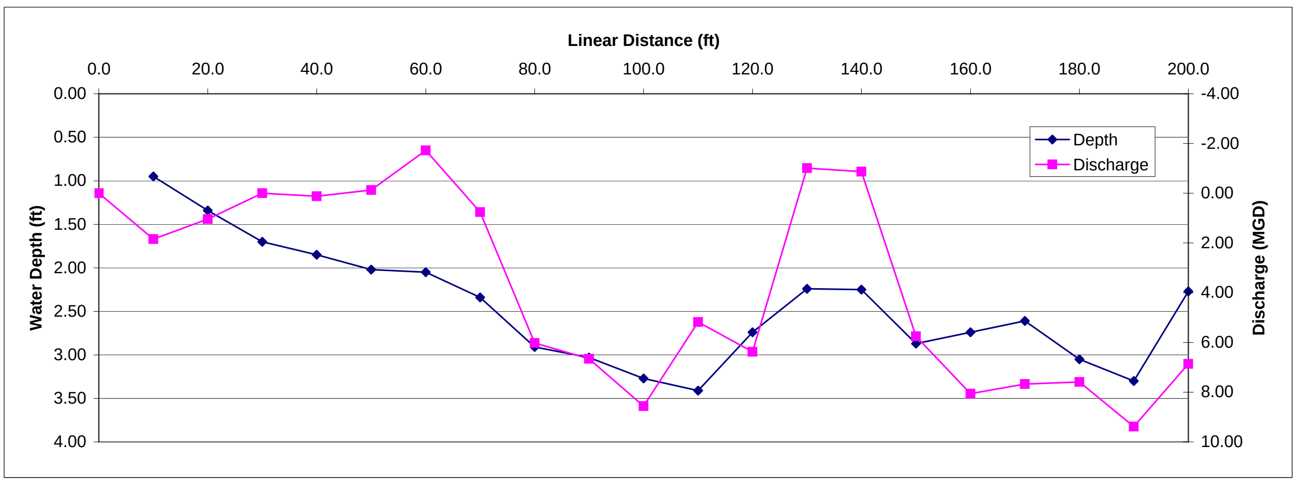
APPENDIX B
ASC - Seg 1 Down - Marsh McBirney Cross Sectional Flow - 2/5/2007

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	10.0	15.0	0.80		0.03		12.00	0.36	881	0.23	0.91	0.32%	0.00
	20.0	10.0	2.24		-0.02		22.40	-0.45	-1096	-0.29	-0.61	-0.40%	0.00
	30.0	10.0	2.42		0.06		24.20	1.45	3552	0.94	1.83	1.30%	0.02
	40.0	10.0	1.81		0.39		18.10	7.06	17270	4.56	11.89	6.31%	0.75
	50.0	10.0	2.35		0.11		23.50	2.59	6324	1.67	3.35	2.31%	0.08
	60.0	10.0	2.50		0.16		25.00	4.00	9786	2.59	4.88	3.57%	0.17
	70.0	10.0	2.34		0.44		23.40	10.30	25190	6.65	13.41	9.20%	1.23
	80.0	10.0	2.47		0.28		24.70	6.92	16921	4.47	8.53	6.18%	0.53
	90.0	10.0	2.41		0.28		24.10	6.75	16509	4.36	8.53	6.03%	0.51
	100.0	10.0	2.25		0.31		22.50	6.98	17065	4.51	9.45	6.23%	0.59
	110.0	10.0	2.31		0.25		23.10	5.78	14129	3.73	7.62	5.16%	0.39
	120.0	10.0	2.41		0.36		24.10	8.68	21226	5.61	10.97	7.75%	0.85
	130.0	10.0	2.41		0.28		24.10	6.75	16509	4.36	8.53	6.03%	0.51
	140.0	10.0	2.56	0.53		0.33	25.60	11.01	26932	7.11	16.15	9.83%	1.59
	150.0	10.0	2.63	0.47		0.33	26.30	10.52	25738	6.80	14.33	9.40%	1.35
	160.0	10.0	2.31		0.26		23.10	6.01	14694	3.88	7.92	5.37%	0.43
	170.0	10.0	2.46		0.16		24.60	3.94	9630	2.54	4.88	3.52%	0.17
	180.0	10.0	2.23		0.33		22.30	7.36	18004	4.76	10.06	6.57%	0.66
	190.0	10.0	1.82		0.21		18.20	3.82	9351	2.47	6.40	3.41%	0.22
	200.0	10.0	1.92		0.09		19.20	1.73	4228	1.12	2.74	1.54%	0.04
	210.0	17.0	0.35		0.07		5.95	0.42	1019	0.27	2.13	0.37%	0.01
End	222.0												
		222.0	2.14	0.50	0.21	0.33	456.45	111.94	273864	72.35	7.33	100%	10.11
			(cm/s)	15.24	6.50	10.06							



APPENDIX B
ASC-SEG1-UP Marsh McBirney Cross Sectional Flow - 2/5/2007

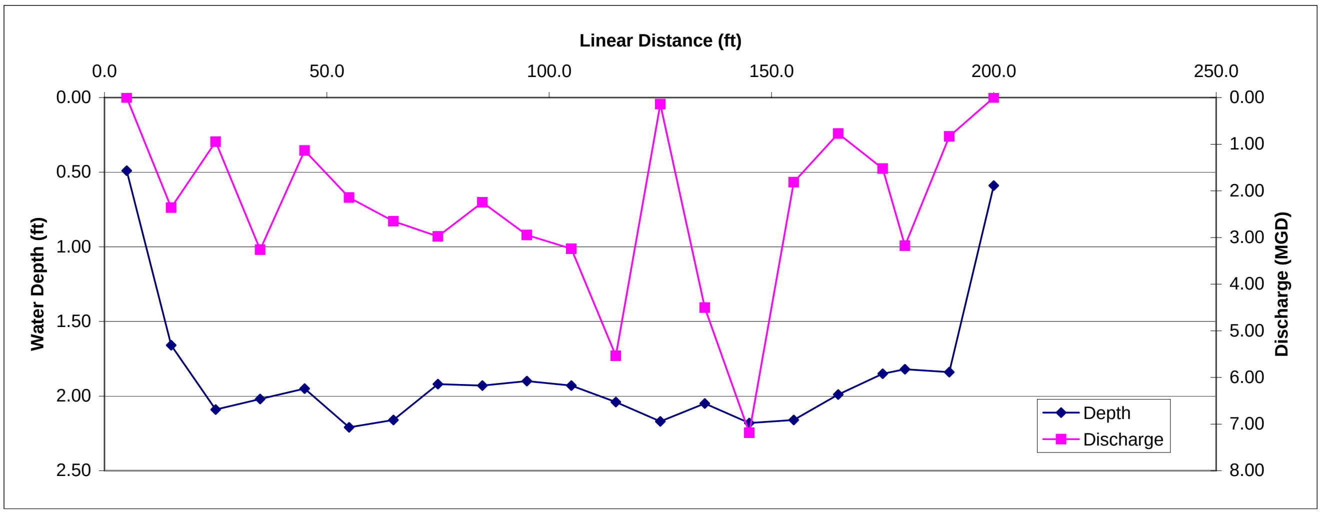
	Distance from Initial Point (ft)	Segment Width (ft)	Total Depth (ft)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0						0.00	0.00	0	0.00	0.00	0.00%	0.00
	10.0	15.0	0.95		0.20		14.25	2.85	6973	1.84	0.00	2.36%	0.00
	20.0	10.0	1.34		0.12		13.40	1.61	3934	1.04	0.00	1.33%	0.00
	30.0	10.0	1.70		0.00		17.00	0.00	0	0.00	0.00	0.00%	0.00
	40.0	10.0	1.85		0.01		18.50	0.19	453	0.12	0.00	0.15%	0.00
	50.0	10.0	2.02		-0.01		20.20	-0.20	-494	-0.13	0.00	-0.17%	0.00
	60.0	10.0	2.05		-0.13		20.50	-2.67	-6520	-1.72	0.00	-2.20%	0.00
	70.0	10.0	2.34		0.05		23.40	1.17	2862	0.76	0.00	0.97%	0.00
	80.0	10.0	2.91	0.64		0.00	29.10	9.31	22783	6.02	19.51	7.70%	1.50
	90.0	10.0	3.03	0.67		0.01	30.30	10.30	25205	6.66	20.42	8.52%	1.74
	100.0	10.0	3.27	0.78		0.03	32.70	13.24	32401	8.56	23.77	10.96%	2.60
	110.0	10.0	3.41	0.49		-0.02	34.10	8.01	19606	5.18	14.94	6.63%	0.99
	120.0	10.0	2.74	0.84		-0.12	27.40	9.86	24133	6.38	25.60	8.16%	2.09
	130.0	10.0	2.24		-0.07		22.40	-1.57	-3836	-1.01	0.00	-1.30%	0.00
	140.0	10.0	2.25		-0.06		22.50	-1.35	-3303	-0.87	0.00	-1.12%	0.00
	150.0	10.0	2.87	0.59		0.03	28.70	8.90	21767	5.75	17.98	7.36%	1.32
	160.0	10.0	2.74	0.84		0.07	27.40	12.47	30501	8.06	25.60	10.31%	2.64
	170.0	10.0	2.61	0.70		0.21	26.10	11.88	29054	7.68	0.00	9.82%	0.00
	180.0	10.0	3.05	0.74		0.03	30.50	11.74	28729	7.59	0.00	9.71%	0.00
	190.0	10.0	3.30	0.83		0.05	33.00	14.52	35524	9.38	0.00	12.01%	0.00
	200.0	13.0	2.27		0.36		29.51	10.62	25991	6.87	10.97	8.79%	0.96
End	208.0												
		208.0	2.45	0.71	0.05	0.03	500.96	120.89	295763	78.13	7.56	100%	13.855
			cm/s	21.70	1.43	0.88							



APPENDIX B

ASC-SEG1-DOWN Marsh McBirney Cross Sectional Flow -5/30/07

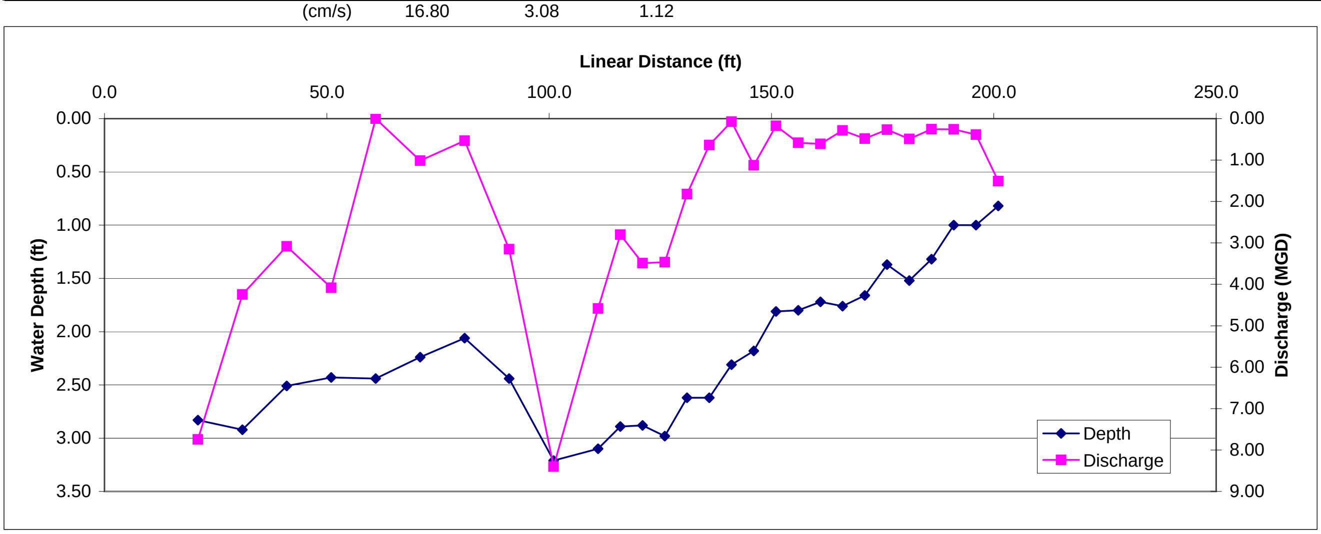
	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	5.0	10.0	0.49		0.00		4.90	0.00	0	0.00	0.00	0.00%	0.00
	15.0	10.0	1.66		0.22		16.60	3.65	8935	2.36	6.71	4.78%	0.32
	25.0	10.0	2.09		0.07		20.90	1.46	3579	0.95	2.13	1.91%	0.04
	35.0	10.0	2.02		0.25		20.20	5.05	12355	3.26	7.62	6.61%	0.50
	45.0	10.0	1.95		0.09		19.50	1.76	4294	1.13	2.74	2.30%	0.06
	55.0	10.0	2.21		0.15		22.10	3.32	8110	2.14	4.57	4.34%	0.20
	65.0	10.0	2.16		0.19		21.60	4.10	10041	2.65	5.79	5.37%	0.31
	75.0	10.0	1.92		0.24		19.20	4.61	11274	2.98	7.32	6.03%	0.44
	85.0	10.0	1.93		0.18		19.30	3.47	8499	2.25	5.49	4.55%	0.25
	95.0	10.0	1.90		0.24		19.00	4.56	11156	2.95	7.32	5.97%	0.44
	105.0	10.0	1.93		0.26		19.30	5.02	12277	3.24	7.92	6.57%	0.52
	115.0	10.0	2.04		0.42		20.40	8.57	20962	5.54	12.80	11.21%	1.44
	125.0	10.0	2.17		0.01		21.70	0.22	531	0.14	0.30	0.28%	0.00
	135.0	10.0	2.05		0.34		20.50	6.97	17053	4.50	10.36	9.12%	0.95
	145.0	10.0	2.18		0.51		21.80	11.12	27201	7.19	15.54	14.55%	2.26
	155.0	10.0	2.16		0.13		21.60	2.81	6870	1.81	3.96	3.67%	0.15
	165.0	10.0	1.99		0.06		19.90	1.19	2921	0.77	1.83	1.56%	0.03
	175.0	7.5	1.85		0.17		13.88	2.36	5771	1.52	5.18	3.09%	0.16
	180.0	7.5	1.82		0.36		13.65	4.91	12022	3.18	10.97	6.43%	0.71
	190.0	10.0	1.84		0.07		18.40	1.29	3151	0.83	2.13	1.69%	0.04
	200.0	10.0	0.59		0.00		5.90	0.00	0	0.00	0.00	0.00%	0.00
End	205.0												
		205.0	1.85		0.19		380.33	76.43	187003	49.40	5.75	100%	8.80
			(cm/s)		5.75								



APPENDIX B

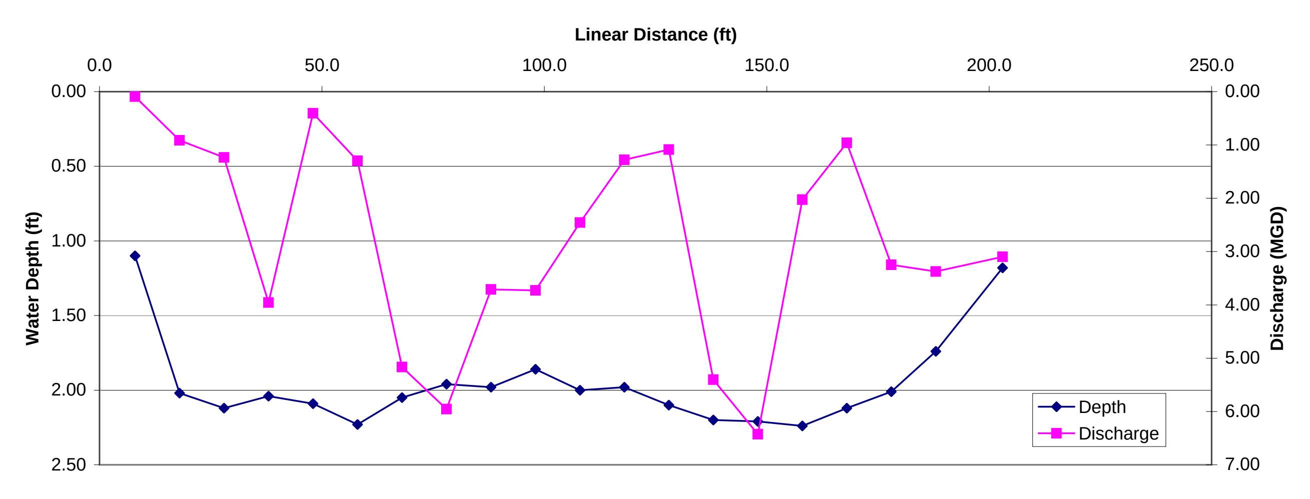
ASC-SEG1-UP Marsh McBirney Cross Sectional Flow -5/30/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	15.0												
	21.0	11.0	2.83	0.73		0.04	31.13	11.99	29322	7.75	22.25	13.94%	3.10
	31.0	10.0	2.92	0.43		0.02	29.20	6.57	16074	4.25	13.11	7.64%	1.00
	41.0	10.0	2.51		0.19		25.10	4.77	11668	3.08	5.79	5.55%	0.32
	51.0	10.0	2.43		0.26		24.30	6.32	15457	4.08	7.92	7.35%	0.58
	61.0	10.0	2.44		0.00		24.40	0.00	0	0.00	0.00	0.00%	0.00
	71.0	10.0	2.24		0.07		22.40	1.57	3836	1.01	2.13	1.82%	0.04
	81.0	10.0	2.06		0.04		20.60	0.82	2016	0.53	1.22	0.96%	0.01
	91.0	10.0	2.44		0.20		24.40	4.88	11939	3.15	6.10	5.68%	0.35
	101.0	10.0	3.21	0.74		0.07	32.10	13.00	31807	8.40	22.56	15.12%	3.41
	111.0	7.5	3.10	0.61		0.00	23.25	7.09	17349	4.58	18.59	8.25%	1.53
	116.0	5.0	2.89	0.52		0.08	14.45	4.34	10606	2.80	15.85	5.04%	0.80
	121.0	5.0	2.88	0.70		0.05	14.40	5.40	13212	3.49	21.34	6.28%	1.34
	126.0	5.0	2.98	0.72		0.00	14.90	5.36	13123	3.47	21.95	6.24%	1.37
	131.0	5.0	2.62	0.41		0.02	13.10	2.82	6891	1.82	12.50	3.28%	0.41
	136.0	5.0	2.62	0.10		0.05	13.10	0.98	2404	0.64	3.05	1.14%	0.03
	141.0	5.0	2.31		0.01		11.55	0.12	283	0.07	0.30	0.13%	0.00
	146.0	5.0	2.18		0.16		10.90	1.74	4267	1.13	4.88	2.03%	0.10
	151.0	5.0	1.81		0.03		9.05	0.27	664	0.18	0.91	0.32%	0.00
	156.0	5.0	1.80		0.10		9.00	0.90	2202	0.58	3.05	1.05%	0.03
	161.0	5.0	1.72		0.11		8.60	0.95	2314	0.61	3.35	1.10%	0.04
	166.0	5.0	1.76		0.05		8.80	0.44	1076	0.28	1.52	0.51%	0.01
	171.0	5.0	1.66		0.09		8.30	0.75	1828	0.48	2.74	0.87%	0.02
	176.0	5.0	1.37		0.06		6.85	0.41	1006	0.27	1.83	0.48%	0.01
	181.0	5.0	1.52		0.10		7.60	0.76	1859	0.49	3.05	0.88%	0.03
	186.0	5.0	1.32		0.06		6.60	0.40	969	0.26	1.83	0.46%	0.01
	191.0	5.0	1.00		0.08		5.00	0.40	979	0.26	2.44	0.47%	0.01
	196.0	5.0	1.00		0.12		5.00	0.60	1468	0.39	3.66	0.70%	0.03
	201.0	15.0	0.82		0.19		12.30	2.34	5718	1.51	5.79	2.72%	0.16
End	211.0												
		198.5	2.16	0.55	0.10	0.04	436.38	85.97	210337	55.57	7.49	100%	14.74
			(cm/s)	16.80	3.08	1.12							



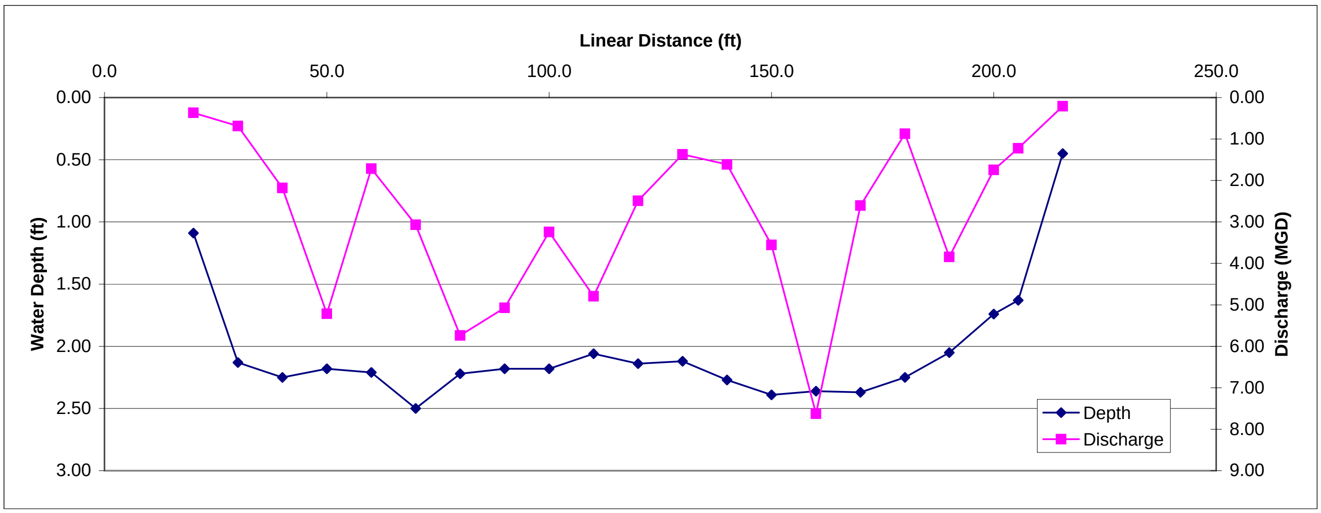
APPENDIX B
ASC-SEG1-DOWN Marsh McBirney Cross Sectional Flow -6/19/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	8.0	13.0	1.10		0.01		14.30	0.14	350	0.09	0.30	0.17%	0.00
	18.0	10.0	2.02		0.07		20.20	1.41	3459	0.91	2.13	1.64%	0.03
	28.0	10.0	2.12		0.09		21.20	1.91	4668	1.23	2.74	2.21%	0.06
	38.0	10.0	2.04		0.30		20.40	6.12	14973	3.96	9.14	7.09%	0.65
	48.0	10.0	2.09		0.03		20.90	0.63	1534	0.41	0.91	0.73%	0.01
	58.0	10.0	2.23		0.09		22.30	2.01	4910	1.30	2.74	2.32%	0.06
	68.0	10.0	2.05		0.39		20.50	8.00	19560	5.17	11.89	9.26%	1.10
	78.0	10.0	1.96		0.47		19.60	9.21	22538	5.95	14.33	10.67%	1.53
	88.0	10.0	1.98		0.29		19.80	5.74	14048	3.71	8.84	6.65%	0.59
	98.0	10.0	1.86		0.31		18.60	5.77	14107	3.73	9.45	6.68%	0.63
	108.0	10.0	2.00		0.19		20.00	3.80	9297	2.46	5.79	4.40%	0.25
	118.0	10.0	1.98		0.10		19.80	1.98	4844	1.28	3.05	2.29%	0.07
	128.0	10.0	2.10		0.08		21.00	1.68	4110	1.09	2.44	1.95%	0.05
	138.0	10.0	2.20		0.38		22.00	8.36	20453	5.40	11.58	9.68%	1.12
	148.0	10.0	2.21		0.45		22.10	9.95	24331	6.43	13.72	11.52%	1.58
	158.0	10.0	2.24		0.14		22.40	3.14	7672	2.03	4.27	3.63%	0.15
	168.0	10.0	2.12		0.07		21.20	1.48	3631	0.96	2.13	1.72%	0.04
	178.0	10.0	2.01		0.25		20.10	5.03	12294	3.25	7.62	5.82%	0.44
	188.0	12.5	1.74		0.24		21.75	5.22	12771	3.37	7.32	6.04%	0.44
	203.0	14.5	1.18		0.28		17.11	4.79	11721	3.10	8.53	5.55%	0.47
End	210.0												
		210.0	1.96		0.21		405.26	86.35	211274	55.81	6.45	100%	9.29
			(cm/s)		6.45								



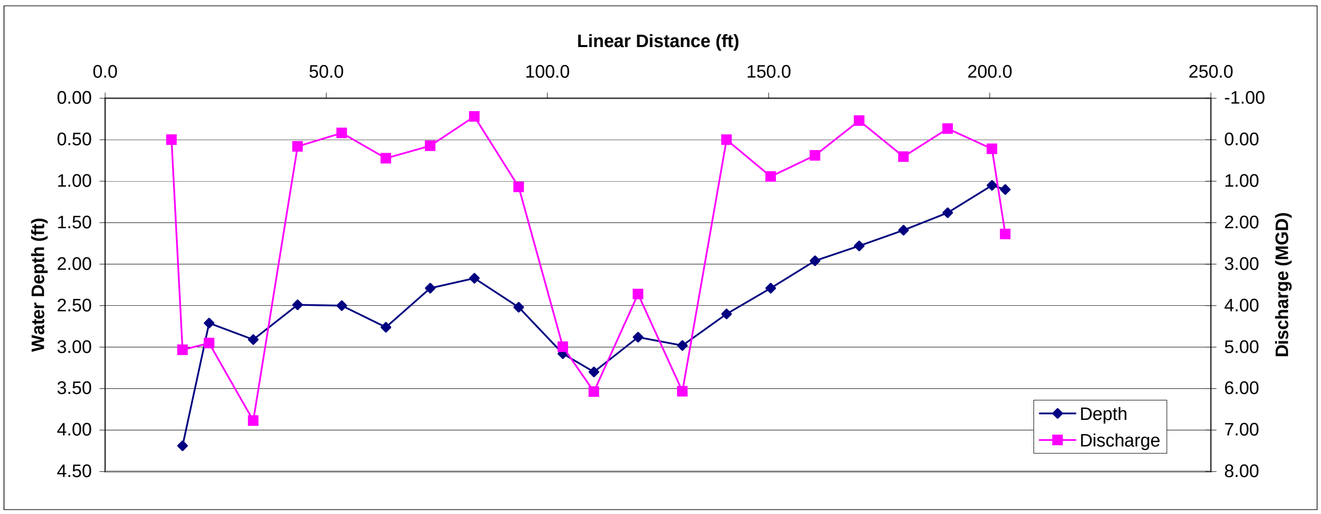
APPENDIX B
ASC-SEG1-DOWN Marsh McBirney Cross Sectional Flow - 07/31/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	12.0												
	20.0	13.0	1.09		0.04		14.17	0.57	1387	0.37	1.22	0.62%	0.01
	30.0	10.0	2.13		0.05		21.30	1.07	2606	0.69	1.52	1.16%	0.02
	40.0	10.0	2.25		0.15		22.50	3.38	8257	2.18	4.57	3.68%	0.17
	50.0	10.0	2.18		0.37		21.80	8.07	19734	5.21	11.28	8.80%	0.99
	60.0	10.0	2.21		0.12		22.10	2.65	6488	1.71	3.66	2.89%	0.11
	70.0	10.0	2.50		0.19		25.00	4.75	11621	3.07	5.79	5.18%	0.30
	80.0	10.0	2.22		0.40		22.20	8.88	21726	5.74	12.19	9.69%	1.18
	90.0	10.0	2.18		0.36		21.80	7.85	19201	5.07	10.97	8.56%	0.94
	100.0	10.0	2.18		0.23		21.80	5.01	12267	3.24	7.01	5.47%	0.38
	110.0	10.0	2.06		0.36		20.60	7.42	18144	4.79	10.97	8.09%	0.89
	120.0	10.0	2.14		0.18		21.40	3.85	9424	2.49	5.49	4.20%	0.23
	130.0	10.0	2.12		0.10		21.20	2.12	5187	1.37	3.05	2.31%	0.07
	140.0	10.0	2.27		0.11		22.70	2.50	6109	1.61	3.35	2.72%	0.09
	150.0	10.0	2.39		0.23		23.90	5.50	13449	3.55	7.01	6.00%	0.42
	160.0	10.0	2.36		0.50		23.60	11.80	28870	7.63	15.24	12.88%	1.96
	170.0	10.0	2.37		0.17		23.70	4.03	9857	2.60	5.18	4.40%	0.23
	180.0	10.0	2.25		0.06		22.50	1.35	3303	0.87	1.83	1.47%	0.03
	190.0	10.0	2.05		0.29		20.50	5.95	14545	3.84	8.84	6.49%	0.57
	200.0	7.8	1.74		0.20		13.49	2.70	6598	1.74	6.10	2.94%	0.18
	205.5	7.8	1.63		0.15		12.63	1.89	4636	1.22	4.57	2.07%	0.09
	215.5	9.0	0.45		0.08		4.05	0.32	793	0.21	2.44	0.35%	0.01
End	219.5												
		207.5	2.04		0.21		422.94	91.64	224201	59.23	6.30	100%	8.87
			(cm/s)		6.30								



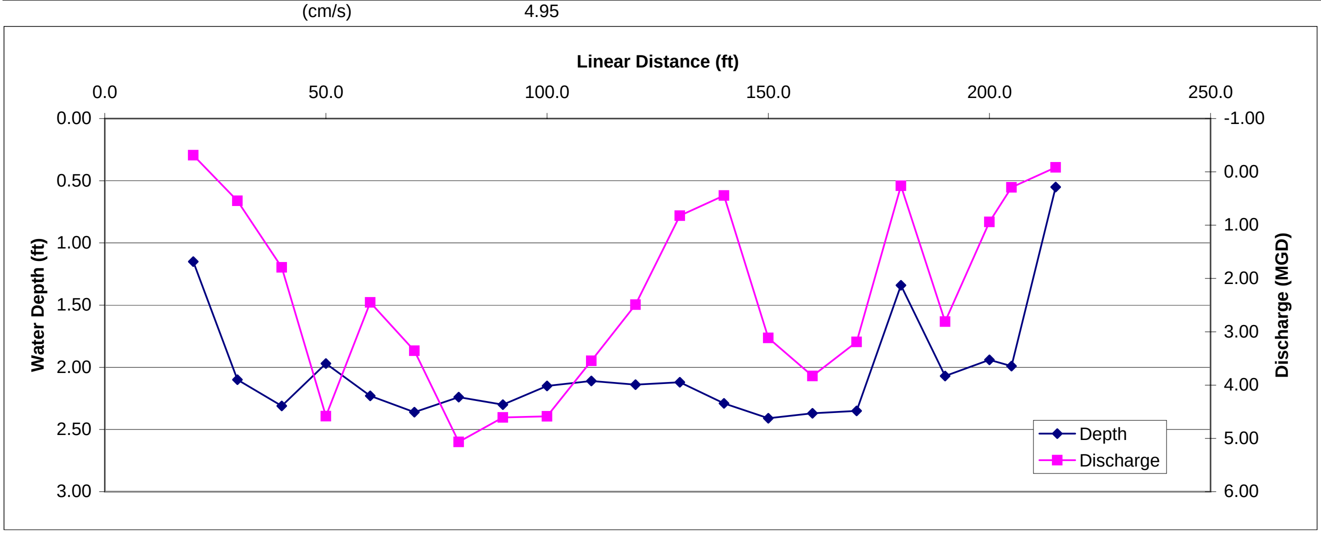
APPENDIX B
ASC-SEG1-UP Marsh McBirney Cross Sectional Flow - 08/15/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	0.6 x depth	0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	(m^3/d)	(MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	15.0	16.3					0.00	0.00	0	0.00	0.00	0.00%	0.00
	17.5	4.3	4.19	0.80		0.08	17.81	7.84	19170	5.06	24.38	12.00%	2.93
	23.5	8.0	2.71	0.73		-0.03	21.68	7.59	18565	4.90	22.25	11.62%	2.59
	33.5	10.0	2.91	0.79		-0.07	29.10	10.48	25630	6.77	24.08	16.04%	3.86
	43.5	10.0	2.49		0.01		24.90	0.25	609	0.16	0.30	0.38%	0.00
	53.5	10.0	2.50		-0.01		25.00	-0.25	-612	-0.16	-0.30	-0.38%	0.00
	63.5	10.0	2.76	0.02		0.03	27.60	0.69	1688	0.45	0.00	1.06%	0.00
	73.5	10.0	2.29		0.01		22.90	0.23	560	0.15	0.61	0.35%	0.00
	83.5	10.0	2.17		-0.04		21.70	-0.87	-2124	-0.56	-1.22	-1.33%	0.02
	93.5	10.0	2.52		0.07		25.20	1.76	4316	1.14	2.13	2.70%	0.06
	103.5	8.5	3.08	0.49		0.10	26.18	7.72	18895	4.99	0.00	11.82%	0.00
	110.5	8.5	3.30	0.61		0.06	28.05	9.40	22990	6.07	14.94	14.39%	2.15
	120.5	10.0	2.88	0.46		-0.06	28.80	5.76	14092	3.72	18.59	8.82%	1.64
	130.5	10.0	2.98	0.57		0.06	29.80	9.39	22966	6.07	14.02	14.37%	2.02
	140.5	10.0	2.60	0.06		-0.06	26.00	0.00	0	0.00	17.37	0.00%	0.00
	150.5	10.0	2.29		0.06		22.90	1.37	3362	0.89	1.83	2.10%	0.04
	160.5	10.0	1.96		0.03		19.60	0.59	1439	0.38	0.91	0.90%	0.01
	170.5	10.0	1.78		-0.04		17.80	-0.71	-1742	-0.46	-1.22	-1.09%	0.01
	180.5	10.0	1.59		0.04		15.90	0.64	1556	0.41	1.22	0.97%	0.01
	190.5	10.0	1.38		-0.03		13.80	-0.41	-1013	-0.27	-0.91	-0.63%	0.01
	200.5	6.5	1.05		0.05		6.83	0.34	835	0.22	1.52	0.52%	0.01
	203.5	5.0	1.10		0.64		5.50	3.52	8612	2.28	19.51	5.39%	1.05
End	210.5												
		207.0	2.41	0.50	0.07	0.01	457.04	65.31	159794	42.21	7.27	100%	16.39
			(cm/s)	15.34	2.01	0.37							



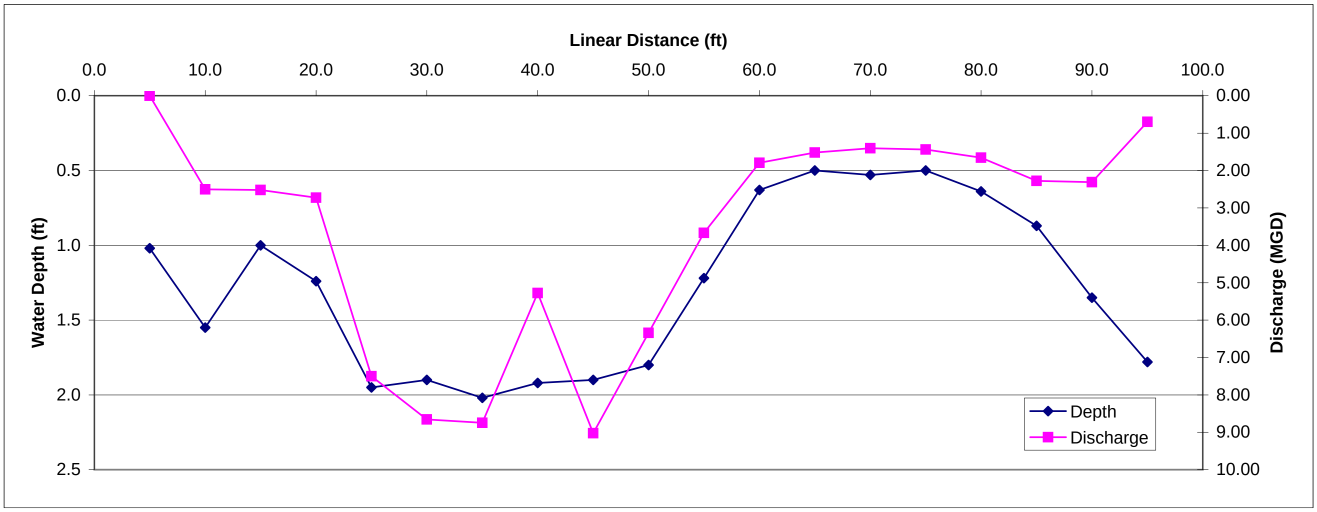
APPENDIX B
ASC-SEG1-DOWN Marsh McBirney Cross Sectional Flow - 08/15/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	11.0												
	20.0	14.0	1.15		-0.03		16.10	-0.48	-1182	-0.31	-0.91	-0.65%	0.01
	30.0	10.0	2.10		0.04		21.00	0.84	2055	0.54	1.22	1.12%	0.01
	40.0	10.0	2.31		0.12		23.10	2.77	6782	1.79	3.66	3.71%	0.14
	50.0	10.0	1.97		0.36		19.70	7.09	17351	4.58	10.97	9.49%	1.04
	60.0	10.0	2.23		0.17		22.30	3.79	9275	2.45	5.18	5.07%	0.26
	70.0	10.0	2.36		0.22		23.60	5.19	12703	3.36	6.71	6.94%	0.47
	80.0	10.0	2.24		0.35		22.40	7.84	19181	5.07	10.67	10.49%	1.12
	90.0	10.0	2.30		0.31		23.00	7.13	17444	4.61	9.45	9.54%	0.90
	100.0	10.0	2.15		0.33		21.50	7.10	17358	4.59	10.06	9.49%	0.95
	110.0	10.0	2.11		0.26		21.10	5.49	13422	3.55	7.92	7.34%	0.58
	120.0	10.0	2.14		0.18		21.40	3.85	9424	2.49	5.49	5.15%	0.28
	130.0	10.0	2.12		0.06		21.20	1.27	3112	0.82	1.83	1.70%	0.03
	140.0	10.0	2.29		0.03		22.90	0.69	1681	0.44	0.91	0.92%	0.01
	150.0	10.0	2.41		0.20		24.10	4.82	11792	3.12	6.10	6.45%	0.39
	160.0	10.0	2.37		0.25		23.70	5.93	14496	3.83	7.62	7.92%	0.60
	170.0	10.0	2.35		0.21		23.50	4.94	12074	3.19	6.40	6.60%	0.42
	180.0	10.0	1.34		0.03		13.40	0.40	984	0.26	0.91	0.54%	0.00
	190.0	10.0	2.07		0.21		20.70	4.35	10635	2.81	6.40	5.81%	0.37
	200.0	7.5	1.94		0.10		14.55	1.46	3560	0.94	3.05	1.95%	0.06
	205.0	7.5	1.99		0.03		14.93	0.45	1095	0.29	0.91	0.60%	0.01
	215.0	12.0	0.55		-0.02		6.60	-0.13	-323	-0.09	-0.61	-0.18%	0.00
End	222.0												
		211.0	2.02		0.16		420.78	74.77	182920	48.32	4.95	100%	7.66
			(cm/s)		4.95								



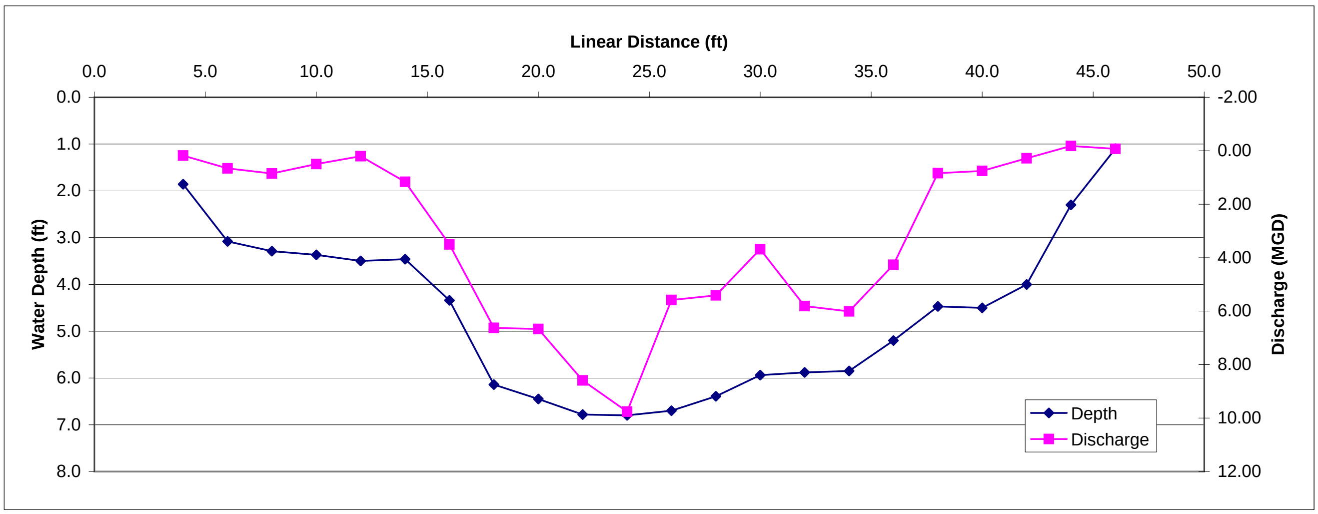
APPENDIX B
JC-SEG1-DOWN Marsh McBirney Cross Sectional Flow - 10/04/06

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	5.0	7.5	1.02		0.00		7.65	0.00	0	0.00	0.00	0.00%	0.00
	10.0	5.0	1.55		0.50		7.75	3.88	9480	2.50	15.24	3.58%	0.54
	15.0	5.0	1.00		0.78		5.00	3.90	9542	2.52	23.77	3.60%	0.86
	20.0	5.0	1.24		0.68		6.20	4.22	10315	2.72	20.73	3.89%	0.81
	25.0	5.0	1.95		1.19		9.75	11.60	28386	7.50	36.27	10.70%	3.88
	30.0	5.0	1.90		1.41		9.50	13.40	32772	8.66	42.98	12.36%	5.31
	35.0	5.0	2.02		1.34		10.10	13.53	33112	8.75	40.84	12.49%	5.10
	40.0	5.0	1.92		0.85		9.60	8.16	19964	5.27	25.91	7.53%	1.95
	45.0	5.0	1.90		1.47		9.50	13.97	34166	9.03	44.81	12.88%	5.77
	50.0	5.0	1.80		1.09		9.00	9.81	24001	6.34	33.22	9.05%	3.01
	55.0	5.0	1.22		0.93		6.10	5.67	13879	3.67	28.35	5.23%	1.48
	60.0	5.0	0.63		0.88		3.15	2.77	6782	1.79	26.82	2.56%	0.69
	65.0	5.0	0.50		0.94		2.50	2.35	5749	1.52	28.65	2.17%	0.62
	70.0	5.0	0.53		0.82		2.65	2.17	5316	1.40	24.99	2.00%	0.50
	75.0	5.0	0.50		0.89		2.50	2.23	5444	1.44	27.13	2.05%	0.56
	80.0	5.0	0.64		0.80		3.20	2.56	6263	1.65	24.38	2.36%	0.58
	85.0	5.0	0.87		0.81		4.35	3.52	8621	2.28	24.69	3.25%	0.80
	90.0	5.0	1.35		0.53		6.75	3.58	8753	2.31	16.15	3.30%	0.53
	95.0	5.5	1.78		0.11		9.79	1.08	2635	0.70	3.35	0.99%	0.03
End	98.0												
		98.0	1.28		0.84		125.04	108.39	265180	70.05	25.70	100%	33.02
			(cm/s)		25.70								



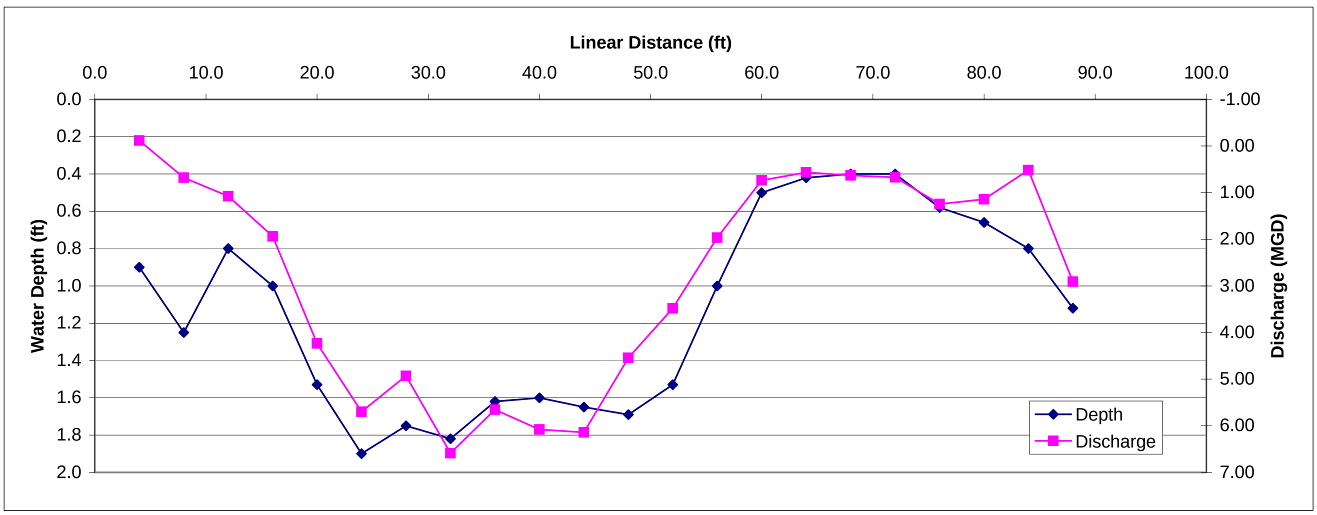
APPENDIX B
JC-SEG1-UP Marsh McBirney Cross Sectional Flow - 10/04/06

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	2.5												
	4.0	2.5	1.86		0.06		4.65	0.28	683	0.18	1.83	0.25%	0.00
	6.0	2.0	3.08	0.12		0.21	6.16	1.02	2487	0.66	3.66	0.92%	0.03
	8.0	2.0	3.29	0.20		0.20	6.58	1.32	3220	0.85	6.10	1.20%	0.07
	10.0	2.0	3.37	0.18		0.05	6.74	0.78	1896	0.50	5.49	0.70%	0.04
	12.0	2.0	3.50	0.08		0.01	7.00	0.32	771	0.20	2.44	0.29%	0.01
	14.0	2.0	3.46	0.26		0.26	6.92	1.80	4402	1.16	7.92	1.64%	0.13
	16.0	2.0	4.34	0.44		0.81	8.68	5.43	13273	3.51	13.41	4.93%	0.66
	18.0	2.0	6.14	0.88		0.79	12.28	10.25	25087	6.63	26.82	9.32%	2.50
	20.0	2.0	6.45	0.86		0.74	12.90	10.32	25249	6.67	26.21	9.38%	2.46
	22.0	2.0	6.78	0.76		1.20	13.56	13.29	32512	8.59	23.16	12.08%	2.80
	24.0	2.0	6.80	0.95		1.27	13.60	15.10	36934	9.76	28.96	13.72%	3.97
	26.0	2.0	6.70	0.74		0.55	13.40	8.64	21146	5.59	22.56	7.86%	1.77
	28.0	2.0	6.39	0.50		0.81	12.78	8.37	20480	5.41	15.24	7.61%	1.16
	30.0	2.0	5.94	0.47		0.49	11.88	5.70	13951	3.69	14.33	5.18%	0.74
	32.0	2.0	5.88	0.63		0.90	11.76	9.00	22010	5.81	19.20	8.18%	1.57
	34.0	2.0	5.85	0.72		0.87	11.70	9.30	22757	6.01	21.95	8.45%	1.86
	36.0	2.0	5.20	0.55		0.72	10.40	6.60	16157	4.27	16.76	6.00%	1.01
	38.0	2.0	4.47	0.01		0.28	8.94	1.30	3171	0.84	0.30	1.18%	0.00
	40.0	2.0	4.50	0.10		0.16	9.00	1.17	2862	0.76	3.05	1.06%	0.03
	42.0	2.0	4.00	0.02		0.09	8.00	0.44	1076	0.28	0.61	0.40%	0.00
	44.0	2.0	2.30		-0.06		4.60	-0.28	-675	-0.18	-1.83	-0.25%	0.00
	46.0	2.0	1.10		-0.05		2.20	-0.11	-269	-0.07	-1.52	-0.10%	0.00
End	47.0												
		44.5	4.61	0.45	-0.02	0.55	203.73	110.02	269179	71.11	11.67	100%	20.83
			(cm/s)	13.59	-0.51	16.70							



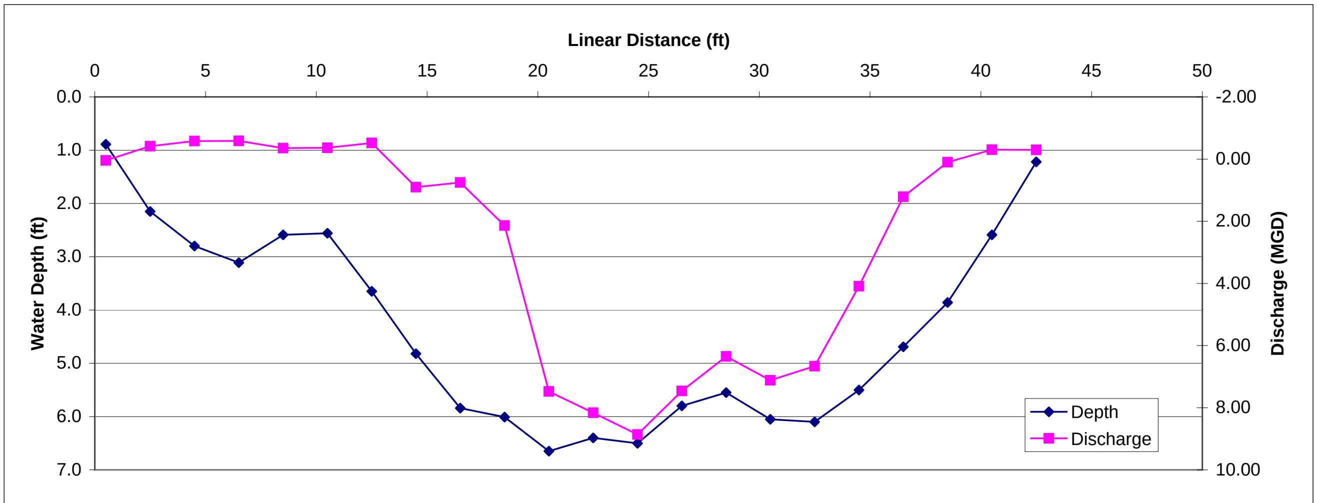
APPENDIX B
JC-SEG1-DOWN Marsh McBirney Cross Sectional Flow - 1/3/2007

	Distance from Initial Point	Segment Width	Total Depth	Velocity (ft/s)			Segment Area	Discharge			Surface Velocity	Flow proportion	Weighted Velocity
	(ft.)	(ft.)	(ft.)	0.2 x depth	0.6 x depth	0.8 x depth	(ft^2)	(ft^3/s)	(m^3/d)	(MGD)	(cm/s)	(%)	(cm/s)
Start	2.0												
	4.0	4.0	0.90		-0.05		3.60	-0.18	-440	-0.12	-1.52	-0.19%	0.00
	8.0	4.0	1.25		0.21		5.00	1.05	2569	0.68	6.40	1.11%	0.07
	12.0	4.0	0.80		0.52		3.20	1.66	4071	1.08	15.85	1.75%	0.28
	16.0	4.0	1.00		0.75		4.00	3.00	7340	1.94	22.86	3.16%	0.72
	20.0	4.0	1.53		1.07		6.12	6.55	16021	4.23	32.61	6.90%	2.25
	24.0	4.0	1.90		1.16		7.60	8.82	21569	5.70	35.36	9.29%	3.29
	28.0	4.0	1.75		1.09		7.00	7.63	18667	4.93	33.22	8.04%	2.67
	32.0	4.0	1.82		1.40		7.28	10.19	24936	6.59	42.67	10.74%	4.58
	36.0	4.0	1.62		1.35		6.48	8.75	21403	5.65	41.15	9.22%	3.79
	40.0	4.0	1.60		1.47		6.40	9.41	23017	6.08	44.81	9.92%	4.44
	44.0	4.0	1.65		1.44		6.60	9.50	23252	6.14	43.89	10.02%	4.40
	48.0	4.0	1.69		1.04		6.76	7.03	17200	4.54	31.70	7.41%	2.35
	52.0	4.0	1.53		0.88		6.12	5.39	13176	3.48	26.82	5.68%	1.52
	56.0	4.0	1.00		0.76		4.00	3.04	7438	1.96	23.16	3.20%	0.74
	60.0	4.0	0.50		0.57		2.00	1.14	2789	0.74	17.37	1.20%	0.21
	64.0	4.0	0.42		0.52		1.68	0.87	2137	0.56	15.85	0.92%	0.15
	68.0	4.0	0.40		0.61		1.60	0.98	2388	0.63	18.59	1.03%	0.19
	72.0	4.0	0.40		0.65		1.60	1.04	2544	0.67	19.81	1.10%	0.22
	76.0	4.0	0.58		0.83		2.32	1.93	4711	1.24	25.30	2.03%	0.51
	80.0	4.0	0.66		0.67		2.64	1.77	4328	1.14	20.42	1.86%	0.38
	84.0	4.0	0.80		0.25		3.20	0.80	1957	0.52	7.62	0.84%	0.06
	88.0	6.0	1.12		0.67		6.72	4.50	11015	2.91	20.42	4.75%	0.97
End	92.0												
		90.0	1.13		0.81		101.92	94.86	232089	61.31	24.74	100%	33.81
			(cm/s)		24.74								



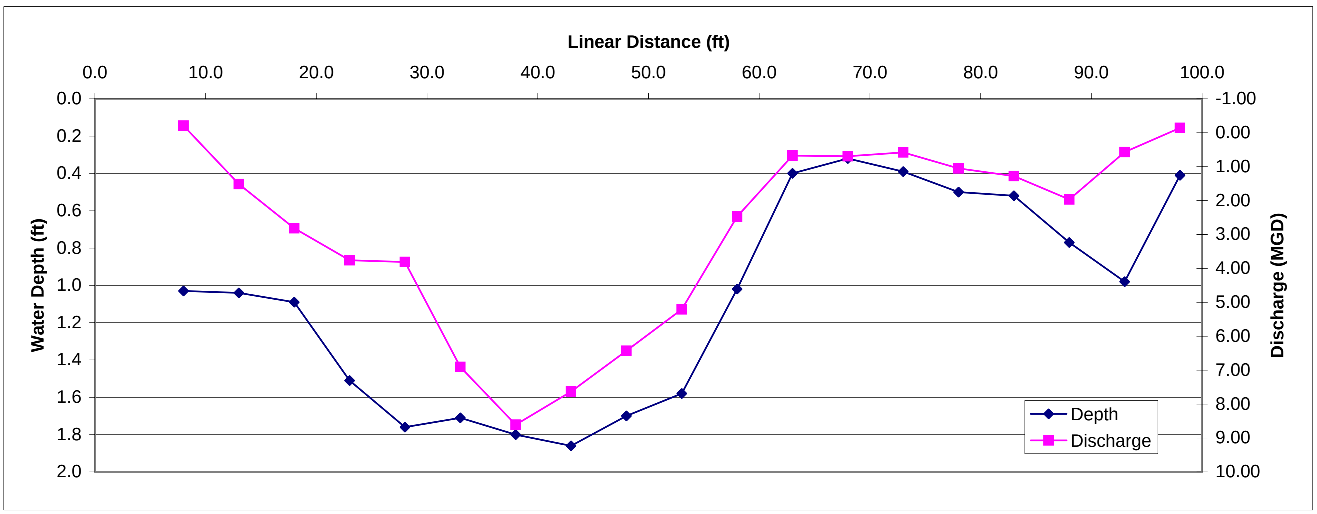
APPENDIX B
JC-SEG1-UP Marsh McBirney Cross Sectional Flow - 1/3/2007

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0												
	0.5	1.5	0.89		0.05		1.34	0.07	163	0.04	1.52	0.07%	0.00
	2.5	2.0	2.15		-0.15		4.30	-0.65	-1578	-0.42	-4.57	-0.72%	0.03
	4.5	2.0	2.80	-0.15		-0.17	5.60	-0.90	-2192	-0.58	-4.57	-1.00%	0.05
	6.5	2.0	3.11	-0.25		-0.04	6.22	-0.90	-2207	-0.58	-7.62	-1.01%	0.08
	8.5	2.0	2.59	-0.14		-0.07	5.18	-0.54	-1331	-0.35	-4.27	-0.61%	0.03
	10.5	2.0	2.56	-0.10		-0.12	5.12	-0.56	-1378	-0.36	-3.05	-0.63%	0.02
	12.5	2.0	3.65	-0.13		-0.09	7.30	-0.80	-1965	-0.52	-3.96	-0.90%	0.04
	14.5	2.0	4.82	0.01		0.28	9.64	1.40	3420	0.90	0.30	1.56%	0.00
	16.5	2.0	5.84	-0.07		0.27	11.68	1.17	2858	0.75	-2.13	1.30%	-0.03
	18.5	2.0	6.01	-0.08		0.63	12.02	3.31	8087	2.14	-2.44	3.69%	-0.09
	20.5	2.0	6.65	0.55		1.19	13.30	11.57	28309	7.48	16.76	12.91%	2.16
	22.5	2.0	6.40	0.82		1.15	12.80	12.63	30893	8.16	24.99	14.09%	3.52
	24.5	2.0	6.50	0.86		1.25	13.00	13.72	33555	8.86	26.21	15.30%	4.01
	26.5	2.0	5.80	1.09		0.90	11.60	11.54	28238	7.46	33.22	12.88%	4.28
	28.5	2.0	5.55	0.84		0.93	11.10	9.82	24034	6.35	25.60	10.96%	2.81
	30.5	2.0	6.05	0.96		0.86	12.10	11.01	26939	7.12	29.26	12.29%	3.60
	32.5	2.0	6.10	0.90		0.79	12.20	10.31	25222	6.66	27.43	11.50%	3.16
	34.5	2.0	5.50	0.50		0.65	11.00	6.33	15475	4.09	15.24	7.06%	1.08
	36.5	2.0	4.69	-0.02		0.42	9.38	1.88	4590	1.21	-0.61	2.09%	-0.01
	38.5	2.0	3.86	-0.08		0.12	7.72	0.15	378	0.10	-2.44	0.17%	0.00
	40.5	2.0	2.59	-0.07		-0.11	5.18	-0.47	-1141	-0.30	-2.13	-0.52%	0.01
	42.5	2.5	1.22		-0.15		3.05	-0.46	-1119	-0.30	-4.57	-0.51%	0.02
End	44												
		44.0	4.33	0.29	-0.08	0.47	190.83	89.62	219251	57.92	7.19	100%	24.75
			(cm/s)	8.73	-2.54	14.19							



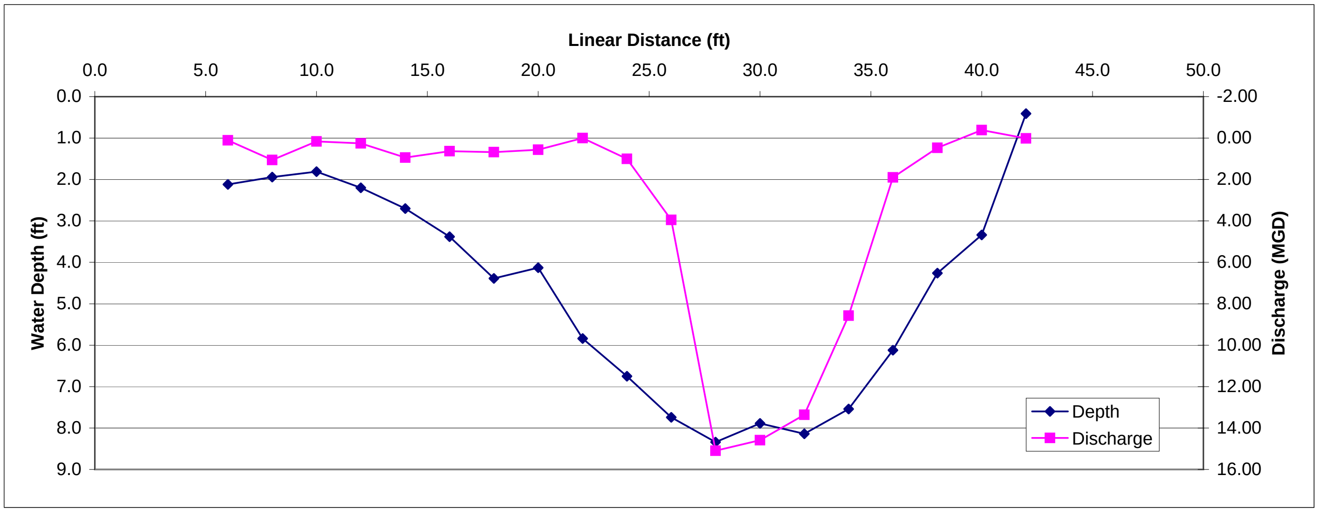
APPENDIX B
JC-SEG1-DOWN Marsh McBirney Cross Sectional Flow - 1/17/2007

	Distance from Initial Point	Segment Width	Total Depth	Velocity (ft/s)			Segment Area	Discharge			Surface Velocity	Flow proportion	Weighted Velocity
	(ft.)	(ft.)	(ft.)	0.2 x depth	0.6 x depth	0.8 x depth	(ft^2)	(ft^3/s)	(m^3/d)	(MGD)	(cm/s)	(%)	(cm/s)
Start	0.0												
	8.0	10.5	1.03		-0.03		10.82	-0.32	-794	-0.21	-0.91	-0.38%	0.00
	13.0	5.0	1.04		0.45		5.20	2.34	5725	1.51	13.72	2.72%	0.37
	18.0	5.0	1.09		0.80		5.45	4.36	10667	2.82	24.38	5.07%	1.24
	23.0	5.0	1.51		0.77		7.55	5.81	14223	3.76	23.47	6.76%	1.59
	28.0	5.0	1.76		0.67		8.80	5.90	14425	3.81	20.42	6.85%	1.40
	33.0	5.0	1.71		1.25		8.55	10.69	26148	6.91	38.10	12.42%	4.73
	38.0	5.0	1.80		1.48		9.00	13.32	32588	8.61	45.11	15.48%	6.98
	43.0	5.0	1.86		1.27		9.30	11.81	28897	7.63	38.71	13.73%	5.31
	48.0	5.0	1.70		1.17		8.50	9.95	24331	6.43	35.66	11.56%	4.12
	53.0	5.0	1.58		1.02		7.90	8.06	19715	5.21	31.09	9.37%	2.91
	58.0	5.0	1.02		0.75		5.10	3.83	9358	2.47	22.86	4.45%	1.02
	63.0	5.0	0.40		0.52		2.00	1.04	2544	0.67	15.85	1.21%	0.19
	68.0	5.0	0.32		0.67		1.60	1.07	2623	0.69	20.42	1.25%	0.25
	73.0	5.0	0.39		0.46		1.95	0.90	2195	0.58	14.02	1.04%	0.15
	78.0	5.0	0.50		0.65		2.50	1.63	3976	1.05	19.81	1.89%	0.37
	83.0	5.0	0.52		0.76		2.60	1.98	4834	1.28	23.16	2.30%	0.53
	88.0	5.0	0.77		0.79		3.85	3.04	7441	1.97	24.08	3.53%	0.85
	93.0	5.0	0.98		0.18		4.90	0.88	2158	0.57	5.49	1.03%	0.06
	98.0	4.5	0.41		-0.12		1.85	-0.22	-542	-0.14	-3.66	-0.26%	0.01
End	100.0												
		100.0	1.07		0.71		107.41	86.04	210512	55.61	21.67	100%	32.09
			(cm/s)		21.67								



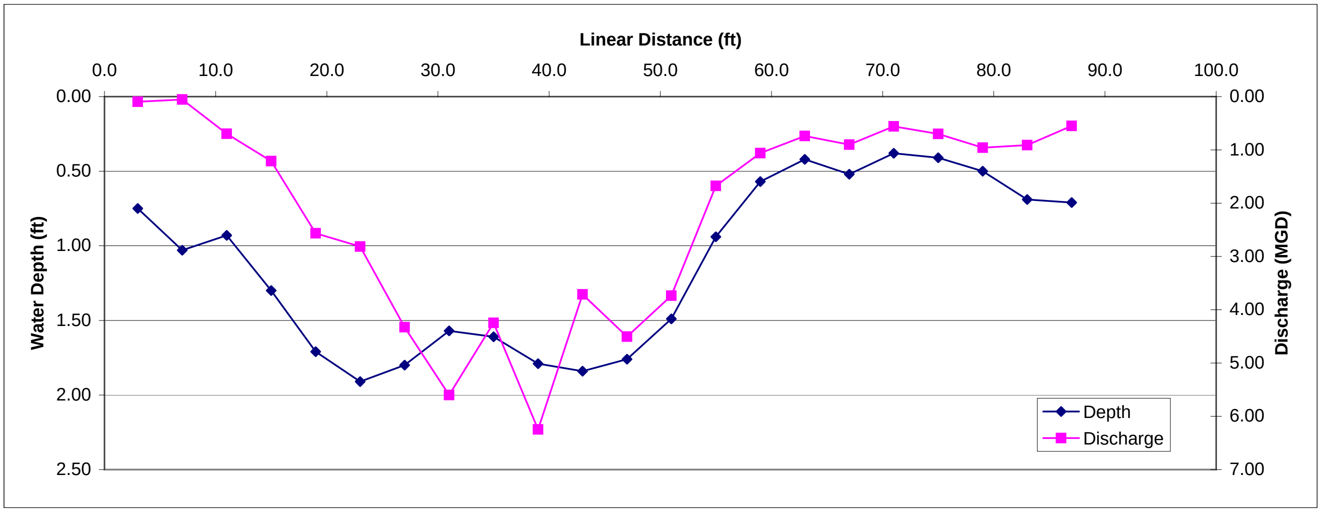
APPENDIX B
JC-SEG1-UP Marsh McBirney Cross Sectional Flow - 1/17/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	5.0												
	6.0	2.0	2.12		0.04		4.24	0.17	415	0.11	1.22	0.17%	0.00
	8.0	2.0	1.94		0.42		3.88	1.63	3987	1.05	12.80	1.67%	0.21
	10.0	2.0	1.81		0.07		3.62	0.25	620	0.16	2.13	0.26%	0.01
	12.0	2.0	2.20		0.09		4.40	0.40	969	0.26	2.74	0.41%	0.01
	14.0	2.0	2.70	0.51		0.03	5.40	1.46	3567	0.94	15.54	1.50%	0.23
	16.0	2.0	3.38	0.40		-0.11	6.76	0.98	2398	0.63	12.19	1.01%	0.12
	18.0	2.0	4.39	0.25		-0.01	8.78	1.05	2578	0.68	7.62	1.08%	0.08
	20.0	2.0	4.13	0.21		0.00	8.26	0.87	2122	0.56	6.40	0.89%	0.06
	22.0	2.0	5.84	0.14		-0.14	11.68	0.00	0	0.00	4.27	0.00%	0.00
	24.0	2.0	6.75	0.17		0.06	13.50	1.55	3798	1.00	5.18	1.59%	0.08
	26.0	2.0	7.74	0.48		0.31	15.48	6.11	14960	3.95	14.63	6.28%	0.92
	28.0	2.0	8.34	1.63		1.17	16.68	23.35	57132	15.09	49.68	23.97%	11.91
	30.0	2.0	7.89	1.97		0.89	15.78	22.57	55208	14.58	60.05	23.16%	13.91
	32.0	2.0	8.14	1.89		0.65	16.28	20.68	50584	13.36	57.61	21.22%	12.23
	34.0	2.0	7.54	0.94		0.82	15.08	13.27	32467	8.58	28.65	13.62%	3.90
	36.0	2.0	6.12	0.30		0.18	12.24	2.94	7187	1.90	9.14	3.02%	0.28
	38.0	2.0	4.26	0.32		-0.15	8.52	0.72	1772	0.47	9.75	0.74%	0.07
	40.0	2.0	3.34	-0.04		-0.14	6.68	-0.60	-1471	-0.39	-1.22	-0.62%	0.01
	42.0	2.0	0.41		0.03		0.82	0.02	60	0.02	0.91	0.03%	0.00
End	43.0												
		38.0	4.69	0.66	0.13	0.25	178.08	97.42	238354	62.97	15.75	100%	44.03
			(cm/s)	19.96	3.96	7.75							



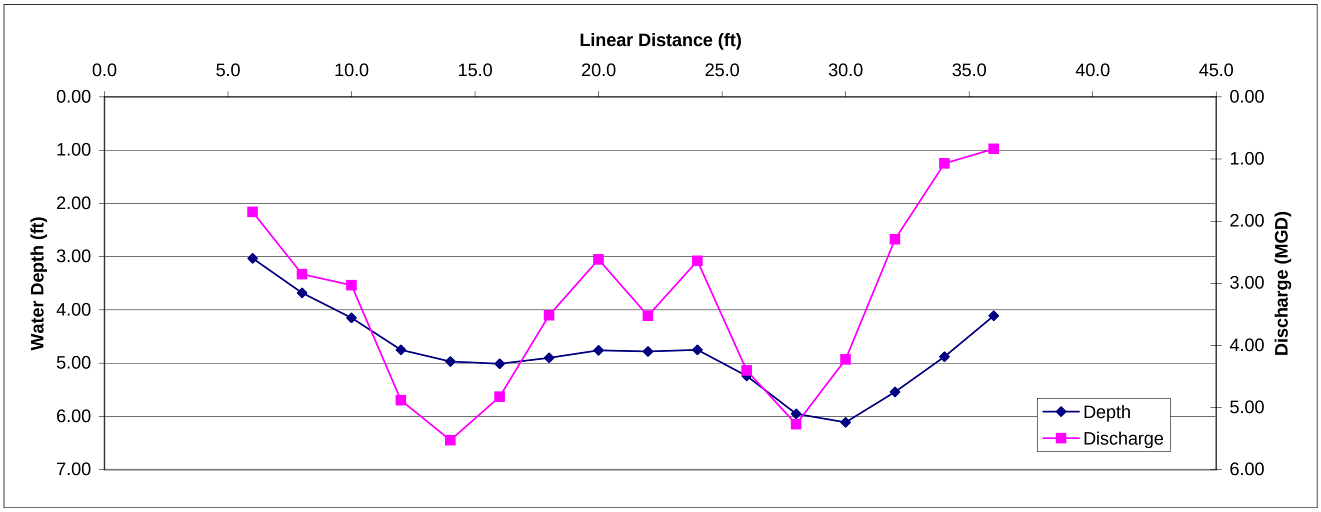
APPENDIX B
JC-SEG1-DOWN Marsh McBirney Cross Sectional Flow - 05/30/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	3.0	5.0	0.75		0.04		3.75	0.15	367	0.10	1.22	0.20%	0.00
	7.0	4.0	1.03		0.02		4.12	0.08	202	0.05	0.61	0.11%	0.00
	11.0	4.0	0.93		0.29		3.72	1.08	2639	0.70	8.84	1.46%	0.13
	15.0	4.0	1.30		0.36		5.20	1.87	4580	1.21	10.97	2.53%	0.28
	19.0	4.0	1.71		0.58		6.84	3.97	9706	2.56	17.68	5.36%	0.95
	23.0	4.0	1.91		0.57		7.64	4.35	10654	2.81	17.37	5.88%	1.02
	27.0	4.0	1.80		0.93		7.20	6.70	16382	4.33	28.35	9.04%	2.56
	31.0	4.0	1.57		1.38		6.28	8.67	21203	5.60	42.06	11.70%	4.92
	35.0	4.0	1.61		1.02		6.44	6.57	16071	4.25	31.09	8.87%	2.76
	39.0	4.0	1.79		1.35		7.16	9.67	23649	6.25	41.15	13.05%	5.37
	43.0	4.0	1.84		0.78		7.36	5.74	14045	3.71	23.77	7.75%	1.84
	47.0	4.0	1.76		0.99		7.04	6.97	17052	4.50	30.18	9.41%	2.84
	51.0	4.0	1.49		0.97		5.96	5.78	14144	3.74	29.57	7.81%	2.31
	55.0	4.0	0.94		0.69		3.76	2.59	6347	1.68	21.03	3.50%	0.74
	59.0	4.0	0.57		0.72		2.28	1.64	4016	1.06	21.95	2.22%	0.49
	63.0	4.0	0.42		0.68		1.68	1.14	2795	0.74	20.73	1.54%	0.32
	67.0	4.0	0.52		0.67		2.08	1.39	3410	0.90	20.42	1.88%	0.38
	71.0	4.0	0.38		0.57		1.52	0.87	2120	0.56	17.37	1.17%	0.20
	75.0	4.0	0.41		0.66		1.64	1.08	2648	0.70	20.12	1.46%	0.29
	79.0	4.0	0.50		0.74		2.00	1.48	3621	0.96	22.56	2.00%	0.45
	83.0	4.0	0.69		0.51		2.76	1.41	3444	0.91	15.54	1.90%	0.30
	87.0	5.0	0.71		0.24		3.55	0.85	2084	0.55	7.32	1.15%	0.08
End	90.0												
		90.0	1.12		0.67		99.98	74.05	181180	47.86	20.45	100%	28.24
			(cm/s)		20.45								



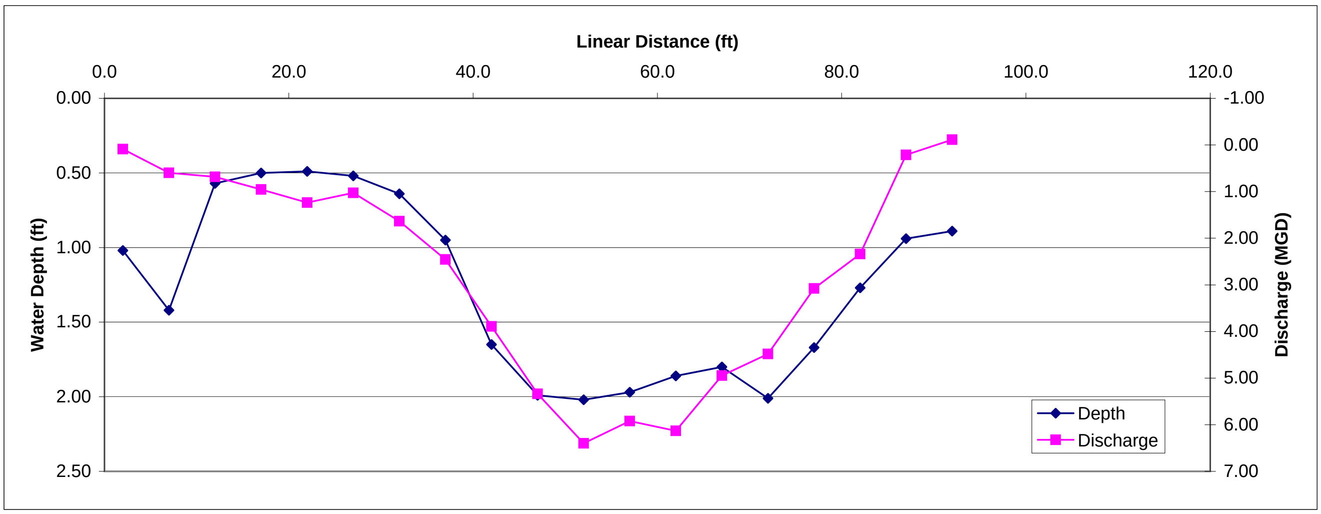
APPENDIX B
JC-SEG1-UP Marsh McBirney Cross Sectional Flow - 05/30/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	6.0	7.0	3.03	0.21		0.06	21.21	2.86	7005	1.85	6.40	3.47%	0.22
	8.0	2.0	3.68	0.28		0.92	7.36	4.42	10804	2.85	8.53	5.35%	0.46
	10.0	2.0	4.15	0.43		0.70	8.30	4.69	11473	3.03	13.11	5.68%	0.74
	12.0	2.0	4.75	0.60		0.99	9.50	7.55	18478	4.88	18.29	9.15%	1.67
	14.0	2.0	4.97	0.77		0.95	9.94	8.55	20914	5.53	23.47	10.35%	2.43
	16.0	2.0	5.01	0.68		0.81	10.02	7.46	18263	4.82	20.73	9.04%	1.87
	18.0	2.0	4.90	0.58		0.53	9.80	5.44	13307	3.52	17.68	6.59%	1.16
	20.0	2.0	4.76	0.45		0.40	9.52	4.05	9899	2.62	13.72	4.90%	0.67
	22.0	2.0	4.78	0.46		0.68	9.56	5.45	13332	3.52	14.02	6.60%	0.93
	24.0	2.0	4.75	0.57		0.29	9.50	4.09	9994	2.64	17.37	4.95%	0.86
	26.0	2.0	5.24	0.55		0.75	10.48	6.81	16666	4.40	16.76	8.25%	1.38
	28.0	2.0	5.95	0.49		0.88	11.90	8.15	19943	5.27	14.94	9.87%	1.47
	30.0	2.0	6.11	0.49		0.58	12.22	6.54	15995	4.23	14.94	7.92%	1.18
	32.0	2.0	5.54	0.10		0.54	11.08	3.55	8675	2.29	3.05	4.29%	0.13
	34.0	2.0	4.88	0.04		0.30	9.76	1.66	4059	1.07	1.22	2.01%	0.02
	36.0	7.0	4.11	0.02		0.07	28.77	1.29	3167	0.84	0.61	1.57%	0.01
End	42.0												
		42.0	4.79	0.42		0.59	188.92	82.55	201976	53.36	12.80	100%	15.23
			(cm/s)	12.80		18.00							



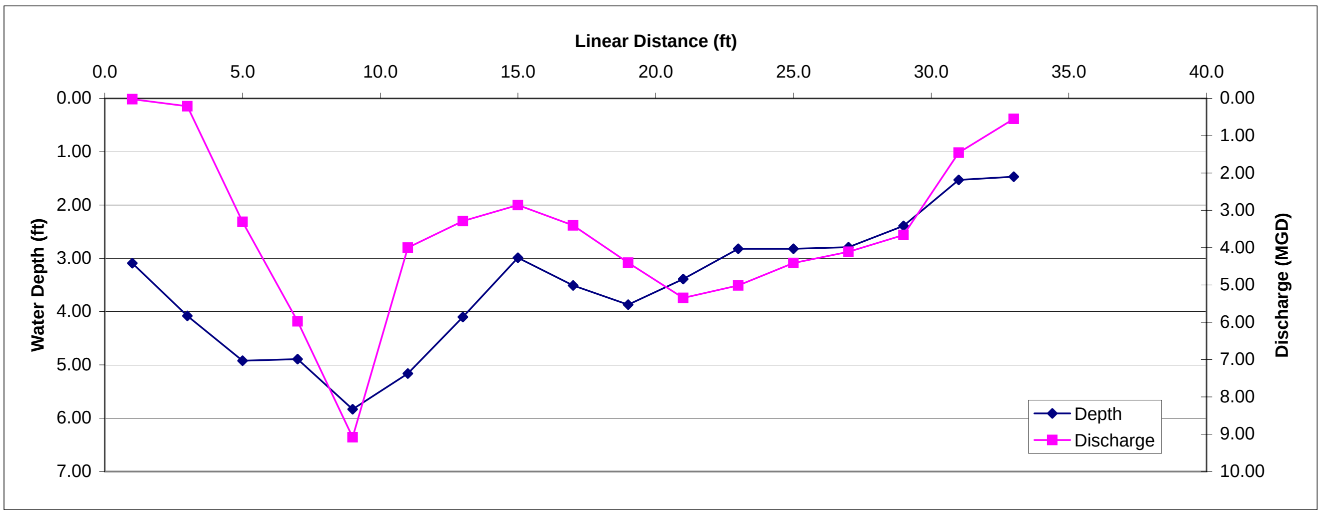
APPENDIX B
JC-SEG1-DOWN Marsh McBirney Cross Sectional Flow - 06/19/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	2.0	4.5	1.02		0.03		4.59	0.14	337	0.09	0.91	0.17%	0.00
	7.0	5.0	1.42		0.13		7.10	0.92	2258	0.60	3.96	1.16%	0.05
	12.0	5.0	0.57		0.37		2.85	1.05	2580	0.68	11.28	1.33%	0.15
	17.0	5.0	0.50		0.59		2.50	1.48	3609	0.95	17.98	1.86%	0.33
	22.0	5.0	0.49		0.78		2.45	1.91	4675	1.24	23.77	2.41%	0.57
	27.0	5.0	0.52		0.61		2.60	1.59	3880	1.03	18.59	2.00%	0.37
	32.0	5.0	0.64		0.79		3.20	2.53	6185	1.63	24.08	3.19%	0.77
	37.0	5.0	0.95		0.80		4.75	3.80	9297	2.46	24.38	4.79%	1.17
	42.0	5.0	1.65		0.73		8.25	6.02	14735	3.89	22.25	7.59%	1.69
	47.0	5.0	1.99		0.83		9.95	8.26	20205	5.34	25.30	10.41%	2.63
	52.0	5.0	2.02		0.98		10.10	9.90	24216	6.40	29.87	12.47%	3.73
	57.0	5.0	1.97		0.93		9.85	9.16	22412	5.92	28.35	11.54%	3.27
	62.0	5.0	1.86		1.02		9.30	9.49	23208	6.13	31.09	11.95%	3.72
	67.0	5.0	1.80		0.85		9.00	7.65	18716	4.94	25.91	9.64%	2.50
	72.0	5.0	2.01		0.69		10.05	6.93	16966	4.48	21.03	8.74%	1.84
	77.0	5.0	1.67		0.57		8.35	4.76	11644	3.08	17.37	6.00%	1.04
	82.0	5.0	1.27		0.57		6.35	3.62	8855	2.34	17.37	4.56%	0.79
	87.0	5.0	0.94		0.07		4.70	0.33	805	0.21	2.13	0.41%	0.01
	92.0	6.5	0.89		-0.03		5.79	-0.17	-425	-0.11	-0.91	-0.22%	0.00
End	96.0												
		96.0	1.27		0.60		121.73	79.36	194159	51.29	18.14	100%	24.63
			(cm/s)		18.14								



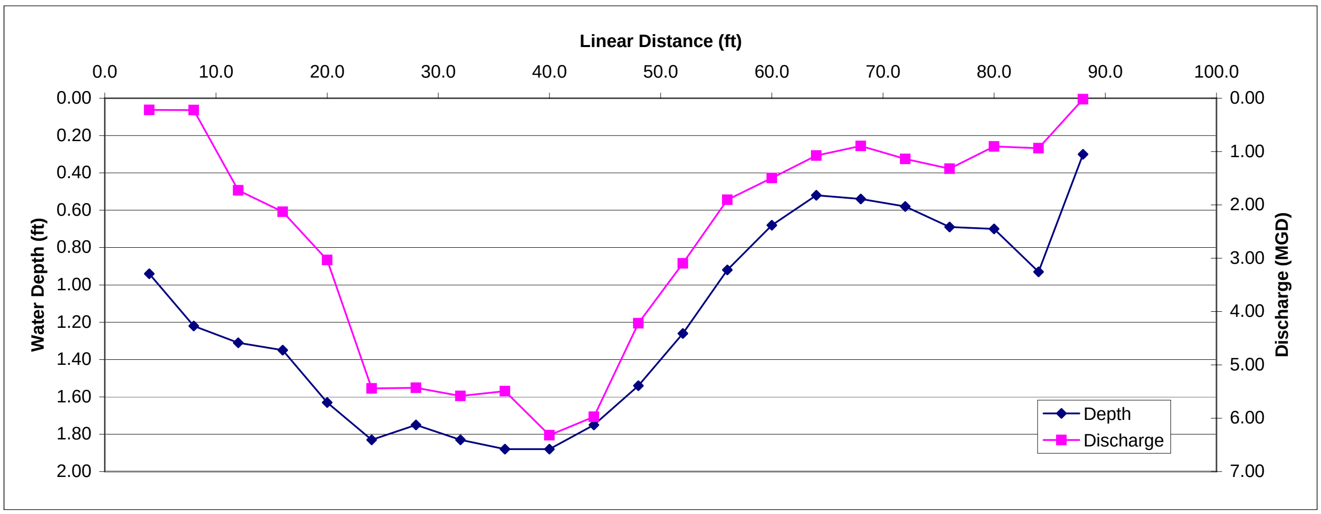
APPENDIX B
JC-SEG1-UP Marsh McBirney Cross Sectional Flow - 08/22/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	1.0	2.0	3.09	0.03		-0.02	6.18	0.03	76	0.02	0.91	0.03%	0.00
	3.0	2.0	4.08	0.17		-0.09	8.16	0.33	799	0.21	5.18	0.35%	0.02
	5.0	2.0	4.92	1.16		-0.12	9.84	5.12	12519	3.31	35.36	5.41%	1.91
	7.0	2.0	4.89	1.55		0.34	9.78	9.24	22612	5.97	47.24	9.78%	4.62
	9.0	2.0	5.83	1.91		0.50	11.66	14.05	34375	9.08	58.22	14.86%	8.65
	11.0	2.0	5.16	1.11		0.09	10.32	6.19	15149	4.00	33.83	6.55%	2.22
	13.0	2.0	4.10	0.91		0.33	8.20	5.08	12438	3.29	27.74	5.38%	1.49
	15.0	2.0	2.99	0.52		0.96	5.98	4.43	10827	2.86	15.85	4.68%	0.74
	17.0	2.0	3.51	0.72		0.78	7.02	5.27	12881	3.40	21.95	5.57%	1.22
	19.0	2.0	3.87	0.55		1.21	7.74	6.81	16664	4.40	16.76	7.21%	1.21
	21.0	2.0	3.39	1.10		1.34	6.78	8.27	20237	5.35	33.53	8.75%	2.93
	23.0	2.0	2.82	1.19		1.56	5.64	7.76	18973	5.01	36.27	8.20%	2.98
	25.0	2.0	2.82	1.03		1.39	5.64	6.82	16696	4.41	31.39	7.22%	2.27
	27.0	3.0	2.79	0.43		1.09	8.37	6.36	15563	4.11	13.11	6.73%	0.88
	29.0	3.0	2.39		0.79		7.17	5.66	13858	3.66	24.08	5.99%	1.44
	31.0	3.0	1.53		0.49		4.59	2.25	5503	1.45	14.94	2.38%	0.36
	33.0	2.0	1.47		0.29		2.94	0.85	2086	0.55	8.84	0.90%	0.08
End	34.0												
		37.0	3.51	0.88	0.52	0.67	126.01	94.52	231256	61.09	25.01	100%	33.02
			(cm/s)	26.95	15.95	20.38							



APPENDIX B
JC-SEG1-DOWN Marsh McBirney Cross Sectional Flow - 08/22/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	4.0	6.0	0.94		0.06		5.64	0.34	828	0.22	1.83	0.37%	0.01
	8.0	4.0	1.22		0.07		4.88	0.34	836	0.22	2.13	0.38%	0.01
	12.0	4.0	1.31		0.51		5.24	2.67	6538	1.73	15.54	2.95%	0.46
	16.0	4.0	1.35		0.61		5.40	3.29	8059	2.13	18.59	3.64%	0.68
	20.0	4.0	1.63		0.72		6.52	4.69	11485	3.03	21.95	5.18%	1.14
	24.0	4.0	1.83		1.15		7.32	8.42	20595	5.44	35.05	9.29%	3.26
	28.0	4.0	1.75		1.20		7.00	8.40	20551	5.43	36.58	9.27%	3.39
	32.0	4.0	1.83		1.18		7.32	8.64	21133	5.58	35.97	9.53%	3.43
	36.0	4.0	1.88		1.13		7.52	8.50	20790	5.49	34.44	9.38%	3.23
	40.0	4.0	1.88		1.30		7.52	9.78	23918	6.32	39.62	10.79%	4.27
	44.0	4.0	1.75		1.32		7.00	9.24	22606	5.97	40.23	10.20%	4.10
	48.0	4.0	1.54		1.06		6.16	6.53	15975	4.22	32.31	7.21%	2.33
	52.0	4.0	1.26		0.95		5.04	4.79	11714	3.09	28.96	5.28%	1.53
	56.0	4.0	0.92		0.80		3.68	2.94	7203	1.90	24.38	3.25%	0.79
	60.0	4.0	0.68		0.85		2.72	2.31	5656	1.49	25.91	2.55%	0.66
	64.0	4.0	0.52		0.80		2.08	1.66	4071	1.08	24.38	1.84%	0.45
	68.0	4.0	0.54		0.64		2.16	1.38	3382	0.89	19.51	1.53%	0.30
	72.0	4.0	0.58		0.76		2.32	1.76	4314	1.14	23.16	1.95%	0.45
	76.0	4.0	0.69		0.74		2.76	2.04	4997	1.32	22.56	2.25%	0.51
	80.0	4.0	0.70		0.50		2.80	1.40	3425	0.90	15.24	1.55%	0.24
	84.0	4.0	0.93		0.39		3.72	1.45	3549	0.94	11.89	1.60%	0.19
	88.0	3.0	0.30		0.03		0.90	0.03	66	0.02	0.91	0.03%	0.00
End	89.0												
		89.0	1.18		0.76		105.70	90.61	221693	58.57	23.23	100%	31.41
			(cm/s)		23.23								

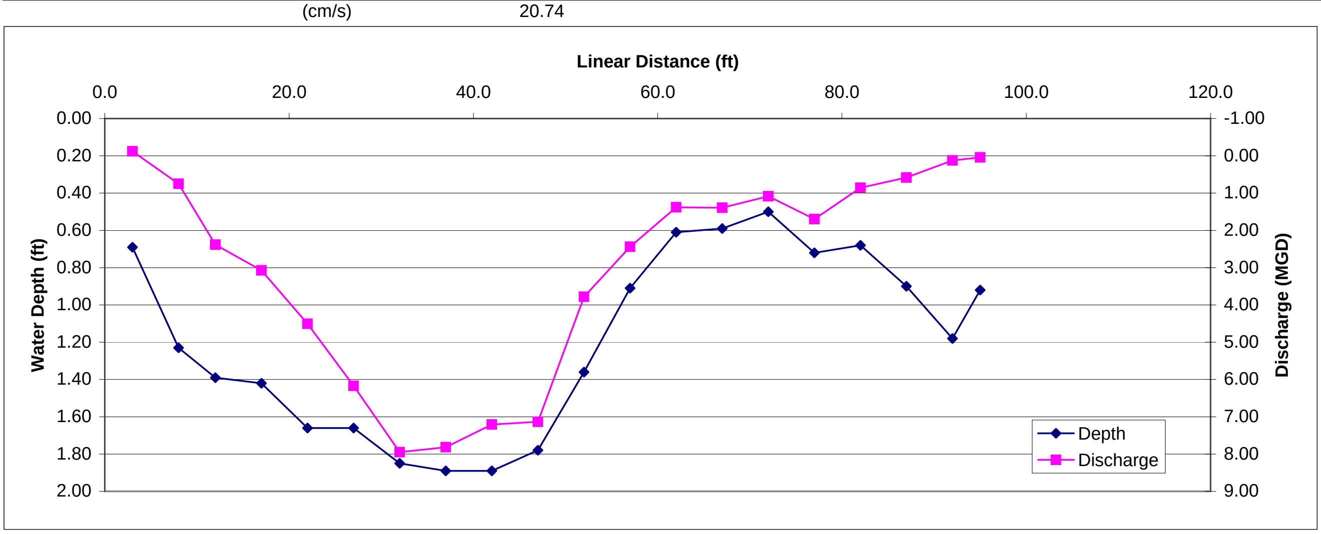


APPENDIX B
JC-SEG1-UP Marsh McBirney Cross Sectional Flow - 09/05/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	2.0	3.0	2.85	-0.07		-0.16	8.55	-0.98	-2406	-0.64	-2.13	-1.19%	0.03
	4.0	2.0	3.96	0.28		0.25	7.92	2.10	5135	1.36	8.53	2.54%	0.22
	6.0	2.0	4.70	0.16		0.28	9.40	2.07	5060	1.34	4.88	2.50%	0.12
	8.0	2.0	5.75	0.68		0.17	11.50	4.89	11958	3.16	20.73	5.92%	1.23
	10.0	2.0	5.96	1.56		0.53	11.92	12.46	30476	8.05	47.55	15.08%	7.17
	12.0	2.0	5.74	0.98		0.44	11.48	8.15	19942	5.27	29.87	9.86%	2.95
	14.0	2.0	4.94	0.96		0.30	9.88	6.22	15228	4.02	29.26	7.53%	2.20
	16.0	2.0	3.63	0.63		0.04	7.26	2.43	5950	1.57	19.20	2.94%	0.57
	18.0	2.0	3.65	0.63		0.69	7.30	4.82	11788	3.11	19.20	5.83%	1.12
	20.0	2.0	4.61	0.58		0.70	9.22	5.90	14437	3.81	17.68	7.14%	1.26
	22.0	2.0	4.18	0.70		1.10	8.36	7.52	18408	4.86	21.34	9.11%	1.94
	24.0	2.0	3.43	0.75		1.13	6.86	6.45	15777	4.17	22.86	7.80%	1.78
	26.0	2.0	2.94	1.04		1.64	5.88	7.88	19277	5.09	31.70	9.54%	3.02
	28.0	2.0	2.88	0.87		1.40	5.76	6.54	15995	4.23	26.52	7.91%	2.10
	30.0	2.0	2.88	0.27		0.81	5.76	3.11	7610	2.01	8.23	3.76%	0.31
	32.0	2.0	2.53	0.14		0.48	5.06	1.57	3838	1.01	4.27	1.90%	0.08
	34.0	2.0	2.09		0.32		4.18	1.34	3273	0.86	9.75	1.62%	0.16
	36.0	3.0	1.10		0.05		3.30	0.17	404	0.11	1.52	0.20%	0.00
End	37.0												
		38.0	3.77	0.64	0.19	0.61	139.59	82.62	202147	53.40	17.83	100%	26.26
			(cm/s)	19.35	5.64	18.67							

APPENDIX B
JC-SEG1-DOWN Marsh McBirney Cross Sectional Flow - 09/05/07

	Distance from Initial Point (ft.)	Segment Width (ft.)	Total Depth (ft.)	Velocity (ft/s) 0.2 x depth	Velocity (ft/s) 0.6 x depth	Velocity (ft/s) 0.8 x depth	Segment Area (ft^2)	Discharge (ft^3/s)	Discharge (m^3/d)	Discharge (MGD)	Surface Velocity (cm/s)	Flow proportion (%)	Weighted Velocity (cm/s)
Start	0.0												
	3.0	5.5	0.69		-0.05		3.80	-0.19	-464	-0.12	-1.52	-0.20%	0.00
	8.0	4.5	1.23		0.21		5.54	1.16	2844	0.75	6.40	1.25%	0.08
	12.0	4.5	1.39		0.59		6.26	3.69	9029	2.39	17.98	3.96%	0.71
	17.0	5.0	1.42		0.67		7.10	4.76	11638	3.07	20.42	5.10%	1.04
	22.0	5.0	1.66		0.84		8.30	6.97	17058	4.51	25.60	7.48%	1.91
	27.0	5.0	1.66		1.15		8.30	9.55	23353	6.17	35.05	10.24%	3.59
	32.0	5.0	1.85		1.33		9.25	12.30	30099	7.95	40.54	13.20%	5.35
	37.0	5.0	1.89		1.28		9.45	12.10	29594	7.82	39.01	12.98%	5.06
	42.0	5.0	1.89		1.18		9.45	11.15	27282	7.21	35.97	11.96%	4.30
	47.0	5.0	1.78		1.24		8.90	11.04	27000	7.13	37.80	11.84%	4.47
	52.0	5.0	1.36		0.86		6.80	5.85	14308	3.78	26.21	6.27%	1.64
	57.0	5.0	0.91		0.83		4.55	3.78	9239	2.44	25.30	4.05%	1.02
	62.0	5.0	0.61		0.70		3.05	2.14	5223	1.38	21.34	2.29%	0.49
	67.0	5.0	0.59		0.73		2.95	2.15	5269	1.39	22.25	2.31%	0.51
	72.0	5.0	0.50		0.67		2.50	1.68	4098	1.08	20.42	1.80%	0.37
	77.0	5.0	0.72		0.73		3.60	2.63	6430	1.70	22.25	2.82%	0.63
	82.0	5.0	0.68		0.39		3.40	1.33	3244	0.86	11.89	1.42%	0.17
	87.0	5.0	0.90		0.20		4.50	0.90	2202	0.58	6.10	0.97%	0.06
	92.0	4.0	1.18		0.04		4.72	0.19	462	0.12	1.22	0.20%	0.00
	95.0	3.5	0.92		0.02		3.22	0.06	158	0.04	0.61	0.07%	0.00
End	97.0												
		97.0	1.19		0.68		115.63	93.22	228064	60.25	20.74	100%	31.43
			(cm/s)		20.74								



Appendix C

Detailed Water Quality Data for the Wekiva River System and Reference Sites

APPENDIX C

ALEXANDER SPRING CREEK SEGMENT STATIONS - WEKIVA PLRG - FALL 2006

			10/24/2006		11/7/2006	
Parameter Group	Parameter	Units	UP	DOWN	UP	DOWN
Temperature	Wtr Temp	C	22.0	21.3	23.0	22.8
Dissolved Oxygen	DO	mg/L	5.00	6.92	3.31	5.64
	DO	%	57.6	78.2	38.7	65.6
Physical	pH	SU	8.15	8	7.91	8.03
	Cond	uS/cm	945	934	889	886
	SpCond	umhos/cm	1,002	1,006	924	925
	Stage	ft	---	1.26	---	1.27
Solid	TDS	mg/L	575	571	577	579
	TSS	mg/L	0.00	0.00	0.500	0.500
Physical	Color	CPU	5.00	5.00	15.0	5.00
	Turb	NTU	0.41	0.27	0.32	0.78
Nitrogen	NH4-N	mg/L	0.022	0.016	0.005	0.005
	NOx-N	mg/L	0.016	0.011	0.024	0.012
	TKN	mg/L	0.090	0.030	0.190	0.110
	TN	mg/L	0.106	0.041	0.214	0.122
Phosphorus	SRP	mg/L	0.042	0.042	0.041	0.043
	TP	mg/L	0.045	0.042	0.074	0.069

Note: value is 0.5 x detection limit when reported as below the dection limit

APPENDIX C
ALEXANDER SPRING CREEK SEGMENT STATIONS - WEKIVA PLRG - WINTER 2007

			1/23/2007		2/5/2007	
Parameter Group	Parameter	Units	UP	DOWN	UP	DOWN
Temperature	Wtr Temp	C	22.2	21.7	20.4	19.2
Dissolved Oxygen	DO	mg/L	3.67	4.70	3.72	4.92
	DO	%	42.5	53.5	41.4	53.3
Physical	pH	SU	7.70	7.67	7.85	7.77
	Cond	uS/cm	967	931	757	660
	SpCond	umhos/cm	1,023	995	830	743
	Stage	ft	---	1.47	---	---
Solid	TDS	mg/L	568	560	522	182
	TSS	mg/L	3.00	3.00	0.00	0.00
Physical	Color	CPU	35.0	45.0	70.0	20.0
	Turb	NTU	0.07	0.15	0.19	0.14
Nitrogen	NH4-N	mg/L	0.005	0.005	0.026	0.005
	NOx-N	mg/L	0.710	0.157	0.237	1.01
	TKN	mg/L	0.025	0.090	0.250	0.140
	TN	mg/L	0.735	0.247	0.487	1.15
Phosphorus	SRP	mg/L	0.039	0.037	0.041	0.115
	TP	mg/L	0.047	0.044	0.046	0.121

Note: value is 0.5 x detection limit when reported as below the dection limit

APPENDIX C

ALEXANDER SPRING CREEK SEGMENT STATIONS - WEKIVA PLRG - SPRING 2007

			5/30/2007		6/19/2007	
Parameter Group	Parameter	Units	UP	DOWN	UP	DOWN
Temperature	Wtr Temp	C	25.3	26.2	24.6	25.3
Dissolved Oxygen	DO	mg/L	7.30	9.18	7.03	8.62
	DO	%	89.2	114	84.8	105
Physical	pH	SU	8.84	8.77	8.54	8.32
	SpCond	umhos/cm	1,038	1,043	1,028	1,029
	Stage	ft	---	1.31	---	1.34
Solid	TDS	mg/L	634	618	574	597
	TSS	mg/L	3.00	2.00	0.00	0.00
Physical	Color	CPU	10.0	15.0	5.00	10.0
	Turb	NTU	0.01	0.01	0.06	0.07
Nitrogen	NH4-N	mg/L	0.005	0.005	0.067	0.059
	NOx-N	mg/L	0.012	0.006	0.004	0.003
	TKN	mg/L	0.080	0.080	0.180	0.240
	TN	mg/L	0.092	0.086	0.184	0.243
Phosphorus	SRP	mg/L	0.042	0.042	0.041	0.044
	TP	mg/L	0.046	0.040	0.044	0.044

Note: value is 0.5 x detection limit when reported as below the dection limit

APPENDIX C

ALEXANDER SPRING CREEK SEGMENT STATIONS - WEKIVA PLRG - SUMMER 2007

			7/31/2007		8/15/2007	
Parameter Group	Parameter	Units	UP	DOWN	UP	DOWN
Temperature	Wtr Temp	C	24.0	24.2	23.8	23.9
Dissolved Oxygen	DO	mg/L	3.50	4.81	3.08	5.44
	DO	%	41.7	57.6	36.5	64.7
Physical	pH	SU	7.85	7.73	7.74	7.73
	SpCond	umhos/cm	982	981	1,045	1,009
	Stage	ft	---	1.46	---	1.56
Solid	TDS	mg/L	590	596	625	610
	TSS	mg/L	2.00	0.00	1.000	2.000
Physical	Color	CPU	15.0	15.0	20.0	50.00
	Turb	NTU	0.18	0.22	0.280	0.060
Nitrogen	NH4-N	mg/L	0.002	0.002	0.029	0.026
	NOx-N	mg/L	0.008	0.011	0.006	0.005
	TKN	mg/L	0.100	0.120	0.030	0.240
	TN	mg/L	0.108	0.131	0.036	0.245
Phosphorus	SRP	mg/L	0.038	0.036	0.042	0.043
	TP	mg/L	0.046	0.046	0.046	0.046

Note: value is 0.5 x detection limit when reported as below the dection limit

APPENDIX C
JUNIPER CREEK SEGMENT STATIONS - WEKIVA PLRG - FALL 2006

			10/4/2006		10/18/2006	
Parameter Group	Parameter	Units	UP	DOWN	UP	DOWN
Temperature	Wtr Temp	C	22.5	22.2	22.6	22.4
Dissolved Oxygen	DO	mg/L	6.93	6.49	7.33	6.72
	DO	%	80.4	74.9	85.1	77.8
Physical	pH	SU	7.88	7.72	8.01	7.82
	Cond	uS/cm	1,550	1,581	1,660	1,720
	SpCond	umhos/cm	1,631	1,669	1,743	1,811
	Stage	ft	---	1.29	---	1.32
Solid	TDS	mg/L	964	1,020	964	1,010
	TSS	mg/L	0.50	0.50	3.00	2.00
Physical	Color	CPU	10.0	10.0	10.0	15.0
	Turb	NTU	0.37	0.79	0.70	0.36
Nitrogen	NH4-N	mg/L	0.005	0.005	0.005	0.005
	NOx-N	mg/L	0.016	0.019	0.017	0.0004
	TKN	mg/L	0.080	0.080	0.080	0.080
	TN	mg/L	0.096	0.099	0.097	0.080
Phosphorus	SRP	mg/L	0.013	0.015	0.008	0.008
	TP	mg/L	0.021	0.029	0.021	0.023

Note: value is 0.5 x detection limit when reported as below the dection limit

APPENDIX C
JUNIPER CREEK SEGMENT STATIONS - WEKIVA PLRG - WINTER 2007

			1/3/2007		1/17/2007	
Parameter Group	Parameter	Units	UP	DOWN	UP	DOWN
Temperature	Wtr Temp	C	21.0	20.8	20.5	20.5
Dissolved Oxygen	DO	mg/L	6.61	6.44	7.09	6.87
	DO	%	74.5	72.4	79.6	76.6
Physical	pH	SU	7.86	7.75	7.99	7.89
	Cond	uS/cm	1,620	1,596	1,606	1,592
	SpCond	umhos/cm	1,753	1,734	1,755	1,742
	Stage	ft	---	1.19	---	1.16
Solid	TDS	mg/L	992	976	948	978
	TSS	mg/L	7.0	6.0	2.00	3.00
Physical	Color	CPU	5.0	10.0	10.0	10.0
	Turb	NTU	0.21	0.22	0.12	0.10
Nitrogen	NH4-N	mg/L	*0.005*	0.019	*0.005*	*0.005*
	NOx-N	mg/L	0.021	0.022	*0.001*	0.023
	TKN	mg/L	0.110	0.120	*0.005*	*0.005*
	TN	mg/L	0.131	0.142	*0.006*	*0.028*
Phosphorus	SRP	mg/L	0.011	0.013	0.020	0.020
	TP	mg/L	0.032	0.050	0.015	0.023

Note: value is 0.5 x detection limit when reported as below the dection limit

APPENDIX C
JUNIPER CREEK SEGMENT STATIONS - WEKIVA PLRG - SPRING 2007

			5/30/2007		6/19/2007	
Parameter Group	Parameter	Units	UP	DOWN	UP	DOWN
Temperature	Wtr Temp	C	22.8	22.5	23.7	23.6
Dissolved Oxygen	DO	mg/L	7.06	6.61	6.77	6.27
	DO	%	82.3	76.6	80.5	74.4
Physical	pH	SU	8.00	7.99	7.72	7.56
	SpCond	umhos/cm	1,927	1,967	1,817	1,883
	Stage	ft	---	0.80	---	0.99
Solid	TDS	mg/L	1,100	1,090	1,040	1,060
	TSS	mg/L	3.00	5.00	6.00	3.00
Physical	Color	CPU	15.0	15.0	10.0	10.0
	Turb	NTU	0.07	0.06	0.11	0.14
Nitrogen	NH4-N	mg/L	0.005	0.005	0.043	0.035
	NOx-N	mg/L	0.028	0.012	0.008	0.007
	TKN	mg/L	0.035	0.090	0.160	0.160
	TN	mg/L	0.098	0.102	0.168	0.167
Phosphorus	SRP	mg/L	0.019	0.024	0.019	0.017
	TP	mg/L	0.016	0.019	0.033	0.033

Note: value is 0.5 x detection limit when reported as below the dection limit

APPENDIX C
JUNIPER CREEK SEGMENT STATIONS - WEKIVA PLRG - SUMMER 2007

			8/22/2007		9/5/2007	
Parameter Group	Parameter	Units	UP	DOWN	UP	DOWN
Temperature	Wtr Temp	C	23.2	23.7	23.8	23.6
Dissolved Oxygen	DO	mg/L	5.39	5.39	6.44	6.24
	DO	%	64.0	64.1	76.6	74.1
Physical	pH	SU	7.67	7.59	7.82	7.67
	SpCond	umhos/cm	1,911	1,912	1,884	1,889
	Stage	ft	---	1.11	---	0.92
Solid	TDS	mg/L	1080	1110	1010	1030
	TSS	mg/L	7.0	8.0	2.00	3.00
Physical	Color	CPU	5.0	5.0	15	10.0
	Turb	NTU	0.100	0.180	0.160	0.340
Nitrogen	NH4-N	mg/L	0.056	0.034	0.019	0.014
	NOx-N	mg/L	0.015	0.024	0.015	0.022
	TKN	mg/L	0.260	0.050	0.030	0.110
	TN	mg/L	0.275	0.074	0.045	0.132
Phosphorus	SRP	mg/L	0.019	0.020	0.014	0.014
	TP	mg/L	0.014	0.014	0.019	0.022

Note: value is 0.5 x detection limit when reported as below the dection limit

APPENDIX C
ROCK SPRING RUN SEGMENT STATIONS - WEKIVA PLRG - FALL 2006

			RSR-SEG1				RSR-SEG2			
			10/5/2006		10/19/2006		10/4/2006		10/18/2006	
Parameter Group	Parameter	Units	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN
Temperature	Wtr Temp	C	23.1	22.6	23.6	23.5	25.5	25.6	25.1	25.3
Dissolved Oxygen	DO	mg/L	5.46	5.42	5.50	5.33	8.07	8.17	7.22	7.37
	DO	%	63.8	62.7	64.8	62.7	98.6	100	87.4	89.6
Physical	pH	SU	7.92	7.85	7.95	7.87	8.17	8.11	8.27	8.24
	Cond	uS/cm	226	225	240	240	238	239	257	257
	SpCond	umhos/cm	234	236	246	248	236	236	257	256
	Stage	ft	---	1.40	---	1.39	---	1.12	---	1.12
Solid	TDS	mg/L	75.5	163	143	159	159	179	167	172
	TSS	mg/L	0.500	0.500	0.500	0.500	0.500	4.00	2.00	2.00
Physical	Color	CPU	10.0	10.0	5.00	10.0	15.0	15.0	20.0	15.0
	Turb	NTU	0.37	0.52	0.57	0.56	0.36	0.50	1.53	1.24
Nitrogen	NH4-N	mg/L	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
	NOx-N	mg/L	1.23	1.20	1.19	1.10	0.956	0.879	0.875	0.815
	TKN	mg/L	0.110	0.015	0.058	0.100	0.120	0.210	0.090	0.035
	TN	mg/L	1.34	1.22	1.25	1.20	1.08	1.09	0.965	0.850
Phosphorus	SRP	mg/L	0.078	0.081	0.069	0.073	0.076	0.075	0.069	0.064
	TP	mg/L	0.091	0.094	0.088	0.093	0.091	0.094	0.088	0.088

Note: value is 0.5 x detection limit when reported as below the dection limit

APPENDIX C

ROCK SPRING RUN SEGMENT STATIONS - WEKIVA PLRG - WINTER 2007

			RSR-SEG1				RSR-SEG2			
			1/4/2007		1/18/2007		1/3/2007		1/17/2007	
Parameter Group	Parameter	Units	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN
Temperature	Wtr Temp	C	23.4	22.7	22.6	22.2	21.8	21.6	21.6	21.2
Dissolved Oxygen	DO	mg/L	6.04	5.33	6.06	5.59	7.55	7.71	7.73	8.18
	DO	%	71.0	61.9	70.0	64.3	86.2	87.6	87.7	92.2
Physical	pH	SU	7.97	7.76	8.00	7.87	7.82	7.80	8.09	8.22
	Cond	uS/cm	231	233	222	223	250	253	237	236
	SpCond	umhos/cm	238	243	233	236	266	270	254	255
	Stage	ft	---	1.45	---	1.35	---	1.23	---	1.19
Solid	TDS	mg/L	145.0	160	144	144	168	173	156	157
	TSS	mg/L	*0.05*	6.00	2.00	2.00	5.00	6.00	2.00	3.00
Physical	Color	CPU	10.0	5.0	10.00	10.00	20.0	30.0	10.0	10.0
	Turb	NTU	0.35	0.34	0.250	0.520	0.36	0.70	0.43	0.53
Nitrogen	NH4-N	mg/L	*0.005*	*0.005*	*0.005*	0.012	0.012	*0.005*	0.032	*0.004*
	NOx-N	mg/L	1.16	1.13	1.17	1.14	0.791	0.756	0.869	0.816
	TKN	mg/L	0.180	0.290	*0.005*	0.120	0.400	0.330	0.100	0.140
	TN	mg/L	1.34	1.42	1.18	1.26	1.19	1.09	0.97	0.96
Phosphorus	SRP	mg/L	0.082	0.087	0.090	0.092	0.076	0.076	0.085	0.084
	TP	mg/L	0.085	0.091	0.115	0.130	0.091	0.088	0.086	0.086

Note: value is 0.5 x detection limit when reported as below the dection limit

APPENDIX C
ROCK SPRING RUN SEGMENT STATIONS - WEKIVA PLRG - SPRING 2007

			RSR-SEG1				RSR-SEG2			
			5/8/2007		5/24/2007		5/9/2007		5/24/2007	
Parameter Group	Parameter	Units	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN
Temperature	Wtr Temp	C	24.6	22.4	23.4	22.9	22.8	22.3	24.9	24.3
Dissolved Oxygen	DO	mg/L	7.41	6.71	5.80	5.10	7.39	7.40	8.32	7.75
	DO	%	88.9	77.4	68.2	59.3	85.9	85.2	101	92.6
Physical	pH	SU	8.28	7.90	7.94	7.77	7.98	7.83	8.19	8.03
	SpCond	umhos/cm	249	252	251	253	251	252	251	252
	Stage	ft	---	1.18	---	1.15	---	0.99	---	0.94
Solid	TDS	mg/L	144	143	149	156	142	148	90.5	102
	TSS	mg/L	6.0	11.0	0.5	0.0	3.0	2.0	4.0	7.0
Physical	Color	CPU	5.00	5.00	15.0	15.0	10.0	10.0	7.50	15.0
	Turb	NTU	0.47	2.90	0.15	0.38	1.07	1.23	0.60	0.79
Nitrogen	NH4-N	mg/L	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
	NOx-N	mg/L	1.13	1.12	1.22	1.11	0.897	0.885	0.862	0.809
	TKN	mg/L	0.02	0.27	0.19	0.15	0.12	0.08	0.19	0.30
	TN	mg/L	1.15	1.39	1.41	1.26	1.02	0.97	1.05	1.11
Phosphorus	SRP	mg/L	0.077	0.086	0.077	0.081	0.069	0.070	0.072	0.070
	TP	mg/L	0.083	0.113	0.087	0.093	0.086	0.083	0.096	0.096

Note: value is 0.5 x detection limit when reported as below the dection limit

APPENDIX C

ROCK SPRING RUN SEGMENT STATIONS - WEKIVA PLRG - SUMMER 2007

			RSR-SEG1				RSR-SEG2			
			8/23/2007		9/6/2007		8/22/2007		9/5/2007	
Parameter Group	Parameter	Units	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN
Temperature	Wtr Temp	C	23.8	23.3	24.1	23.3	28.5	28.6	27.0	28.2
Dissolved Oxygen	DO	mg/L	5.50	5.39	5.04	4.73	8.05	7.11	7.33	6.76
	DO	%	65.2	63.2	60.0	55.5	104	92.0	93.3	86.5
Physical	pH	SU	7.83	7.81	7.81	7.75	8.23	7.99	7.96	7.59
	SpCond	umhos/cm	259	261	257	257	258	259	267	267
	Stage	ft	---	1.15	---	1.15	---	0.96	---	0.99
Solid	TDS	mg/L	170	169	157	169	180	181	155	155
	TSS	mg/L	7.0	4.0	10.0	4.0	7.0	10.0	8.0	7.0
Physical	Color	CPU	0.00	0.00	10.0	10.0	0.00	0.00	10.0	10.0
	Turb	NTU	0.14	0.36	0.37	0.35	0.24	0.47	0.58	0.68
Nitrogen	NH4-N	mg/L	0.038	0.024	0.023	0.029	0.032	0.032	0.043	0.054
	NOx-N	mg/L	1.09	1.06	1.24	1.20	0.816	0.761	0.984	0.926
	TKN	mg/L	0.190	0.100	0.160	0.140	0.180	1.59 a	0.440	0.250
	TN	mg/L	1.28	1.16	1.40	1.34	0.996	2.351 a	1.42	1.18
Phosphorus	SRP	mg/L	0.087	0.085	0.079	0.080	0.077	0.077	0.079	0.076
	TP	mg/L	0.084	0.084	0.094	0.086	0.081	0.087	0.094	0.094

Note: value is 0.5 x detection limit when reported as below the dection limit

[a] *data flagged not used in data analysis*

APPENDIX C
WEKIVA RIVER SEGMENT STATIONS - WEKIVA PLRG - FALL 2006

			WR-SEG1				WR-SEG2			
			10/24/2006		11/8/2006		10/25/2006		11/7/2006	
Parameter Group	Parameter	Units	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN
Temperature	Wtr Temp	C	23.7	23.7	23.5	23.2	18.4	17.5	22.1	21.9
Dissolved Oxygen	DO	mg/L	1.47	3.36	1.06	1.82	8.46	7.58	8.14	8.96
	DO	%	17.4	39.7	12.7	21.3	90.3	79.4	93.3	102
Physical	pH	SU	7.61	7.73	7.49	7.51	8.05	7.93	7.93	8.05
	Cond	uS/cm	314	314	281	280	392	329	392	346
	SpCond	umhos/cm	322	322	290	290	448	386	415	367
	Stage	ft	---	1.47	---	1.75	---	2.08	---	2.10
Solid	TDS	mg/L	187	189	190	189	269	222	267	244
	TSS	mg/L	2.00	0.500	2.00	0.500	0.500	0.500	0.500	3.00
Physical	Color	CPU	5.00	5.00	15.0	5.00	10.0	10.0	20.0	15.0
	Turb	NTU	0.27	0.18	0.52	0.36	0.26	1.32	1.15	0.77
Nitrogen	NH4-N	mg/L	0.044	0.033	0.005	0.005	0.037	0.053	0.005	0.005
	NOx-N	mg/L	0.880	0.911	0.953	0.912	0.464	0.477	0.526	0.507
	TKN	mg/L	0.090	0.060	0.280	0.280	0.230	0.190	0.390	0.300
	TN	mg/L	0.970	0.971	1.23	1.19	0.694	0.667	0.916	0.807
Phosphorus	SRP	mg/L	0.119	0.119	0.002	0.116	0.101	0.101	0.096	0.094
	TP	mg/L	0.123	0.099	0.142	0.142	0.104	0.104	0.127	0.119

Note: value is 0.5 x detection limit when reported as below the dection limit

APPENDIX C
WEKIVA RIVER SEGMENT STATIONS - WEKIVA PLRG - WINTER 2007

			WR-SEG1				WR-SEG2			
			1/23/2007		2/5/2007		1/24/2007		2/6/2007	
Parameter Group	Parameter	Units	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN
Temperature	Wtr Temp	C	23.6	23.1	23.1	22.2	19.3	19.0	15.3	14.5
Dissolved Oxygen	DO	mg/L	1.98	3.09	1.72	2.92	6.77	7.00	6.60	6.35
	DO	%	23.4	36.1	20.1	33.5	73.5	75.4	66.0	62.3
Physical	pH	SU	7.56	7.62	7.84	7.74	7.71	7.66	7.94	7.89
	Cond	uS/cm	324	318	283	275	409	369	337	303
	SpCond	umhos/cm	333	330	294	291	459	417	414	379
	Stage	ft	---	1.81	---	1.72	---	2.13	---	2.19
Solid	TDS	mg/L	167	187	171	182	251	226	276	255
	TSS	mg/L	0.00	*0.50*	2.00	*0.000*	*0.50*	2.00	2.00	*0.50*
Physical	Color	CPU	10.00	25.00	5.0	20.00	35.0	30.0	45.0	45.0
	Turb	NTU	*0.01*	0.08	0.16	0.14	0.64	0.45	0.54	0.52
Nitrogen	NH4-N	mg/L	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	0.015
	NOx-N	mg/L	0.988	1.030	0.836	1.010	0.526	0.457	0.407	0.397
	TKN	mg/L	*0.015*	0.080	0.080	0.140	0.220	19.0 a	0.250	0.330
	TN	mg/L	1.003	1.110	0.916	1.150	0.746	19.5 a	0.657	0.727
Phosphorus	SRP	mg/L	0.121	0.114	0.117	0.115	0.168	0.170	0.087	0.084
	TP	mg/L	0.116	0.134	0.124	0.121	0.105	0.108	0.103	0.113

Note: value is 0.5 x detection limit when reported as below the dection limit

[a] *data flagged not used in data analysis*

APPENDIX C

WEKIVA RIVER SEGMENT STATIONS - WEKIVA PLRG - SPRING 2007

			WR-SEG1				WR-SEG2			
			4/11/2007		4/24/2007		4/10/2007		4/24/2007	
Parameter Group	Parameter	Units	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN
Temperature	Wtr Temp	C	23.5	23.1	24.2	24.5	18.7	18.3	24.7	21.4
Dissolved Oxygen	DO	mg/L	1.20	1.89	2.03	3.94	7.07	7.58	8.23	7.15
	DO	%	14.1	22.1	24.2	47.3	75.8	80.7	95.5	80.7
Physical	pH	SU	7.74	7.60	7.73	7.46	7.83	7.75	7.95	7.54
	SpCond	umhos/cm	332	332	338	338	437	402	461	408
	Stage	ft	---	1.74	---	1.68	---	1.91	---	1.94
Solid	TDS	mg/L	204	205	191	188	271	236	265	243
	TSS	mg/L	0.00	4.00	3.00	0.50	0.50	2.00	4.00	4.00
Physical	Color	CPU	5.00	10.0	5.00	5.00	10.0	10.0	10.0	10.0
	Turb	NTU	0.10	0.15	0.09	0.12	0.34	0.36	0.30	0.40
Nitrogen	NH4-N	mg/L	0.058	0.059	0.404	0.198	0.089	0.120	0.005	0.005
	NOx-N	mg/L	0.797	0.787	0.769	0.735	0.376	0.368	0.301	0.260
	TKN	mg/L	0.310	0.150	0.380	0.350	0.250	0.260	0.160	0.220
	TN	mg/L	1.11	0.937	1.15	1.09	0.626	0.628	0.461	0.480
Phosphorus	SRP	mg/L	0.118	0.121	0.118	0.116	0.088	0.088	0.092	0.102
	TP	mg/L	0.127	0.130	0.124	0.132	0.105	0.122	0.110	0.116

Note: value is 0.5 x detection limit when reported as below the dection limit

APPENDIX C
WEKIVA RIVER SEGMENT STATIONS - WEKIVA PLRG - SUMMER 2007

			WR-SEG1				WR-SEG2			
			7/31/2007		8/15/2007		8/1/2007		8/16/2007	
Parameter Group	Parameter	Units	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN
Temperature	Wtr Temp	C	24.8	25.2	24.7	25.2	26.2	26.1	28.0	27.4
Dissolved Oxygen	DO	mg/L	4.21	5.28	2.63	4.68	4.71	3.76	5.26	3.64
	DO	%	50.1	63.8	31.8	57.0	58.4	46.6	67.3	46.1
Physical	pH	SU	7.16	6.73	7.50	7.64	7.38	7.39	7.58	7.39
	SpCond	umhos/cm	285	301	319	319	415	353	351	347
	Stage	ft	---	1.79	---	1.79	---	2.47	---	2.23
Solid	TDS	mg/L	184	191	195	191	239	185	225	208
	TSS	mg/L	0.50	0.00	1.00	0.00	0.50	6.00	1.00	4.00
Physical	Color	CPU	5.00	5.00	0.00	5.00	30.0	30.0	15.00	10.00
	Turb	NTU	0.89	0.16	0.22	0.17	0.64	0.53	1.33	1.88
Nitrogen	NH4-N	mg/L	0.002	0.002	0.033	0.031	0.002	0.002	0.040	0.033
	NOx-N	mg/L	0.650	0.607	0.703	0.656	0.228	0.244	0.201	0.222
	TKN	mg/L	0.130	0.130	0.350	0.460	0.320	0.270	0.530	0.590
	TN	mg/L	0.780	0.737	1.053	1.116	0.548	0.514	0.731	0.712
Phosphorus	SRP	mg/L	0.108	0.110	0.109	0.107	0.084	0.096	0.102	0.103
	TP	mg/L	0.125	0.119	0.131	0.122	0.108	0.111	0.122	0.125

Note: value is 0.5 x detection limit when reported as below the dection limit

Appendix D

Detailed Light Attenuation Data for Wekiva River System and Reference Site Stream Segment Metabolism Studies

APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES (FALL 2006)

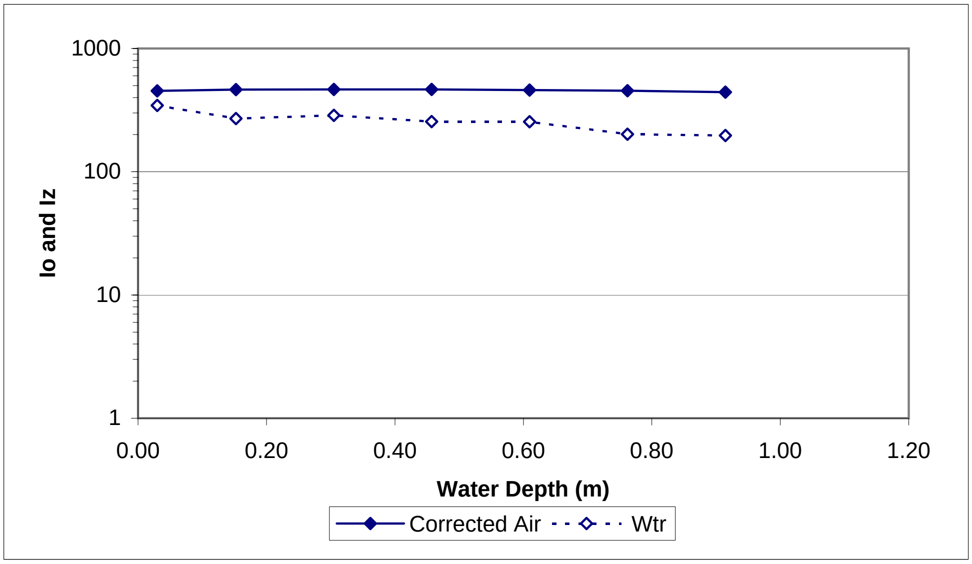
Station	Date	Rep	Max Depth (m)	k (diffuse attenuation coefficient = slope, m-1)	Percent Transmittance (1m)	Birgean Percentile Absorption (1m)
WR1-UP	10/24/2006	1	1.07	0.44	64.72	35.28
	11/8/2006	1	0.91	0.51	59.79	40.21
WR1-DN	10/24/2006	1	0.91	0.64	52.66	47.34
	11/8/2006	1	0.91	0.78	45.83	54.17
WR2-UP	10/25/2006	1	1.22	0.87	42.05	57.95
	11/7/2006	1	1.07	0.88	41.42	58.58
WR2-DN	10/25/2006	1	0.91	0.25	77.58	22.42
	11/7/2006	1	0.91	0.79	45.47	54.53
RSR1-UP	10/5/2006	1	0.46	0.09	91.38	8.62
		2 *	0.46	-0.11	111.36	-11.36
	10/19/2006	1	0.46	0.55	57.49	42.51
RSR1-DN	10/5/2006	1	0.46	0.60	55.12	44.88
	10/19/2006	1	0.61	0.49	61.39	38.61
RSR2-UP	10/4/2006	1 *	0.46	0.33	71.68	28.32
		2	0.46	1.22	29.43	70.57
	10/18/2006	1	0.61	1.03	35.62	64.38
RSR2-DN	10/4/2006	1	0.30	2.44	8.70	91.30
	10/18/2006	1	0.46	0.58	56.14	43.86
ASC1-UP	10/24/2006	1	1.37	0.24	78.49	21.51
	11/7/2006	1	1.07	0.57	56.69	43.31
	11/16/2006	1	0.76	0.73	48.15	51.85
	11/30/2006	1	0.76	0.64	52.79	47.21
ASC1-DN	10/24/2006	1	0.46	0.20	82.20	17.80
	11/7/2006	1	0.46	0.38	68.06	31.94
	11/16/2006	1	0.46	0.22	80.45	19.55
	11/30/2006	1	0.46	1.26	28.28	71.72
JC1-UP	10/4/2006	1	1.83	0.73	47.96	52.04
	10/18/2006	1	2.06	0.51	59.95	40.05
JC1-DN	10/4/2006	1	0.52	0.63	53.25	46.75
		2	0.52	0.81	44.29	55.71
	10/18/2006	1	1.22	0.23	79.75	20.25
AVERAGE						
WR1-UP			0.99	0.47	62.25	37.75
WR1-DN			0.91	0.71	49.24	47.34
WR2-UP			1.14	0.87	41.73	58.27
WR2-DN			0.91	0.52	61.53	38.47
RSR1-UP			0.46	0.32	74.43	25.57
RSR1-DN			0.53	0.54	58.26	41.74
RSR2-UP			0.53	1.13	32.53	67.47
RSR2-DN			0.38	1.51	32.42	67.58
ASC1-UP			0.99	0.54	59.03	40.97
ASC1-DN			0.46	0.52	64.75	35.25
JC1-UP			1.94	0.62	53.96	46.04
JC1-DN			0.75	0.56	59.09	40.91

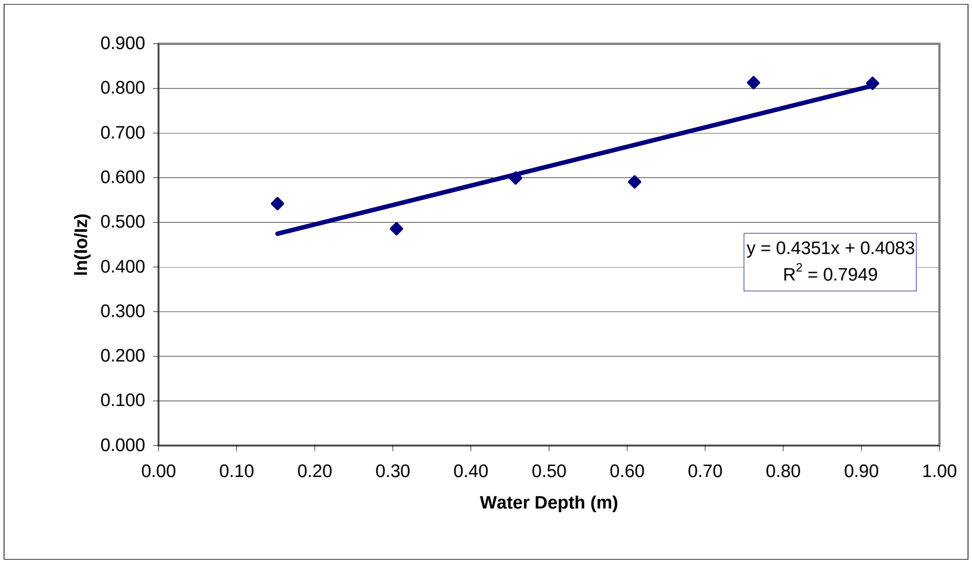
* data flagged - not used in calculating averages

APPENDIX D
WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 1 (UPSTREAM) - 10/24/06

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	452.8	636.2	344.9	5.84		
0.15	463.7	651.6	269.7	5.60	0.542	3.556
0.30	465.8	654.6	286.6	5.66	0.486	1.594
0.46	465.3	653.8	255.5	5.54	0.599	1.311
0.61	459.5	645.6	254.5	5.54	0.591	0.969
0.76	453.6	637.3	201.2	5.30	0.813	1.067
0.91	442.4	621.6	196.5	5.28	0.812	0.888
1.07		596.5 [a]	45.04 [a]			

k (diffuse attenuation coefficient = slope, m-1)		0.435
k average		1.564
percent transmittance @	1.0 meter	64.72
Birgean Percentile Absorption (1m)		35.28





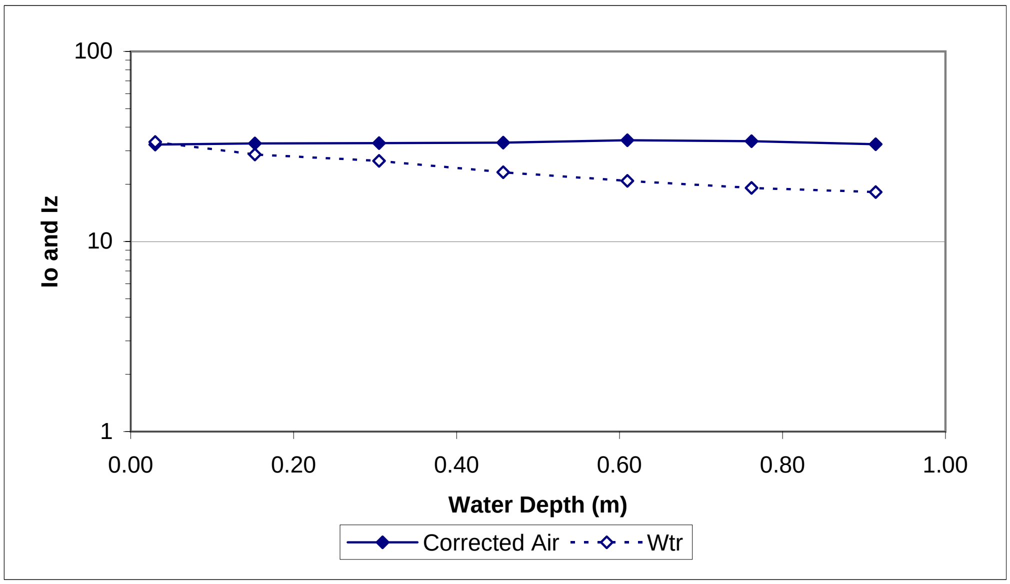
*Lots of visible particulate
[a] data flagged; not used in averages

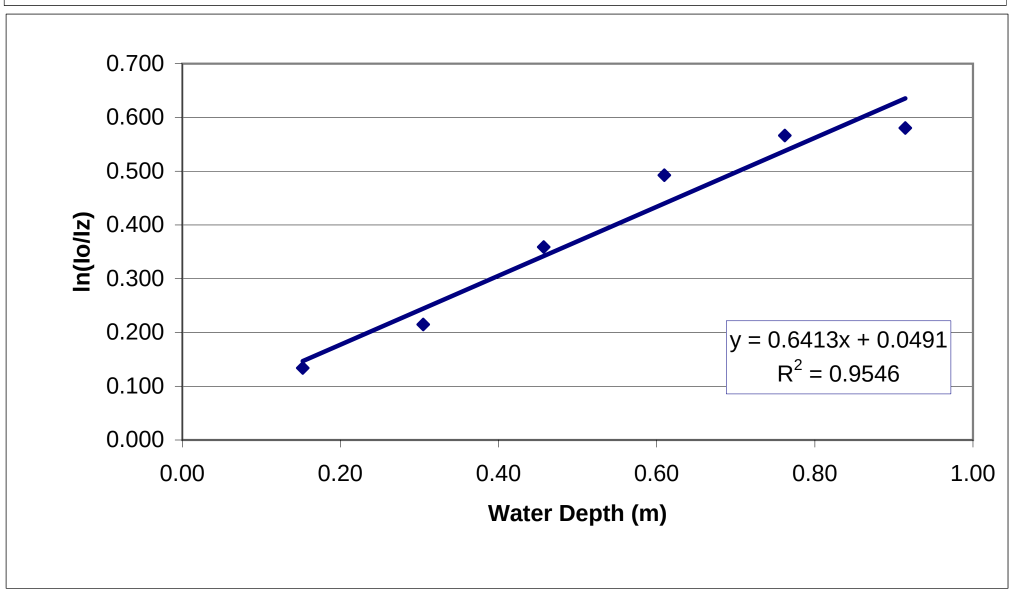
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 1 (DOWNSTREAM) - 10/24/06

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	32.4	43.7	33.4	3.51		
0.15	32.8	44.4	28.7	3.36	0.134	0.878
0.30	32.9	44.5	26.6	3.28	0.215	0.705
0.46	33.1	44.8	23.2	3.14	0.359	0.785
0.61	34.1	46.1	20.8	3.04	0.492	0.808
0.76	33.7	45.7	19.2	2.95	0.566	0.743
0.91	32.5	43.9	18.2	2.90	0.580	0.635

k (diffuse attenuation coefficient = slope, m-1)		0.641
k average		0.759
percent transmittance @	1.0 meter	52.66
Birgean Percentile Absorption (1m)		47.34



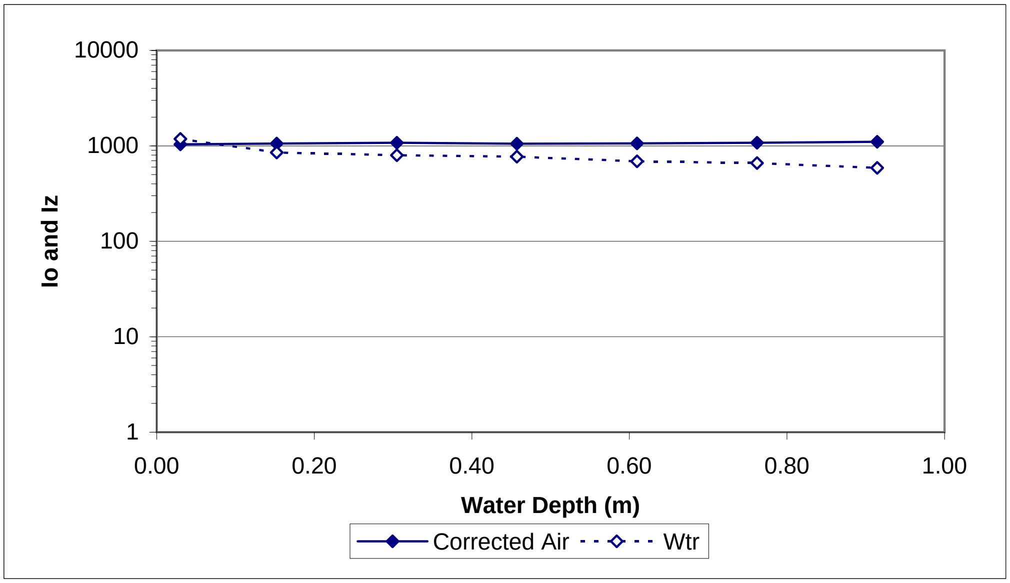


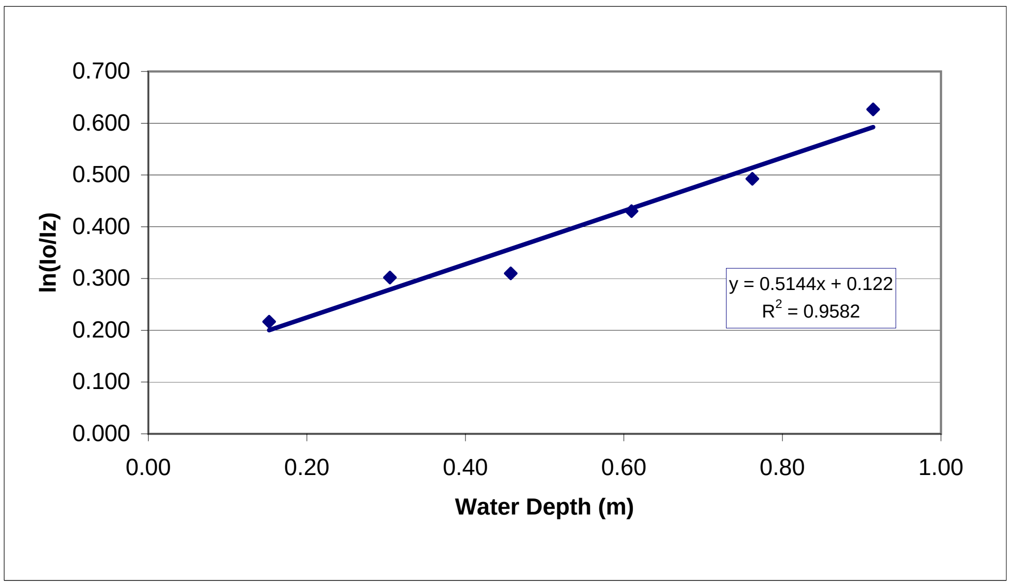
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 1 (UPSTREAM) - 11/08/06

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,037	1,460	1,183	7.08		
0.15	1,058	1,489	852.0	6.75	0.216	1.421
0.30	1,079	1,518	797.4	6.68	0.302	0.991
0.46	1,052	1,481	771.7	6.65	0.310	0.678
0.61	1,061	1,493	689.9	6.54	0.430	0.706
0.76	1,079	1,519	659.5	6.49	0.493	0.646
0.91	1,102	1,551	588.7	6.38	0.627	0.686

k (diffuse attenuation coefficient = slope, m-1)		0.514
k average		0.855
percent transmittance @	1.0 meter	59.79
Birgean Percentile Absorption (1m)		40.21





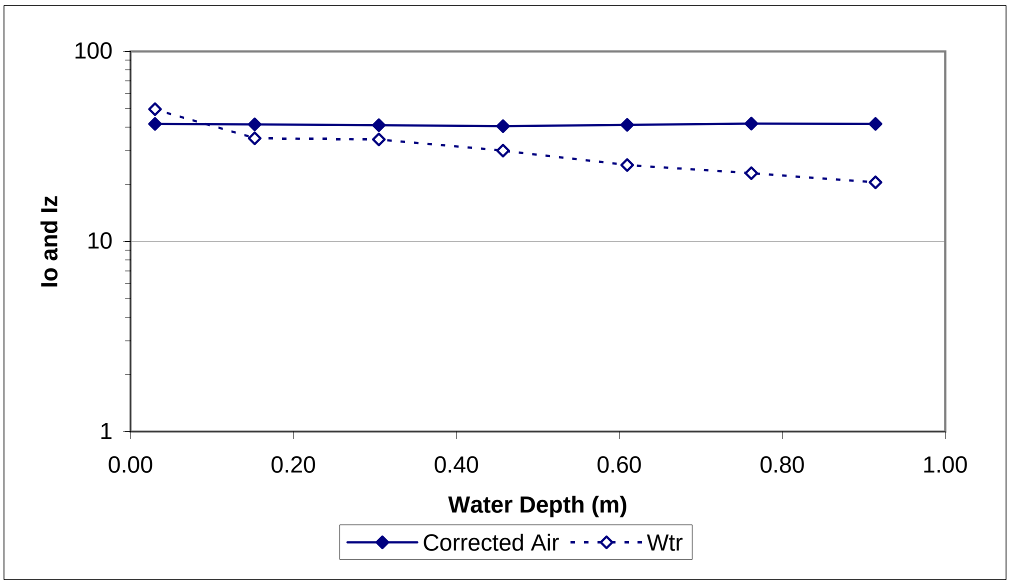
*Lots of visible particulate

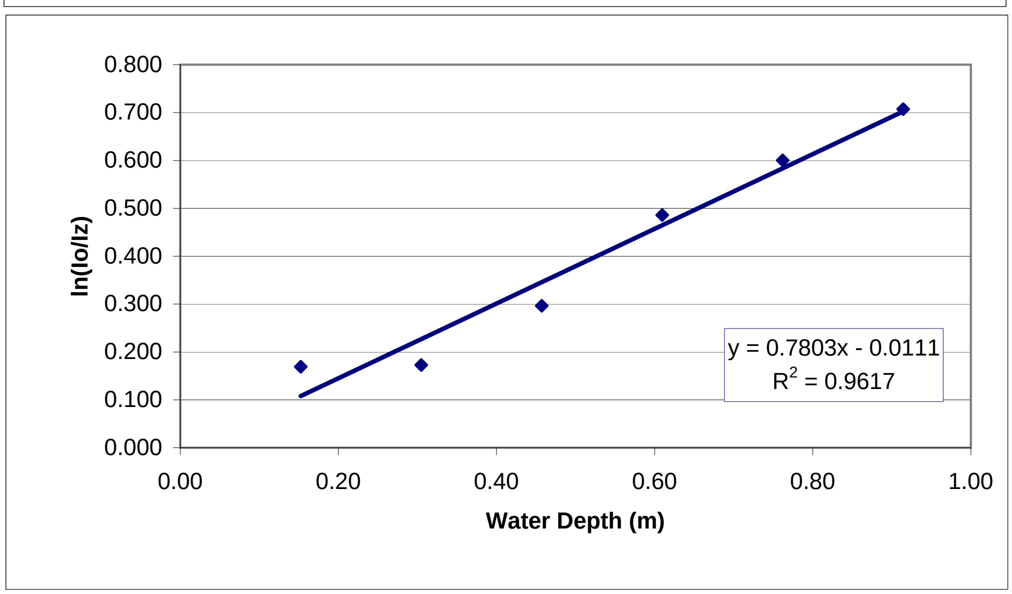
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 1 (DOWNSTREAM) - 11/08/06

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	41.5	56.6	49.6	3.90		
0.15	41.3	56.3	34.9	3.55	0.169	1.109
0.30	40.9	55.8	34.4	3.54	0.173	0.566
0.46	40.4	55.1	30.1	3.40	0.296	0.648
0.61	41.0	56.0	25.3	3.23	0.486	0.797
0.76	41.7	56.9	22.9	3.13	0.600	0.788
0.91	41.5	56.7	20.5	3.02	0.707	0.773

k (diffuse attenuation coefficient = slope, m-1)		0.780
k average		0.780
percent transmittance @	1.0 meter	45.83
Birgean Percentile Absorption (1m)		54.17



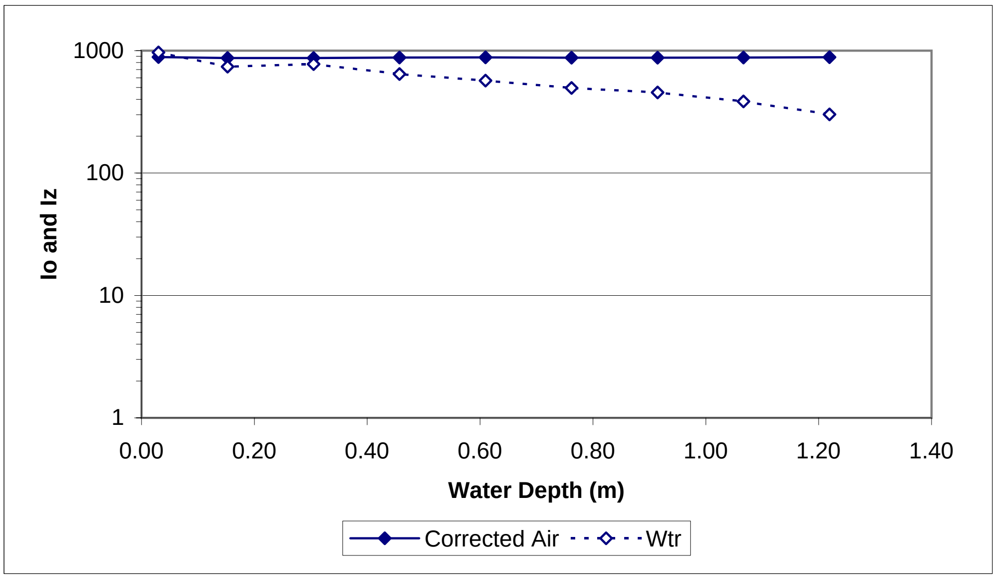


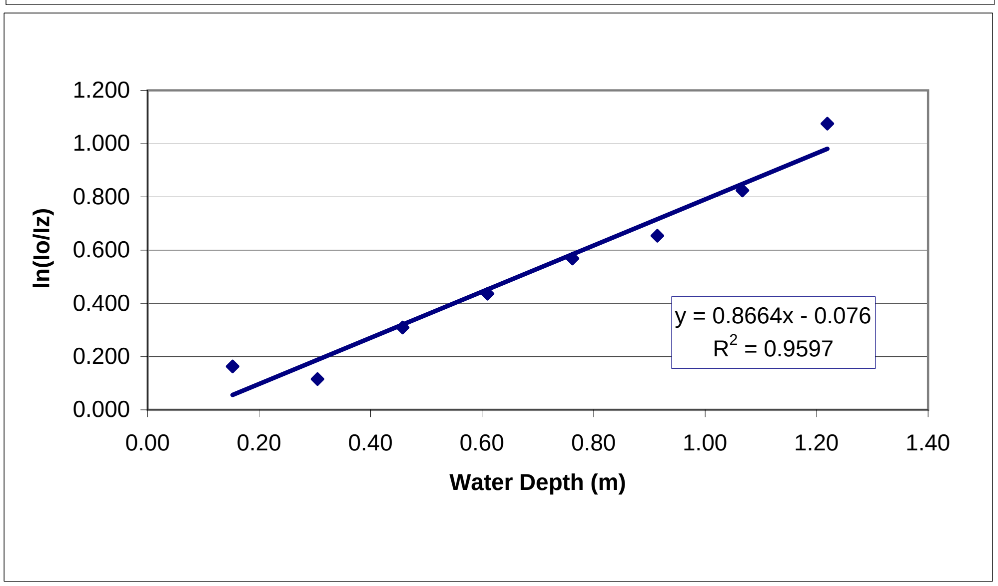
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 2 (UPSTREAM) - 10/25/06

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	885.5	1,246	966.7	6.87		
0.15	869.9	1,224	739.0	6.61	0.163	1.070
0.30	870.6	1,225	775.7	6.65	0.115	0.379
0.46	877.7	1,235	644.3	6.47	0.309	0.676
0.61	879.8	1,238	568.7	6.34	0.436	0.716
0.76	874.9	1,231	495.4	6.21	0.569	0.746
0.91	875.6	1,232	455.3	6.12	0.654	0.715
1.07	877.7	1,235	385.0	5.95	0.824	0.772
1.22	883.4	1,243	301.6	5.71	1.075	0.881

k (diffuse attenuation coefficient = slope, m-1)		0.866
k average		0.745
percent transmittance @	1.0 meter	42.05
Birgean Percentile Absorption (1m)		57.95



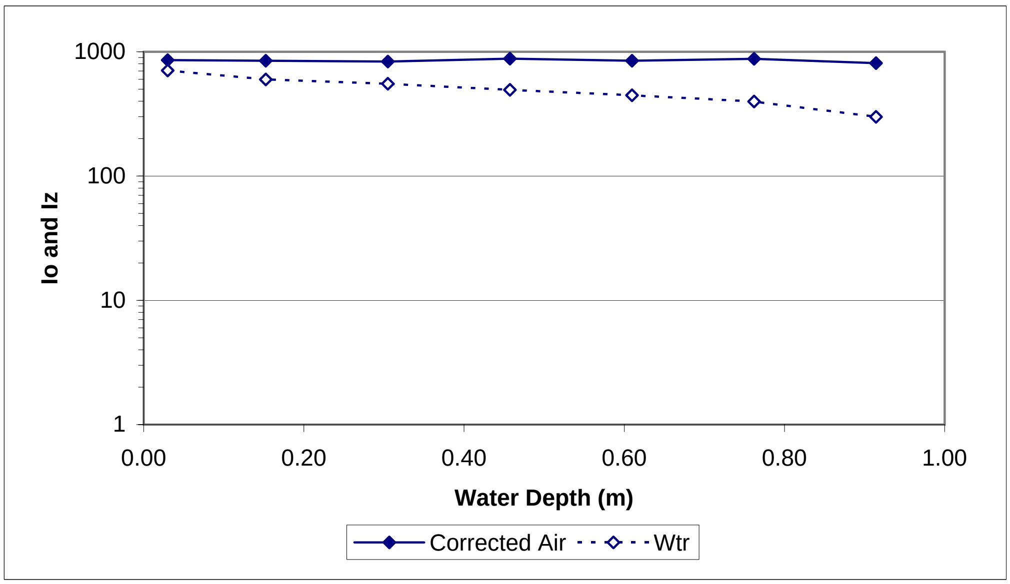


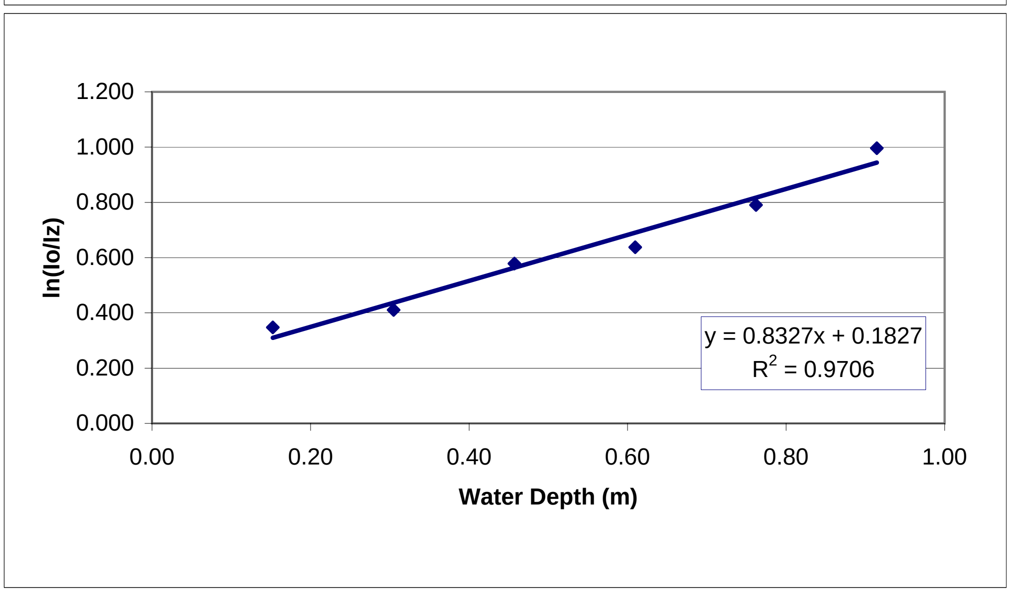
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 2 (DOWNSTREAM) -10/25/2006

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	856.4	1,205	706.7	6.56		
0.15	847.9	1,193	599.0	6.40	0.347	2.280
0.30	833.7	1,173	552.8	6.31	0.411	1.348
0.46	880.5	1,239	493.8	6.20	0.578	1.265
0.61	846.5	1,191	447.4	6.10	0.638	1.046
0.76	877.7	1,235	398.2	5.99	0.790	1.037
0.91	810.3	1,140	299.2	5.70	0.996	1.090

k (diffuse attenuation coefficient = slope, m-1)		0.254
k average		1.344
percent transmittance @	1.0 meter	77.58
Birgean Percentile Absorption (1m)		22.42





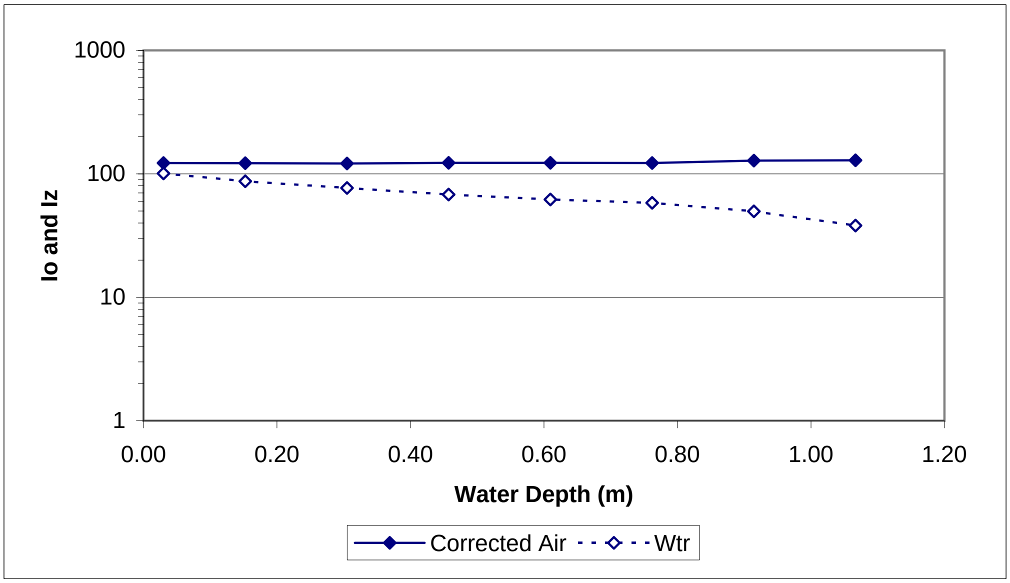
* Note: Readings taken in shade of canopy

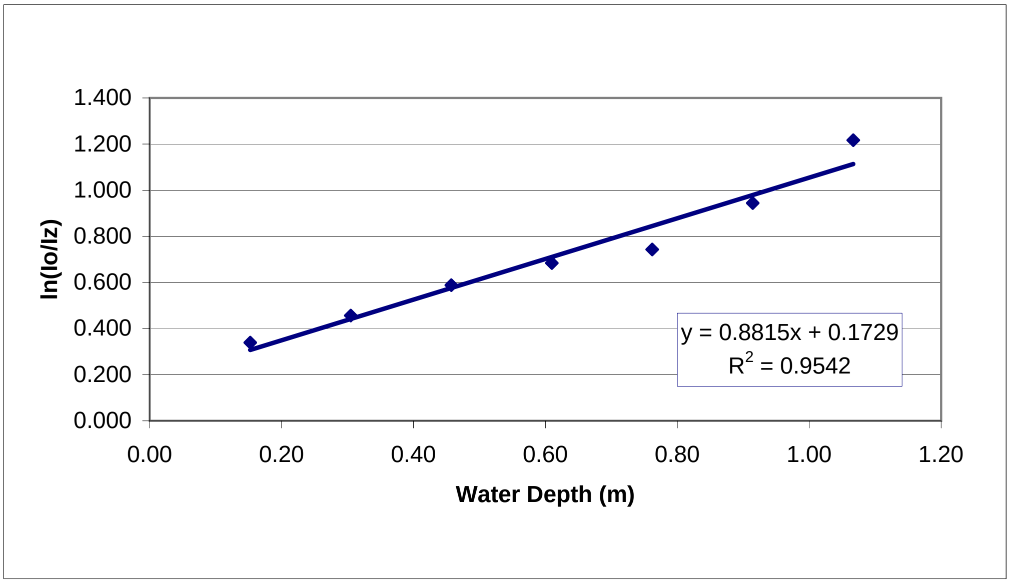
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 2 (UPSTREAM) - 11/07/06

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	122.3	170.5	100.8	4.61		
0.15	122.1	170.2	86.98	4.47	0.339	2.226
0.30	121.4	169.2	76.91	4.34	0.457	1.498
0.46	122.6	170.9	68.06	4.22	0.589	1.288
0.61	122.7	171.0	61.92	4.13	0.684	1.122
0.76	122.4	170.6	58.21	4.06	0.743	0.975
0.91	127.9	178.4	49.77	3.91	0.944	1.033
1.07	128.6	179.4	38.11	3.64	1.217	1.140

k (diffuse attenuation coefficient = slope, m-1)		0.882
k average		1.326
percent transmittance @	1.0 meter	41.42
Birgean Percentile Absorption (1m)		58.58



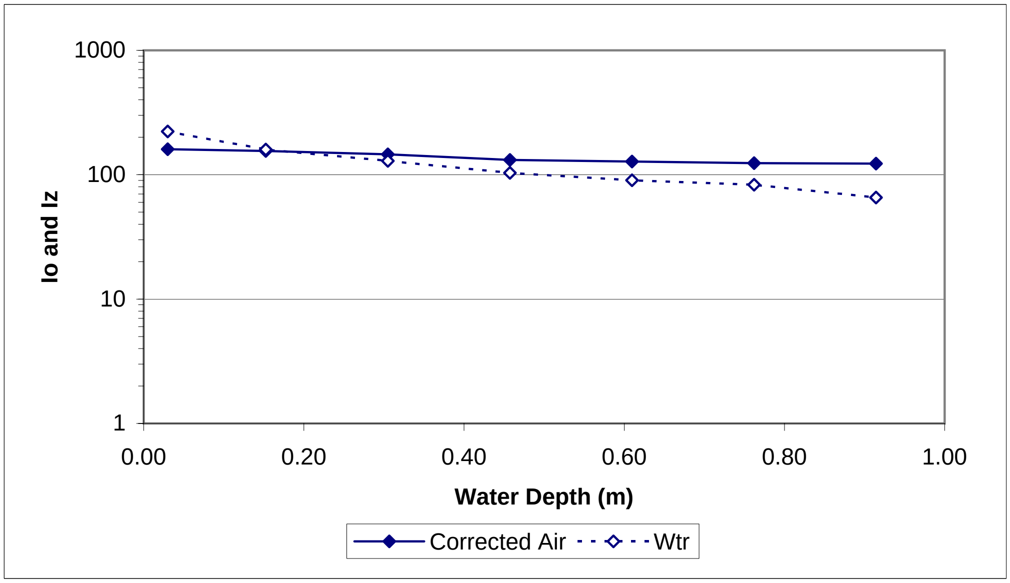


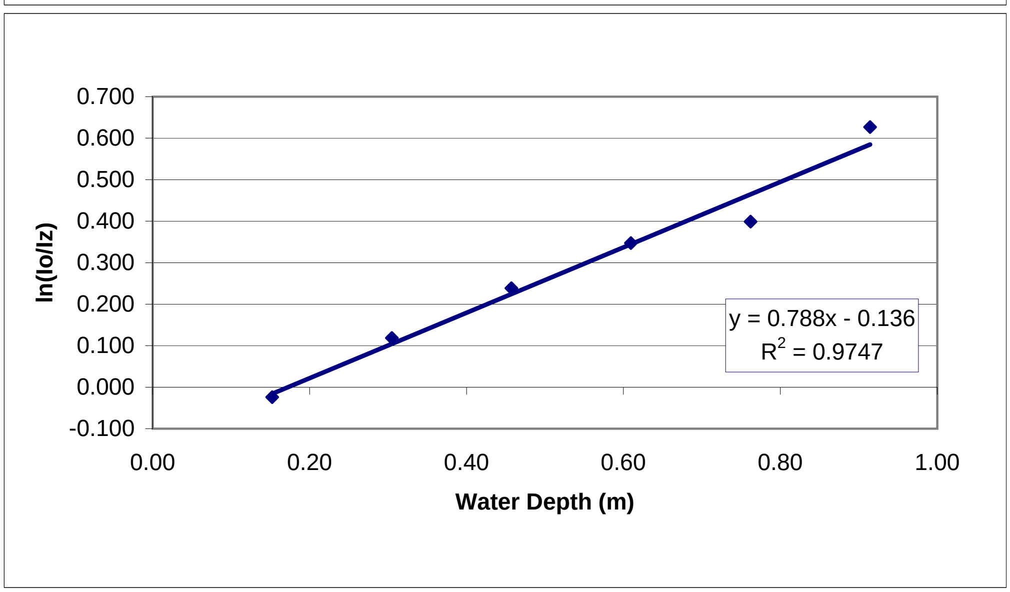
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 2 (DOWNSTREAM) -11/07/2006

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	160.4	224.2	222.5	5.40		
0.15	155.4	217.1	159.2	5.07	-0.024	-0.159
0.30	145.6	203.3	129.3	4.86	0.119	0.390
0.46	131.4	183.2	103.5	4.64	0.238	0.521
0.61	127.7	178.1	90.3	4.50	0.347	0.570
0.76	123.7	172.5	83.0	4.42	0.399	0.524
0.91	122.8	171.1	65.6	4.18	0.627	0.685

k (diffuse attenuation coefficient = slope, m-1)		0.788
k average		0.422
percent transmittance @	1.0 meter	45.47
Birgean Percentile Absorption (1m)		54.53



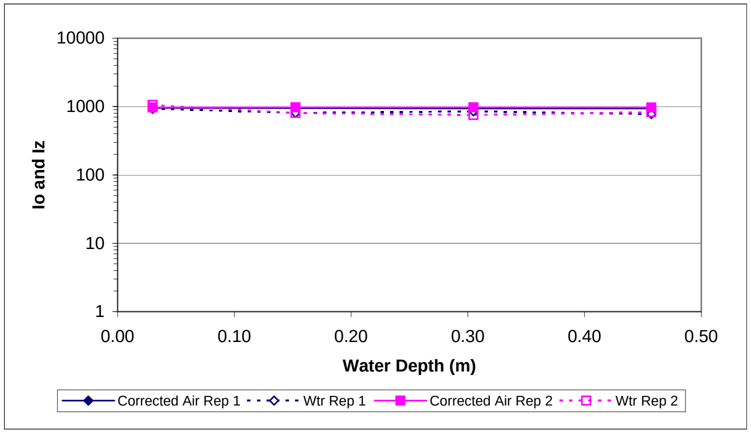


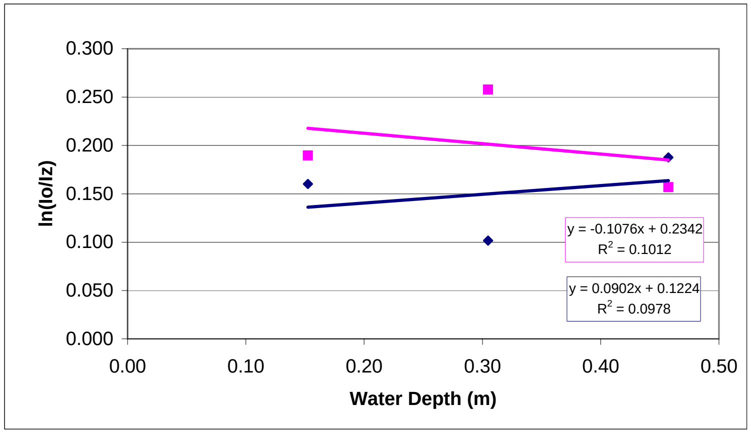
* Note: Light rain. Water relatively clear with particulates.

APPENDIX D
WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRING RUN SEGMENT 1 (UPSTREAM) - 10/05/06

Depth (m)	Rep 1						Depth (m)	Rep 2 [a]					
	corr	raw						corr	raw				
z	Air (Io)	Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	Air (Io)	Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	952.9	1,341	928.2	6.83			0.03	971.4	1,367	1,058	6.96		
0.15	946.5	1,332	806.4	6.69	0.160	1.051	0.15	977.0	1,375	808.3	6.69	0.190	1.244
0.30	940.9	1,324	849.9	6.75	0.102	0.334	0.30	972.8	1,369	751.7	6.62	0.258	0.846
0.46	936.6	1,318	776.3	6.65	0.188	0.411	0.46	972.1	1,368	831.0	6.72	0.157	0.343

k (diffuse attenuation coefficient = slope, m-1)		0.090	k (diffuse attenuation coefficient = slope, m-1)		-0.108
k average		0.598	k average		0.811
percent transmittance @	1.0 meter	91.38	percent transmittance @	1.0 meter	111.36
Birgean Percentile Absorption (1m)		8.62	Birgean Percentile Absorption (1m)		-11.36





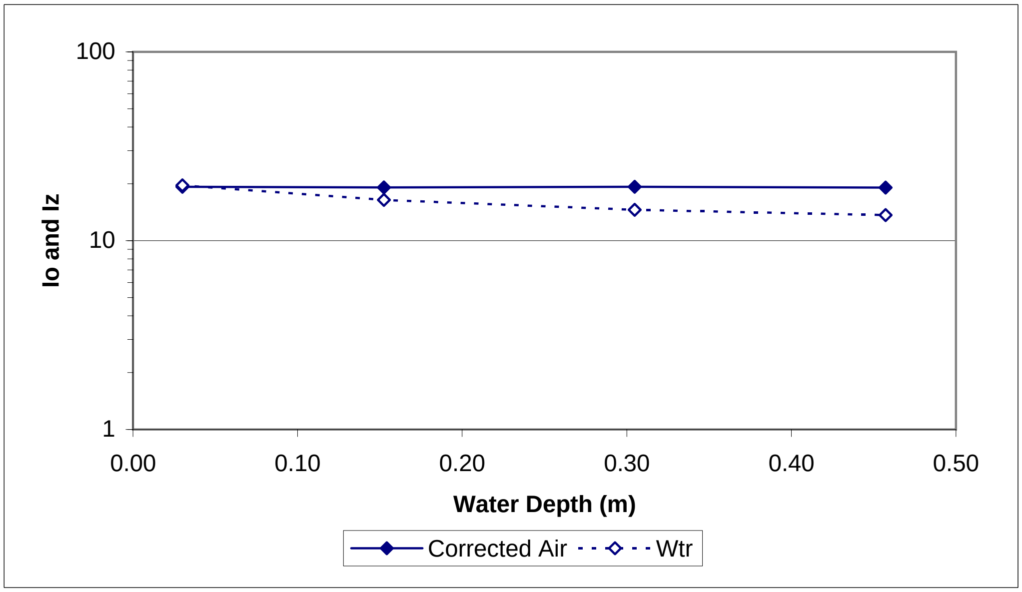
[a] data flagged - not used in calculating averages

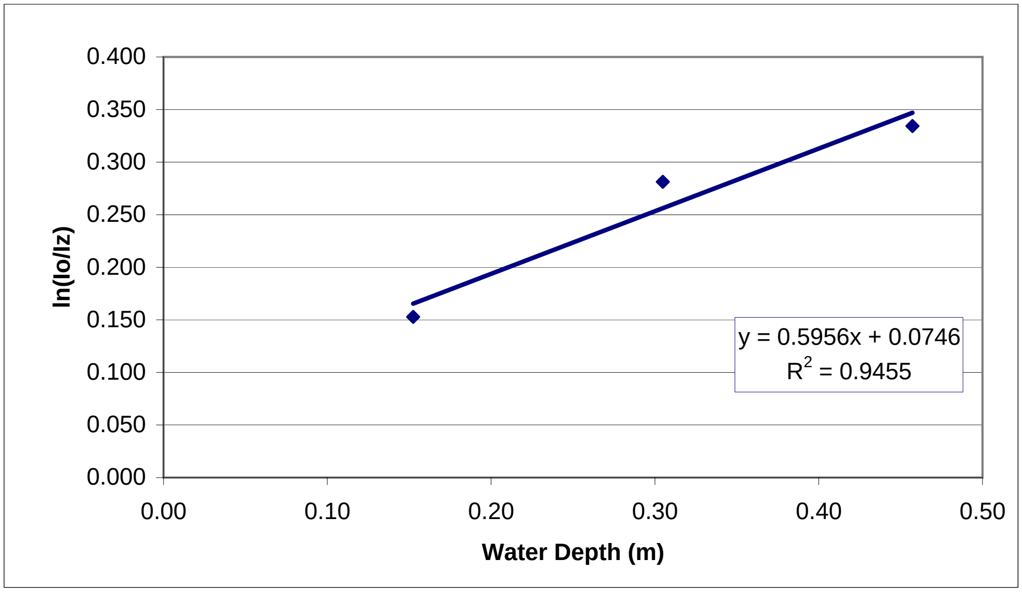
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRING RUN
SEGMENT 1 (DOWNSTREAM) -10/05/2006

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	19.30	25.30	19.65	2.98		
0.15	19.15	25.10	16.44	2.80	0.153	1.003
0.30	19.30	25.31	14.57	2.68	0.281	0.923
0.46	19.10	25.02	13.67	2.62	0.334	0.731

k (diffuse attenuation coefficient = slope, m-1)		0.596
k average		0.886
percent transmittance @	1.0 meter	55.12
Birgean Percentile Absorption (1m)		44.88





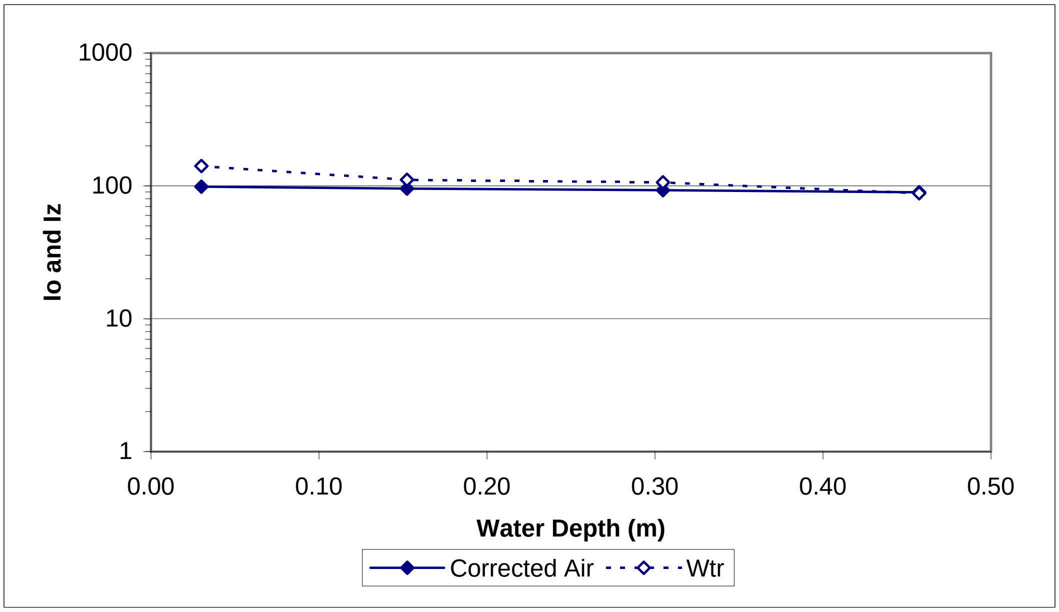
* Note: Readings taken in shade of canopy

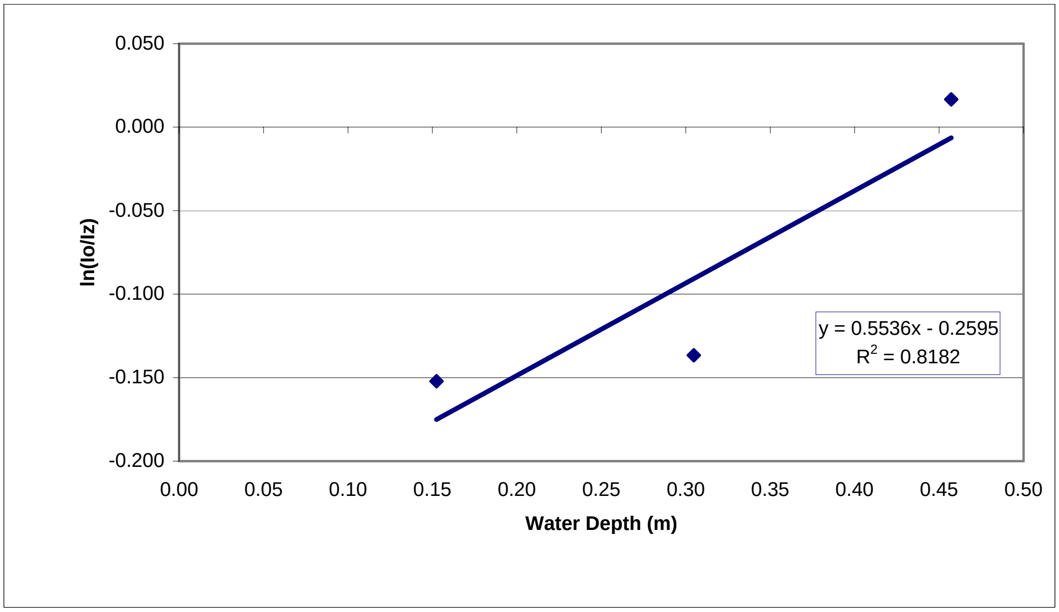
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRING RUN SEGMENT 1 (UPSTREAM) - 10/19/06

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	98.63	137.1	141.0	4.95		
0.15	95.51	132.7	111.2	4.71	-0.152	-0.998
0.30	92.81	128.9	106.4	4.67	-0.137	-0.448
0.46	89.69	124.5	88.21	4.48	0.017	0.036

k (diffuse attenuation coefficient = slope, m-1)		0.554
k average		-0.470
percent transmittance @	1.0 meter	57.49
Birgean Percentile Absorption (1m)		42.51



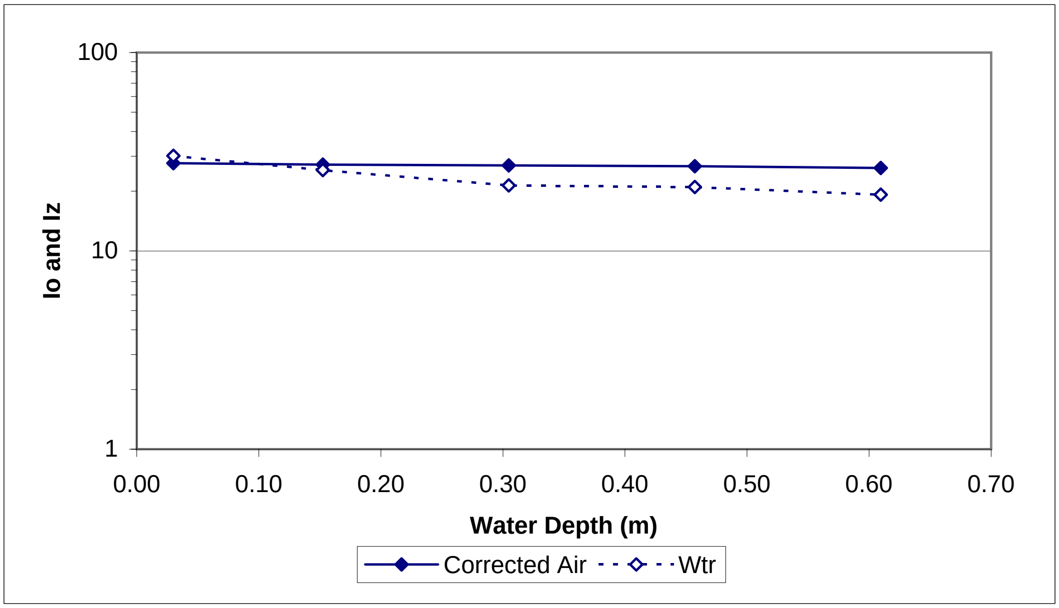


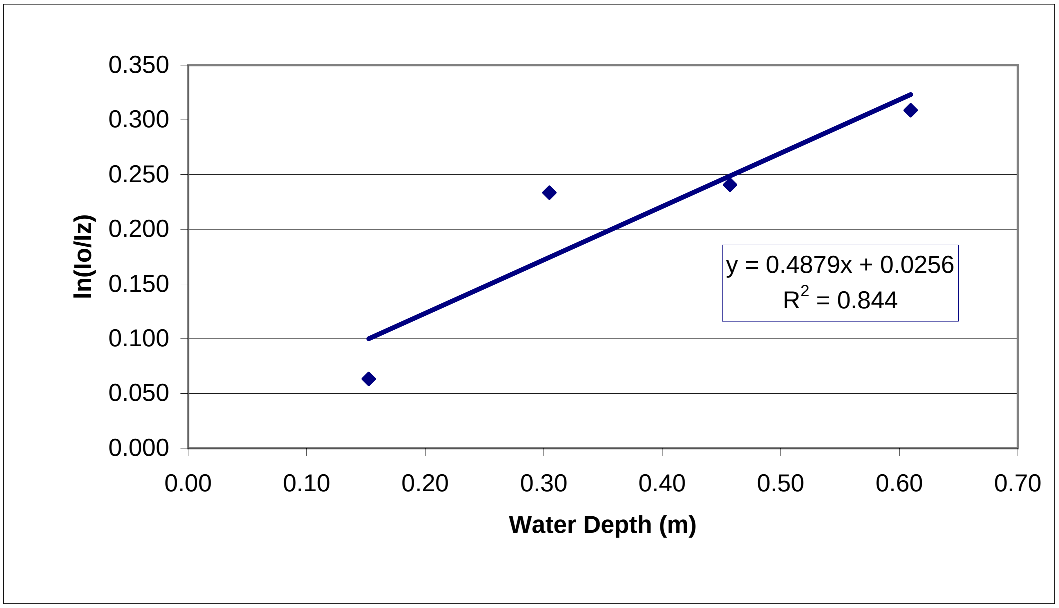
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRING RUN SEGMENT 1 (DOWNSTREAM) - 10/19/06

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	27.66	37.08	30.16	3.41		
0.15	27.23	36.48	25.56	3.24	0.063	0.415
0.30	26.99	36.14	21.37	3.06	0.233	0.766
0.46	26.73	35.77	21.01	3.04	0.241	0.526
0.61	26.16	34.97	19.21	2.96	0.309	0.506

k (diffuse attenuation coefficient = slope, m-1)		0.488
k average		0.553
percent transmittance @	1.0 meter	61.39
Birgean Percentile Absorption (1m)		38.61



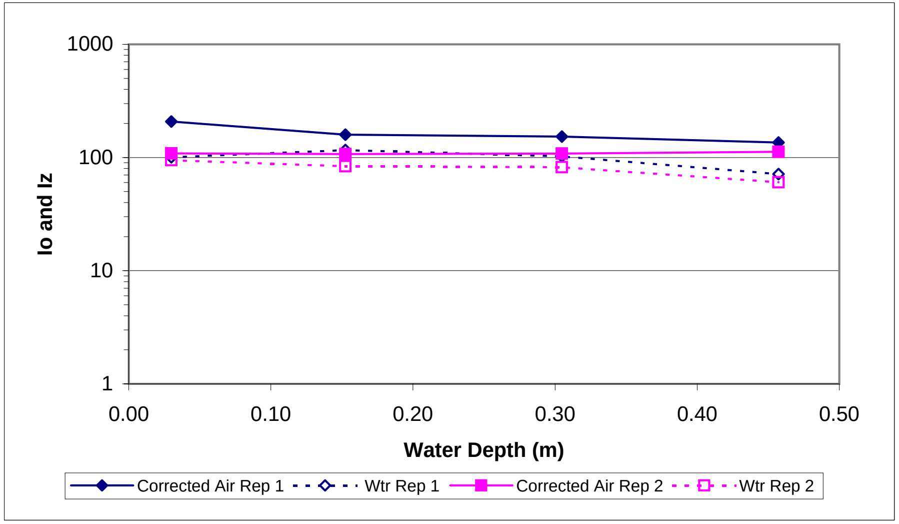


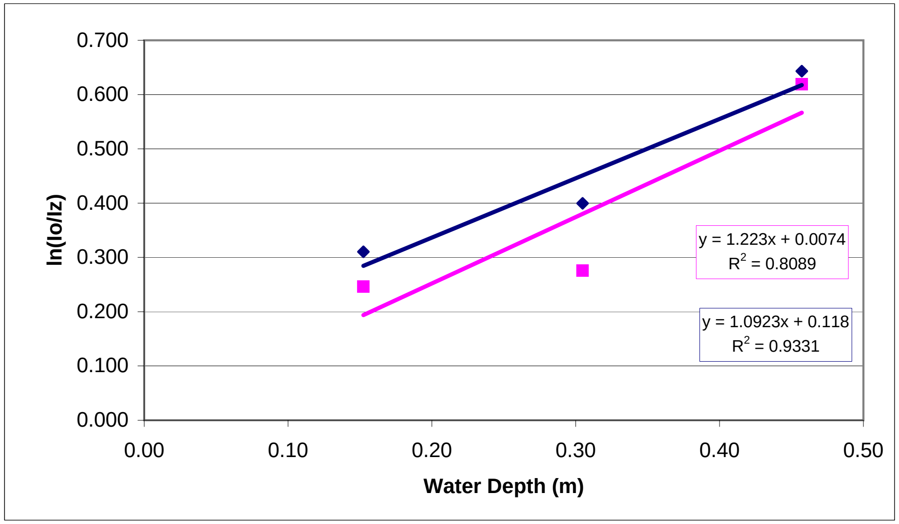
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRING RUN SEGMENT 2 (UPSTREAM) - 10/04/06

Depth (m)	Rep 1						Depth (m)	Rep 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	208	291	101	4.61			0.03	109	152	94.9	4.55		
0.15	159	222	117	4.76	0.310	2.036	0.15	107	149	83.9	4.43	0.246	1.615
0.30	153	214	103	4.63	0.400	1.311	0.30	108	151	82.3	4.41	0.276	0.904
0.46	136	189	71.3	4.27	0.643	1.407	0.46	112	157	60.5	4.10	0.619	1.354

k (diffuse attenuation coefficient = slope, m-1)		0.333	k (diffuse attenuation coefficient = slope, m-1)		1.223
k average		1.584	k average		1.291
percent transmittance @	1.0 meter	71.68	percent transmittance @	1.0 meter	29.43
Birgean Percentile Absorption (1m)		28.32	Birgean Percentile Absorption (1m)		70.57



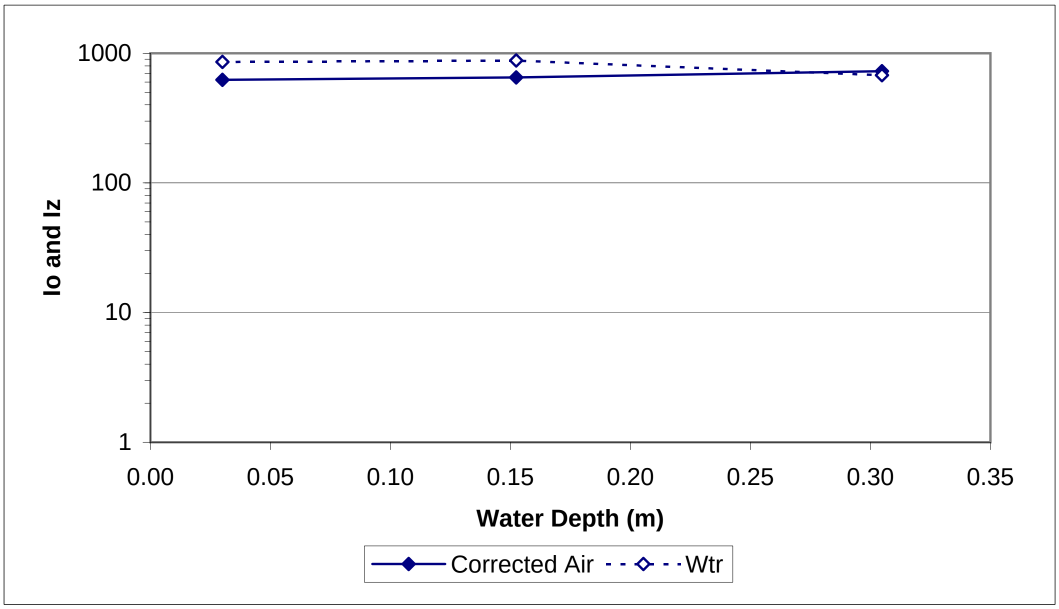


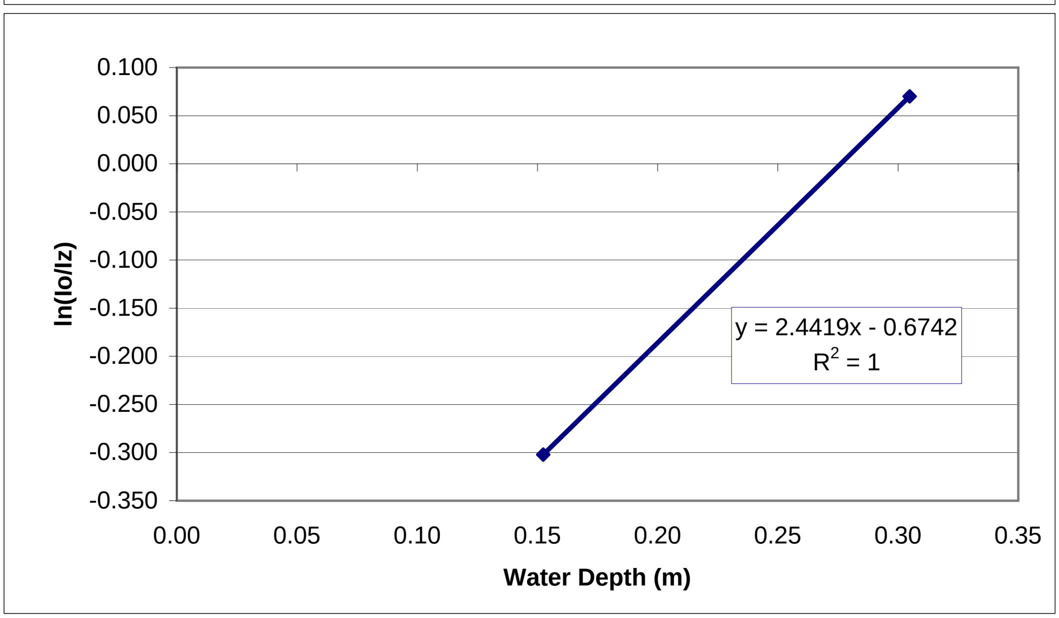
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRING RUN
SEGMENT 2 (DOWNSTREAM) -10/04/2006

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	625	878	858	6.75		
0.15	651	915	880	6.78	-0.302	-1.982
0.30	727	1,022	677	6.52	0.070	0.230

k (diffuse attenuation coefficient = slope, m-1)		2.442
k average		-0.876
percent transmittance @	1.0 meter	8.70
Birgean Percentile Absorption (1m)		91.30



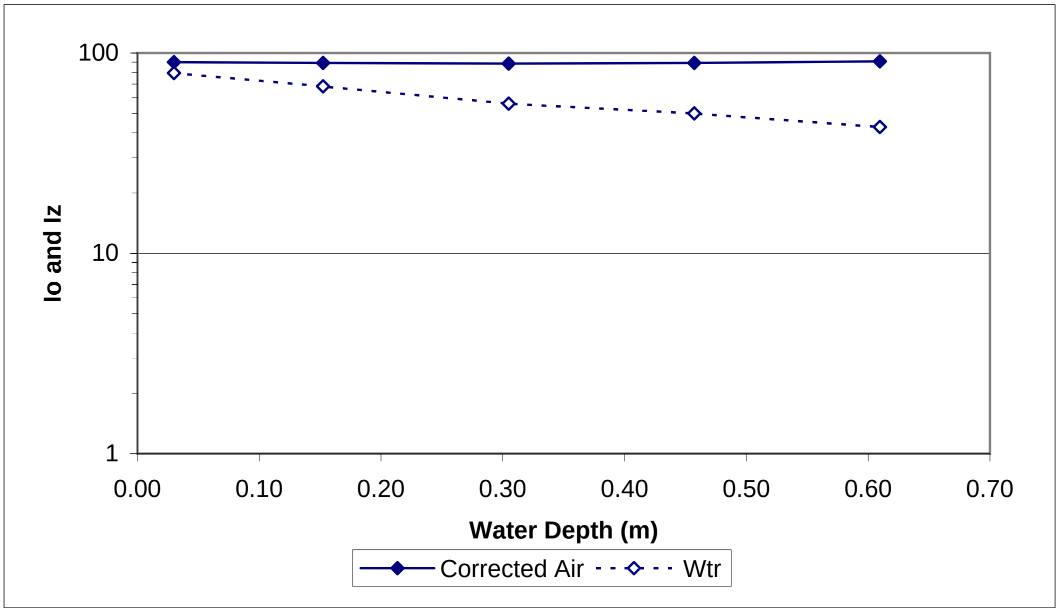


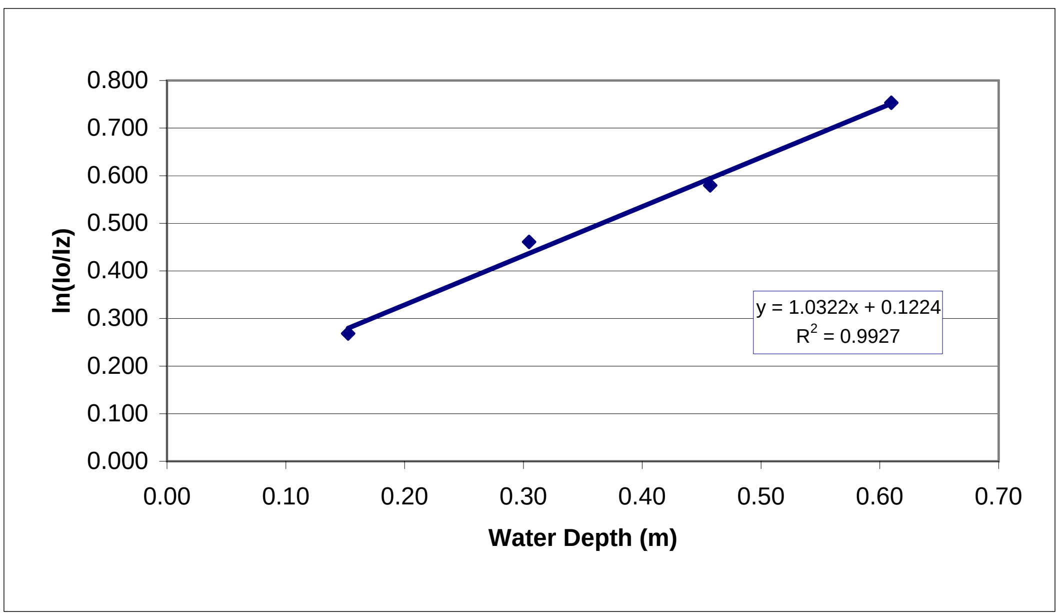
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRING RUN SEGMENT 2 (UPSTREAM) - 10/18/06

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	90.0	125.0	79.5	4.38		
0.15	89.3	123.9	68.2	4.22	0.269	1.762
0.30	88.6	123.0	55.9	4.02	0.461	1.513
0.46	89.2	123.8	50.0	3.91	0.580	1.268
0.61	90.8	126.1	42.8	3.76	0.753	1.236

k (diffuse attenuation coefficient = slope, m-1)		1.032
k average		1.445
percent transmittance @	1.0 meter	35.62
Birgean Percentile Absorption (1m)		64.38



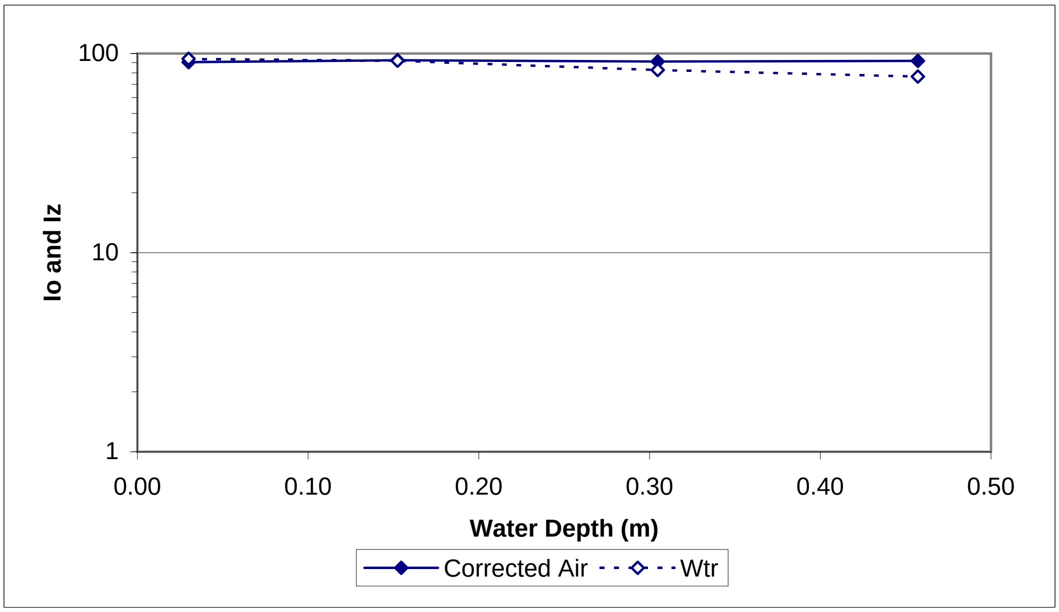


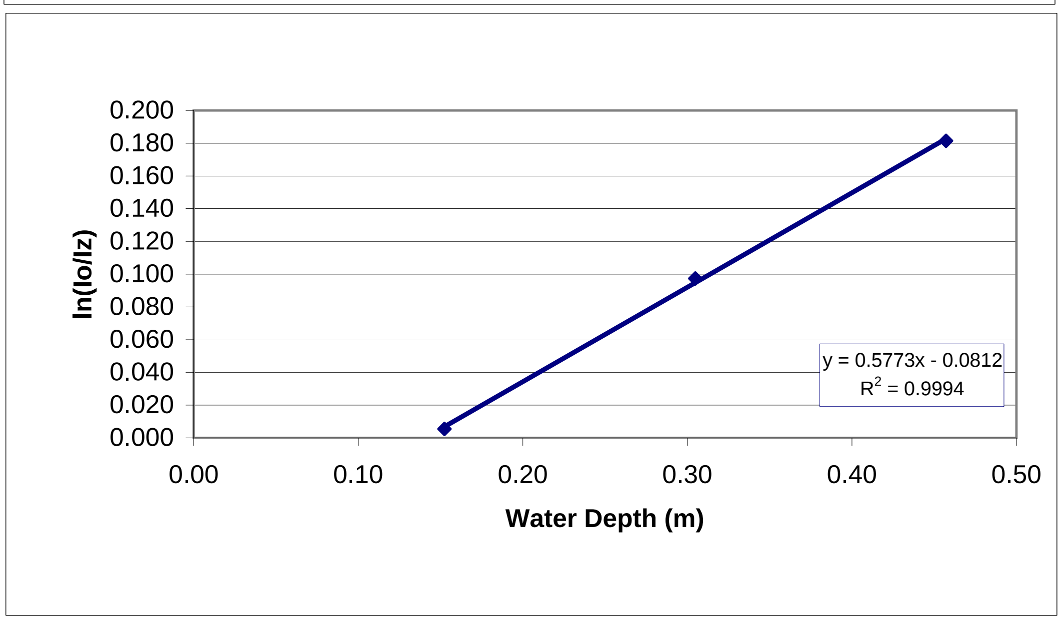
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRING RUN SEGMENT 2 (DOWNSTREAM) - 10/18/06

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	90.5	125.7	94.1	4.54		
0.15	92.6	128.6	92.1	4.52	0.006	0.036
0.30	91.2	126.6	82.7	4.42	0.097	0.319
0.46	91.8	127.5	76.580	4.34	0.181	0.397

k (diffuse attenuation coefficient = slope, m-1)		0.577
k average		0.251
percent transmittance @	1.0 meter	56.14
Birgean Percentile Absorption (1m)		43.86



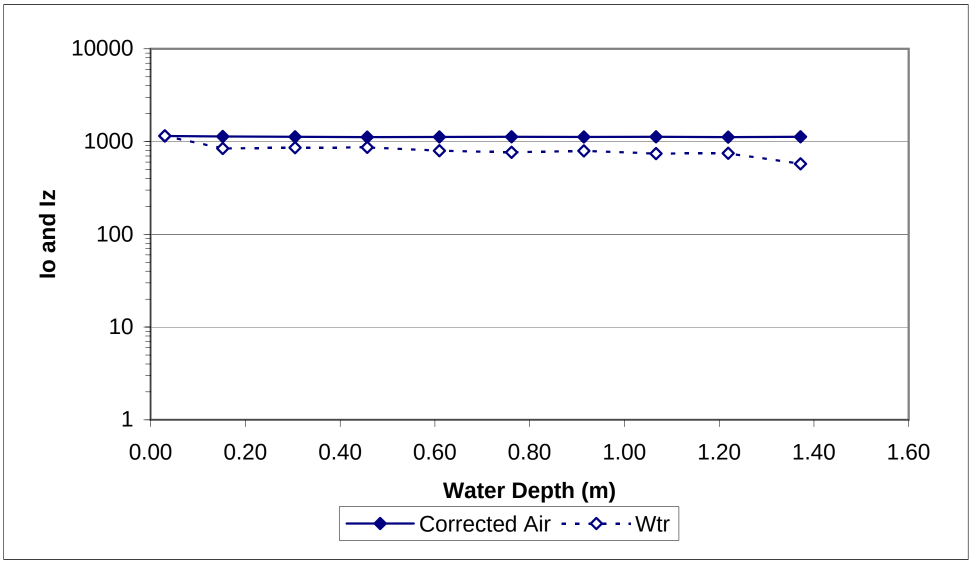


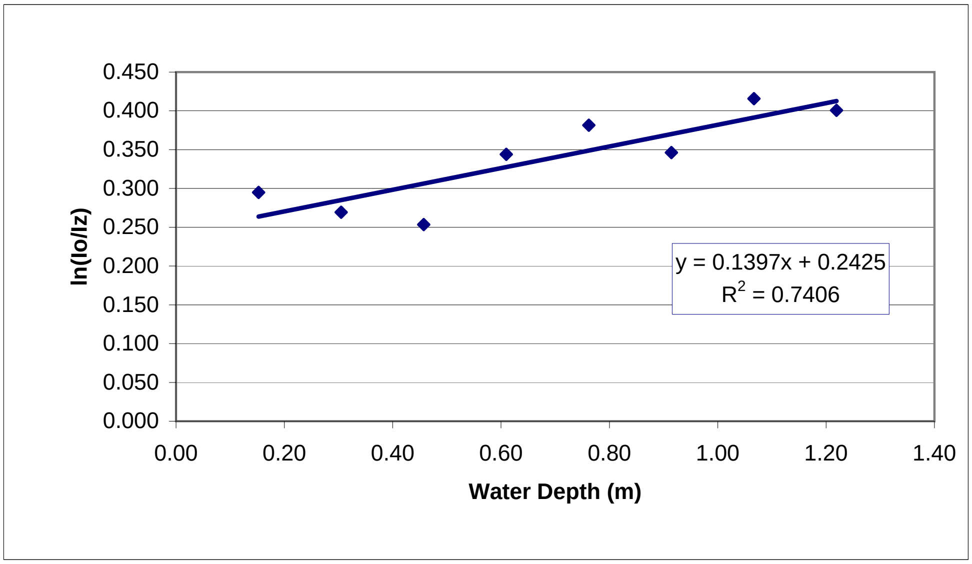
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ALEXANDER SPRING CREEK SEGMENT 1 (UPSTREAM) - 10/24/2006

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,149	1,617	1,153	7.05		
0.15	1,132	1,594	843.2	6.74	0.295	1.935
0.30	1,124	1,582	858.5	6.76	0.269	0.884
0.46	1,115	1,570	865.7	6.76	0.253	0.554
0.61	1,122	1,579	795.2	6.68	0.344	0.564
0.76	1,123	1,581	766.9	6.64	0.382	0.501
0.91	1,120	1,576	792.0	6.67	0.346	0.379
1.07	1,124	1,582	741.6	6.61	0.416	0.390
1.22	1,115	1,569	746.7	6.62	0.401	0.329
1.37	1,123	1,581	575.7	6.36	0.668	0.487

k (diffuse attenuation coefficient = slope, m-1)		0.242
k average		0.669
percent transmittance @	1.0 meter	78.49
Birgean Percentile Absorption (1m)		21.51



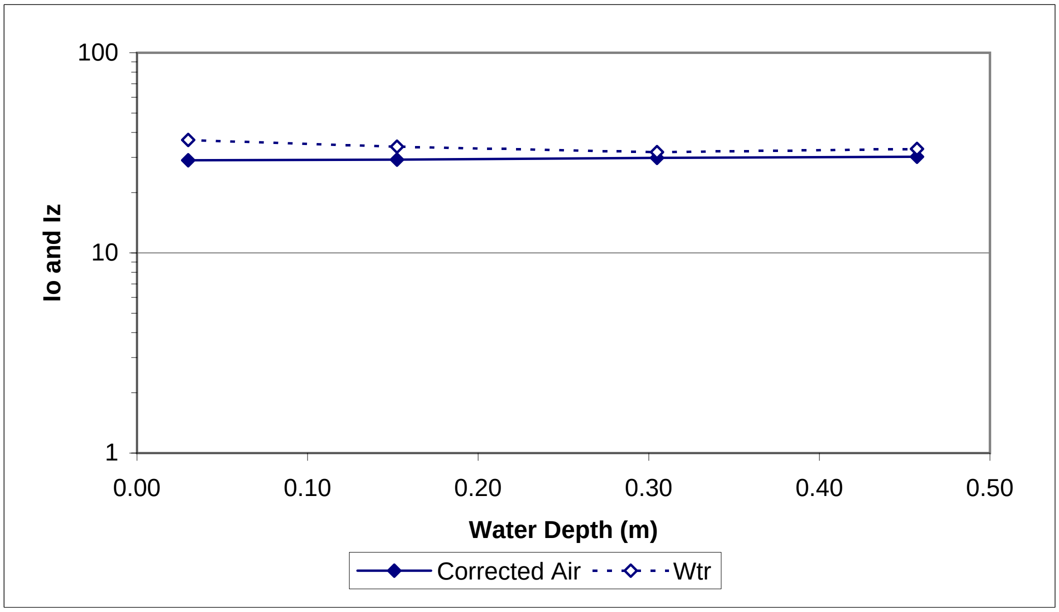


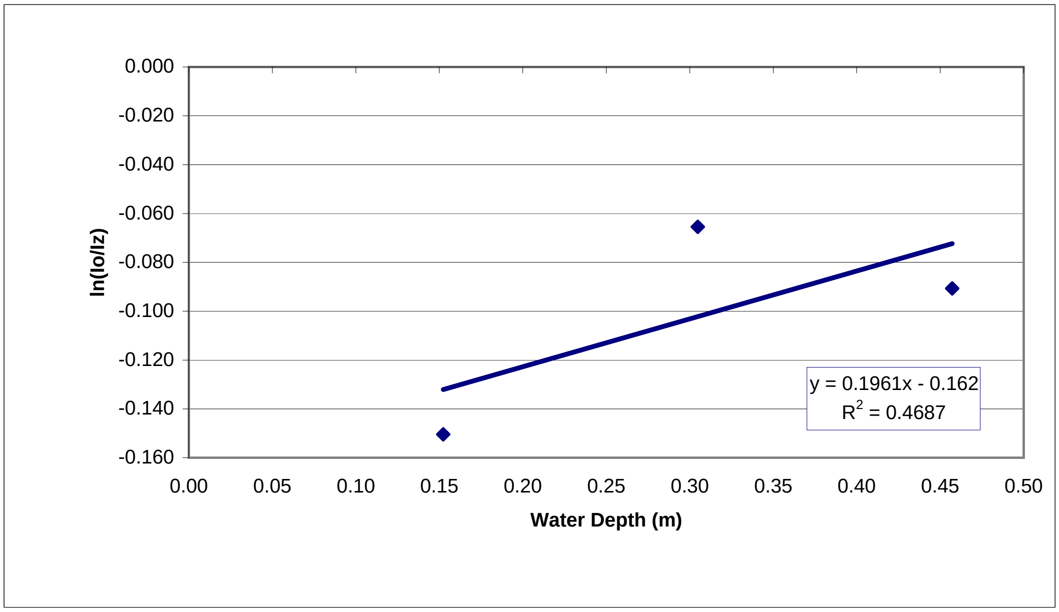
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ALEXANDER SPRING CREEK SEGMENT 1 (DOWNSTREAM) - 10/24/06

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	29.0	39.0	36.7	3.60		
0.15	29.2	39.3	34.0	3.53	-0.150	-0.987
0.30	29.8	40.2	31.86	3.46	-0.065	-0.215
0.46	30.2	40.7	33.07	3.50	-0.091	-0.198

k (diffuse attenuation coefficient = slope, m-1)		0.196
k average		-0.467
percent transmittance @	1.0 meter	82.20
Birgean Percentile Absorption (1m)		17.80





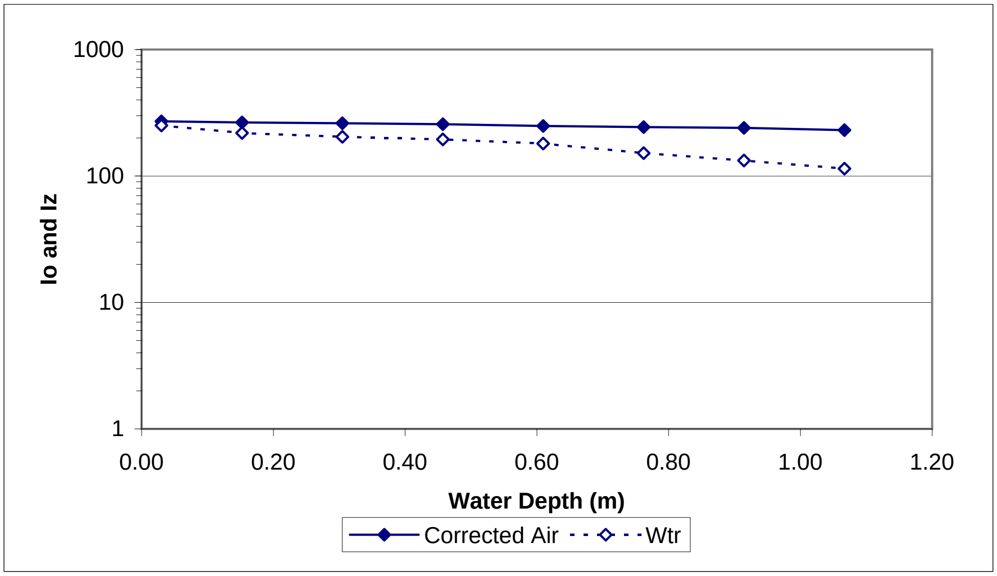
*Under bridge in shade

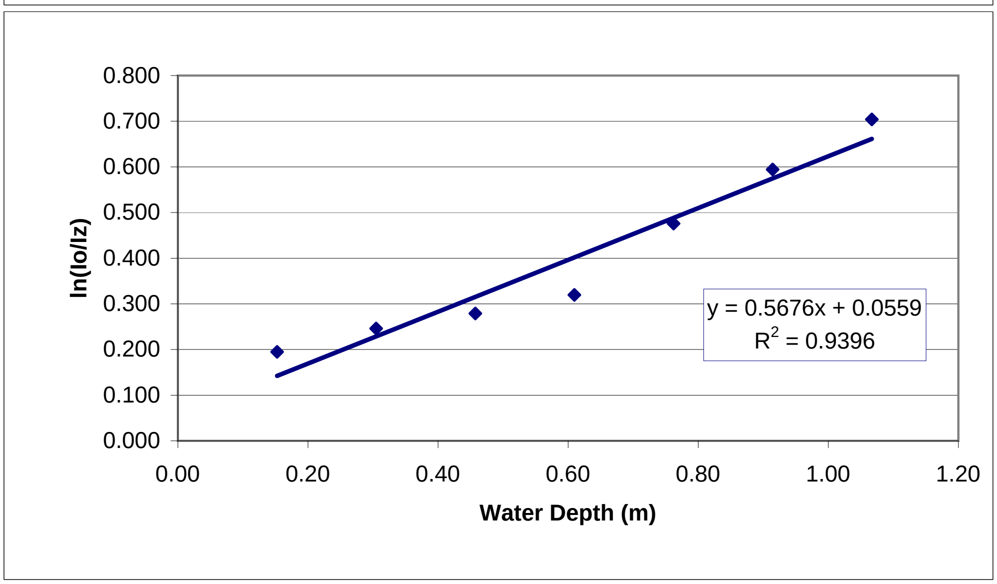
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ALEXANDER SPRING CREEK SEGMENT 1 (UPSTREAM) - 11/7/2006

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	270.8	379.8	251.0	5.53		
0.15	265.5	372.2	218.5	5.39	0.195	1.277
0.30	261.1	366.1	204.2	5.32	0.246	0.807
0.46	257.1	360.4	194.5	5.27	0.279	0.610
0.61	248.9	348.9	180.8	5.20	0.320	0.525
0.76	244.0	341.9	151.6	5.02	0.476	0.624
0.91	240.3	336.7	132.6	4.89	0.594	0.650
1.07	230.9	323.5	114.2	4.74	0.704	0.660

k (diffuse attenuation coefficient = slope, m-1)		0.568
k average		0.736
percent transmittance @	1.0 meter	56.69
Birgean Percentile Absorption (1m)		43.31





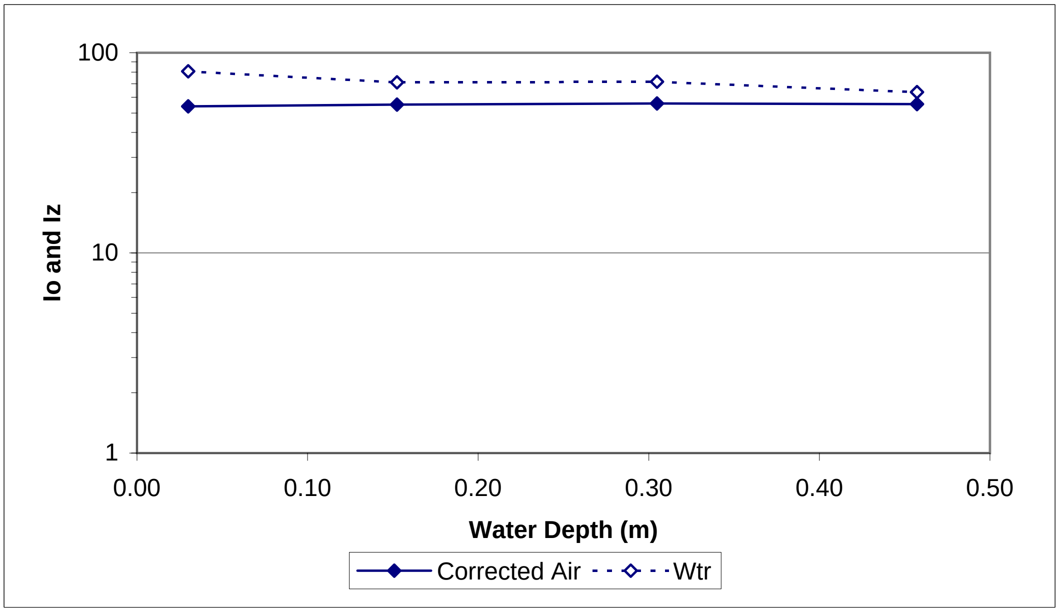
*Overcast. Water clear.

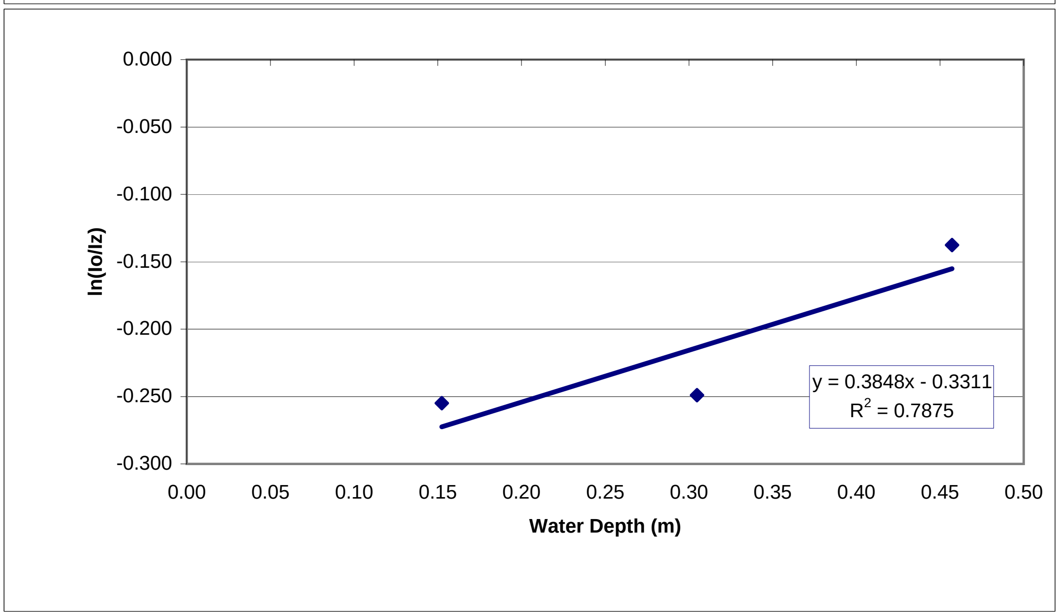
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ALEXANDER SPRING CREEK SEGMENT 1 (DOWNSTREAM) - 11/07/06

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	54.0	74.2	80.7	4.39		
0.15	55.1	75.8	71.1	4.26	-0.255	-1.672
0.30	55.8	76.8	71.63	4.27	-0.249	-0.817
0.46	55.4	76.1	63.54	4.15	-0.138	-0.301

k (diffuse attenuation coefficient = slope, m-1)		0.385
k average		-0.930
percent transmittance @	1.0 meter	68.06
Birgean Percentile Absorption (1m)		31.94





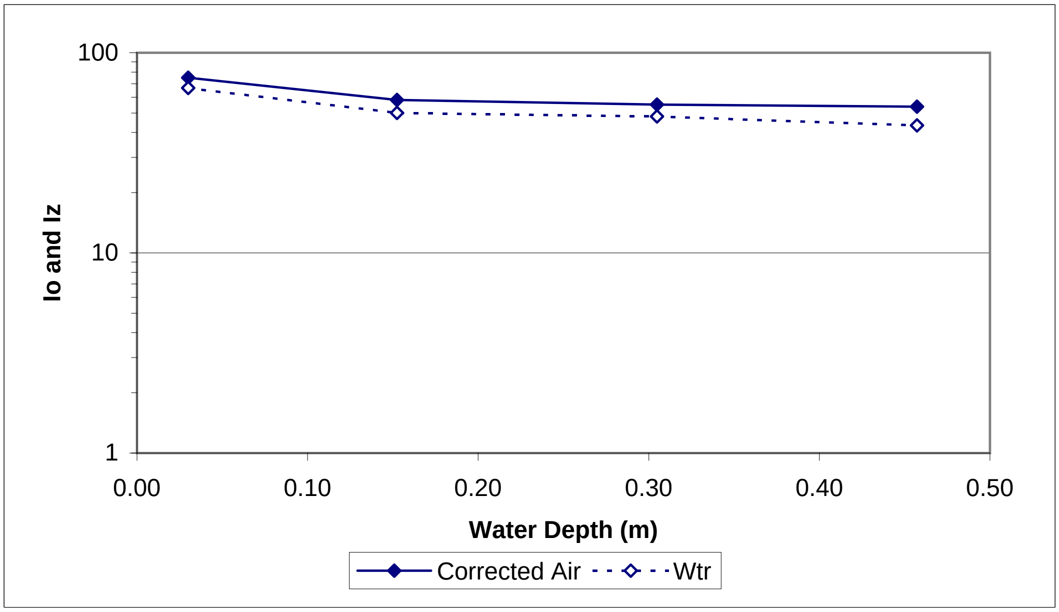
*Under bridge. Overcast

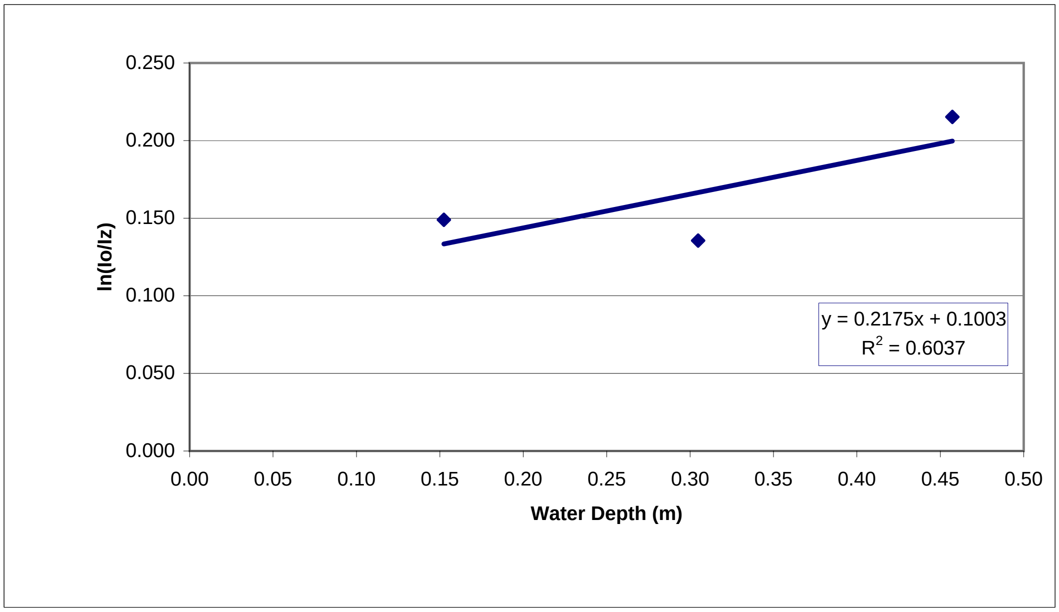
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ALEXANDER SPRING CREEK SEGMENT 1 (DOWNSTREAM) - 11/16/06

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	75.1	103.9	66.7	4.20		
0.15	58.1	80.0	50.0	3.91	0.149	0.977
0.30	55.1	75.7	48.1	3.87	0.136	0.445
0.46	53.8	73.9	43.4	3.77	0.215	0.471

k (diffuse attenuation coefficient = slope, m-1)		0.217
k average		0.631
percent transmittance @	1.0 meter	80.45
Birgean Percentile Absorption (1m)		19.55





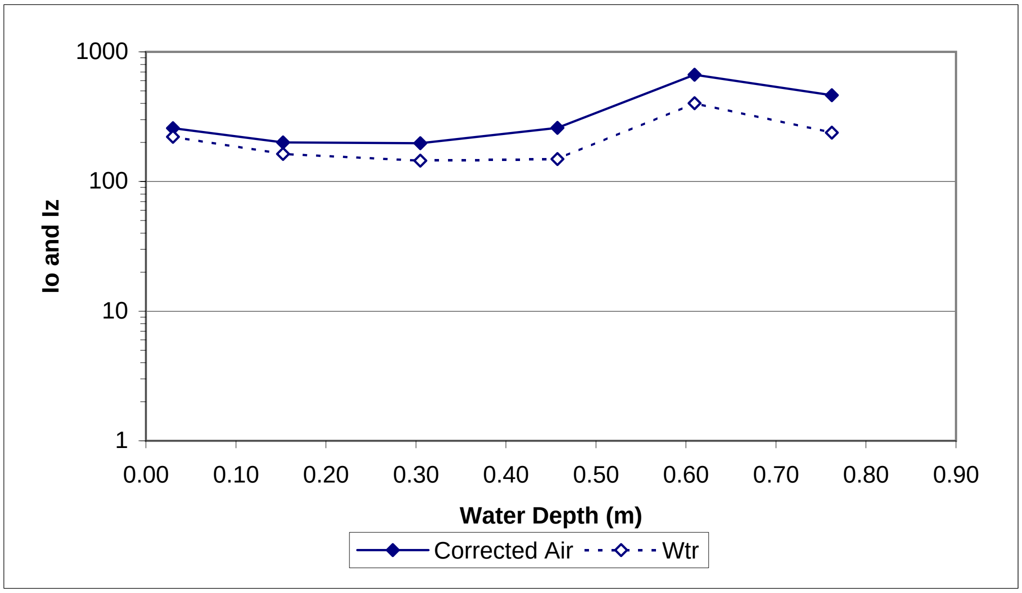
*Under bridge. Overcast

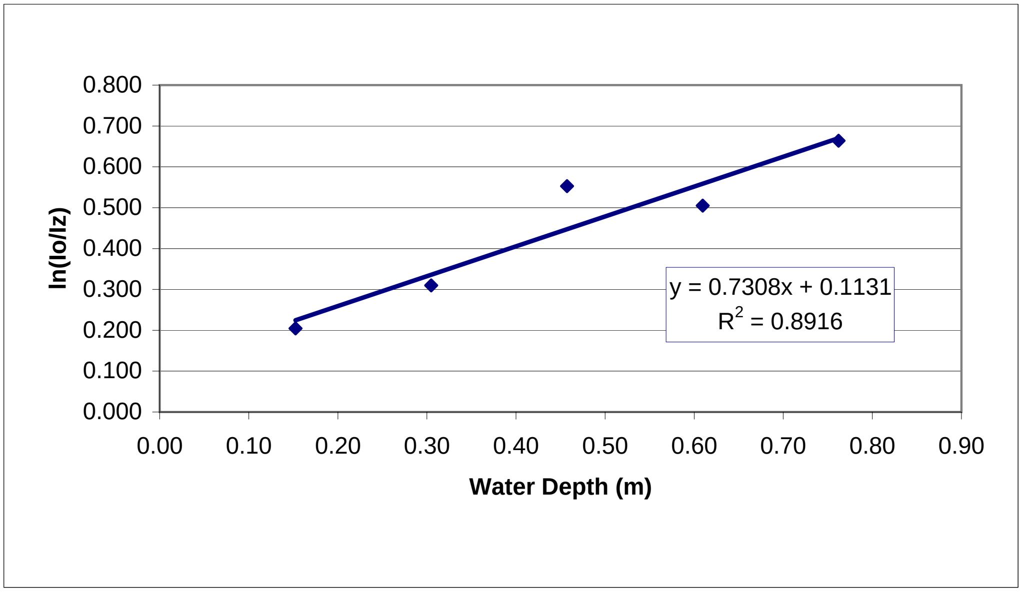
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ALEXANDER SPRING CREEK SEGMENT 1 (UPSTREAM) - 11/16/2006

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	257.6	361.1	221.1	5.40		
0.15	200.2	280.3	163.2	5.09	0.205	1.342
0.30	197.4	276.3	144.8	4.98	0.310	1.017
0.46	259.3	363.5	149.2	5.01	0.553	1.209
0.61	665.9	936.5	401.8	6.00	0.505	0.829
0.76	463.0	650.6	238.4	5.47	0.664	0.871

k (diffuse attenuation coefficient = slope, m-1)		0.731
k average		1.054
percent transmittance @	1.0 meter	48.15
Birgean Percentile Absorption (1m)		51.85





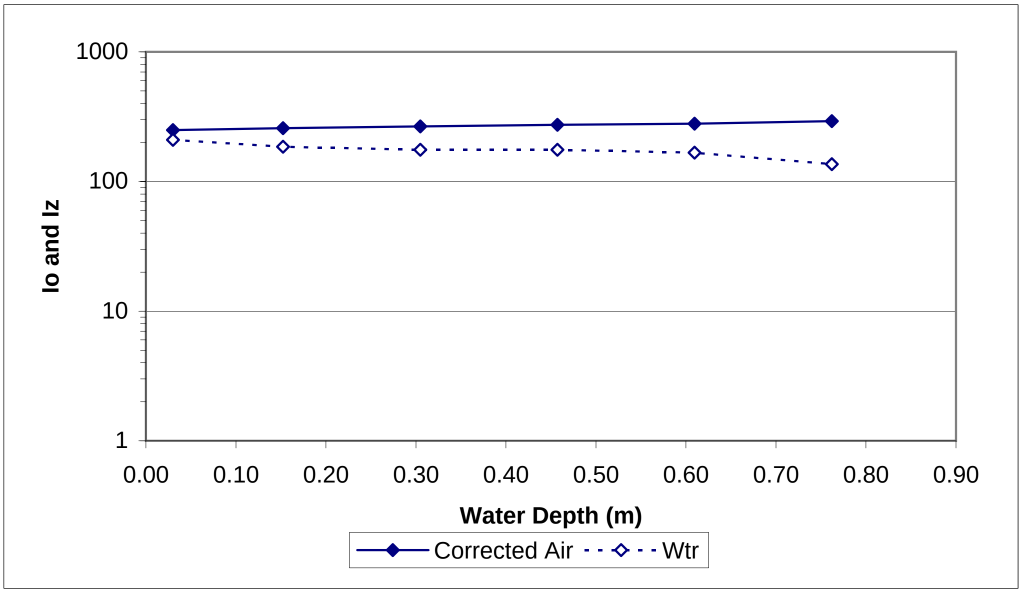
*Overcast. Water clear.

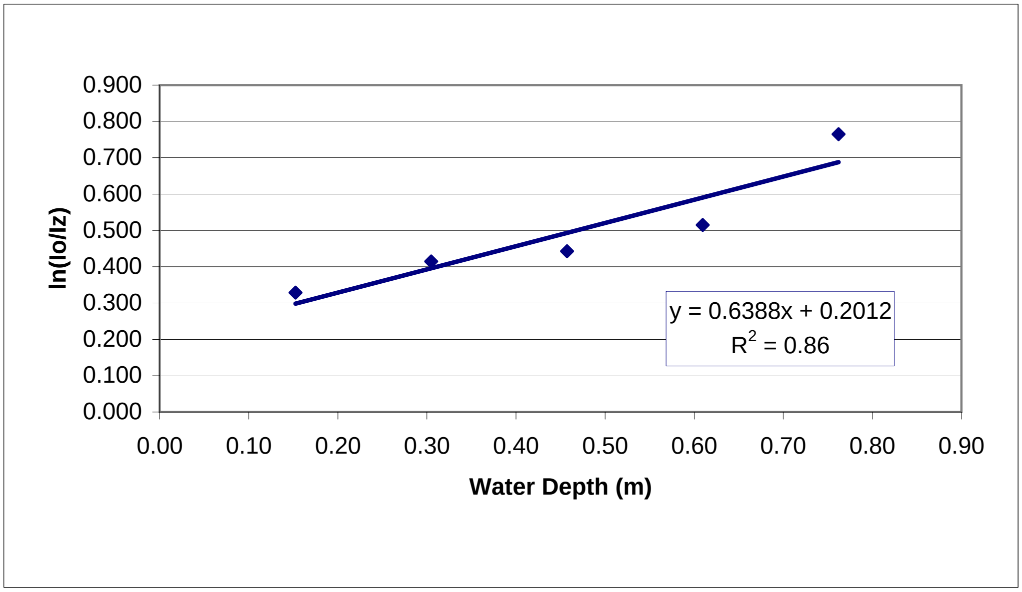
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ALEXANDER SPRING CREEK SEGMENT 1 (UPSTREAM) - 11/30/2006

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	248.9	348.8	209.5	5.34		
0.15	257.9	361.6	185.7	5.22	0.329	2.156
0.30	265.8	372.7	175.6	5.17	0.415	1.360
0.46	273.6	383.7	175.7	5.17	0.443	0.969
0.61	279.4	391.8	166.9	5.12	0.515	0.845
0.76	292.3	410	136.0	4.91	0.765	1.004

k (diffuse attenuation coefficient = slope, m-1)		0.639
k average		1.267
percent transmittance @	1.0 meter	52.79
Birgean Percentile Absorption (1m)		47.21





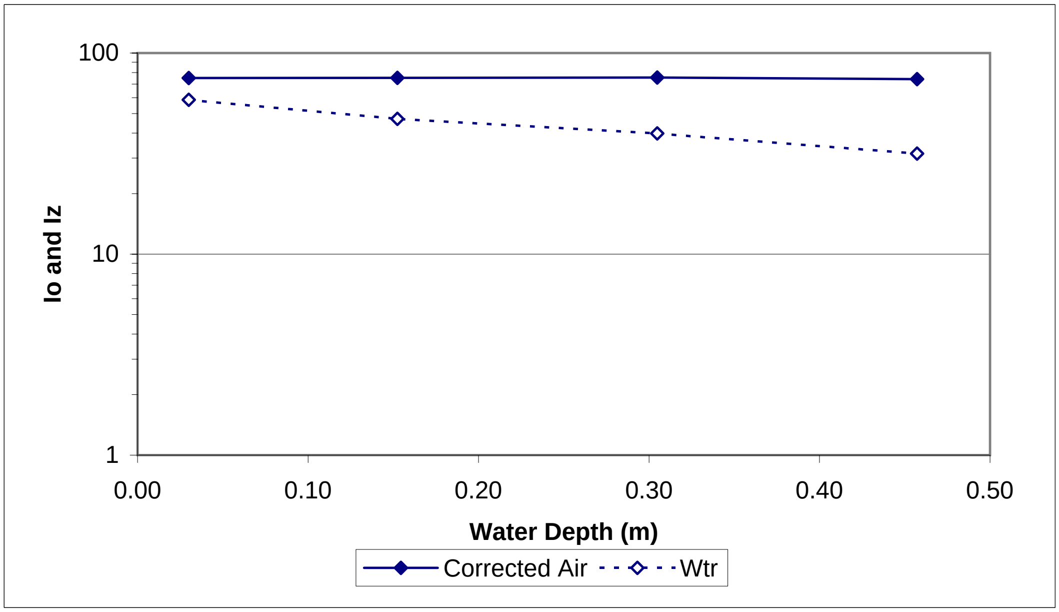
*P. Cloudy. Water clear.

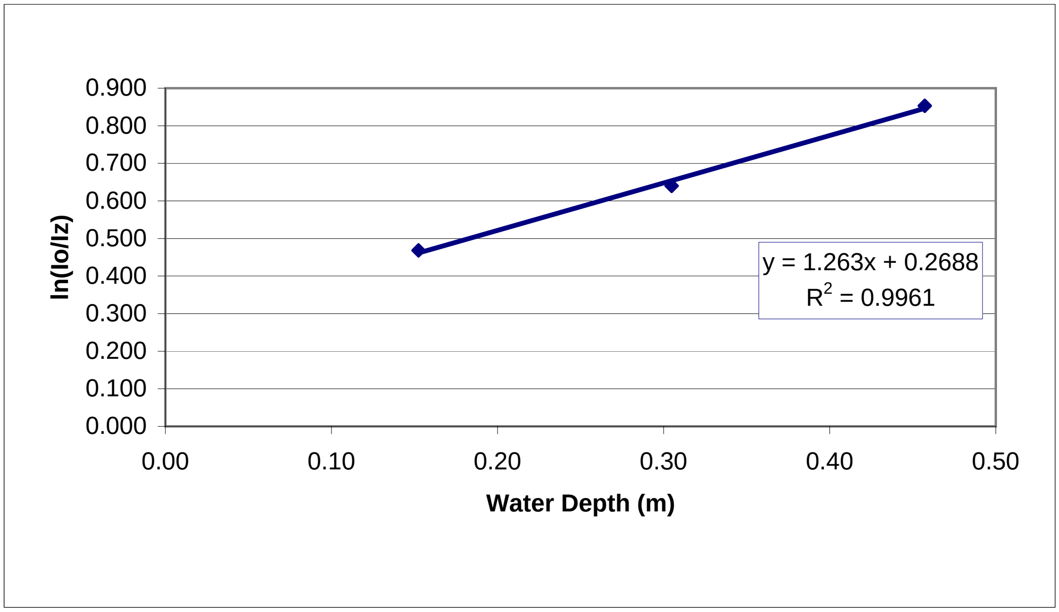
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ALEXANDER SPRING CREEK SEGMENT 1 (DOWNSTREAM) - 11/30/2006

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	75.1	103.9	58.51	4.07		
0.15	75.2	104.1	47.1	3.85	0.468	3.073
0.30	75.6	104.6	39.9	3.69	0.640	2.099
0.46	74.2	102.7	31.6	3.45	0.853	1.866

k (diffuse attenuation coefficient = slope, m-1)		1.263
k average		2.346
percent transmittance @	1.0 meter	28.28
Birgean Percentile Absorption (1m)		71.72





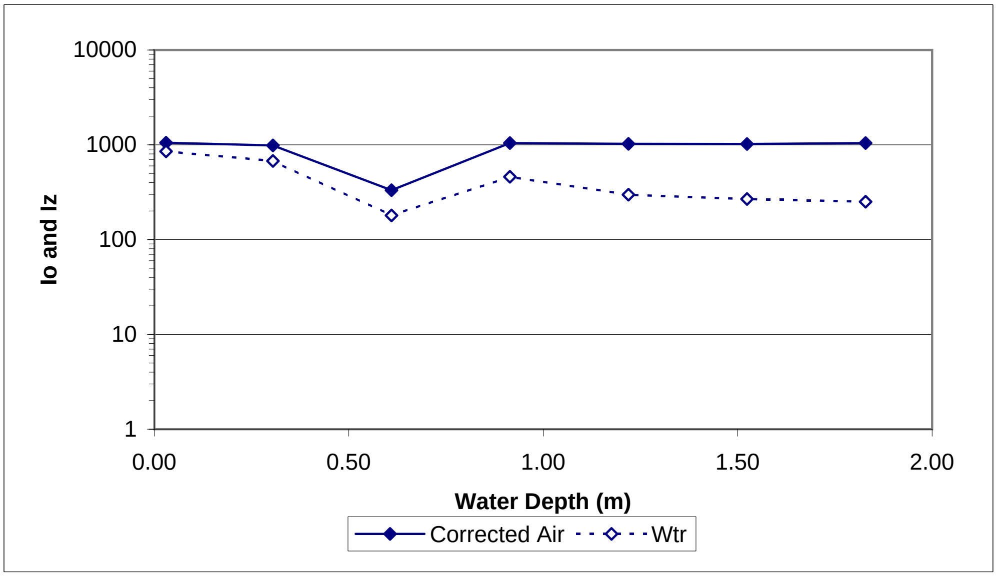
*In shade under bridge. Water clear.

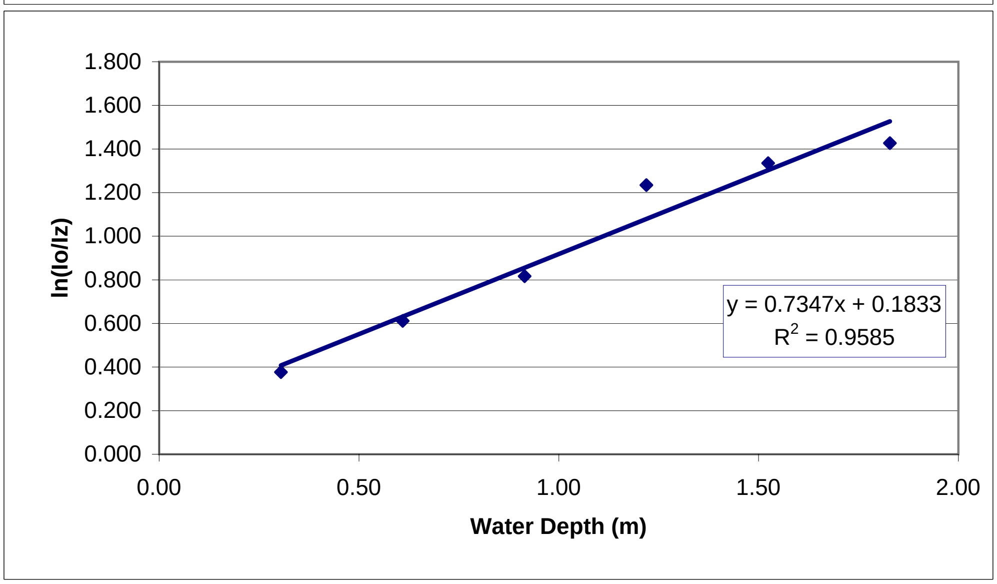
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - JUNIPER CREEK
SEGMENT 1 (UPSTREAM) - 10/04/2006

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,051	1,479	852.8	6.75		
0.30	986	1,387	676.0	6.52	0.377	1.237
0.61	331	0,465	179.7	5.19	0.612	1.004
0.91	1,042	1,467	460.6	6.13	0.817	0.893
1.22	1,022	1,439	297.5	5.70	1.235	1.013
1.52	1,020	1,435	268.2	5.59	1.335	0.876
1.83	1,044	1,470	250.7	5.52	1.427	0.780

k (diffuse attenuation coefficient = slope, m-1)		0.735
k average		0.967
percent transmittance @	1.0 meter	47.96
Birgean Percentile Absorption (1m)		52.04



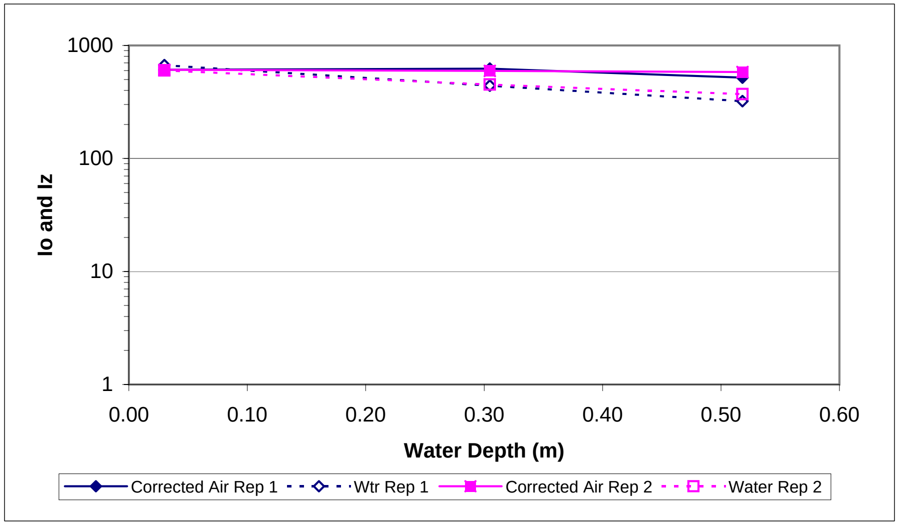


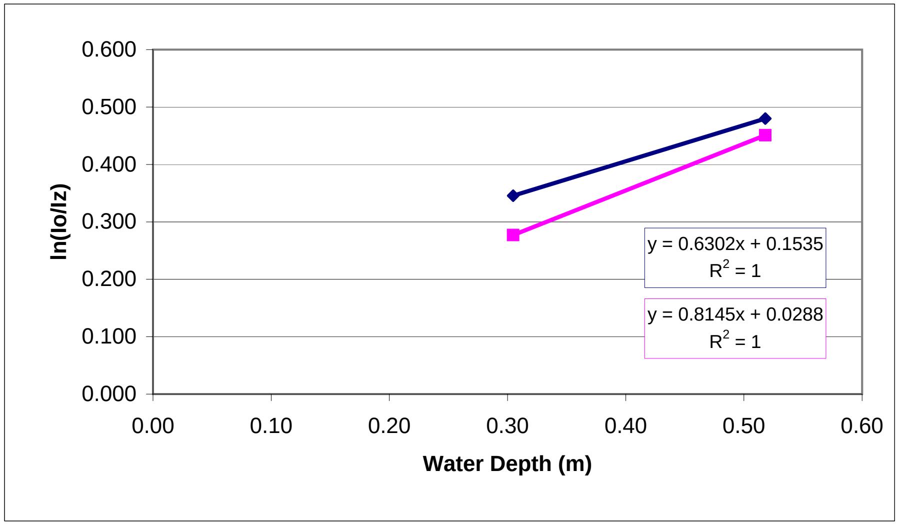
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - JUNIPER CREEK SEGMENT 1 (DOWNSTREAM) - 10/04/06

Depth (m)	Rep 1						Depth (m)	Rep 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	608.8	856.0	668.6	6.51			0.03	609.2	856.6	602.2	6.40		
0.30	623.4	876.7	441.3	6.09	0.346	1.134	0.30	595.0	836.6	451.0	6.11	0.277	0.909
0.52	518.9	729.4	321.1	5.77	0.480	0.926	0.52	582.5	819.0	371.1	5.92	0.451	0.870

k (diffuse attenuation coefficient = slope, m-1)		0.630	k (diffuse attenuation coefficient = slope, m-1)		0.815
k average		1.030	k average		0.890
percent transmittance @	1.0 meter	53.25	percent transmittance @	1.0 meter	44.29
Birgean Percentile Absorption (1m)		46.75	Birgean Percentile Absorption (1m)		55.71



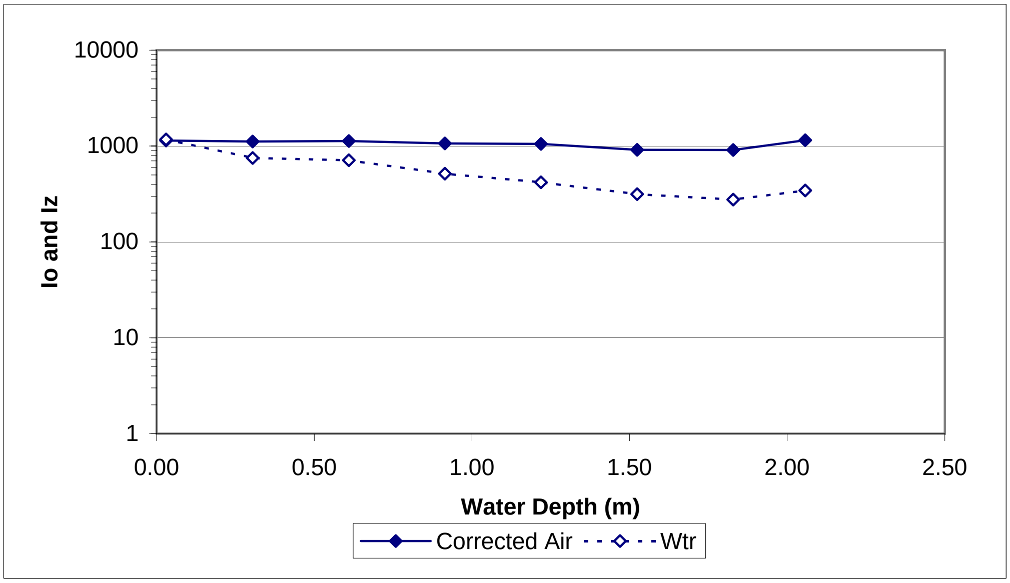


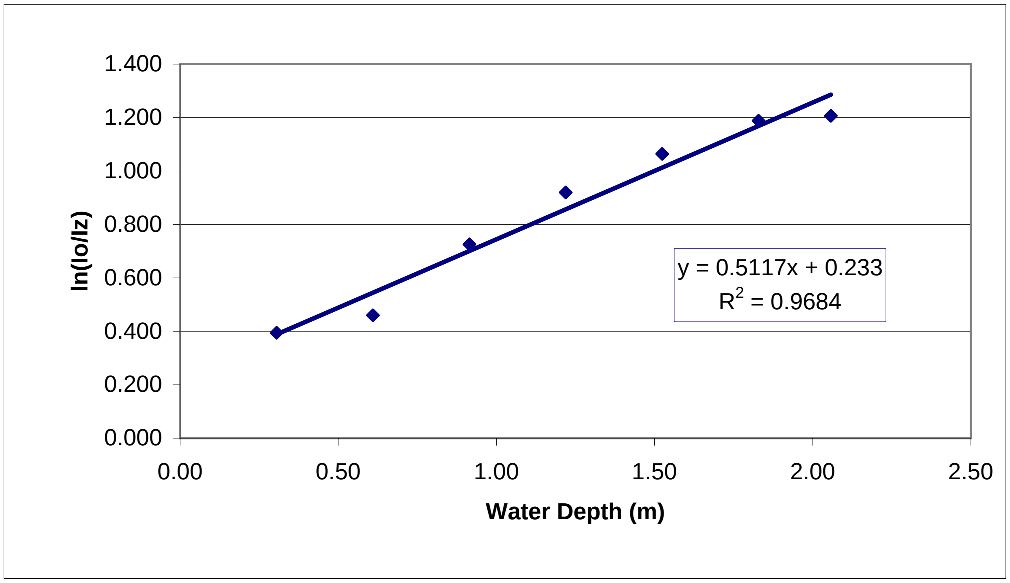
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - JUNIPER CREEK SEGMENT 1 (UPSTREAM) - 10/18/2006

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,142	1,607	1,173	7.07		
0.30	1,113	1,566	749.9	6.62	0.394	1.294
0.61	1,128	1,588	712.2	6.57	0.460	0.755
0.91	1,063	1,496	514.3	6.24	0.726	0.794
1.22	1,051	1,479	418.9	6.04	0.920	0.754
1.52	912	1,284	314.9	5.75	1.064	0.698
1.83	908	1,278	276.8	5.62	1.188	0.650
2.06	1,151	1,620	344.4	5.84	1.206	0.586

k (diffuse attenuation coefficient = slope, m-1)		0.512
k average		0.790
percent transmittance @	1.0 meter	59.95
Birgean Percentile Absorption (1m)		40.05



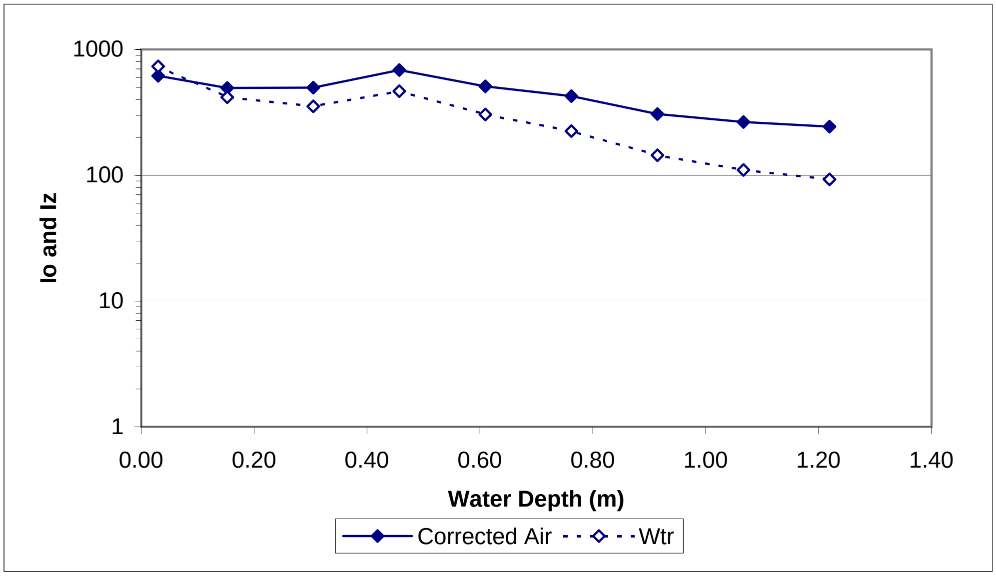


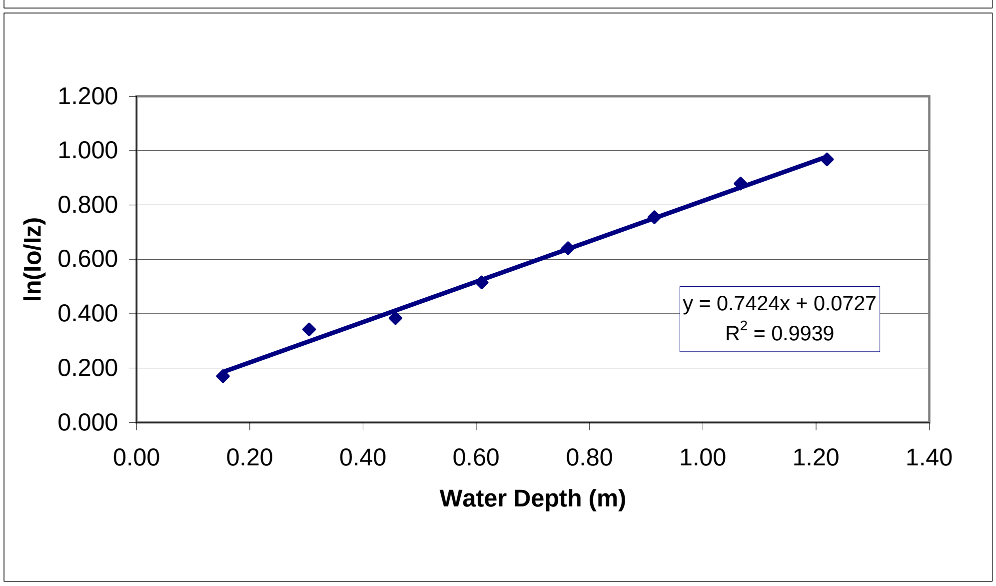
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - JUNIPER CREEK SEGMENT 1 (DOWNSTREAM) - 10/18/06

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	617.1	867.8	732.8	6.60		
0.15	493.8	694.0	416.6	6.03	0.170	1.116
0.30	496.5	697.8	352.6	5.87	0.342	1.123
0.46	684.7	963.0	466.2	6.14	0.384	0.841
0.61	508.4	714.6	303.6	5.72	0.516	0.846
0.76	425.1	597.2	224.0	5.41	0.641	0.841
0.91	306.8	430.5	144.2	4.97	0.755	0.826
1.07	264.9	371.4	110.0	4.70	0.879	0.824
1.22	243.7	341.5	92.59	4.53	0.968	0.794

k (diffuse attenuation coefficient = slope, m-1)		0.226
k average		0.901
percent transmittance @	1.0 meter	79.75
Birgean Percentile Absorption (1m)		20.25





APPENDIX D
WEKIVA PLRG LIGHT ATTENUATION ESTIMATES (WINTER 2007)

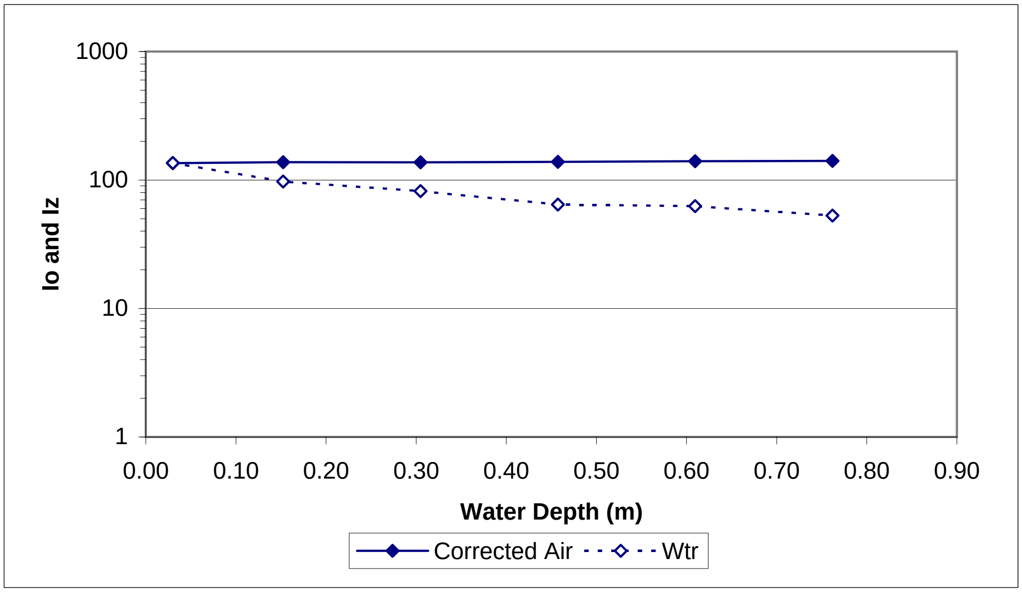
Station	Date	Rep	Max Depth (m)	k (diffuse attenuation coefficient = slope, m-1)	Percent Transmittance (1m)	Birgean Percentile Absorption (1m)
WR1-UP	1/23/2007	1	1.07	0.54	58.35	41.65
	2/5/2007	1	0.91	0.77	46.08	53.92
WR1-DN	1/23/2007	1	0.76	1.02	36.02	63.98
	2/5/2007	1	0.91	0.55	57.54	42.46
WR2-UP	1/24/2007	1	1.22	1.33	26.56	73.44
	1/24/2007	2	1.22	1.32	26.61	73.39
	2/6/2007	1	1.07	1.25	28.77	71.23
WR2-DN	1/24/2007	1	0.91	1.22	29.55	70.45
	2/6/2007	1	0.91	1.41	24.38	75.62
RSR1-UP	1/4/2007	1	0.46	0.49	61.30	38.70
	1/18/2007	1	0.46	0.32	72.26	27.74
RSR1-DN	1/4/2007	1	0.46	0.98	37.59	62.41
	1/18/2007	1	0.61	0.61	54.48	45.52
RSR2-UP	1/3/2007	1	0.46	1.51	22.17	77.83
	1/17/2007	1	0.61	1.63	19.50	80.50
RSR2-DN	1/3/2007	1	0.46	1.58	20.55	79.45
	1/17/2007	1	0.46	0.74	47.77	52.23
ASC1-UP	1/23/2007	1	1.22	0.83	43.71	56.29
	2/5/2007	1	1.22	1.40	24.71	75.29
ASC1-DN	1/23/2007	1	0.46	2.43	8.77	91.23
	2/5/2007	1	0.61	2.10	12.21	87.79
JC1-UP	1/3/2007	1	1.83	0.84	43.08	56.92
	1/17/2007	1	1.68	0.95	38.75	61.25
	1/23/2007	1	1.83	1.03	35.67	64.33
	2/5/2007	1	1.83	1.06	34.48	65.52
JC1-DN	1/3/2007	1	0.91	0.93	39.63	60.37
	1/17/2007	1	1.07	0.89	41.00	59.00
	1/23/2007	1	0.91	1.30	27.29	72.71
	2/5/2007	1	0.91	1.13	32.36	67.64
AVERAGE						
WR1-UP			0.991	0.657	52.2	47.8
WR1-DN			0.838	0.787	46.8	64.0
WR2-UP			1.17	1.30	27.3	72.7
WR2-DN			0.914	1.32	27.0	73.0
RSR1-UP			0.457	0.407	66.8	33.2
RSR1-DN			0.533	0.793	46.0	54.0
RSR2-UP			0.533	1.57	20.8	79.2
RSR2-DN			0.457	1.16	34.2	65.8
ASC1-UP			1.22	1.11	34.2	65.8
ASC1-DN			0.533	2.27	10.5	89.5
JC1-UP			1.79	0.971	38.0	62.0
JC1-DN			0.953	1.06	35.1	64.9

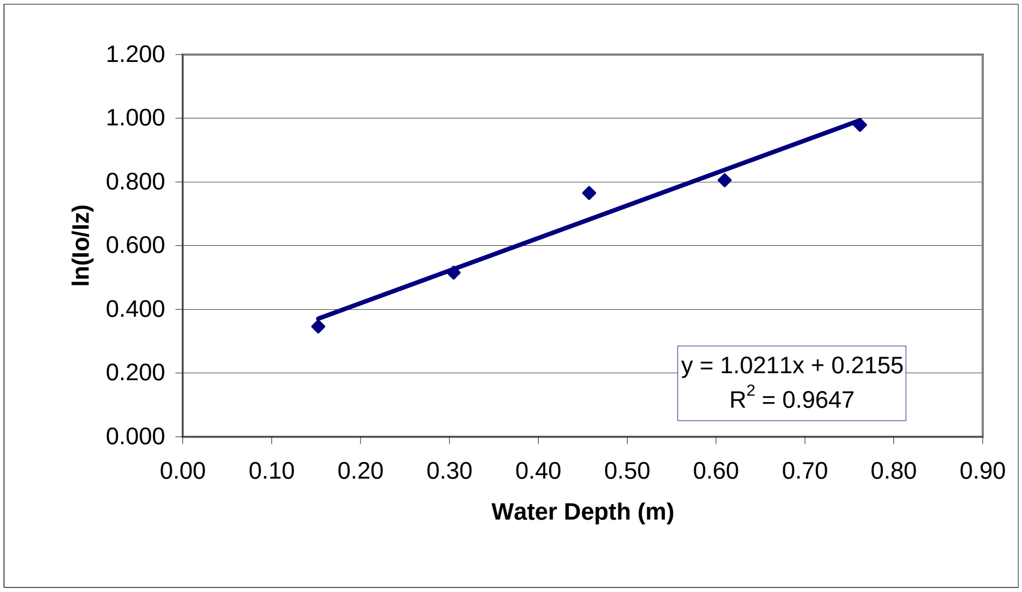
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 1 (DOWNSTREAM) - 1/23/2007

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	135.5	189.0	135.6	4.91		
0.15	137.5	191.9	97.27	4.58	0.346	2.272
0.30	137.2	191.4	81.92	4.41	0.515	1.691
0.46	138.7	193.5	64.50	4.17	0.765	1.674
0.61	140.2	195.7	62.64	4.14	0.806	1.322
0.76	141.0	196.8	52.96	3.97	0.979	1.285

k (diffuse attenuation coefficient = slope, m-1)		1.021
k average		1.649
percent transmittance @	1.0 meter	36.02
Birgean Percentile Absorption (1m)		63.98





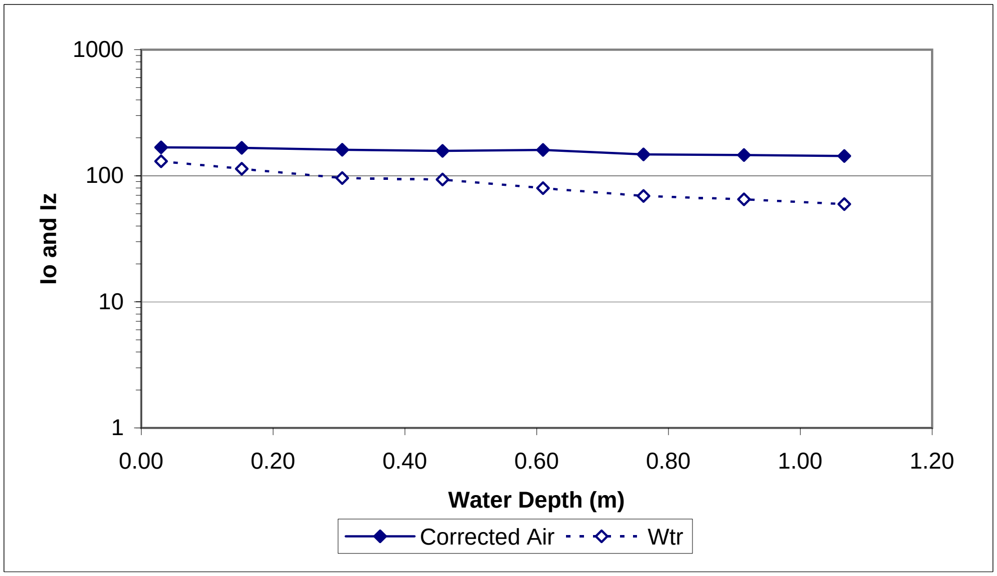
*Overcast; water relatively clear.

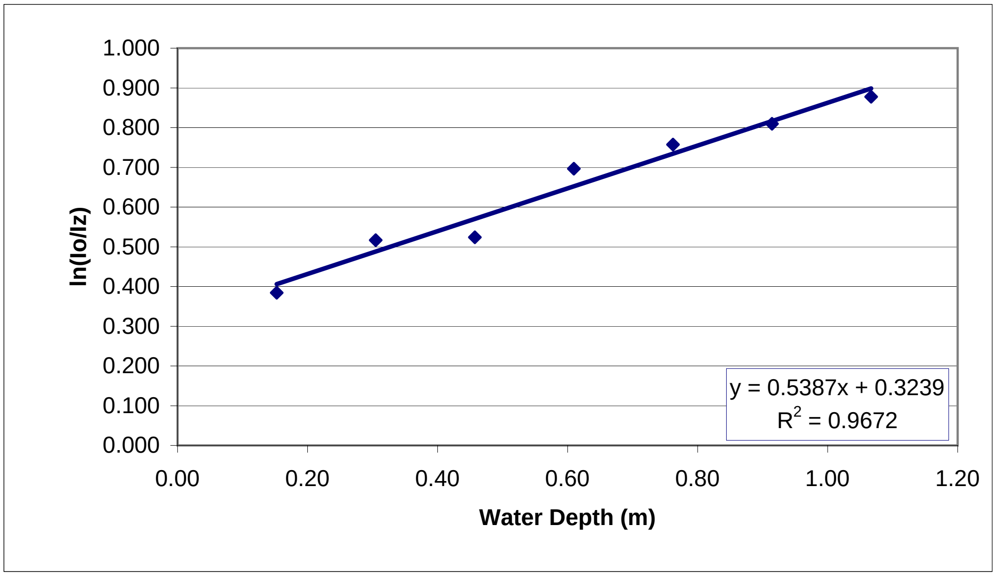
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 1 (UPSTREAM) - 1/23/2007

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	167.8	234.6	130.2	4.87		
0.15	166.7	233.0	113.5	4.73	0.384	2.521
0.30	160.9	224.8	95.94	4.56	0.517	1.696
0.46	157.7	220.4	93.41	4.54	0.524	1.146
0.61	160.2	223.8	79.81	4.38	0.696	1.143
0.76	147.5	206.0	69.18	4.24	0.757	0.994
0.91	146.2	204.1	65.06	4.18	0.809	0.885
1.07	143.4	200.2	59.62	4.09	0.878	0.823

k (diffuse attenuation coefficient = slope, m-1)		0.539
k average		1.315
percent transmittance @	1.0 meter	58.35
Birgean Percentile Absorption (1m)		41.65





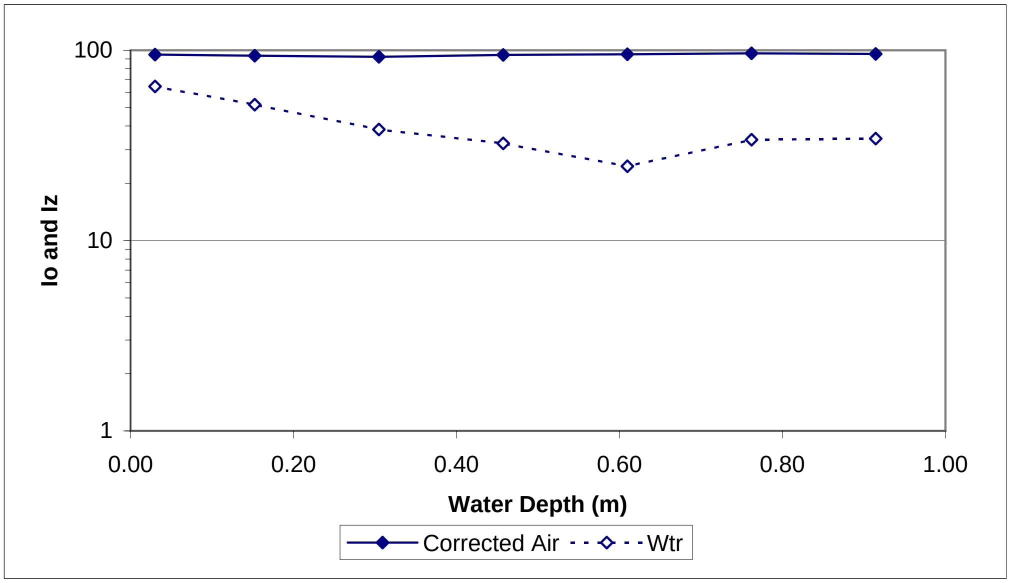
*Water clear with particulates.

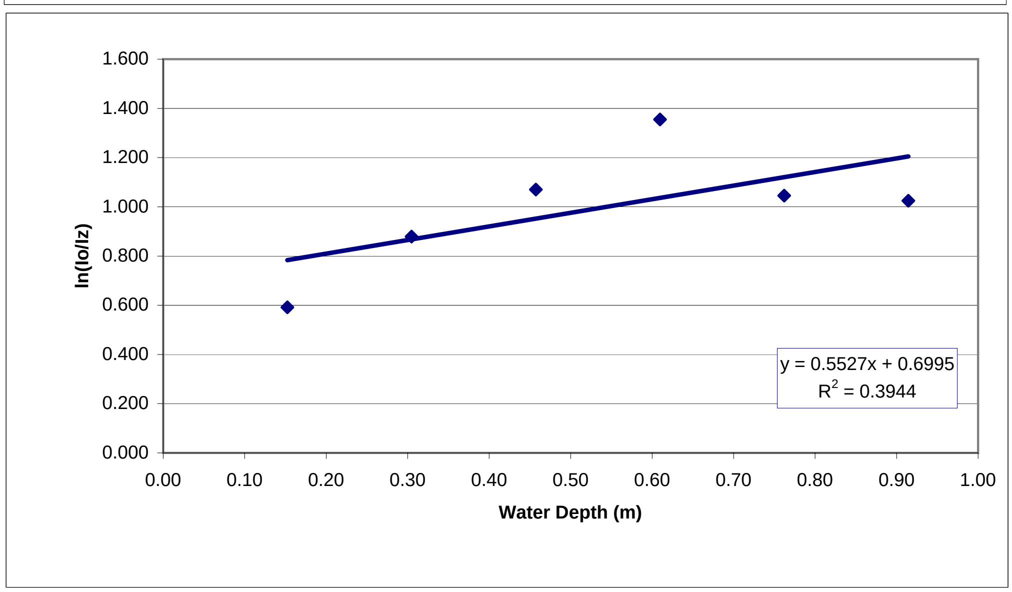
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 1 (DOWNSTREAM) - 2/5/2007

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	94.9	131.9	64.61	4.17		
0.15	93.7	130.1	51.83	3.95	0.592	3.883
0.30	92.5	128.4	38.39	3.65	0.879	2.884
0.46	94.6	131.4	32.44	3.48	1.070	2.341
0.61	95.3	132.4	24.58	3.20	1.355	2.223
0.76	96.4	133.9	33.87	3.52	1.046	1.372
0.91	95.6	132.9	34.34	3.54	1.024	1.120

k (diffuse attenuation coefficient = slope, m-1)		0.553
k average		2.304
percent transmittance @	1.0 meter	57.54
Birgean Percentile Absorption (1m)		42.46



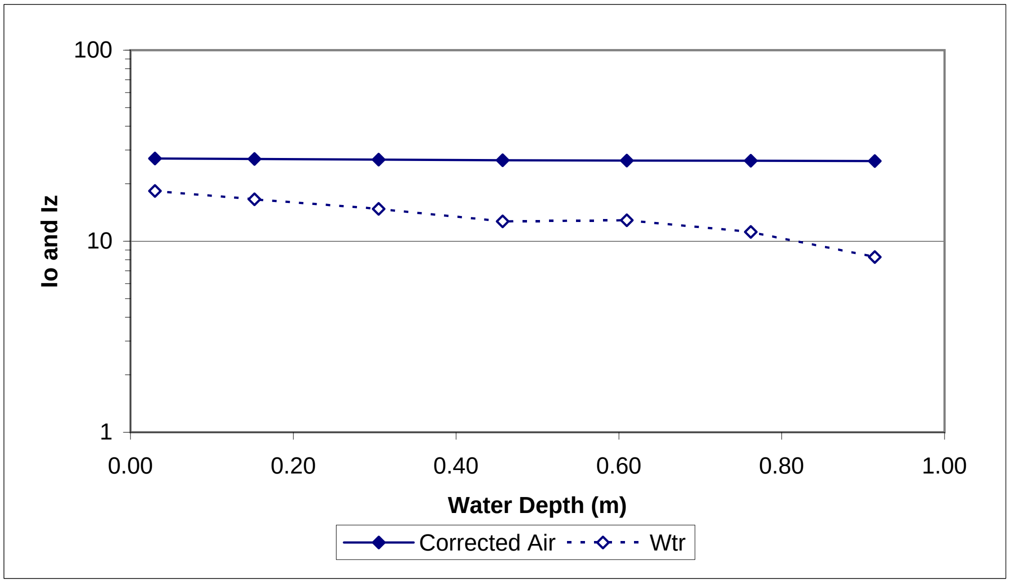


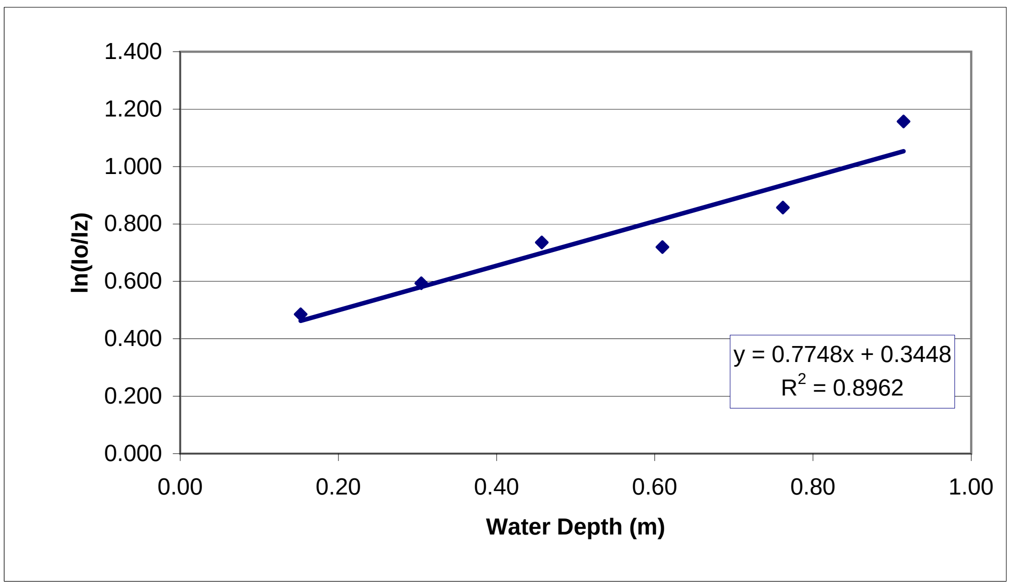
Overcast

APPENDIX D
WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 1 (UPSTREAM) - 2/5/2007

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	27.1	36.33	18.31	2.91		
0.15	27.0	36.09	16.59	2.81	0.485	3.184
0.30	26.7	35.79	14.77	2.69	0.594	1.947
0.46	26.5	35.48	12.71	2.54	0.736	1.609
0.61	26.4	35.36	12.87	2.55	0.720	1.181
0.76	26.4	35.27	11.19	2.42	0.857	1.125
0.91	26.3	35.11	8.258	2.11	1.157	1.265

k (diffuse attenuation coefficient = slope, m-1)		0.775
k average		1.719
percent transmittance @	1.0 meter	46.08
Birgean Percentile Absorption (1m)		53.92





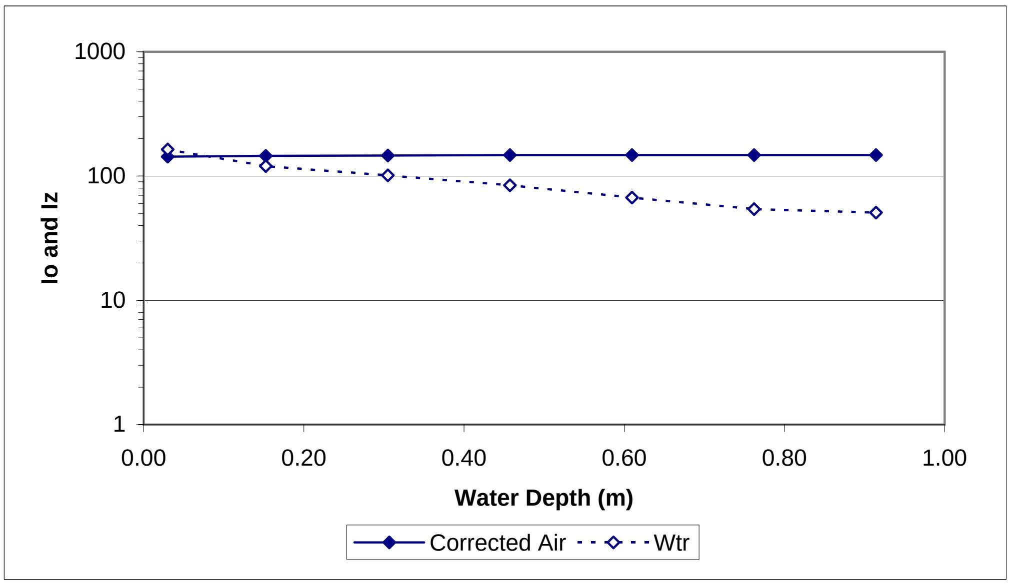
Overcast

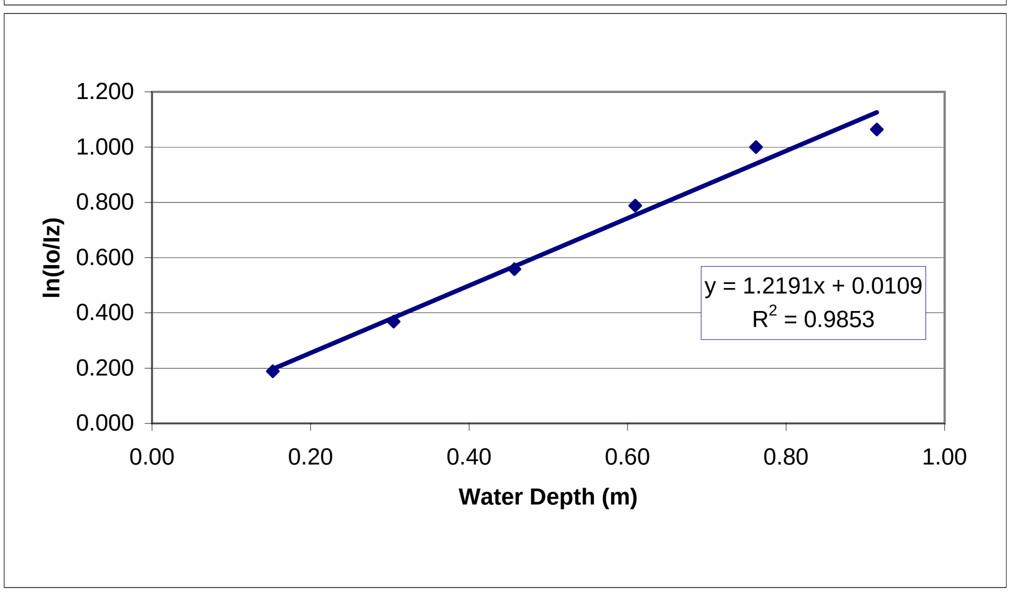
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 2 (DOWNSTREAM) -1/24/2007

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	143.1	199.8	163.5	5.10		
0.15	145.4	203.0	120.4	4.79	0.189	1.238
0.30	146.2	204.2	101.2	4.62	0.368	1.208
0.46	147.4	205.8	84.35	4.43	0.558	1.221
0.61	147.7	206.3	67.16	4.21	0.788	1.293
0.76	147.4	205.8	54.21	3.99	1.000	1.313
0.91	147.4	205.8	50.86	3.93	1.064	1.164

k (diffuse attenuation coefficient = slope, m-1)		1.219
k average		1.239
percent transmittance @	1.0 meter	29.55
Birgean Percentile Absorption (1m)		70.45





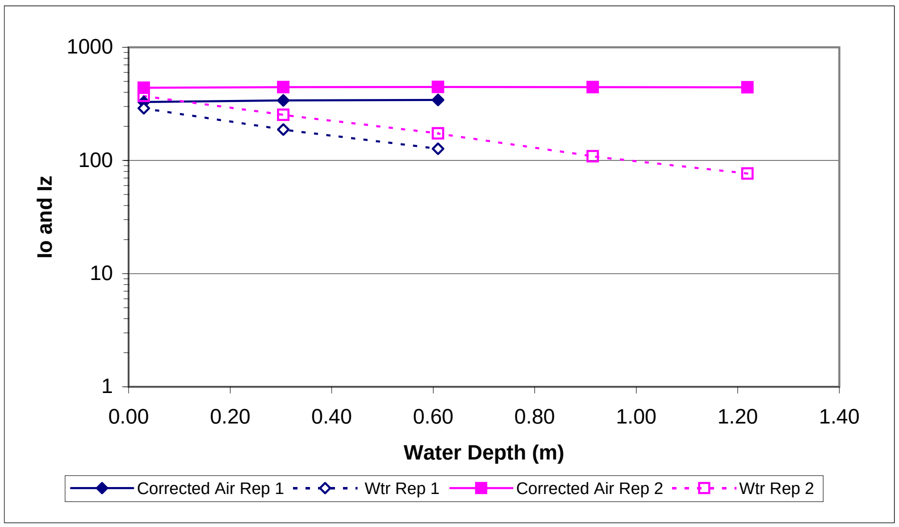
*Overcast; slightly tannic; particulates.

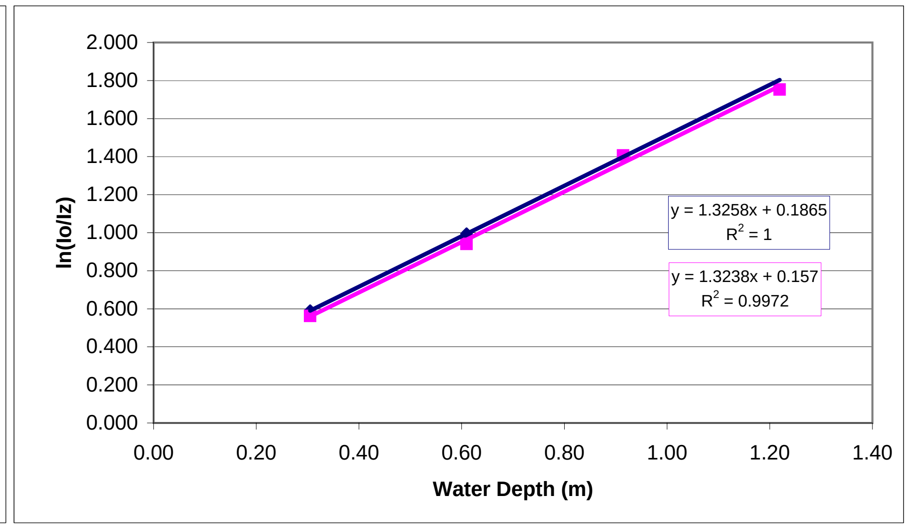
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 2 (UPSTREAM) -1/24/2007

Depth (m)	Rep 1						Depth (m)	Rep 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	329	461.1	289.7	5.67			0.03	439	616.5	371.2	5.92		
0.30	339	476.1	187.9	5.24	0.591	1.938	0.30	444	624.0	253.0	5.53	0.563	1.846
0.61	343	481.3	126.8	4.84	0.995	1.632	0.61	446	626.0	173.8	5.16	0.941	1.544
0.91		145.9 [a]	108.7 [a]				0.91	445	624.7	109.0	4.69	1.406	1.538
1.22		116 [a]	72.57 [a]				1.22	443	622.0	76.71	4.34	1.753	1.438

k (diffuse attenuation coefficient = slope, m-1)		1.326	k (diffuse attenuation coefficient = slope, m-1)		1.324
k average		1.785	k average		1.591
percent transmittance @	1.0 meter	26.56	percent transmittance @	1.0 meter	26.61
Birgean Percentile Absorption (1m)		73.44	Birgean Percentile Absorption (1m)		73.39





*Overcast; many particulates.

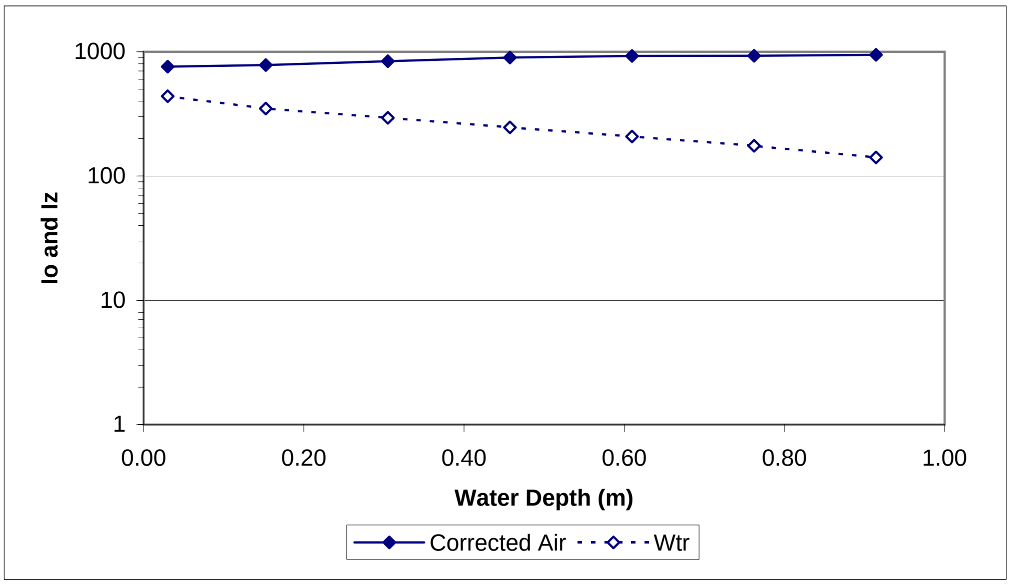
[a] data flagged - not used in calculating averages

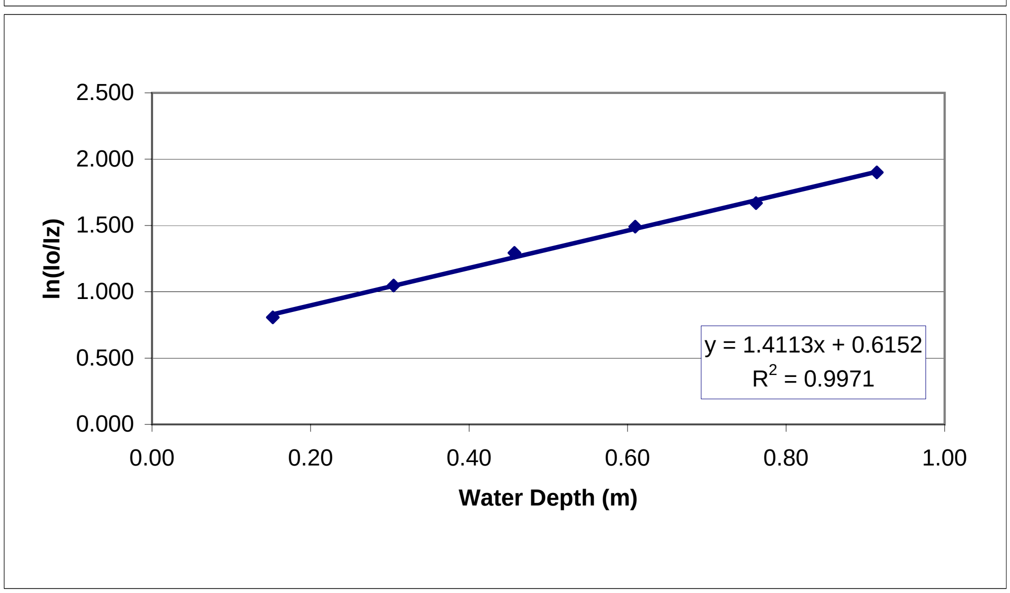
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 2 (DOWNSTREAM) - 2/6/2007

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	759.2	1,068	439.4	6.09		
0.15	782.6	1,101	349.1	5.86	0.807	5.297
0.30	839.4	1,181	294.6	5.69	1.047	3.435
0.46	897.6	1,263	246.2	5.51	1.294	2.829
0.61	925.2	1,302	208.3	5.34	1.491	2.446
0.76	929.5	1,308	175.2	5.17	1.669	2.190
0.91	944.4	1,329	141.2	4.95	1.900	2.078

k (diffuse attenuation coefficient = slope, m-1)		1.411
k average		3.046
percent transmittance @	1.0 meter	24.38
Birgean Percentile Absorption (1m)		75.62

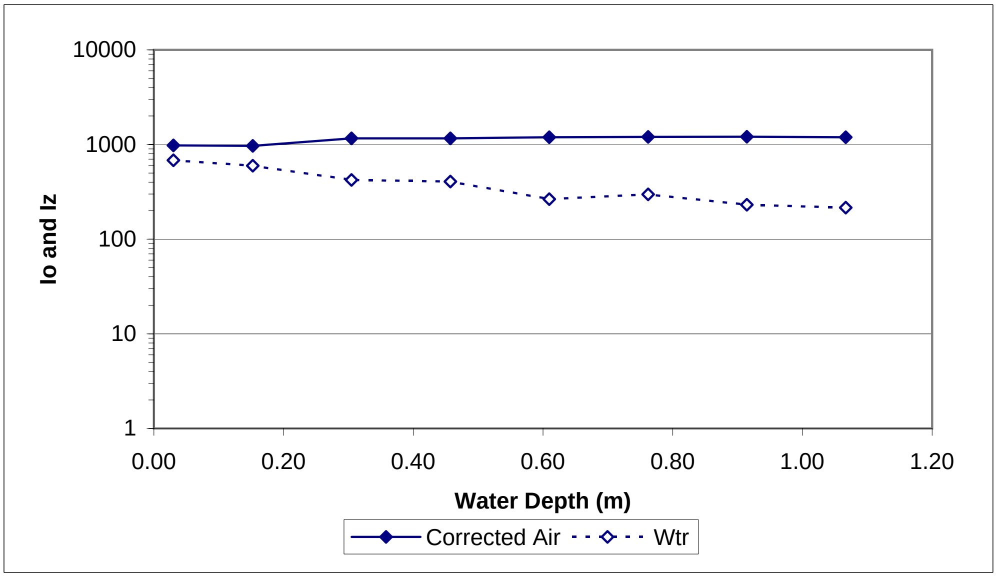


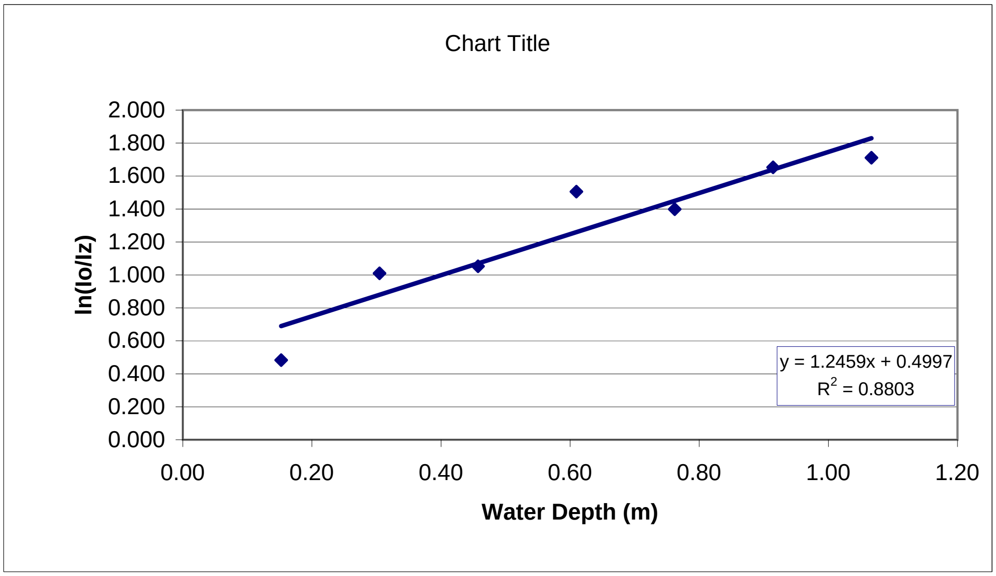


APPENDIX D
WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 2 (UPSTREAM) - 2/6/2007

Depth (m)	Rep 1					
	corr	raw				
z	Air (Io)	Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	978	1,376	680.2	6.52		
0.15	969	1,364	597.9	6.39	0.483	3.170
0.30	1,161	1,634	422.8	6.05	1.010	3.314
0.46	1,163	1,637	405.9	6.01	1.053	2.302
0.61	1,195	1,682	265.1	5.58	1.506	2.470
0.76	1,204	1,695	297.2	5.69	1.399	1.836
0.91	1,206	1,697	230.8	5.44	1.653	1.808
1.07	1,193	1,679	215.5	5.37	1.711	1.604

k (diffuse attenuation coefficient = slope, m-1)		1.246
k average		2.358
percent transmittance @	1.0 meter	28.77
Birgean Percentile Absorption (1m)		71.23



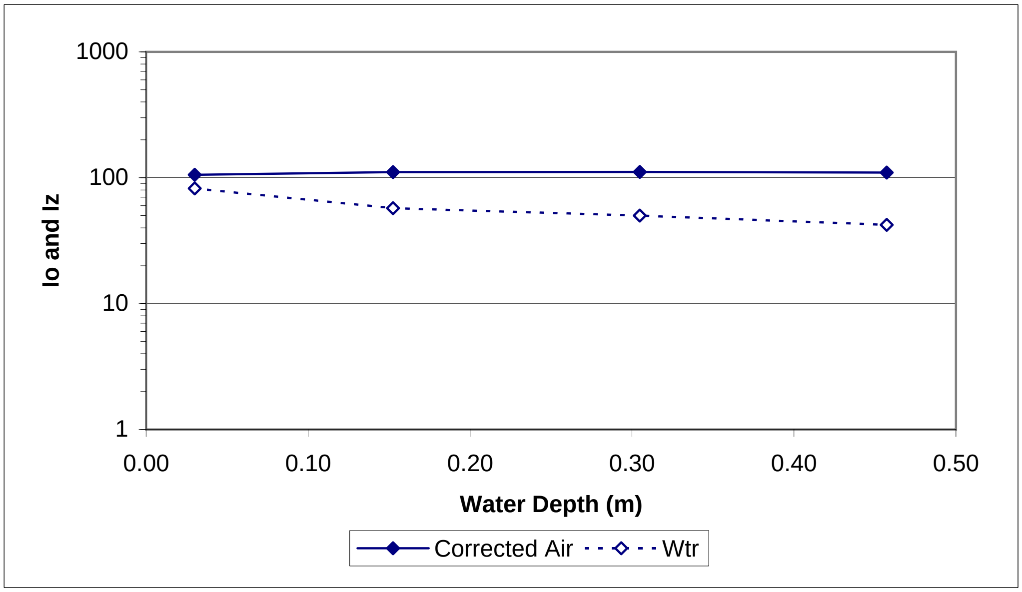


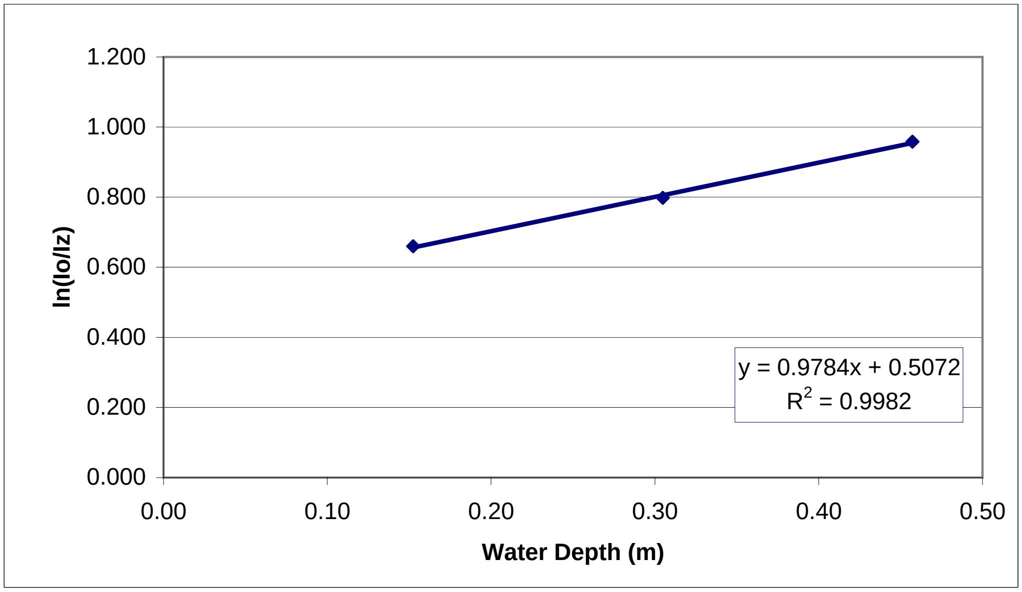
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRING RUN
SEGMENT 1 (DOWNSTREAM) - 1/4/2007

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	105.51	146.8	82.25	4.41		
0.15	110.83	154.3	57.29	4.05	0.660	4.330
0.30	111.19	154.8	50.05	3.91	0.798	2.619
0.46	109.98	153.1	42.19	3.74	0.958	2.096

k (diffuse attenuation coefficient = slope, m-1)		0.978
k average		3.015
percent transmittance @	1.0 meter	37.59
Birgean Percentile Absorption (1m)		62.41

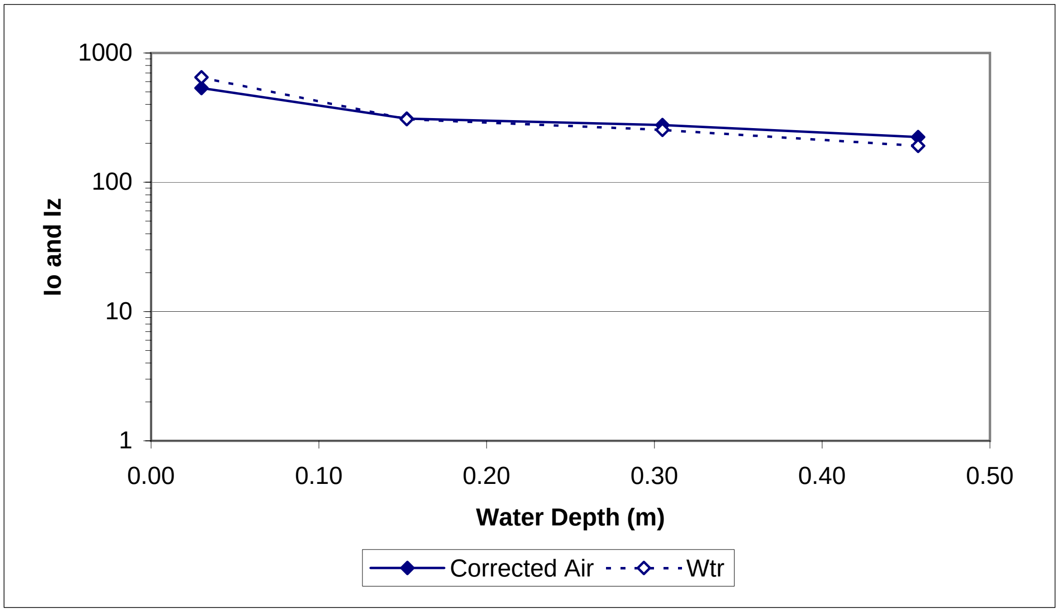


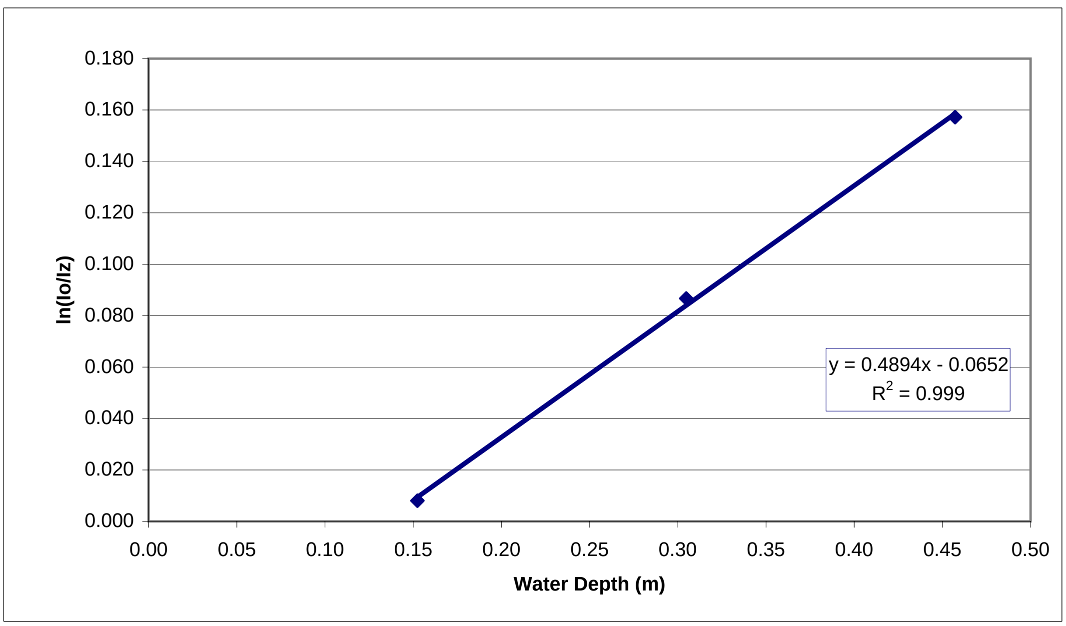


APPENDIX D
WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRING RUN SEGMENT 1 (UPSTREAM) - 1/4/2007

Depth (m)	Rep 1					
	corr	raw				
z	Air (Io)	Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	535.03	752.1	649.0	6.48		
0.15	310.59	435.8	308.1	5.73	0.008	0.053
0.30	277.45	389.1	254.4	5.54	0.087	0.285
0.46	223.52	313.1	191.0	5.25	0.157	0.344

k (diffuse attenuation coefficient = slope, m-1)		0.489
k average		0.227
percent transmittance @	1.0 meter	61.30
Birgean Percentile Absorption (1m)		38.70



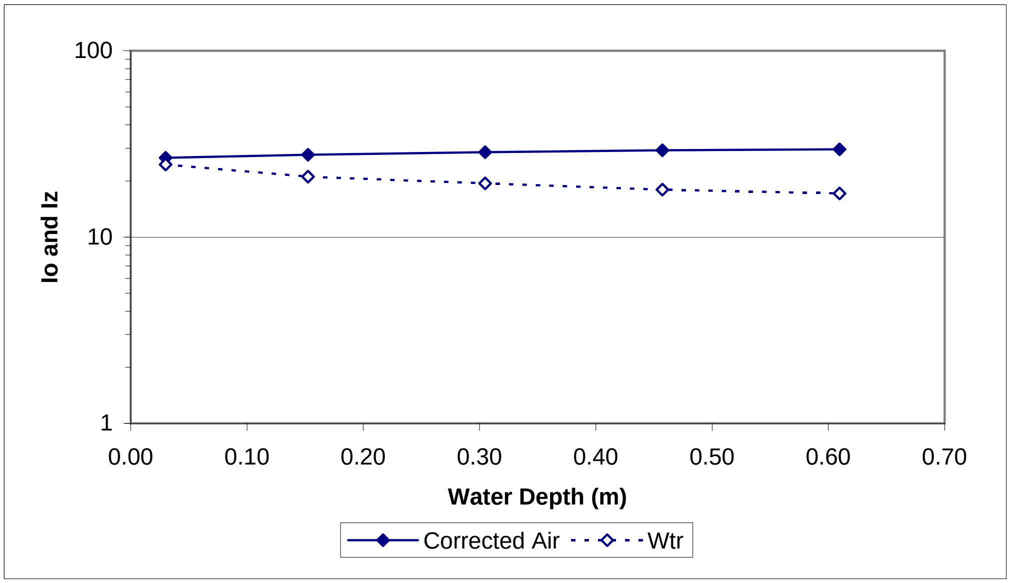


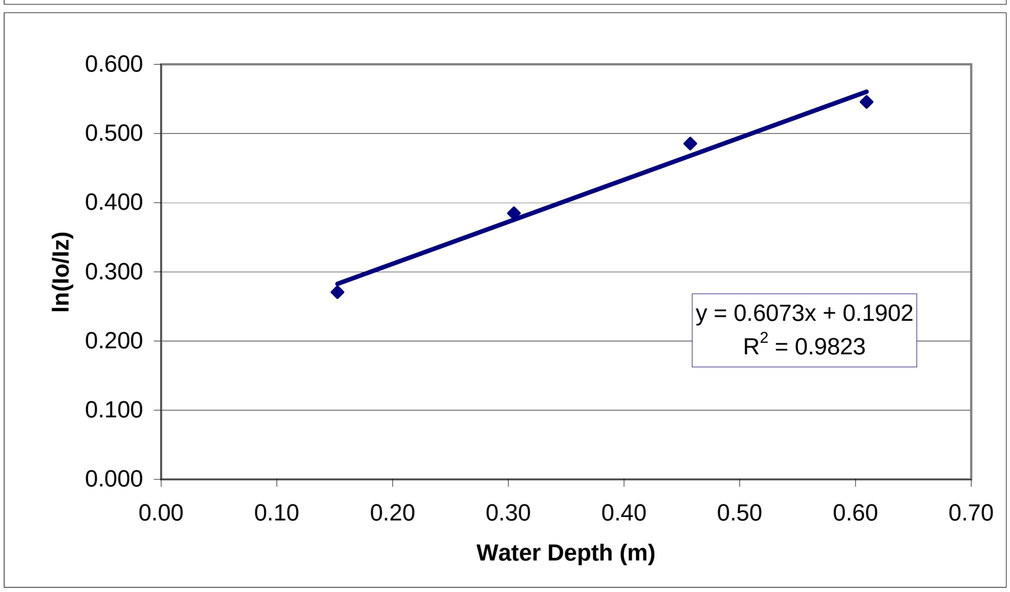
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRING RUN
SEGMENT 1 (DOWNSTREAM) - 1/18/2007

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	26.62	35.62	24.50	3.20		
0.15	27.64	37.06	21.09	3.05	0.271	1.775
0.30	28.54	38.32	19.42	2.97	0.385	1.263
0.46	29.23	39.30	17.99	2.89	0.485	1.062
0.61	29.56	39.76	17.13	2.84	0.545	0.895

k (diffuse attenuation coefficient = slope, m-1)		0.607
k average		1.249
percent transmittance @	1.0 meter	54.48
Birgean Percentile Absorption (1m)		45.52

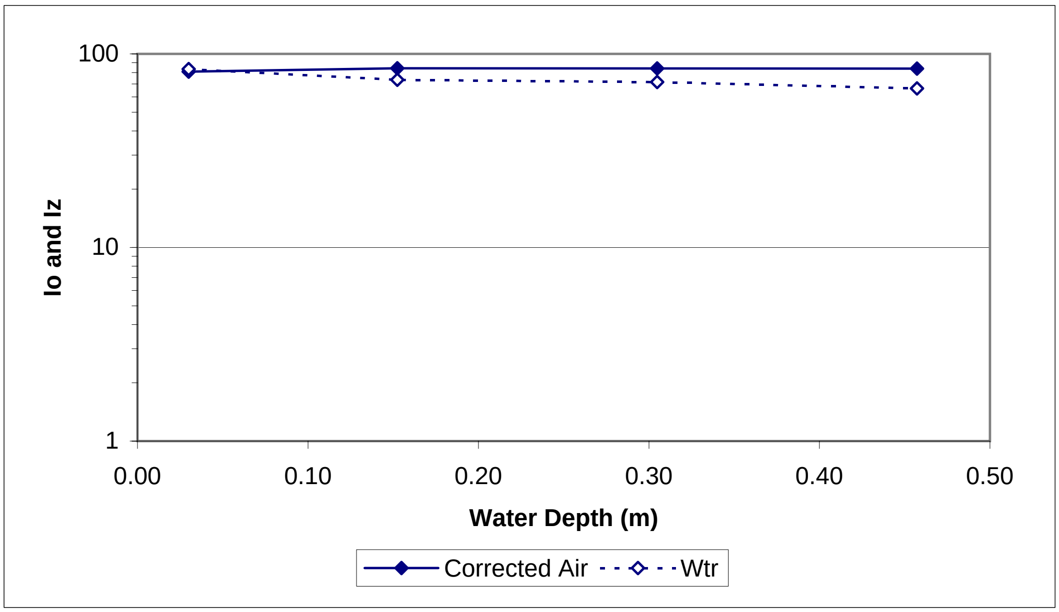


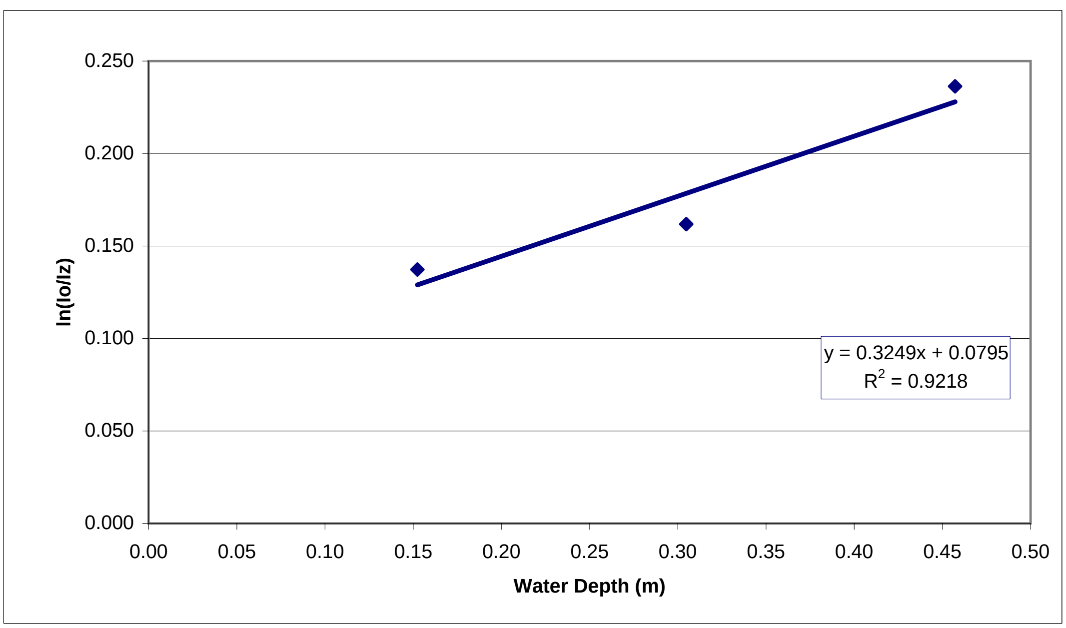


APPENDIX D
WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRING RUN SEGMENT 1 (UPSTREAM) - 1/18/2007

Depth (m)	Rep 1					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	80.96	112.2	83.49	4.42		
0.15	84.22	116.8	73.42	4.30	0.137	0.901
0.30	84.15	116.7	71.58	4.27	0.162	0.531
0.46	84.01	116.5	66.33	4.19	0.236	0.517

k (diffuse attenuation coefficient = slope, m-1)		0.325
k average		0.650
percent transmittance @	1.0 meter	72.26
Birgean Percentile Absorption (1m)		27.74



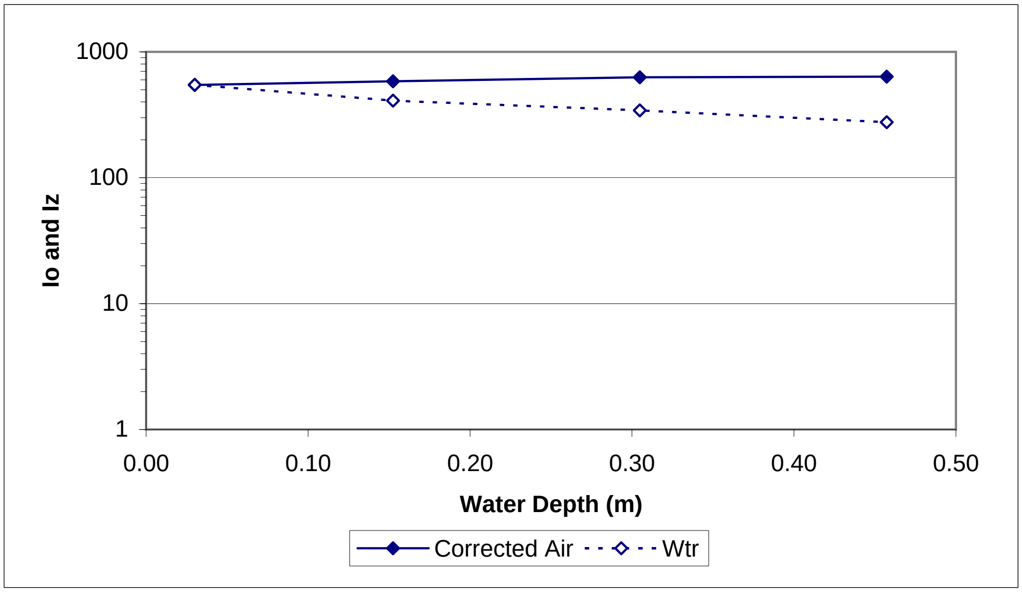


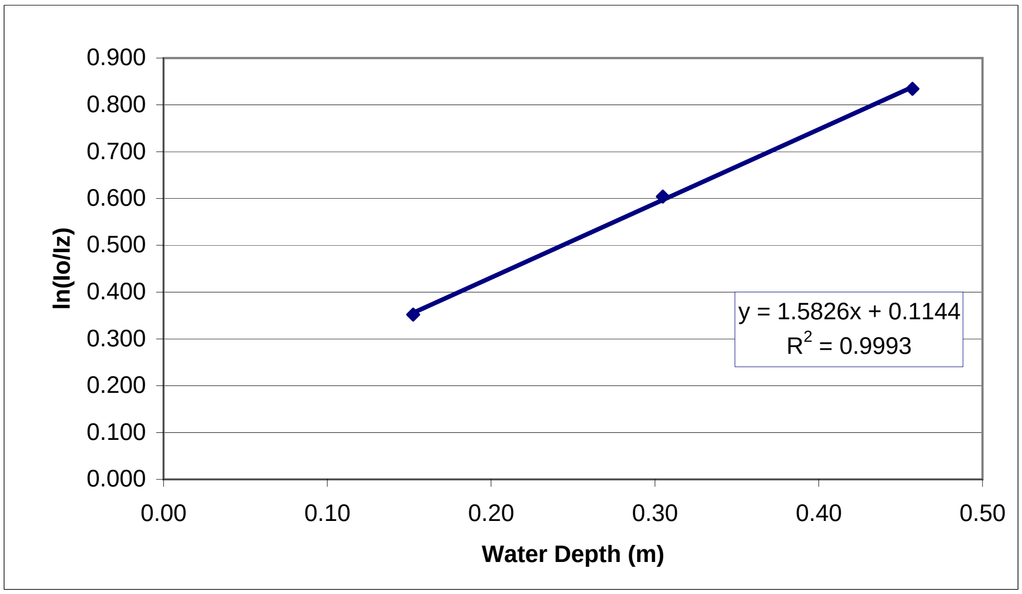
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRING RUN
SEGMENT 2 (DOWNSTREAM) - 1/3/2007

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	546.25	767.9	547.7	6.31		
0.15	583.29	820.1	410.2	6.02	0.352	2.310
0.30	627.85	882.9	343.2	5.84	0.604	1.982
0.46	636.44	895.0	276.3	5.62	0.834	1.825

k (diffuse attenuation coefficient = slope, m-1)		1.583
k average		2.039
percent transmittance @	1.0 meter	20.55
Birgean Percentile Absorption (1m)		79.45

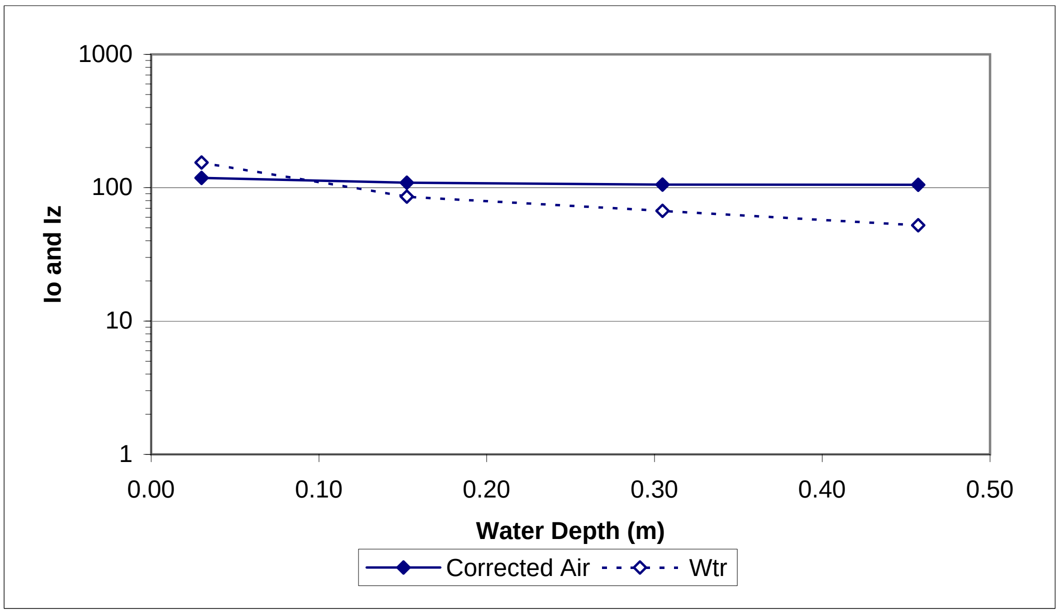


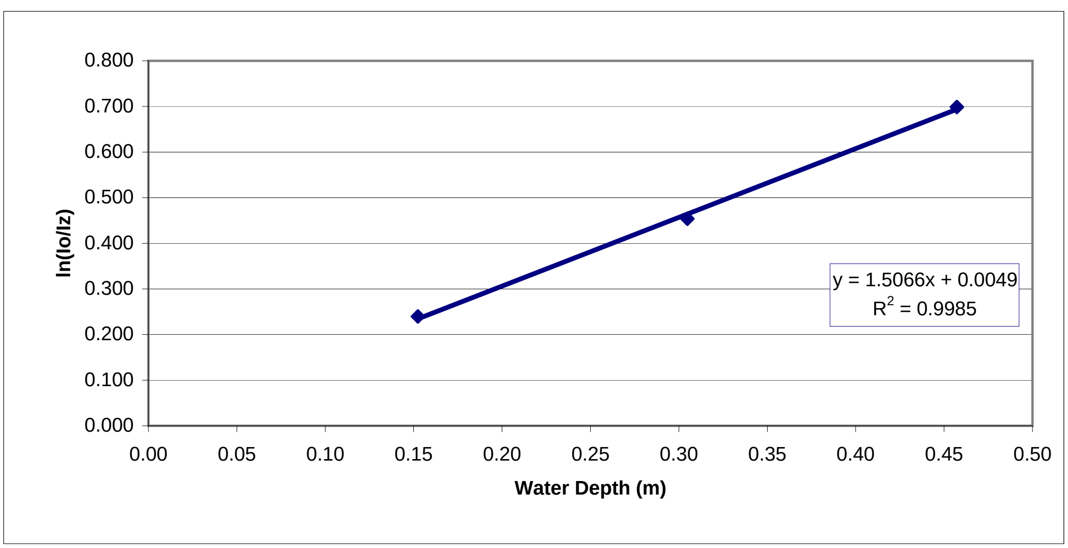


APPENDIX D
WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRING RUN SEGMENT 2 (UPSTREAM) - 1/3/2007

Depth (m)	Rep 1					
	corr	raw				
z	Air (Io)	Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	118.36	164.9	154.4	5.04		
0.15	109.06	151.8	85.82	4.45	0.240	1.573
0.30	105.58	146.9	67.07	4.21	0.454	1.489
0.46	105.30	146.5	52.35	3.96	0.699	1.529

k (diffuse attenuation coefficient = slope, m-1)		1.507
k average		1.530
percent transmittance @	1.0 meter	22.17
Birgean Percentile Absorption (1m)		77.83



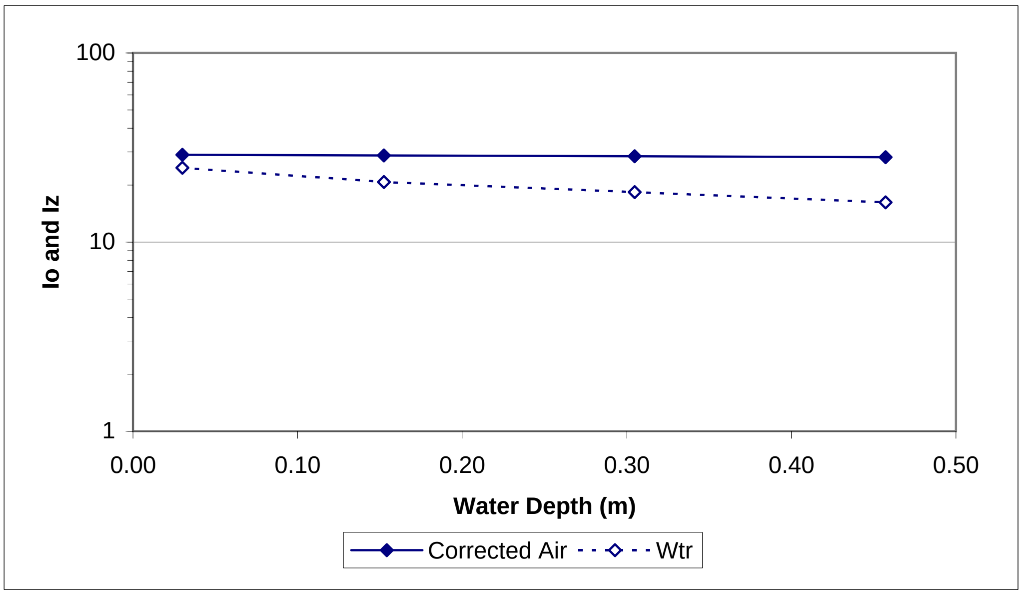


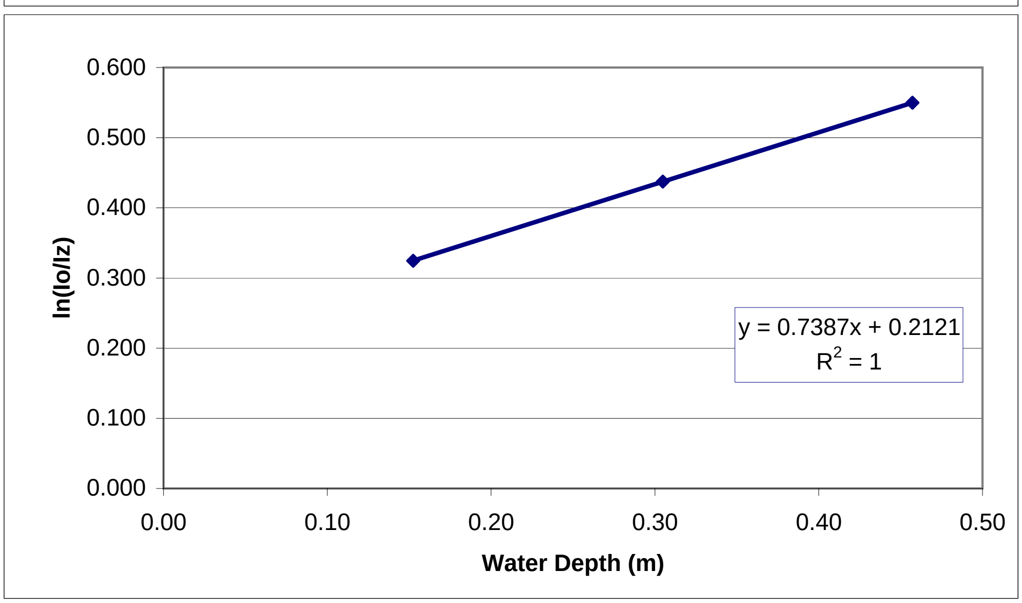
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRING RUN
SEGMENT 2 (DOWNSTREAM) - 1/17/2007

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	28.92	38.86	24.72	3.21		
0.15	28.72	38.58	20.76	3.03	0.325	2.130
0.30	28.45	38.20	18.37	2.91	0.437	1.435
0.46	28.09	37.69	16.21	2.79	0.550	1.202

k (diffuse attenuation coefficient = slope, m-1)		0.739
k average		1.589
percent transmittance @	1.0 meter	47.77
Birgean Percentile Absorption (1m)		52.23

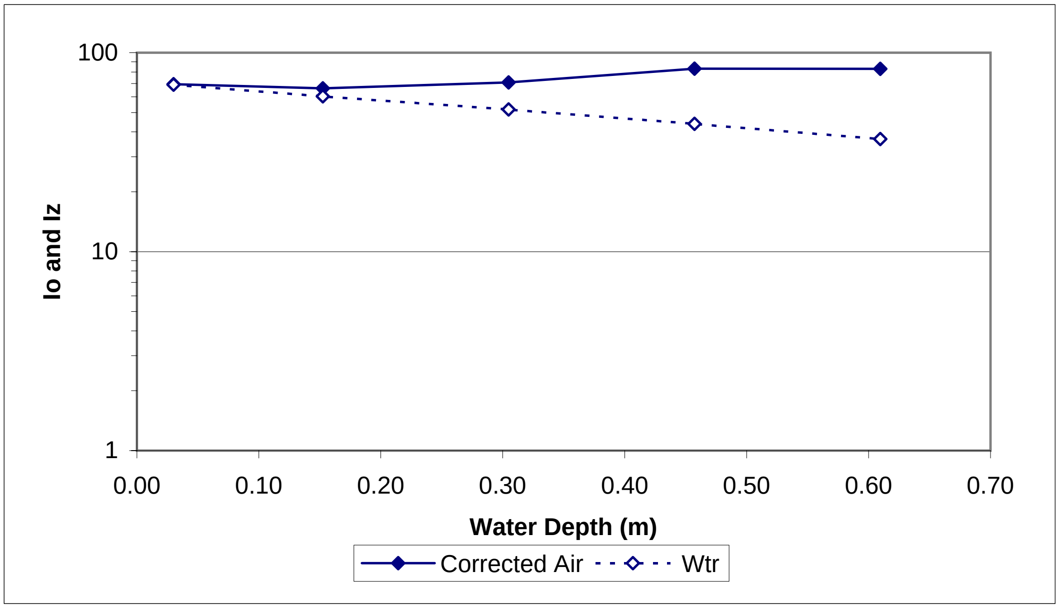


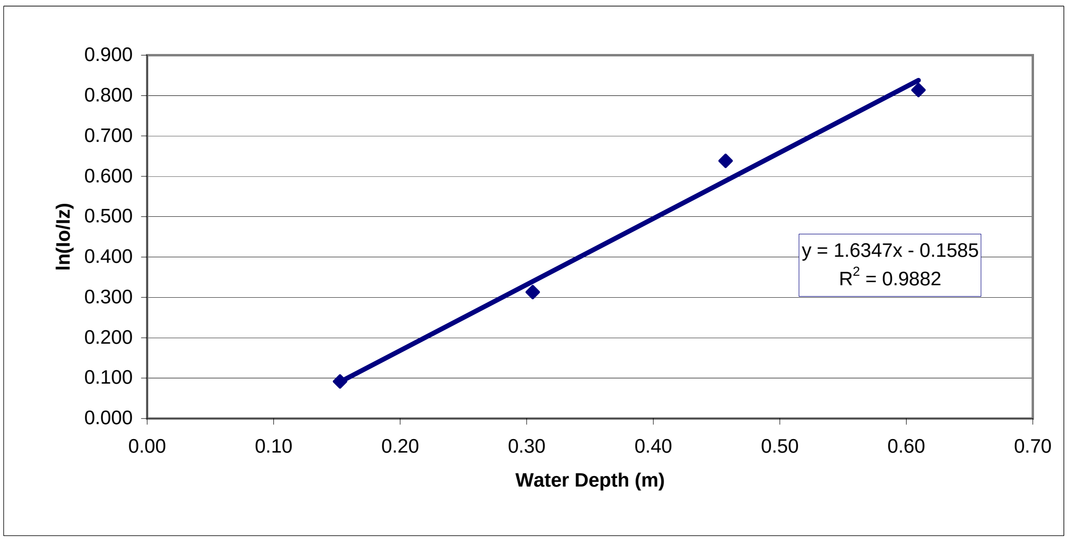


APPENDIX D
WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRING RUN SEGMENT 2 (UPSTREAM) - 1/17/2007

Depth (m)	Rep 1					
	corr	raw				
z	Air (Io)	Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	69.43	95.95	69.02	4.23		
0.15	66.14	91.31	60.34	4.10	0.092	0.602
0.30	70.88	98.00	51.82	3.95	0.313	1.028
0.46	83.16	115.3	43.93	3.78	0.638	1.396
0.61	83.02	115.1	36.79	3.61	0.814	1.335

k (diffuse attenuation coefficient = slope, m-1)		1.635
k average		1.090
percent transmittance @	1.0 meter	19.50
Birgean Percentile Absorption (1m)		80.50



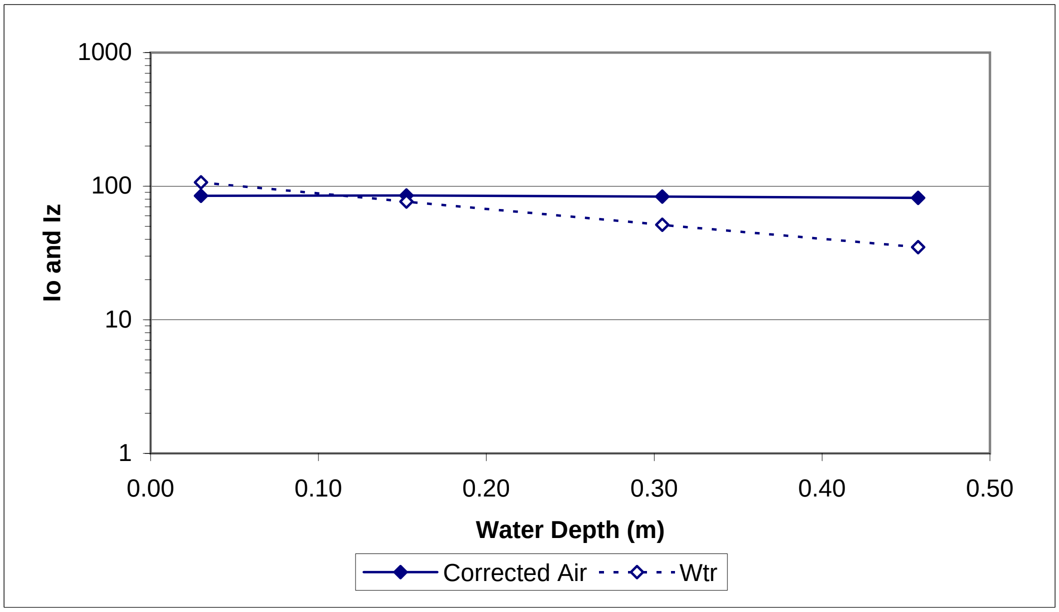


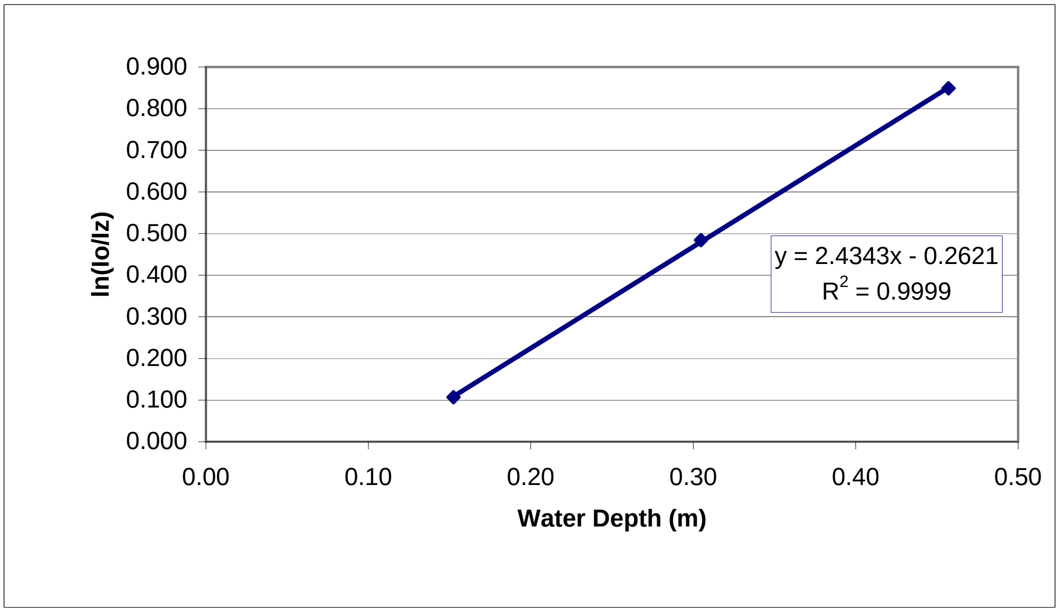
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ALEXANDER SPRING CREEK SEGMENT 1 (DOWNSTREAM) - 1/23/2007

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	84.8	117.6	106.9	4.67		
0.15	85.3	118.3	76.65	4.34	0.107	0.701
0.30	83.5	115.8	51.47	3.94	0.484	1.588
0.46	81.7	113.2	34.95	3.55	0.849	1.856

k (diffuse attenuation coefficient = slope, m-1)		2.434
k average		1.382
percent transmittance @	1.0 meter	8.77
Birgean Percentile Absorption (1m)		91.23





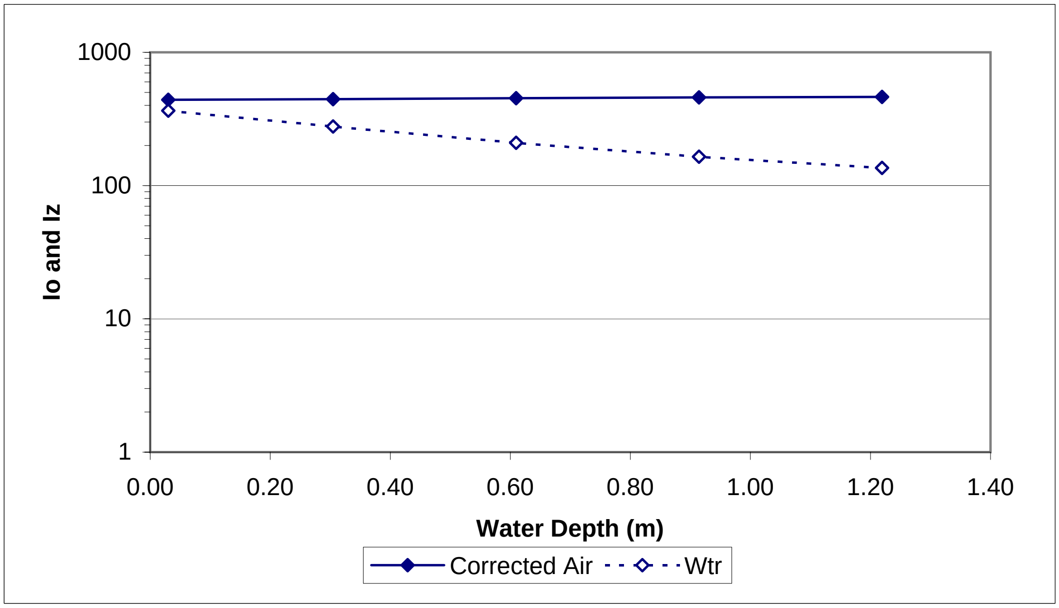
*Overcast; water slightly tannic.

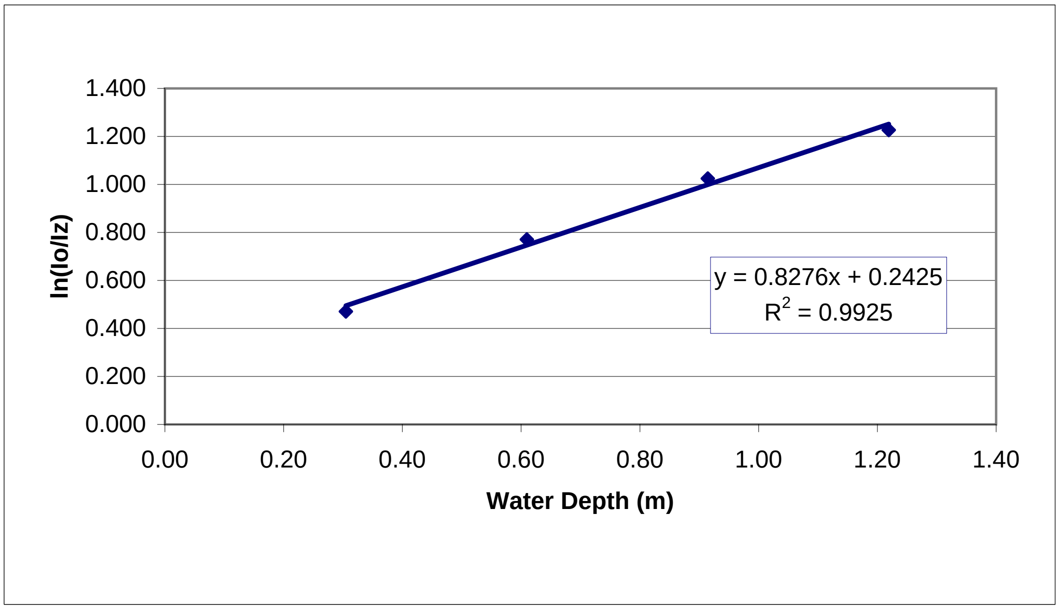
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ALEXANDER SPRING CREEK SEGMENT 1 (UPSTREAM) - 1/23/2007

Depth (m) z	corr Air (lo)	raw Air (lo)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	439.7	617.8	365.4	5.90		
0.30	444.9	625.1	277.9	5.63	0.471	1.544
0.61	452.1	635.2	209.2	5.34	0.771	1.264
0.91	458.4	644.1	164.5	5.10	1.025	1.121
1.22	463.1	650.7	135.8	4.91	1.227	1.006

k (diffuse attenuation coefficient = slope, m-1)		0.828
k average		1.234
percent transmittance @	1.0 meter	43.71
Birgean Percentile Absorption (1m)		56.29





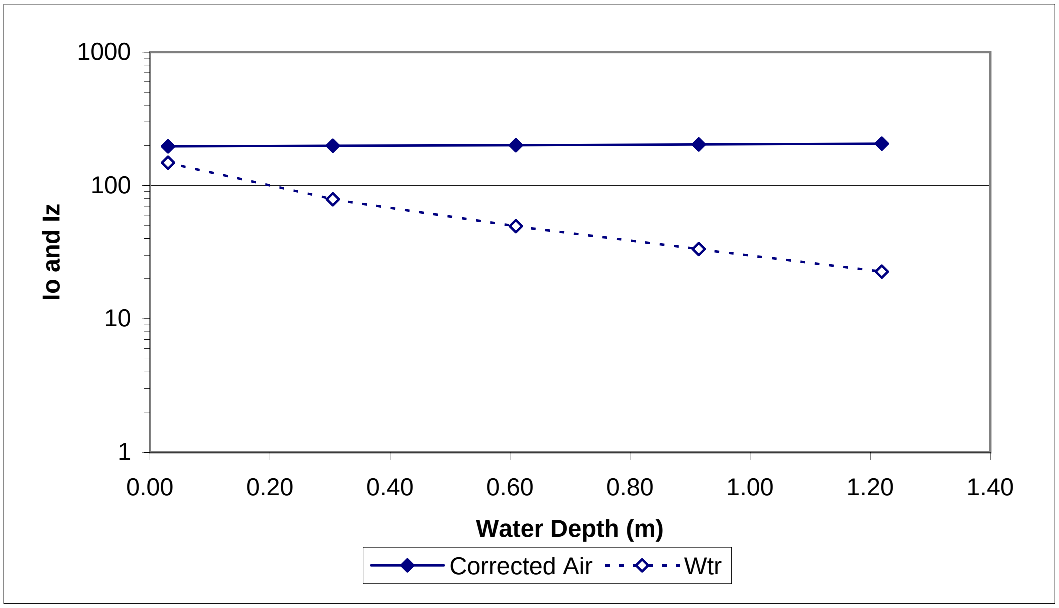
*Overcast; water slightly tannic.

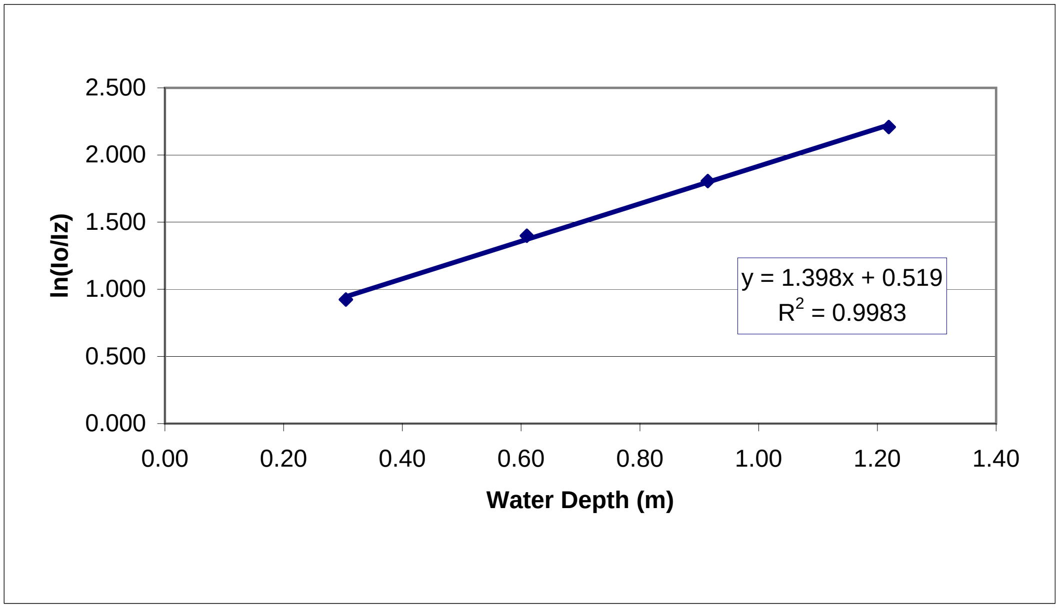
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ALEXANDER SPRING CREEK SEGMENT 1 (UPSTREAM) - 2/5/2007

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	196.3	274.8	148.4	5.00		
0.30	198.5	277.8	78.8	4.37	0.924	3.030
0.61	200.5	280.7	49.5	3.90	1.399	2.295
0.91	203.1	284.3	33.4	3.51	1.806	1.975
1.22	205.8	288.1	22.6	3.12	2.208	1.811

k (diffuse attenuation coefficient = slope, m-1)		1.398
k average		2.278
percent transmittance @	1.0 meter	24.71
Birgean Percentile Absorption (1m)		75.29





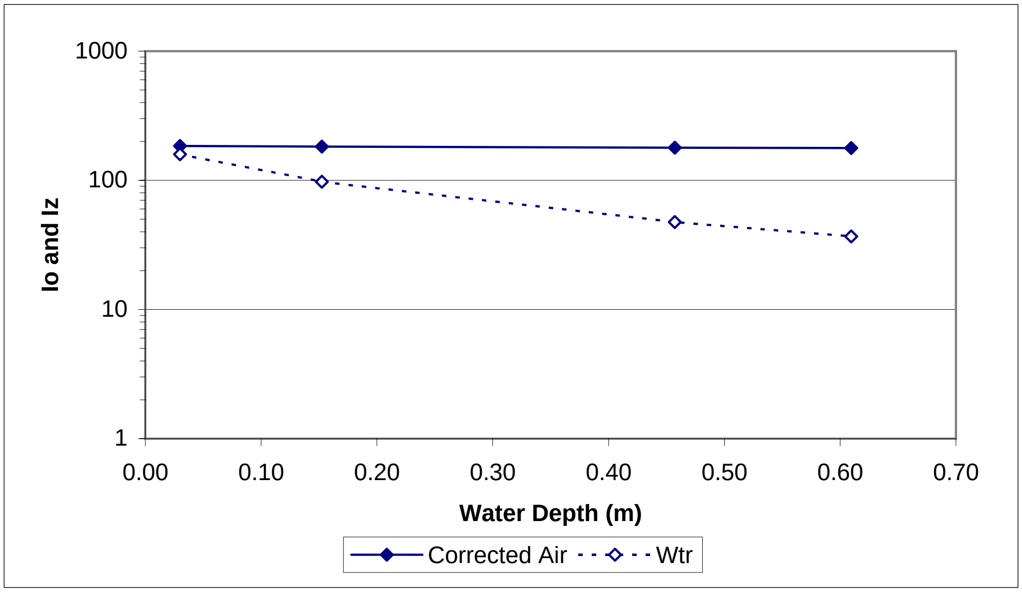
Overcast; water very tannic

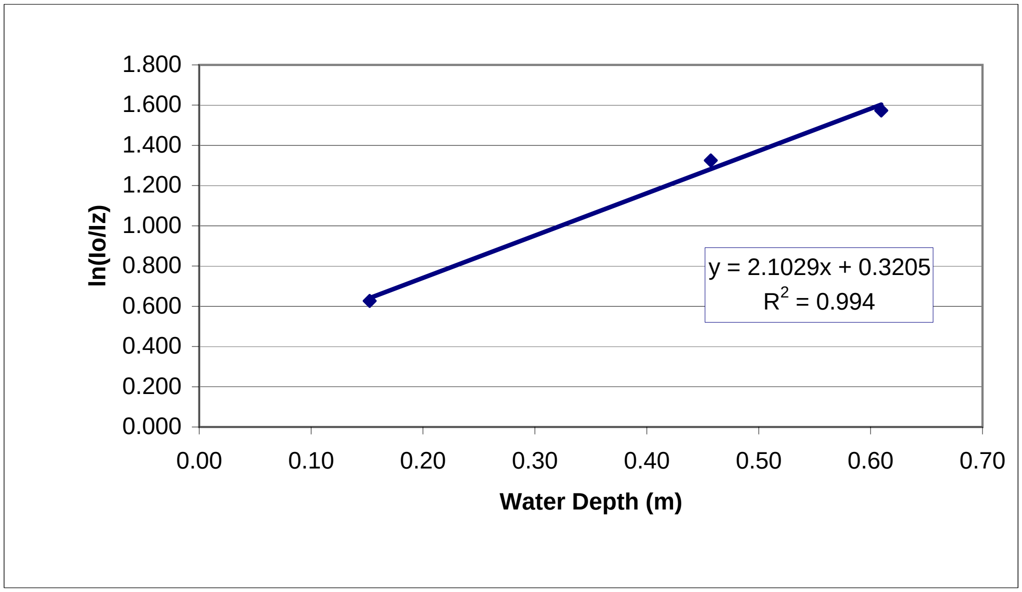
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ALEXANDER SPRING CREEK SEGMENT 1 (DOWNSTREAM) - 2/5/2007

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	184.4	258.0	159.2	5.07		
0.15	182.6	255.4	97.57	4.58	0.627	4.111
0.46	178.7	249.9	47.49	3.86	1.325	2.898
0.61	177.7	248.5	36.83	3.61	1.574	2.581
0.30		523.3 [a]	66.24 [a]			

k (diffuse attenuation coefficient = slope, m-1)		2.103
k average		3.197
percent transmittance @	1.0 meter	12.21
Birgean Percentile Absorption (1m)		87.79





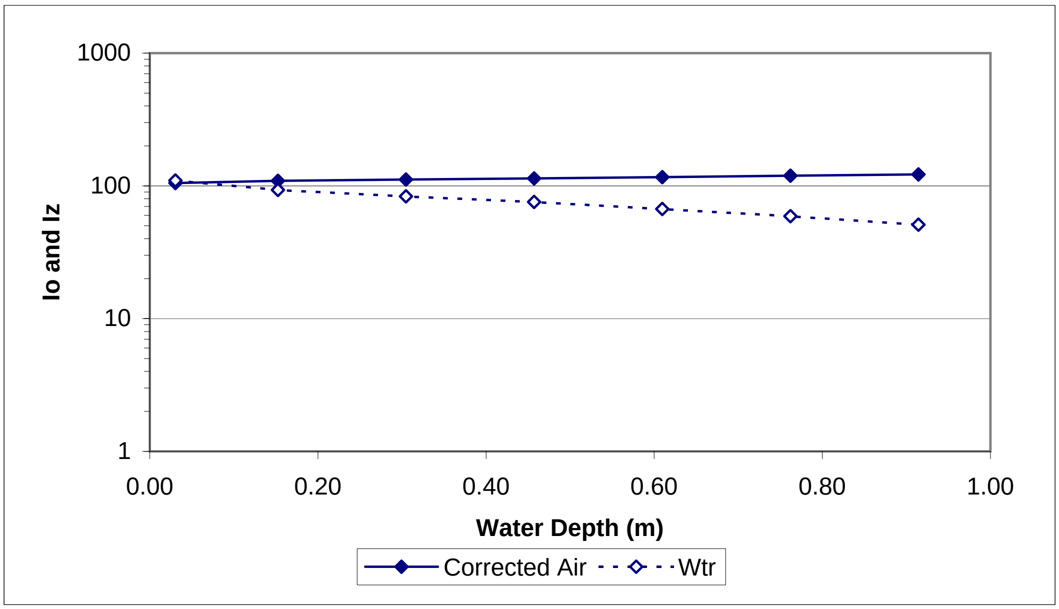
Overcast, lt. rain

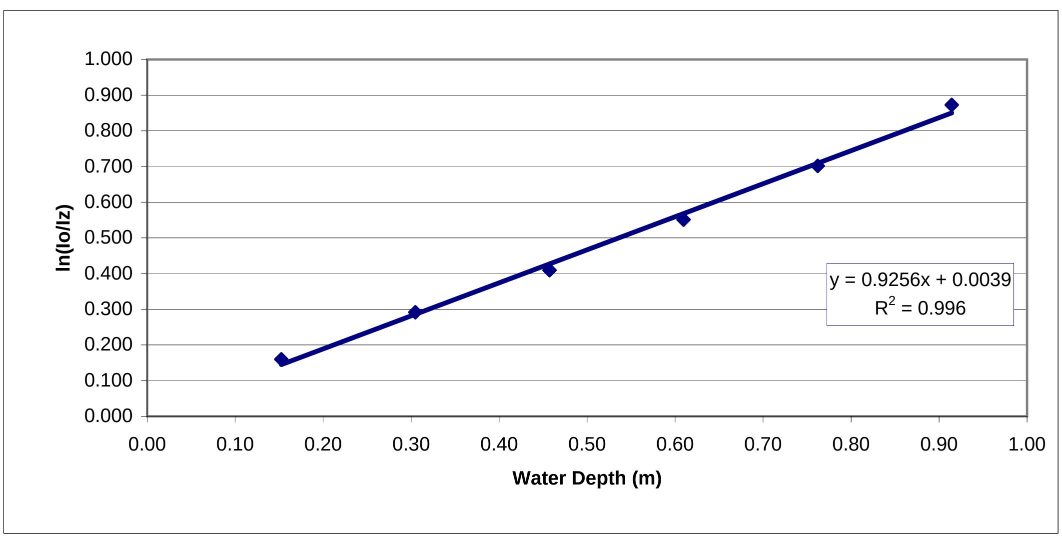
[a] data flagged - not used in calculating averages

APPENDIX D
WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - JUNIPER CREEK SEGMENT 1 (DOWNSTREAM) - 1/3/2007

Depth (m)	Rep 1					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	105.1	146.2	109.9	4.70		
0.15	109.2	152.0	93.09	4.53	0.160	1.047
0.30	111.7	155.5	83.46	4.42	0.291	0.956
0.46	113.9	158.6	75.62	4.33	0.409	0.896
0.61	116.4	162.1	67.06	4.21	0.551	0.904
0.76	119.2	166.1	59.10	4.08	0.702	0.921
0.91	122.0	170.1	51.00	3.93	0.873	0.954

k (diffuse attenuation coefficient = slope, m-1)		0.926
k average		0.938
percent transmittance @	1.0 meter	39.63
Birgean Percentile Absorption (1m)		60.37



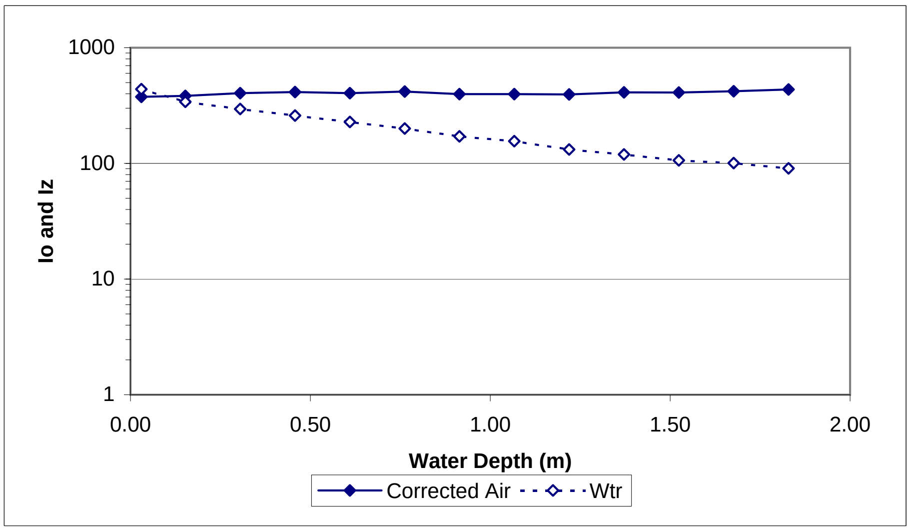


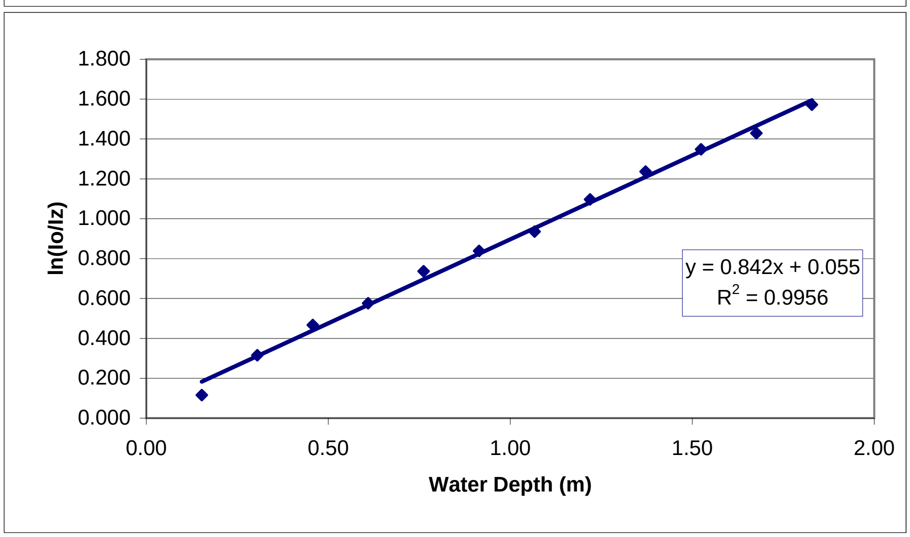
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - JUNIPER CREEK
SEGMENT 1 (UPSTREAM) - 1/3/2007

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	376.15	528.2	437.8	6.08		
0.15	383.04	537.9	341.2	5.83	0.116	0.759
0.30	405.11	569.0	295.5	5.69	0.315	1.035
0.46	414.05	581.6	259.5	5.56	0.467	1.022
0.61	405.39	569.4	227.9	5.43	0.576	0.945
0.76	418.38	587.7	200.3	5.30	0.737	0.967
0.91	396.73	557.2	171.5	5.14	0.839	0.917
1.07	397.44	558.2	155.9	5.05	0.936	0.877
1.22	394.82	554.5	131.8	4.88	1.097	0.900
1.37	411.56	578.1	119.5	4.78	1.237	0.902
1.52	409.36	575.0	106.3	4.67	1.348	0.885
1.68	420.22	590.3	100.6	4.61	1.430	0.853
1.83	436.19	612.8	90.53	4.51	1.572	0.860

k (diffuse attenuation coefficient = slope, m-1)		0.842
k average		0.910
percent transmittance @	1.0 meter	43.08
Birgean Percentile Absorption (1m)		56.92

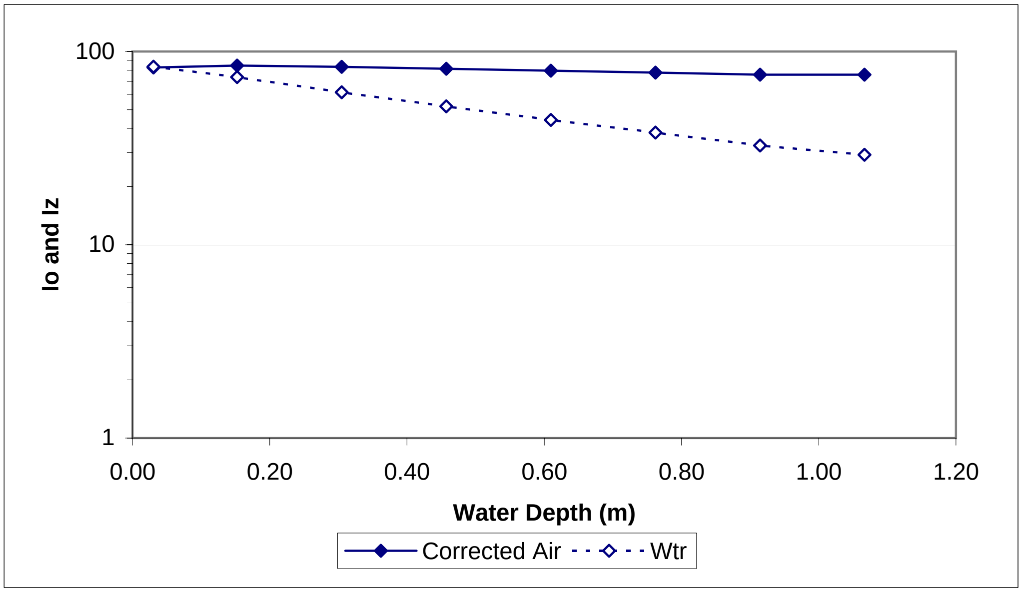


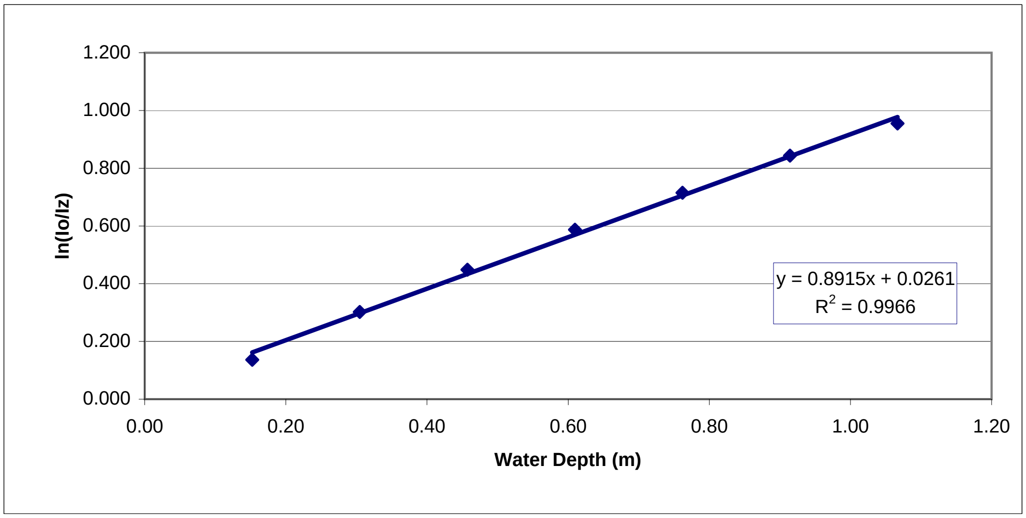


APPENDIX D
WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - JUNIPER CREEK SEGMENT 1 (DOWNSTREAM) - 1/17/2007

Depth (m)	Rep 1					
	corr	raw				
z	Air (Io)	Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	82.7	114.6	83.50	4.42		
0.15	84.5	117.2	73.73	4.30	0.136	0.895
0.30	83.2	115.4	61.52	4.12	0.302	0.992
0.46	81.5	112.9	52.03	3.95	0.448	0.980
0.61	79.6	110.3	44.26	3.79	0.587	0.963
0.76	77.8	107.7	38.05	3.64	0.715	0.938
0.91	75.9	105.1	32.66	3.49	0.844	0.923
1.07	75.9	105.1	29.22	3.37	0.955	0.895

k (diffuse attenuation coefficient = slope, m-1)		0.892
k average		0.909
percent transmittance @	1.0 meter	41.00
Birgean Percentile Absorption (1m)		59.00



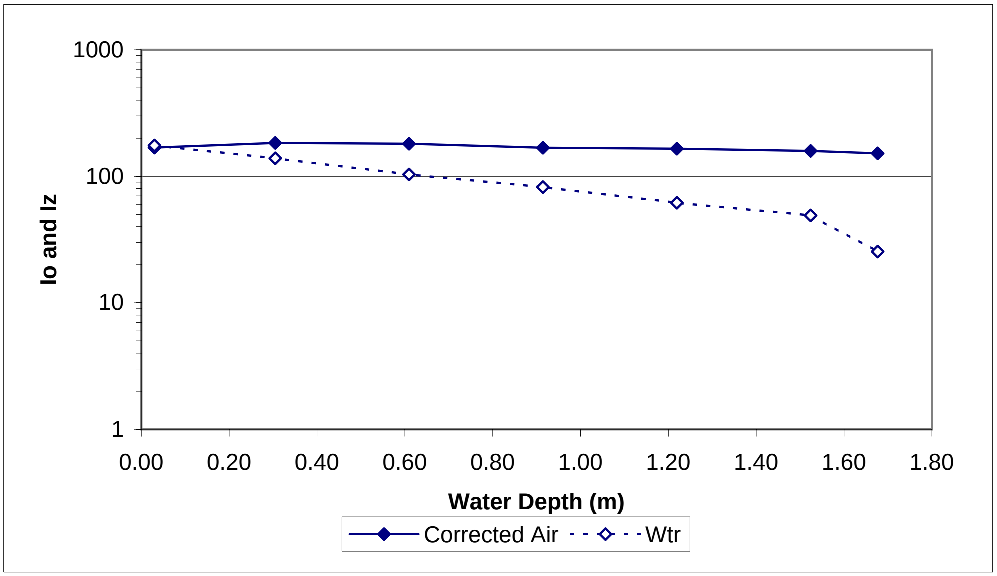


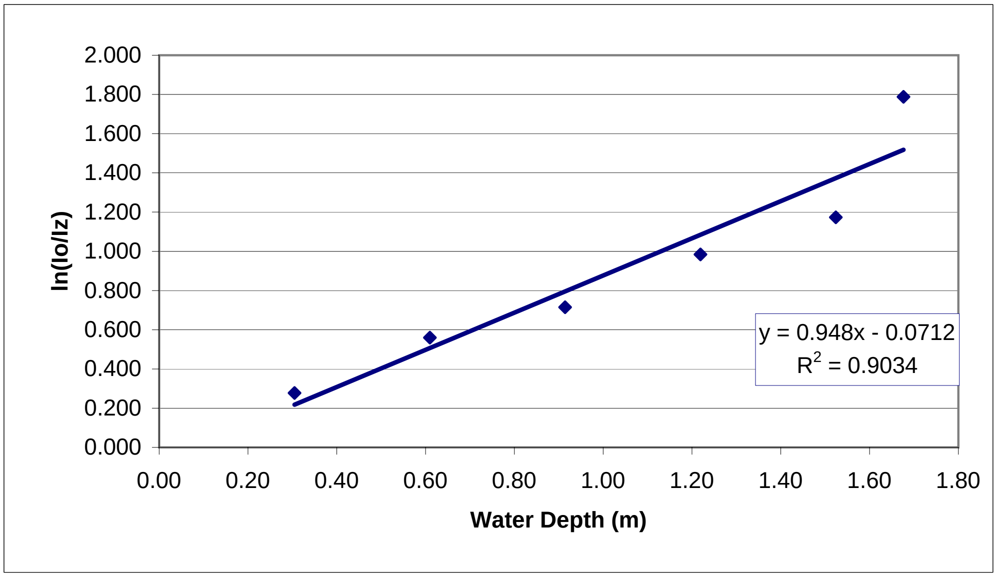
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - JUNIPER CREEK
SEGMENT 1 (UPSTREAM) - 1/17/2007

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	168.88	236.1	175.4	5.17		
0.30	183.36	256.5	138.9	4.93	0.278	0.911
0.61	181.09	253.3	103.5	4.64	0.559	0.918
0.91	168.03	234.9	82.24	4.41	0.714	0.781
1.22	165.26	231.0	61.79	4.12	0.984	0.807
1.52	158.87	222.0	49.14	3.89	1.173	0.770
1.68	151.99	212.3	25.44	3.24	1.788	1.066

k (diffuse attenuation coefficient = slope, m-1)		0.948
k average		0.876
percent transmittance @	1.0 meter	38.75
Birgean Percentile Absorption (1m)		61.25

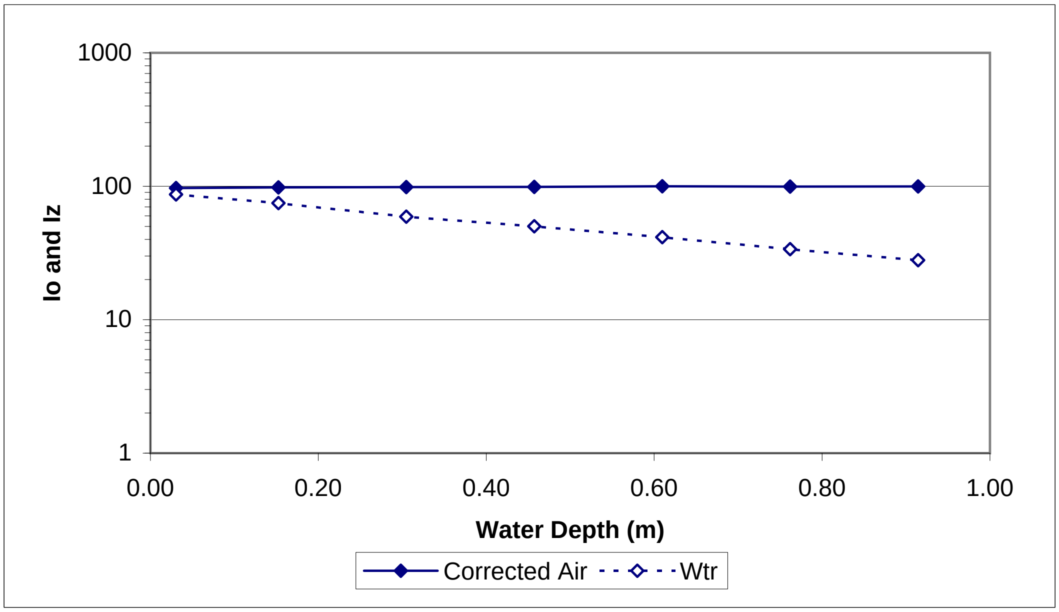


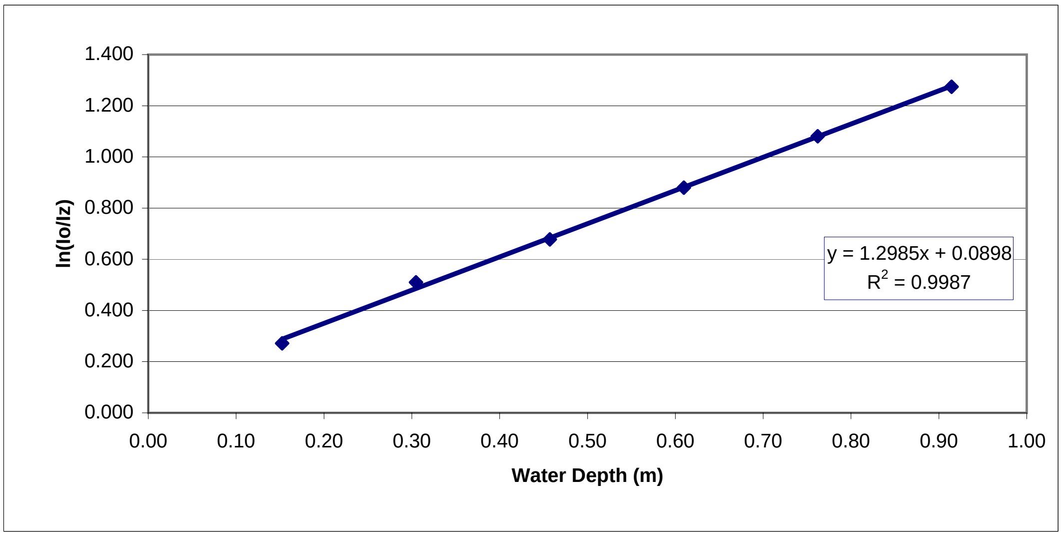


APPENDIX D
WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - JUNIPER CREEK SEGMENT 1 (DOWNSTREAM) - 1/23/2007

Depth (m)	Rep 1					
	corr	raw				
z	Air (Io)	Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	97.1	134.9	86.82	4.46		
0.15	98.1	136.4	74.79	4.31	0.272	1.782
0.30	98.7	137.2	59.26	4.08	0.510	1.674
0.46	98.8	137.4	50.18	3.92	0.678	1.483
0.61	100.1	139.2	41.53	3.73	0.880	1.443
0.76	99.5	138.3	33.76	3.52	1.081	1.418
0.91	99.8	138.7	27.90	3.33	1.274	1.393

k (diffuse attenuation coefficient = slope, m-1)		1.299
k average		1.406
percent transmittance @	1.0 meter	27.29
Birgean Percentile Absorption (1m)		72.71



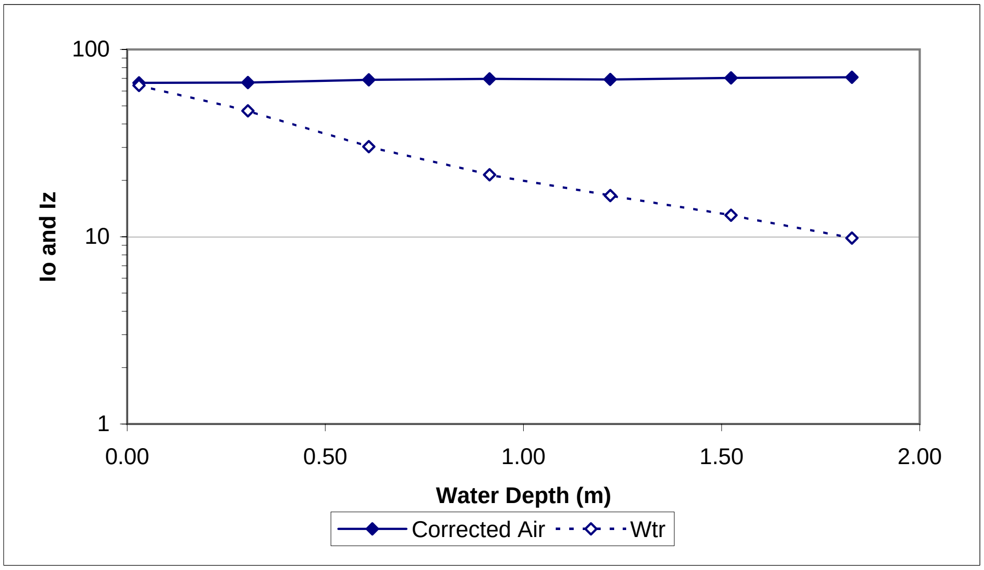


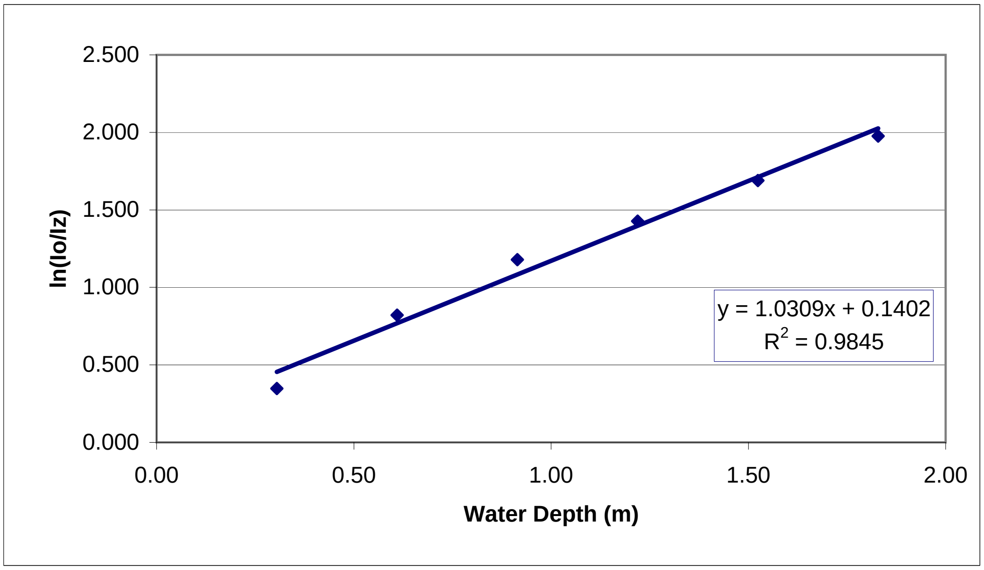
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - JUNIPER CREEK
SEGMENT 1 (UPSTREAM) - 1/23/2007

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	66.36	91.63	64.20	4.16		
0.30	66.53	91.87	47.02	3.85	0.347	1.139
0.61	68.82	95.09	30.27	3.41	0.821	1.347
0.91	69.62	96.22	21.42	3.06	1.179	1.289
1.22	69.11	95.50	16.59	2.81	1.427	1.170
1.52	70.54	97.52	13.02	2.57	1.690	1.109
1.83	70.98	98.14	9.839	2.29	1.976	1.081

k (diffuse attenuation coefficient = slope, m-1)		1.031
k average		1.189
percent transmittance @	1.0 meter	35.67
Birgean Percentile Absorption (1m)		64.33



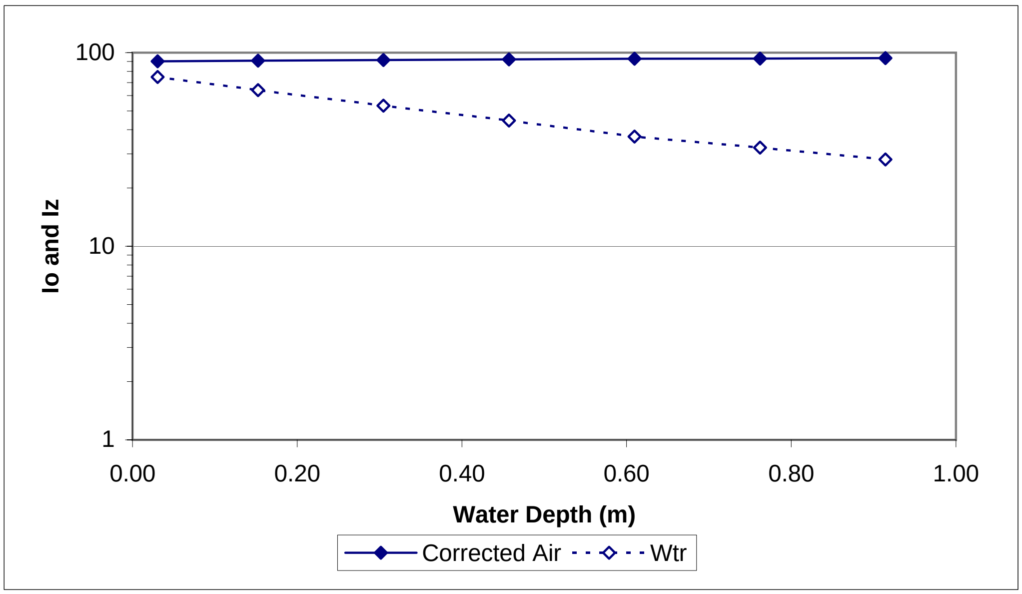


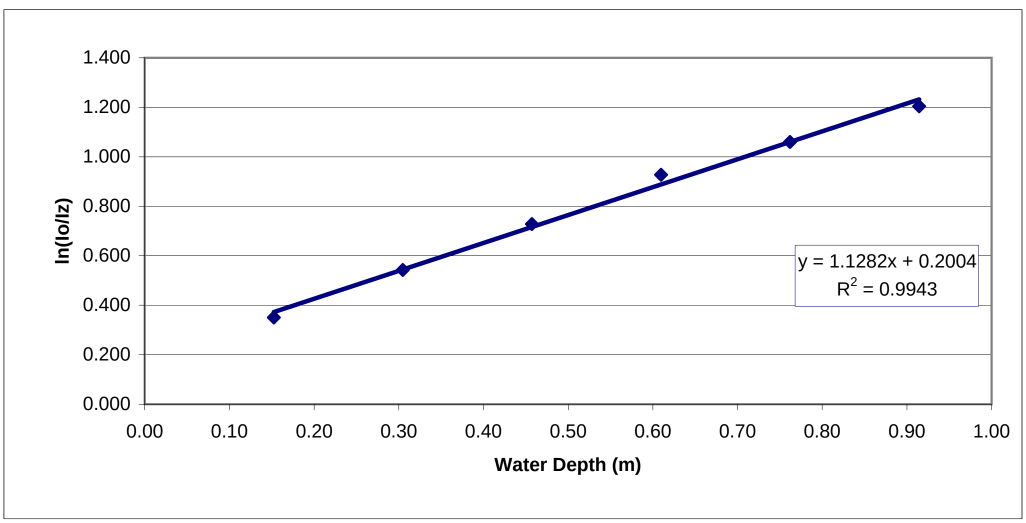
*Overcast; water slightly tannic; many particulates.

APPENDIX D
WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - JUNIPER CREEK SEGMENT 1 (DOWNSTREAM) - 2/5/2007

Depth (m)	Rep 1					
	corr	raw				
z	Air (Io)	Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	90.2	125.2	74.83	4.32		
0.15	90.9	126.2	64.02	4.16	0.351	2.300
0.30	91.6	127.2	53.23	3.97	0.543	1.781
0.46	92.4	128.3	44.60	3.80	0.728	1.593
0.61	93.1	129.3	36.83	3.61	0.927	1.521
0.76	93.2	129.5	32.30	3.48	1.060	1.391
0.91	93.7	130.1	28.10	3.34	1.204	1.317

k (diffuse attenuation coefficient = slope, m-1)		1.128
k average		1.354
percent transmittance @	1.0 meter	32.36
Birgean Percentile Absorption (1m)		67.64





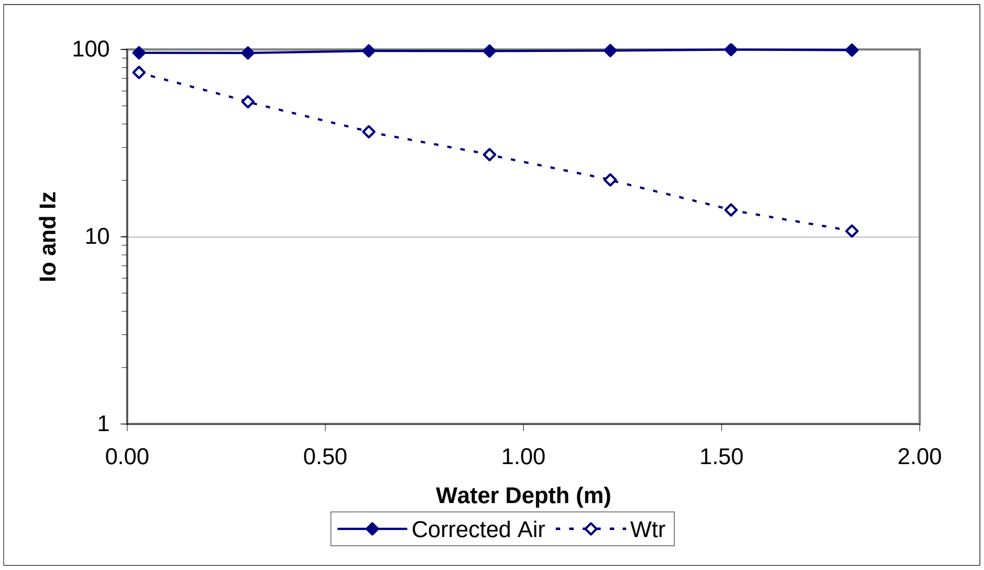
Overcast

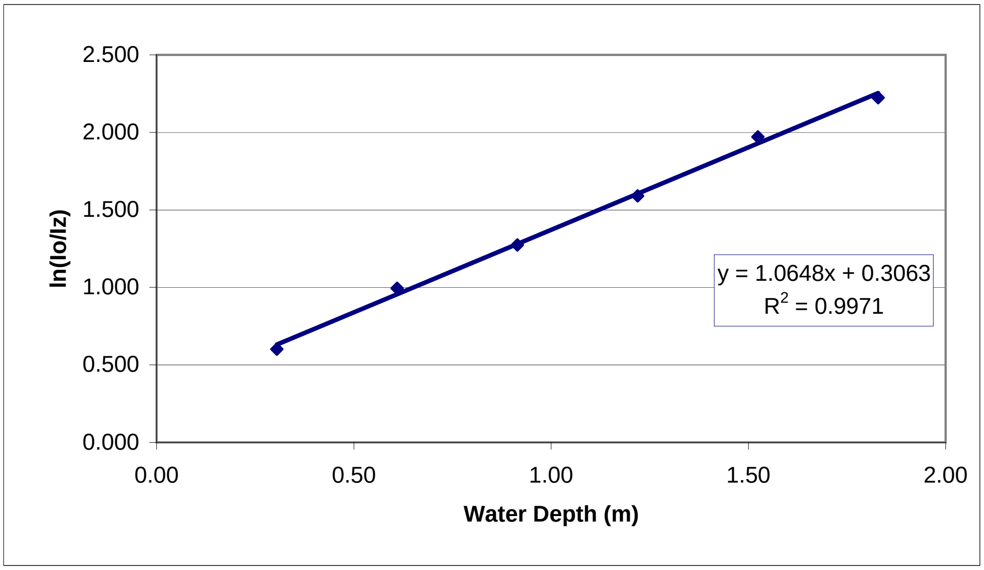
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - JUNIPER CREEK
SEGMENT 1 (UPSTREAM) - 2/5/2007

Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	95.93	133.3	75.38	4.32		
0.30	95.86	133.2	52.55	3.96	0.601	1.972
0.61	98.20	136.5	36.35	3.59	0.994	1.630
0.91	98.13	136.4	27.46	3.31	1.274	1.393
1.22	98.63	137.1	20.11	3.00	1.590	1.304
1.52	99.76	138.7	13.90	2.63	1.971	1.293
1.83	99.13	137.8	10.73	2.37	2.223	1.216

k (diffuse attenuation coefficient = slope, m-1)		1.065
k average		1.468
percent transmittance @	1.0 meter	34.48
Birgean Percentile Absorption (1m)		65.52





Overcast

APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES (SPRING 2007)

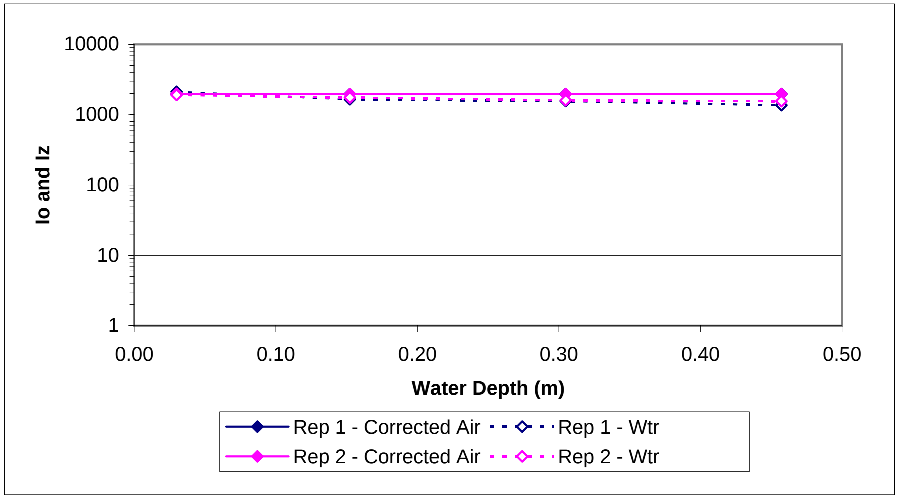
Station	Date	Rep	Max Depth (m)	k (diffuse attenuation coefficient = slope, m-1)	Percent Transmittance (1m)	Birgean Percentile Absorption (1m)
WR1-UP	4/10/2007	1	0.76	0.78	45.91	54.09
	4/10/2007	2	0.76	0.48	62.16	37.84
	4/25/2007	1	0.61	0.93	39.41	60.59
	4/25/2007	2	0.61	0.66	51.78	48.22
WR1-DN	4/10/2007	1	0.76	0.57	56.34	43.66
	4/10/2007	2	0.76	0.43	65.00	35.00
	4/25/2007	1	0.76	0.58	56.08	43.92
	4/25/2007	2	0.76	0.41	66.22	33.78
WR2-UP	4/10/2007	1	0.91	0.82	44.08	55.92
	4/10/2007	2	0.91	0.75	47.40	52.60
	4/24/2007	1	0.61	0.82	43.95	56.05
	4/24/2007	2	0.61	0.56	56.95	43.05
WR2-DN	4/10/2007	1	0.91	0.77	46.14	53.86
	4/10/2007	2	0.91	0.68	50.82	49.18
	4/24/2007	1	0.76	0.89	41.01	58.99
	4/24/2007	2	0.76	0.56	57.31	42.69
RSR1-UP	5/8/2007	1	0.46	0.42	65.80	34.20
	5/8/2007	2	0.46	0.38	68.66	31.34
	5/24/2007	1	0.61	0.20	81.82	18.18
	5/24/2007	2	0.61	0.60	55.06	44.94
RSR1-DN	5/8/2007	1	0.46	0.63	53.03	46.97
	5/8/2007	2	0.46	0.38	68.25	31.75
	5/24/2007	1	0.76	0.34	70.95	29.05
	5/24/2007	2	0.76	0.32	72.43	27.57
RSR2-UP	5/9/2007	1	0.46	0.83	43.74	56.26
	5/9/2007	2	0.46	1.20	30.15	69.85
	5/24/2007	1	0.61	0.86	42.46	57.54
	5/24/2007	2	0.61	0.90	40.46	59.54
RSR2-DN	5/9/2007	1	0.46	0.80	44.72	55.28
	5/9/2007	2	0.46	0.91	40.11	59.89
	5/24/2007	1	0.30	1.39	24.99	75.01
	5/24/2007	2	0.30	0.97	37.75	62.25
ASC1-UP	5/30/2007	1	0.91	---	---	---
	5/30/2007	2	0.91	---	---	---
	6/19/2007	1	1.22	0.63	53.34	46.66
	6/19/2007	2	1.22	0.57	56.41	43.59
ASC1-DN	5/30/2007	1	0.61	0.35	70.29	29.71
	5/30/2007	2	0.61	0.48	61.65	38.35
	6/19/2007	1	0.46	0.43	64.83	35.17
	6/19/2007	2	0.46	0.75	47.45	52.55
JC1-UP	5/30/2007	1	0.91	0.40	66.94	33.06
	5/30/2007	2	0.91	0.51	59.96	40.04
	6/19/2007	1	1.07	0.69	50.15	49.85
	6/19/2007	2	1.07	0.84	43.23	56.77
JC1-DN	5/30/2007	1	1.07	0.62	54.05	45.95
	5/30/2007	2	1.07	0.73	48.08	51.92
	6/19/2007	1	1.07	0.87	41.93	58.07
	6/19/2007	2	1.07	0.83	43.47	56.53
			AVERAGE			
WR1-UP			0.686	0.711	49.81	50.19
WR1-DN			0.762	0.499	60.91	39.09
WR2-UP			0.762	0.738	48.10	51.90
WR2-DN			0.838	0.725	48.82	51.18
RSR1-UP			0.533	0.398	67.83	32.17
RSR1-DN			0.610	0.421	66.16	33.84
RSR2-UP			0.533	0.947	39.20	60.80
RSR2-DN			0.381	1.020	36.89	63.11
ASC1-UP			0.800	0.536	58.99	41.01
ASC1-DN			0.533	0.504	61.05	38.95
JC1-UP			0.991	0.610	55.07	44.93
JC1-DN			1.067	0.762	46.88	53.12

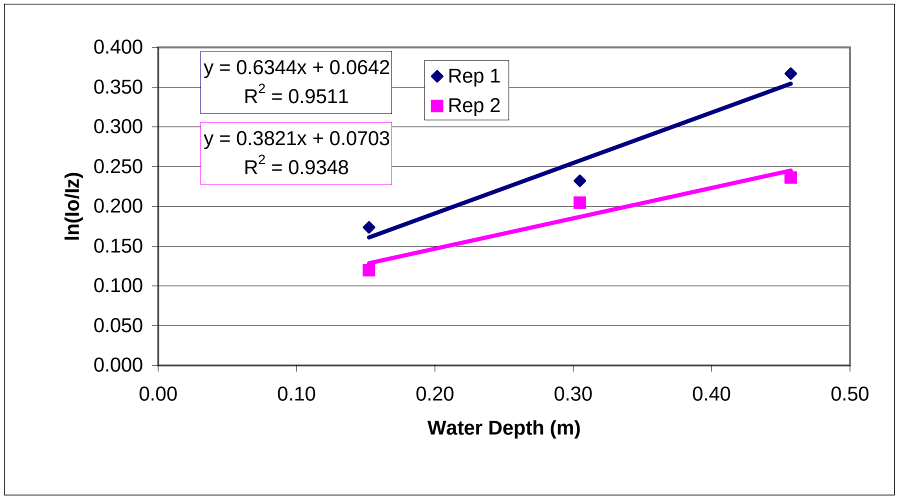
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRING RUN SEGMENT 1 (DOWNSTREAM) - 5/08/2007

Depth (m) z	Replicate 1 corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	Depth (m) z	Replicate 2 corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,976	2,042	2,116	7.66			0.03	1,981	2,047	1,913	7.56		
0.15	1,971	2,037	1,657	7.41	0.174	1.139	0.15	1,976	2,042	1,753	7.47	0.120	0.785
0.30	1,969	2,035	1,561	7.35	0.232	0.762	0.30	1,973	2,039	1,608	7.38	0.205	0.671
0.46	1,970	2,036	1,365	7.22	0.367	0.803	0.46	1,973	2,039	1,558	7.35	0.236	0.516

	Replicate 1		Replicate 2		
k (diffuse attenuation coefficient = slope, m-1)		0.634	k (diffuse attenuation coefficient = slope, m-1)		0.382
k average		0.901	k average		0.658
percent transmittance @	1.0 meter	53.03	percent transmittance @	1.0 meter	68.25
Birgean Percentile Absorption (1m)		46.97	Birgean Percentile Absorption (1m)		31.75



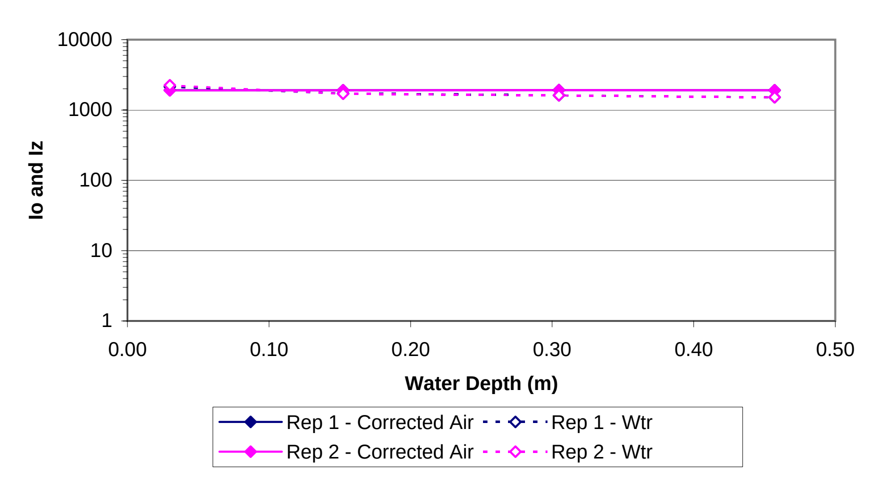


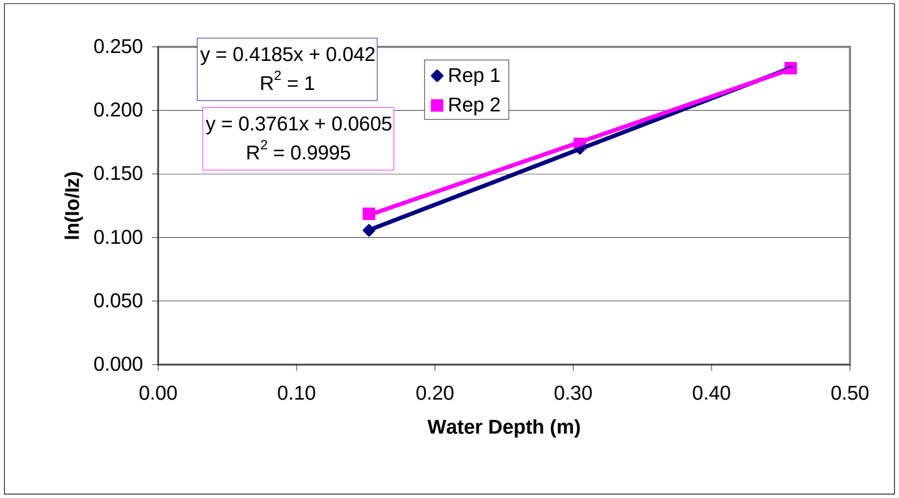
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRING RUN SEGMENT 1 (UPSTREAM) - 5/08/2007

Depth (m) z	Replicate 1 [a] corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	Depth (m) z	Replicate 2 corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,908	1,972	2,146	7.67			0.03	1,903	1,967	2,246	7.72		
0.15	1,914	1,978	1,722	7.45	0.106	0.693	0.15	1,913	1,977	1,699	7.44	0.119	0.778
0.30	1,919	1,983	*1,619*	7.39	0.170	0.558	0.30	1,923	1,988	1,617	7.39	0.174	0.569
0.46	1,913	1,977	1,515	7.32	0.233	0.510	0.46	1,913	1,977	1,515	7.32	0.233	0.510

k (diffuse attenuation coefficient = slope, m-1)		0.419	k (diffuse attenuation coefficient = slope, m-1)		0.376
k average		0.587	k average		0.619
percent transmittance @	1.0 meter	65.80	percent transmittance @	1.0 meter	68.66
Birgean Percentile Absorption (1m)		34.20	Birgean Percentile Absorption (1m)		31.34





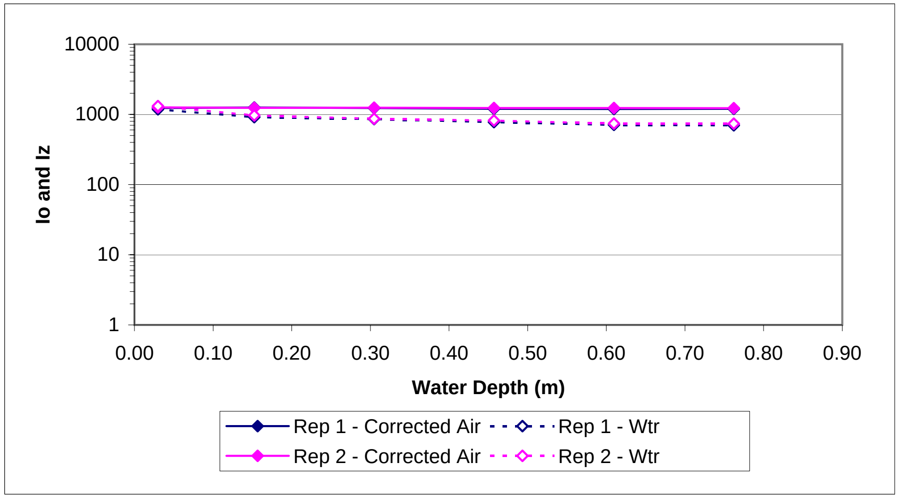
[a] estiamted 0.30 m reading - (outlier: 1,264)

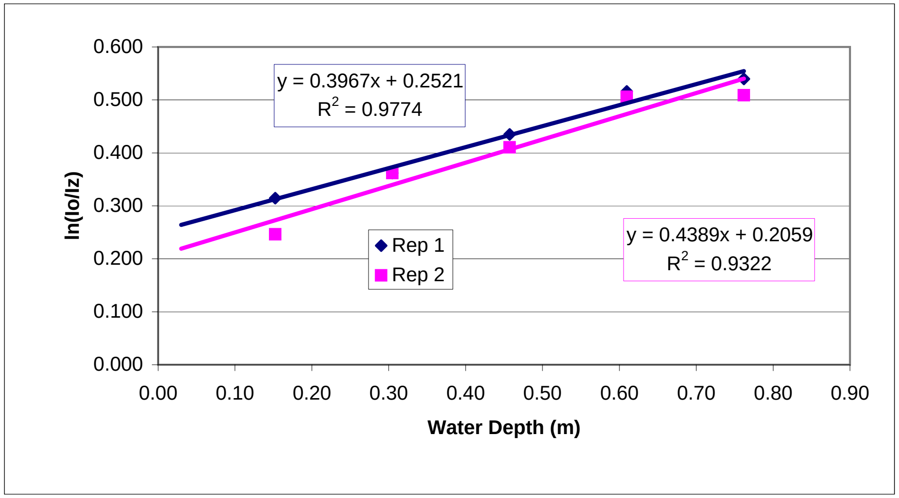
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRING RUN SEGMENT 1 (DOWNSTREAM) - 5/24/2007

Depth (m)	Replicate 1						Depth (m)	Replicate 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,235	1,279	1,184	7.08			0.03	1,260	1,304	1,311	7.18		
0.15	1,250	1,294	912.6	6.82	0.315	2.064	0.15	1,240	1,284	969.5	6.88	0.246	1.616
0.30	1,231	1,274	857.0	6.75	0.362	1.187	0.30	1,245	1,289	867.1	6.77	0.362	1.187
0.46	1,203	1,246	778.9	6.66	0.435	0.951	0.46	1,232	1,276	817.6	6.71	0.410	0.898
0.61	1,193	1,235	711.8	6.57	0.516	0.847	0.61	1,232	1,276	743.2	6.61	0.506	0.830
0.76	1,199	1,241	698.7	6.55	0.540	0.708	0.76	1,229	1,272	738.7	6.60	0.509	0.668

k (diffuse attenuation coefficient = slope, m-1)		0.343	k (diffuse attenuation coefficient = slope, m-1)		0.323
k average		1.151	k average		1.040
percent transmittance @	1.0 meter	70.95	percent transmittance @	1.0 meter	72.43
Birgean Percentile Absorption (1m)		29.05	Birgean Percentile Absorption (1m)		27.57



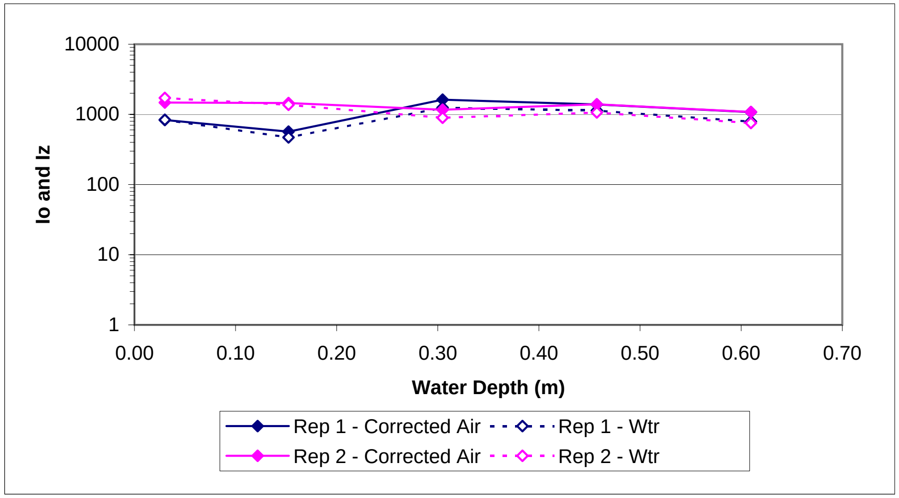


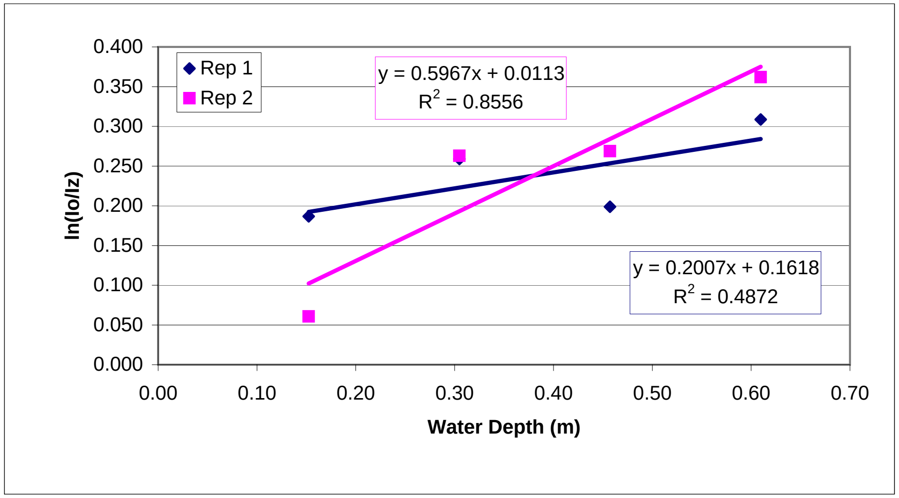
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRING RUN SEGMENT 1 (UPSTREAM) - 5/24/2007

Depth (m)	Replicate 1 [a]						Depth (m)	Replicate 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	832	863.6	836.3	6.73			0.03	1,476	1,527	1,718	7.45		
0.15	567	590.6	470.7	6.15	0.187	1.225	0.15	1,453	1,503	1,367	7.22	0.061	0.399
0.30	1,617	1,672	1,248	7.13	0.259	0.849	0.30	1,163	1,204	893.8	6.80	0.263	0.863
0.46	1,381	1,429	1,132	7.03	0.199	0.435	0.46	1,394	1,442	1,065	6.97	0.269	0.588
0.61	1,074	1,113	789.0	6.67	0.309	0.506	0.61	1,079	1,118	751.4	6.62	0.362	0.594

k (diffuse attenuation coefficient = slope, m-1)		0.201	k (diffuse attenuation coefficient = slope, m-1)		0.597
k average		0.754	k average		0.611
percent transmittance @	1.0 meter	81.82	percent transmittance @	1.0 meter	55.06
Birgean Percentile Absorption (1m)		18.18	Birgean Percentile Absorption (1m)		44.94





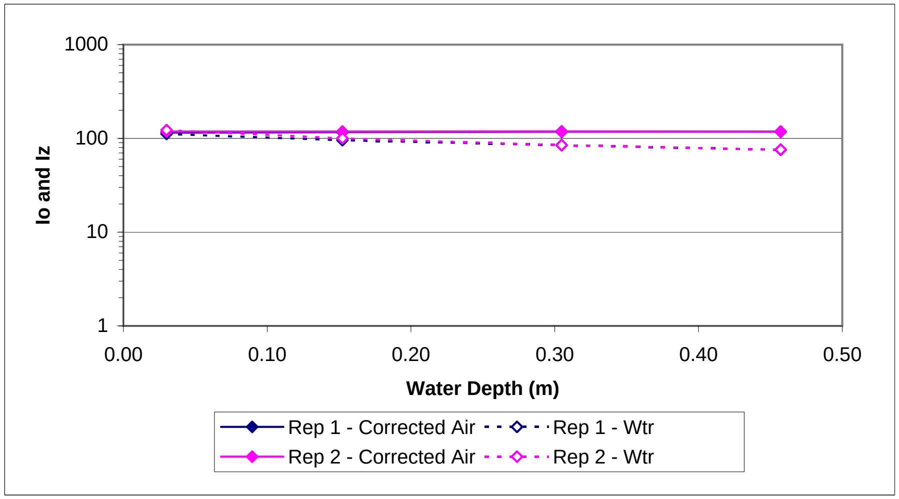
[a] estiamted 0.30 m reading - (outlier: 1,264)

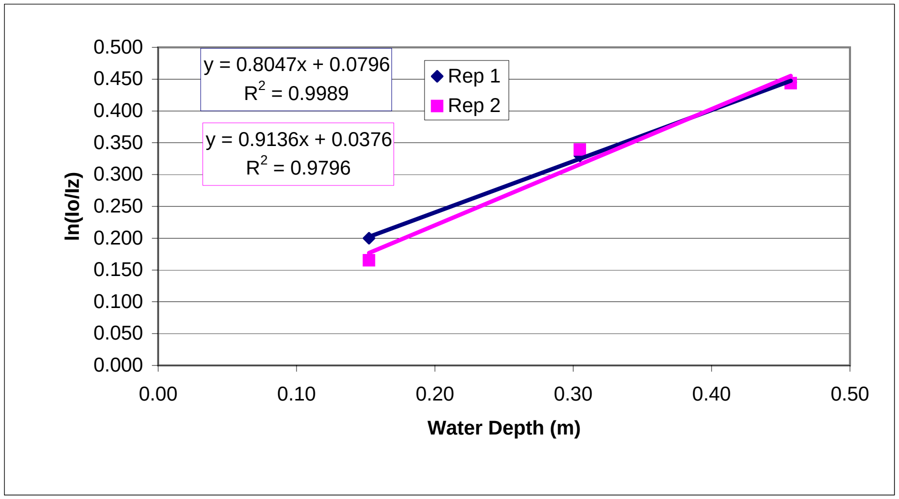
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRING RUN SEGMENT 2 (DOWNSTREAM) - 5/09/2007

Depth (m)	Replicate 1						Depth (m)	Replicate 2					
	corr	raw						corr	raw				
z	Air (Io)	Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	Air (Io)	Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	115.3	124.9	111.6	4.71			0.03	118.6	128.3	122.8	4.81		
0.15	116.8	126.4	95.62	4.56	0.200	1.312	0.15	118.4	128.1	100.4	4.61	0.165	1.084
0.30	117.8	127.4	84.70	4.44	0.330	1.081	0.30	118.8	128.5	84.64	4.44	0.339	1.113
0.46	118.0	127.7	75.63	4.33	0.445	0.974	0.46	118.5	128.2	76.06	4.33	0.444	0.970

k (diffuse attenuation coefficient = slope, m-1)		0.805	k (diffuse attenuation coefficient = slope, m-1)		0.914
k average		1.122	k average		1.056
percent transmittance @	1.0 meter	44.72	percent transmittance @	1.0 meter	40.11
Birgean Percentile Absorption (1m)		55.28	Birgean Percentile Absorption (1m)		59.89



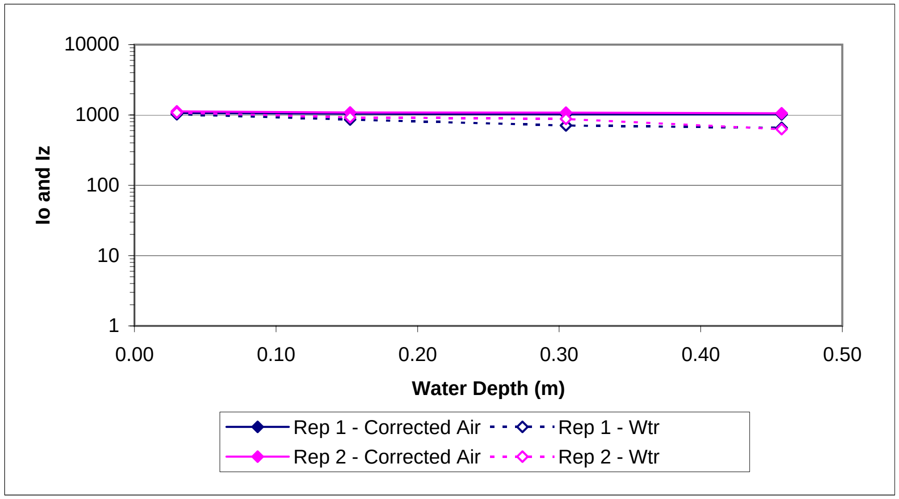


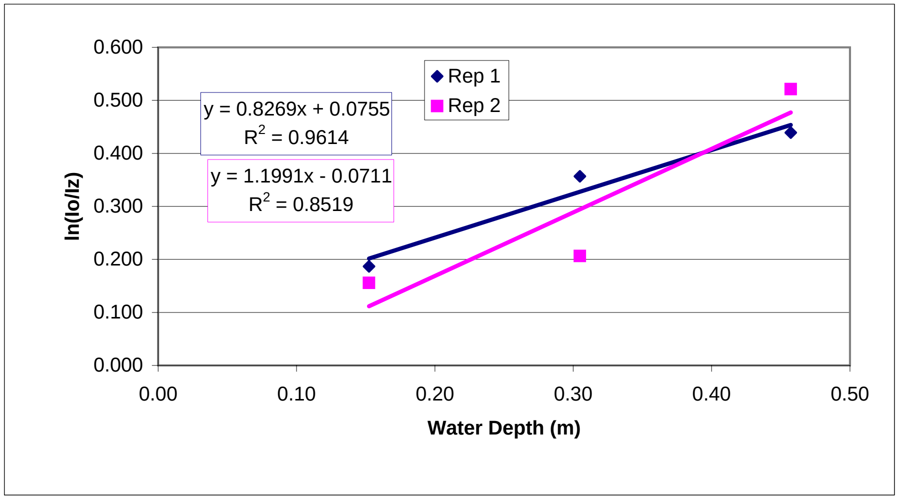
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRING RUN SEGMENT 2 (DOWNSTREAM) - 5/09/2007

Depth (m)	Replicate 1						Depth (m)	Replicate 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,065	1,103	1,026	6.93			0.03	1,126	1,166	1,081	6.99		
0.15	1,037	1,075	860.5	6.76	0.187	1.227	0.15	1,085	1,124	928.6	6.83	0.156	1.021
0.30	1,016	1,053	711.2	6.57	0.357	1.170	0.30	1,080	1,119	878.7	6.78	0.206	0.677
0.46	1,019	1,056	656.9	6.49	0.439	0.960	0.46	1,057	1,095	627.6	6.44	0.521	1.140

k (diffuse attenuation coefficient = slope, m-1)		0.827	k (diffuse attenuation coefficient = slope, m-1)		1.199
k average		1.119	k average		0.946
percent transmittance @	1.0 meter	43.74	percent transmittance @	1.0 meter	30.15
Birgean Percentile Absorption (1m)		56.26	Birgean Percentile Absorption (1m)		69.85



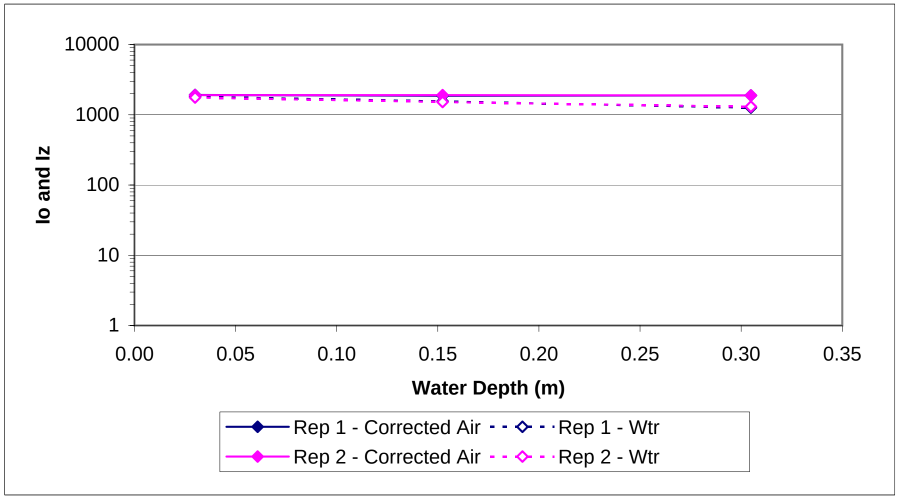


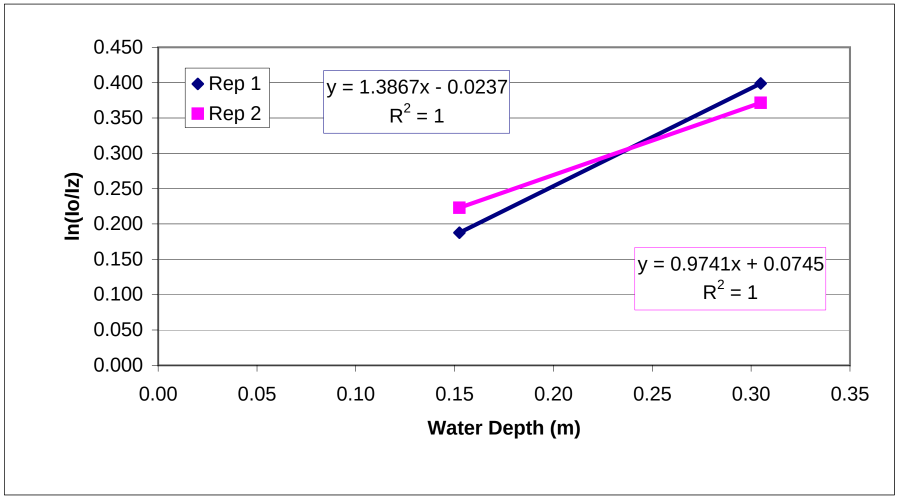
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRING RUN SEGMENT 2 (DOWNSTREAM) - 5/24/2007

Depth (m) z	Replicate 1 corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	Depth (m) z	Replicate 2 corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,919.6	1,984	1,811	7.50			0.03	1,909.9	1,974	1,758	7.47		
0.15	1,871.1	1,934	1,551	7.35	0.188	1.231	0.15	1,902.1	1,966	1,522	7.33	0.223	1.463
0.30	1,883.7	1,947	1,264	7.14	0.399	1.309	0.30	1,890.5	1,954	1,304	7.17	0.371	1.218

k (diffuse attenuation coefficient = slope, m-1)		1.387	k (diffuse attenuation coefficient = slope, m-1)		0.974
k average		1.270	k average		1.341
percent transmittance @	1.0 meter	24.99	percent transmittance @	1.0 meter	37.75
Birgean Percentile Absorption (1m)		75.01	Birgean Percentile Absorption (1m)		62.25



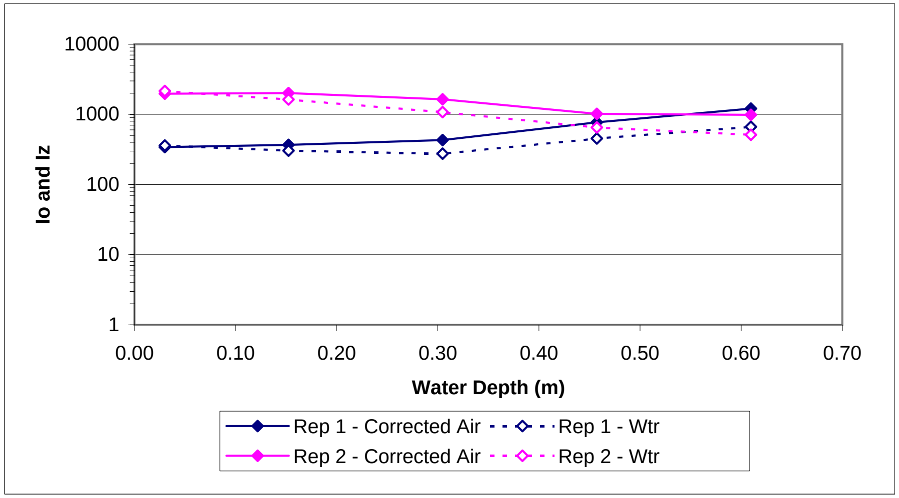


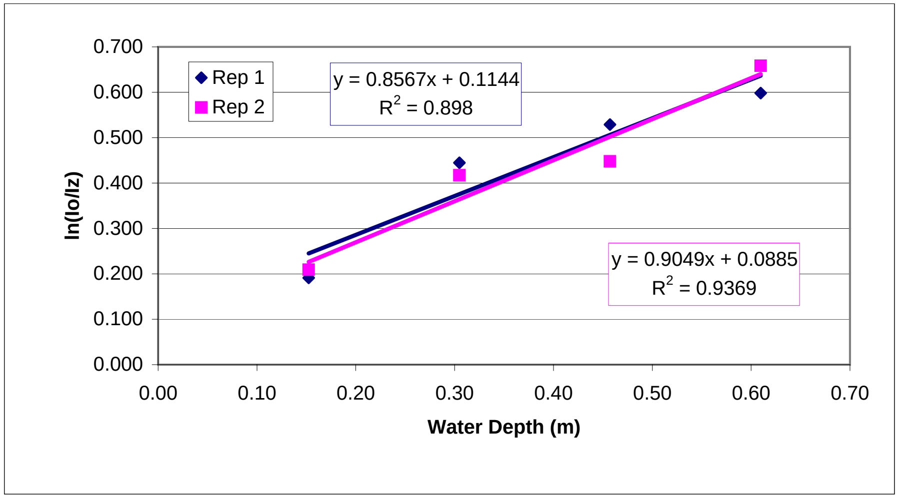
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRING RUN SEGMENT 2 (DOWNSTREAM) - 5/24/2007

Depth (m) z	Replicate 1 corr Air (lo)	raw Air (lo)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	Depth (m) z	Replicate 2 corr Air (lo)	raw Air (lo)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	341	358	360	5.89			0.03	1,966	2,032	2,156	7.68		
0.15	368	385	303.7	5.72	0.191	1.254	0.15	2,008	2,075	1,629.0	7.40	0.209	1.372
0.30	429	449	275.2	5.62	0.445	1.460	0.30	1,633	1,689	1,076.0	6.98	0.417	1.369
0.46	770	800	453.8	6.12	0.529	1.157	0.46	1,016	1,053	649.2	6.48	0.448	0.980
0.61	1,209	1,252	664.7	6.50	0.598	0.982	0.61	985	1,021	509.8	6.23	0.659	1.080

k (diffuse attenuation coefficient = slope, m-1)		0.857	k (diffuse attenuation coefficient = slope, m-1)		0.905
k average		1.213	k average		1.200
percent transmittance @	1.0 meter	42.46	percent transmittance @	1.0 meter	40.46
Birgean Percentile Absorption (1m)		57.54	Birgean Percentile Absorption (1m)		59.54



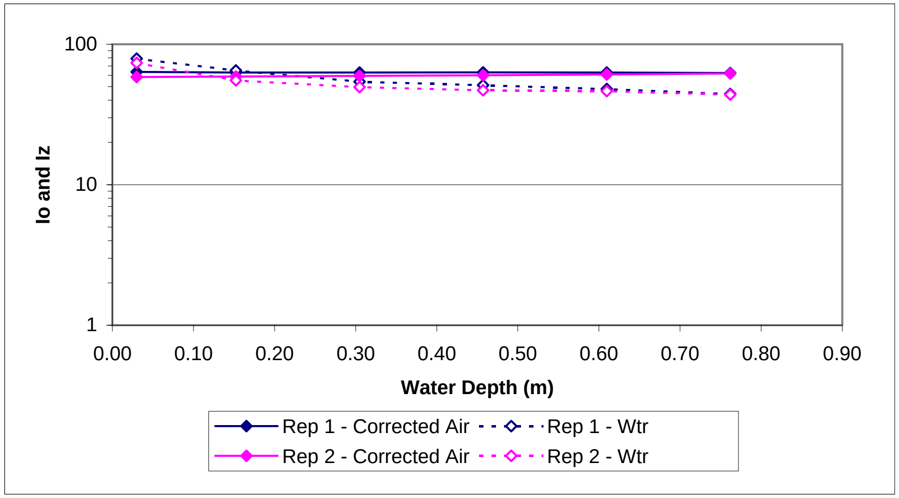


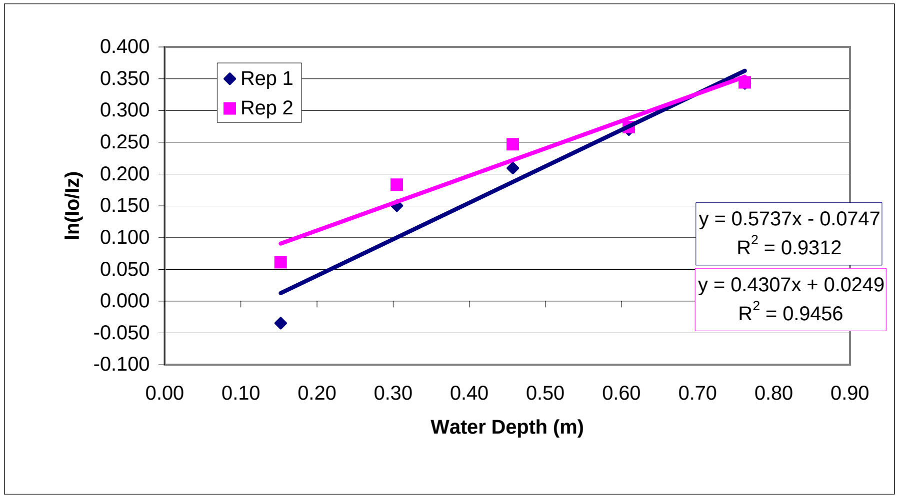
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 1 (DOWNSTREAM) - 4/10/2007

Depth (m)	Replicate 1						Depth (m)	Replicate 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	63.60	71.60	79.00	4.37			0.03	58.43	66.27	73.68	4.30		
0.15	62.87	70.84	65.08	4.18	-0.035	-0.227	0.15	58.84	66.69	55.34	4.01	0.061	0.402
0.30	62.92	70.90	54.14	3.99	0.150	0.493	0.30	59.51	67.38	49.55	3.90	0.183	0.601
0.46	63.05	71.03	51.14	3.93	0.209	0.458	0.46	60.23	68.12	47.05	3.85	0.247	0.540
0.61	62.86	70.83	47.98	3.87	0.270	0.443	0.61	61.00	68.92	46.40	3.84	0.274	0.449
0.76	62.38	70.34	44.28	3.79	0.343	0.450	0.76	61.86	69.80	43.84	3.78	0.344	0.452

k (diffuse attenuation coefficient = slope, m-1)		0.574	k (diffuse attenuation coefficient = slope, m-1)		0.431
k average		0.323	k average		0.489
percent transmittance @	1.0 meter	56.34	percent transmittance @	1.0 meter	65.00
Birgean Percentile Absorption (1m)		43.66	Birgean Percentile Absorption (1m)		35.00



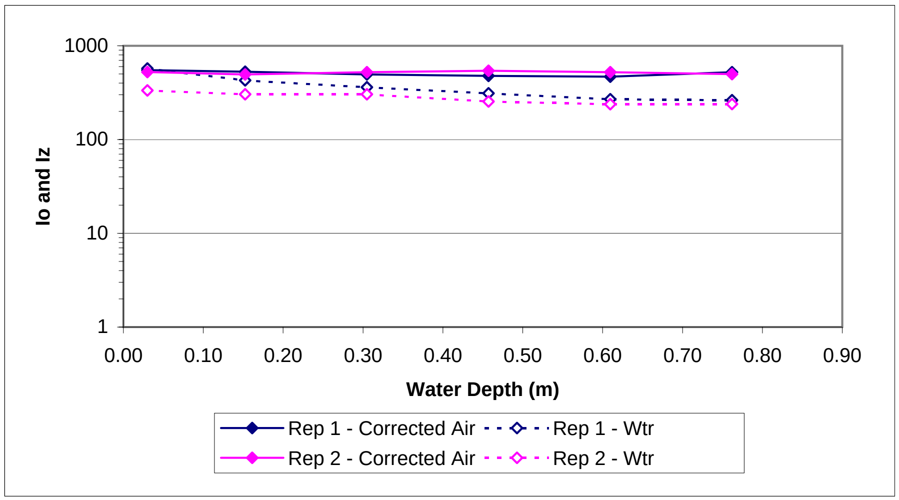


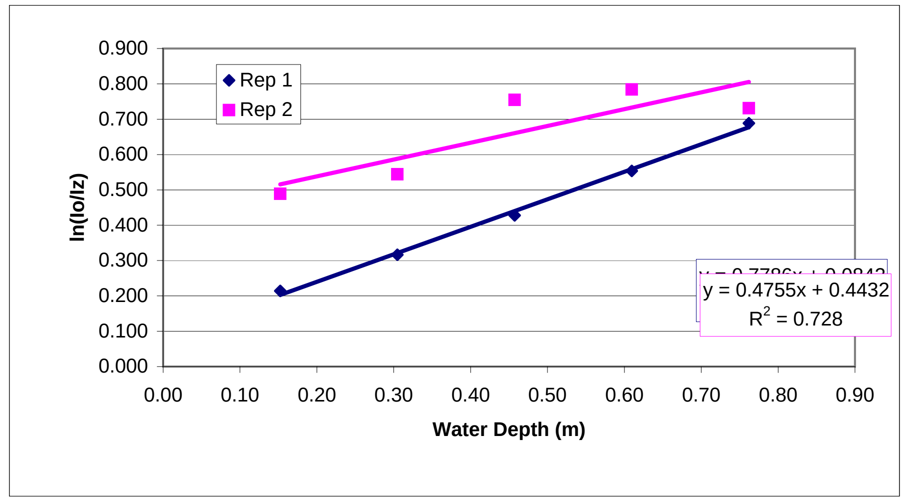
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 1 (UPSTREAM) - 4/10/2007

Depth (m)	Replicate 1						Depth (m)	Replicate 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	549.2	572.0	572.4	6.35			0.03	524.7	546.7	333.5	5.81		
0.15	529.6	551.8	427.6	6.06	0.214	1.404	0.15	495.1	516.2	303.6	5.72	0.489	3.209
0.30	495.9	517.0	361.3	5.89	0.317	1.039	0.30	523.2	545.2	303.7	5.72	0.544	1.785
0.46	477.6	498.2	311.4	5.74	0.428	0.936	0.46	542.1	564.6	254.9	5.54	0.755	1.650
0.61	467.5	487.8	268.7	5.59	0.554	0.909	0.61	522.1	544.0	238.3	5.47	0.784	1.287
0.76	523.0	545.0	262.7	5.57	0.689	0.904	0.76	498.0	519.2	239.7	5.48	0.731	0.960

k (diffuse attenuation coefficient = slope, m-1)		0.779	k (diffuse attenuation coefficient = slope, m-1)		0.475
k average		1.038	k average		1.778
percent transmittance @	1.0 meter	45.91	percent transmittance @	1.0 meter	62.16
Birgean Percentile Absorption (1m)		54.09	Birgean Percentile Absorption (1m)		37.84



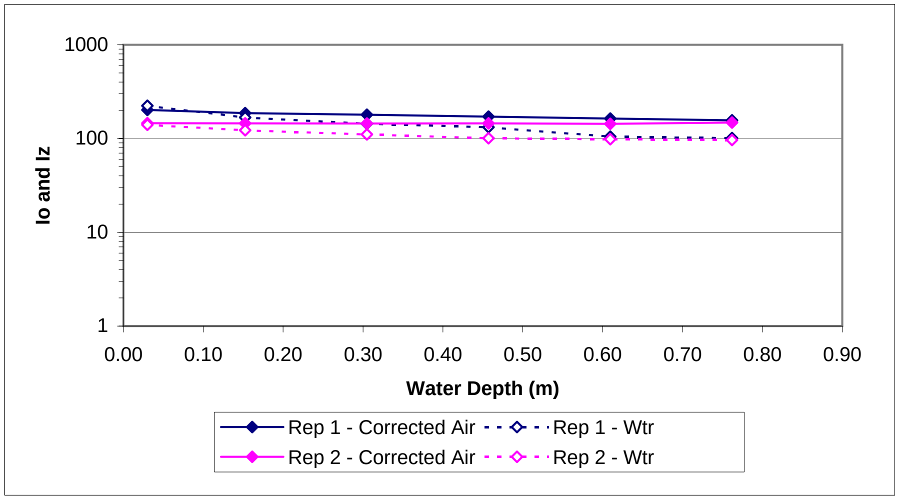


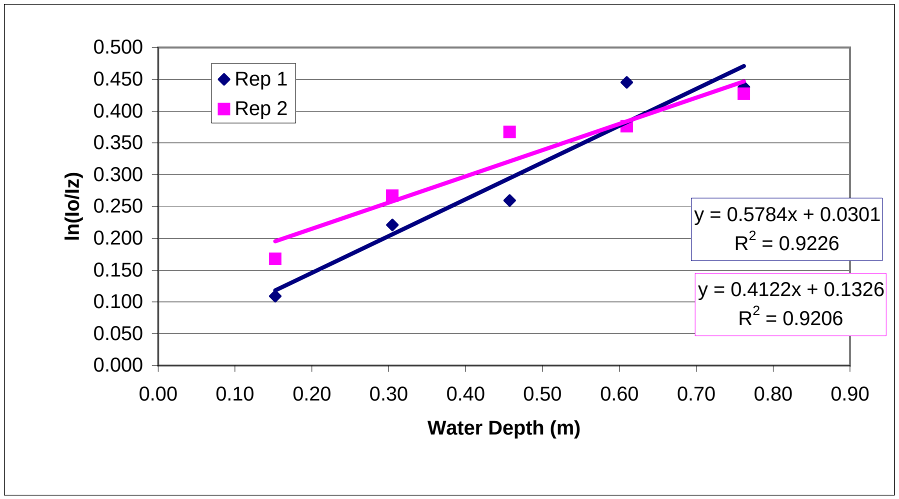
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 1 (DOWNSTREAM) - 4/24/2007

Depth (m)	Replicate 1						Depth (m)	Replicate 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	201.9	214.1	223.9	5.41			0.03	145.9	156.4	140.3	4.94		
0.15	187.1	198.8	167.7	5.12	0.109	0.717	0.15	145.2	155.7	122.8	4.81	0.168	1.100
0.30	179.5	191.0	143.9	4.97	0.221	0.725	0.30	144.7	155.2	110.8	4.71	0.267	0.877
0.46	171.6	182.9	132.4	4.89	0.259	0.567	0.46	145.5	156.0	100.8	4.61	0.367	0.803
0.61	163.6	174.6	104.8	4.65	0.445	0.730	0.61	143.6	154.0	98.56	4.59	0.376	0.617
0.76	156.5	167.3	101.0	4.62	0.438	0.575	0.76	147.8	158.4	96.43	4.57	0.427	0.561

k (diffuse attenuation coefficient = slope, m-1)		0.578	k (diffuse attenuation coefficient = slope, m-1)		0.412
k average		0.663	k average		0.792
percent transmittance @	1.0 meter	56.08	percent transmittance @	1.0 meter	66.22
Birgean Percentile Absorption (1m)		43.92	Birgean Percentile Absorption (1m)		33.78



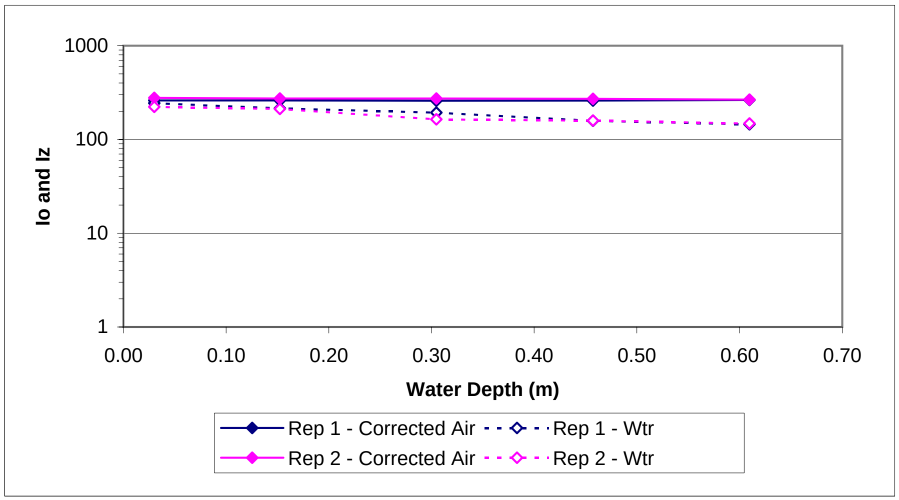


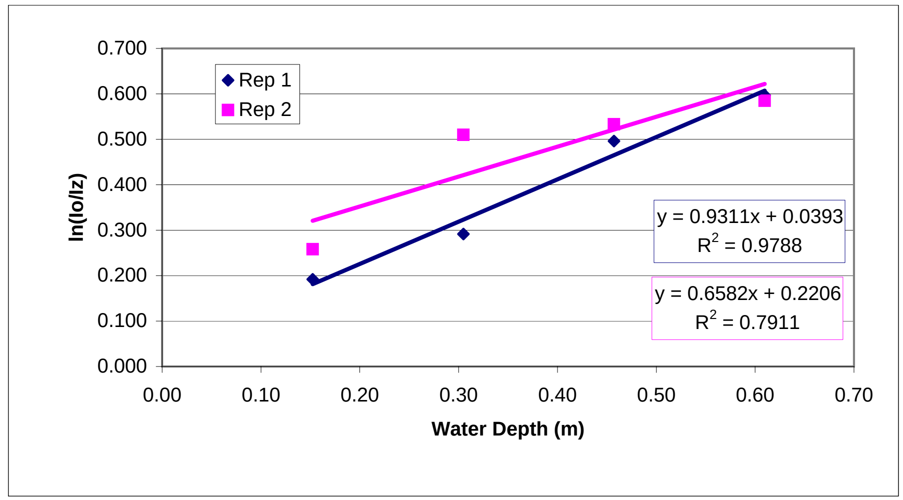
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 1 (UPSTREAM) - 4/24/2007

Depth (m) z	Replicate 1 corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	Depth (m) z	Replicate 2 corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	261.2	275.2	244.4	5.50			0.03	278.0	292.5	223.2	5.41		
0.15	260.6	274.6	215.1	5.37	0.192	1.259	0.15	273.9	288.3	211.6	5.35	0.258	1.694
0.30	259.3	273.2	193.7	5.27	0.292	0.956	0.30	273.0	287.4	164.0	5.10	0.510	1.672
0.46	260.1	274.1	158.4	5.07	0.496	1.085	0.46	271.1	285.4	159.1	5.07	0.533	1.166
0.61	263.7	277.8	145.2	4.98	0.597	0.979	0.61	266.0	280.1	148.20	5.00	0.585	0.959

k (diffuse attenuation coefficient = slope, m-1)		0.931	k (diffuse attenuation coefficient = slope, m-1)		0.658
k average		1.070	k average		1.373
percent transmittance @	1.0 meter	39.41	percent transmittance @	1.0 meter	51.78
Birgean Percentile Absorption (1m)		60.59	Birgean Percentile Absorption (1m)		48.22



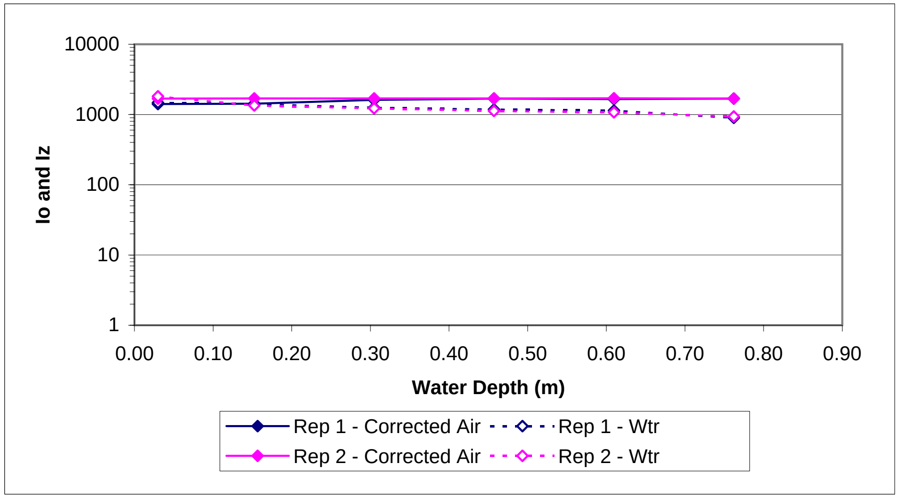


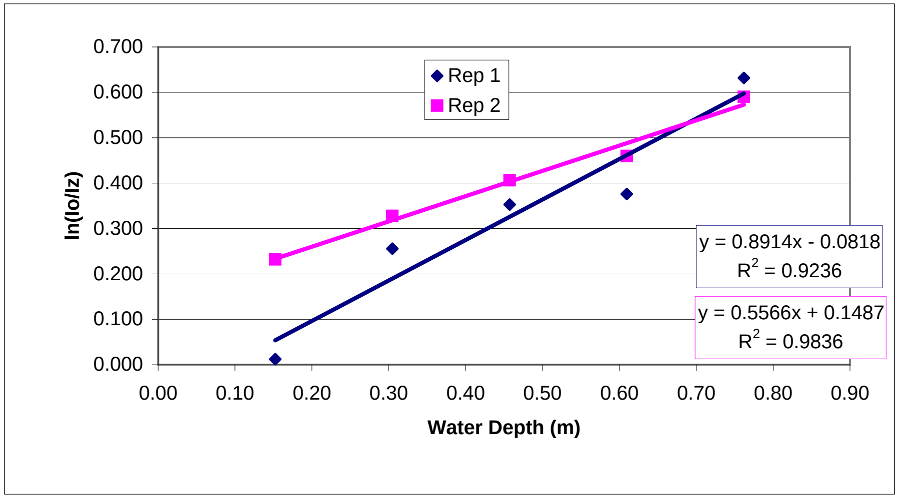
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 2 (DOWNSTREAM) - 4/24/2007

Depth (m)	Replicate 1						Depth (m)	Replicate 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,412	1,461	1,469	7.29			0.03	1,689	1,746	1,811	7.50		
0.15	1,424	1,473	1,406	7.25	0.012	0.082	0.15	1,696	1,754	1,345	7.20	0.232	1.523
0.30	1,617	1,672	1,252	7.13	0.256	0.839	0.30	1,697	1,755	1,223	7.11	0.328	1.075
0.46	1,681	1,738	1,181	7.07	0.353	0.772	0.46	1,693	1,751	1,128	7.03	0.406	0.889
0.61	1,655	1,711	1,136	7.04	0.376	0.617	0.61	1,699	1,757	1,073	6.98	0.460	0.754
0.76	1,687	1,744	896.9	6.80	0.632	0.829	0.76	1,689	1,746	935.8	6.84	0.590	0.775

k (diffuse attenuation coefficient = slope, m-1)		0.891	k (diffuse attenuation coefficient = slope, m-1)		0.557
k average		0.628	k average		1.003
percent transmittance @	1.0 meter	41.01	percent transmittance @	1.0 meter	57.31
Birgean Percentile Absorption (1m)		58.99	Birgean Percentile Absorption (1m)		42.69



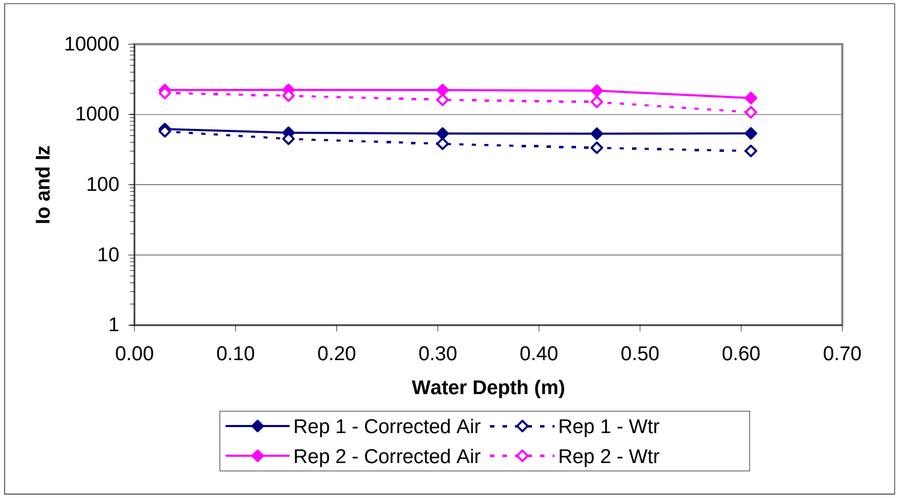


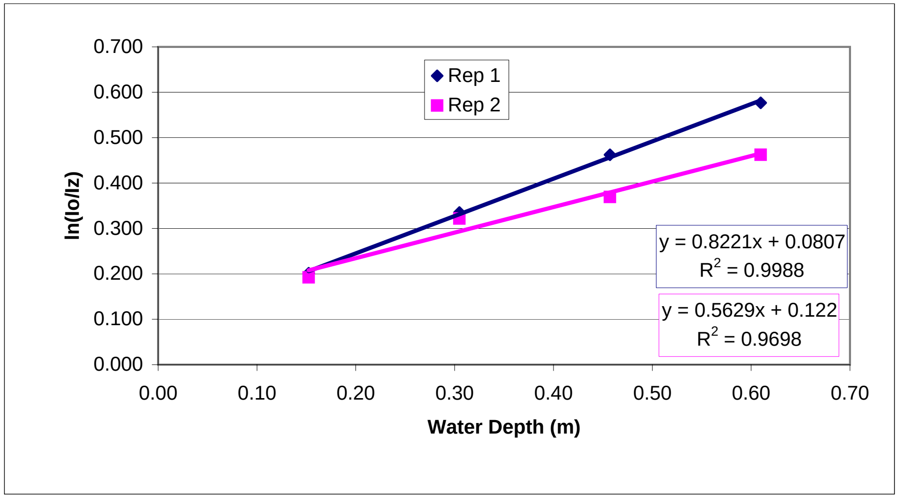
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 2 (UPSTREAM) - 4/24/2007

Depth (m)	Replicate 1						Depth (m)	Replicate 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	619.2	644.1	574.3	6.35			0.03	2,224	2,298	2,020	7.61		
0.15	549.0	571.7	448.8	6.11	0.201	1.322	0.15	2,240	2,314	1,848	7.52	0.192	1.262
0.30	534.0	556.3	381.9	5.95	0.335	1.100	0.30	2,225	2,299	1,613	7.39	0.322	1.056
0.46	531.8	554.0	334.9	5.81	0.462	1.011	0.46	2,179	2,251	1,506	7.32	0.369	0.808
0.61	536.5	558.9	301.4	5.71	0.577	0.946	0.61	1,707	1,765	1,075	6.98	0.462	0.759

k (diffuse attenuation coefficient = slope, m-1)		0.822	k (diffuse attenuation coefficient = slope, m-1)		0.563
k average		1.095	k average		0.971
percent transmittance @	1.0 meter	43.95	percent transmittance @	1.0 meter	56.95
Birgean Percentile Absorption (1m)		56.05	Birgean Percentile Absorption (1m)		43.05



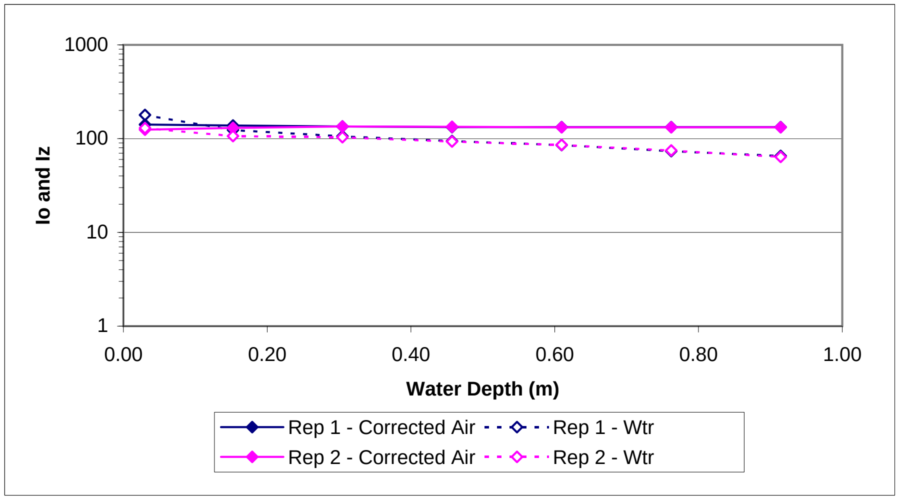


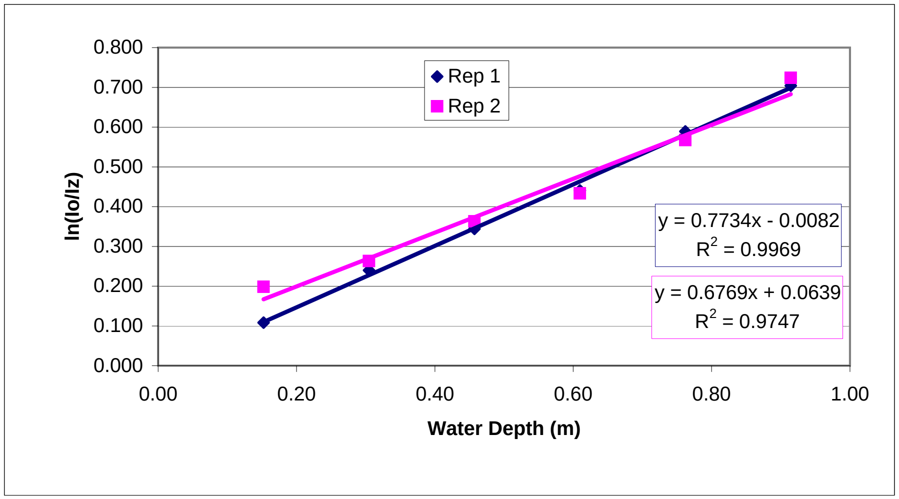
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 2 (DOWNSTREAM) - 4/10/2007

Depth (m)	Replicate 1						Depth (m)	Replicate 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	141.2	151.6	179.1	5.19			0.03	124.7	134.6	129.7	4.87		
0.15	137.9	148.2	123.8	4.82	0.108	0.710	0.15	129.9	139.9	106.5	4.67	0.199	1.303
0.30	134.8	145.0	106.1	4.66	0.240	0.786	0.30	135.0	145.2	103.8	4.64	0.263	0.863
0.46	132.9	143.0	94.21	4.55	0.344	0.753	0.46	134.0	144.1	93.18	4.53	0.363	0.794
0.61	132.6	142.7	85.34	4.45	0.441	0.723	0.61	132.2	142.3	85.70	4.45	0.434	0.711
0.76	132.9	143.0	73.74	4.30	0.589	0.773	0.76	132.0	142.1	74.86	4.32	0.567	0.745
0.91	132.5	142.6	65.52	4.18	0.704	0.770	0.91	132.0	142.1	64.01	4.16	0.724	0.792

Replicate 1			Replicate 2		
k (diffuse attenuation coefficient = slope, m-1)		0.773	k (diffuse attenuation coefficient = slope, m-1)		0.677
k average		0.753	k average		0.868
percent transmittance @	1.0 meter	46.14	percent transmittance @	1.0 meter	50.82
Birgean Percentile Absorption (1m)		53.86	Birgean Percentile Absorption (1m)		49.18



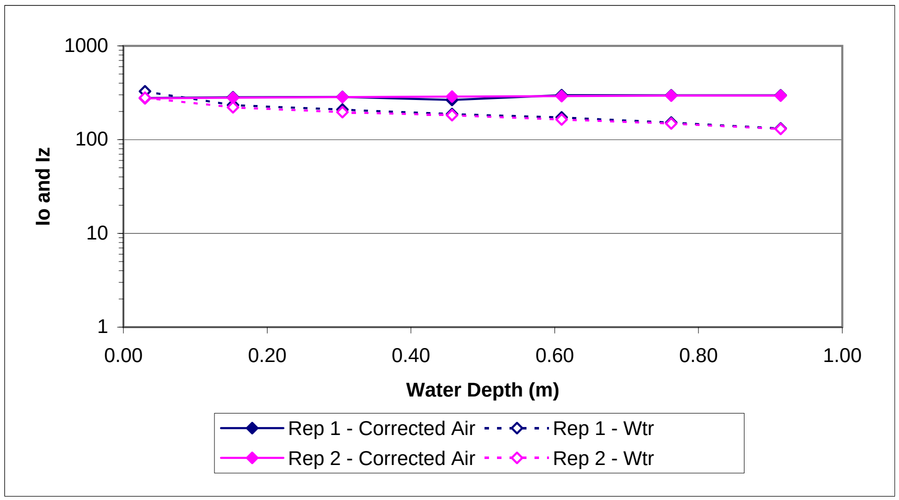


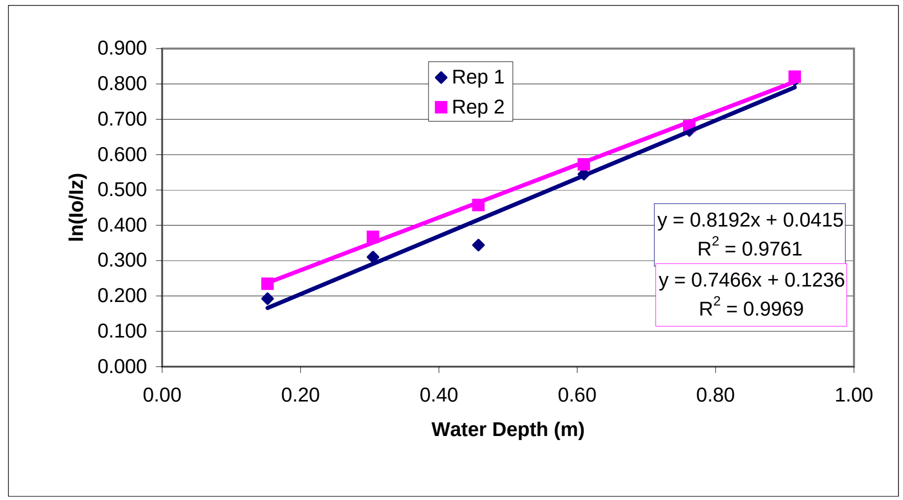
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 2 (UPSTREAM) - 4/10/2007

Depth (m)	Replicate 1						Depth (m)	Replicate 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	277.9	292.4	327.2	5.79			0.03	275.8	290.2	280.2	5.64		
0.15	283.0	297.7	233.5	5.45	0.192	1.262	0.15	279.8	294.4	221.3	5.40	0.235	1.540
0.30	285.3	300.0	209.2	5.34	0.310	1.017	0.30	283.9	298.6	196.7	5.28	0.367	1.204
0.46	264.9	279.0	187.8	5.24	0.344	0.752	0.46	288.1	302.9	182.40	5.21	0.457	1.000
0.61	297.6	312.7	172.6	5.15	0.545	0.894	0.61	291.0	305.9	164.20	5.10	0.572	0.939
0.76	297.3	312.4	152.4	5.03	0.668	0.877	0.76	294.2	309.2	149.00	5.00	0.680	0.893
0.91	296.4	311.5	131.7	4.88	0.811	0.887	0.91	295.0	310.0	129.90	4.87	0.820	0.897

k (diffuse attenuation coefficient = slope, m-1)		0.819	k (diffuse attenuation coefficient = slope, m-1)			0.747
k average		0.948	k average			1.079
percent transmittance @	1.0 meter	44.08	percent transmittance @	1.0	meter	47.40
Birgean Percentile Absorption (1m)		55.92	Birgean Percentile Absorption (1m)			52.60



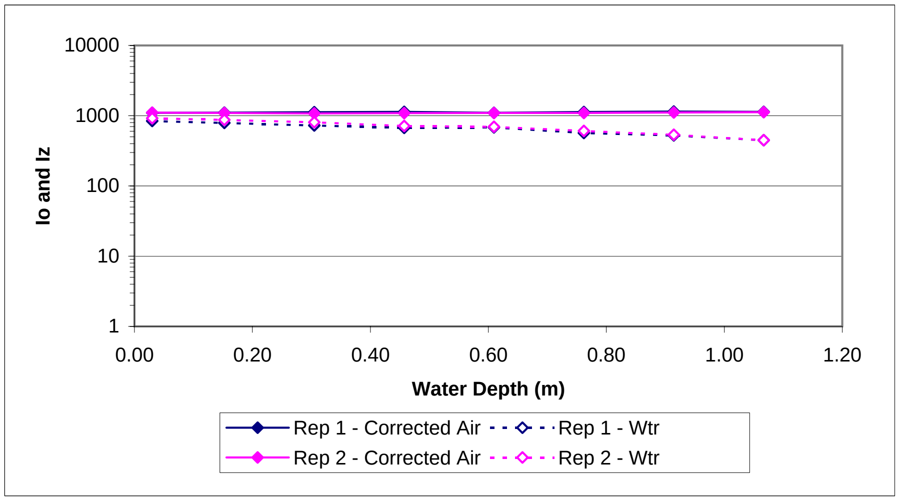


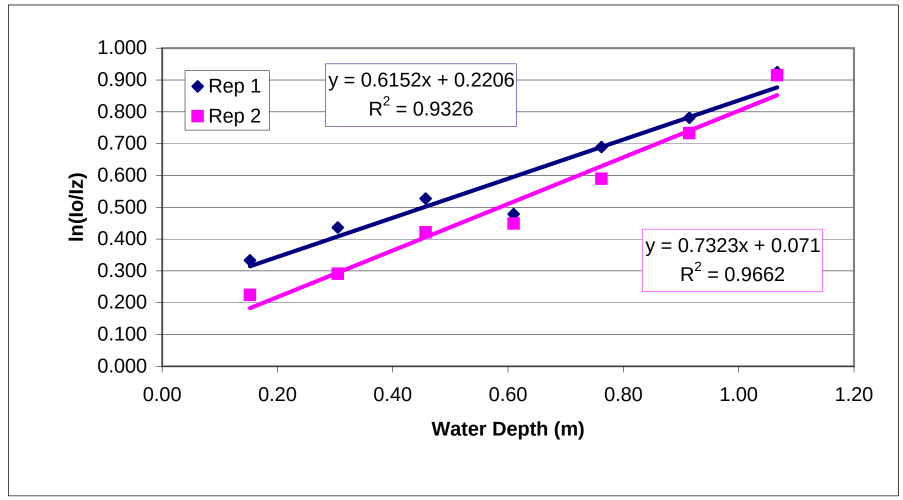
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - JUNIPER CREEK SEGMENT 1 (DOWNSTREAM) - 5/30/2007

Depth (m)	Replicate 1						Depth (m)	Replicate 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,100	1,140	839.8	6.73			0.03	1,103	1,143	917.7	6.82		
0.15	1,103	1,143	790.7	6.67	0.333	2.187	0.15	1,093	1,132	873.2	6.77	0.224	1.472
0.30	1,124	1,164	726.6	6.59	0.436	1.431	0.30	1,078	1,117	806.2	6.69	0.291	0.954
0.46	1,135	1,176	670.2	6.51	0.527	1.153	0.46	1,090	1,129	715.5	6.57	0.421	0.920
0.61	1,101	1,141	682.7	6.53	0.478	0.785	0.61	1,092	1,131	697.0	6.55	0.449	0.736
0.76	1,131	1,171	567.5	6.34	0.689	0.905	0.76	1,095	1,134	607.0	6.41	0.590	0.774
0.91	1,143	1,184	523.5	6.26	0.781	0.854	0.91	1,112	1,152	534.4	6.28	0.733	0.801
1.07	1,132	1,172	449.0	6.11	0.924	0.866	1.07	1,121	1,161	449.0	6.11	0.915	0.858

k (diffuse attenuation coefficient = slope, m-1)		0.615	k (diffuse attenuation coefficient = slope, m-1)		0.732
k average		1.169	k average		0.931
percent transmittance @	1.0 meter	54.05	percent transmittance @	1.0 meter	48.08
Birgean Percentile Absorption (1m)		45.95	Birgean Percentile Absorption (1m)		51.92



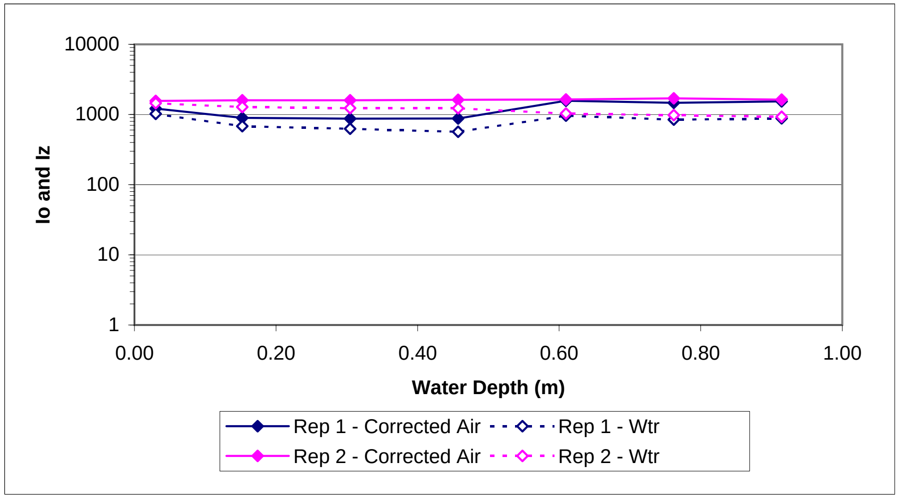


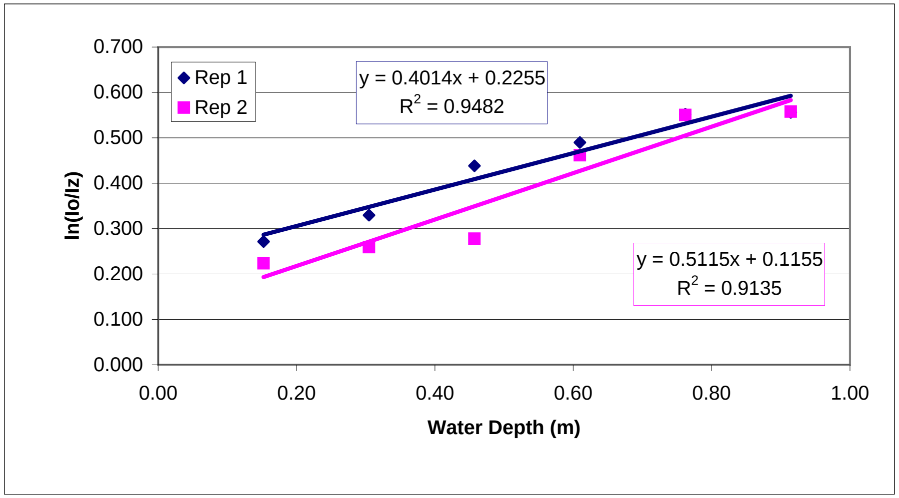
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - JUNIPER CREEK SEGMENT 1 (UPSTREAM) - 5/30/2007

	Replicate 1							Replicate 2					
Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,213	1,256	1,023	6.93			0.03	1,561	1,615	1,448	7.28		
0.15	896	929.7	683.2	6.53	0.272	1.782	0.15	1,598	1,653	1,278	7.15	0.224	1.468
0.30	871	903.9	626.7	6.44	0.330	1.081	0.30	1,596	1,651	1,232	7.12	0.259	0.850
0.46	879	911.6	567.0	6.34	0.438	0.958	0.46	1,620	1,675	1,227	7.11	0.278	0.607
0.61	1,570	1,624	962.0	6.87	0.490	0.804	0.61	1,637	1,693	1,032	6.94	0.461	0.757
0.76	1,470	1,521	846.4	6.74	0.552	0.725	0.76	1,694	1,752	977	6.88	0.551	0.722
0.91	1,536	1,589	881.1	6.78	0.556	0.608	0.91	1,626	1,681	930.6	6.84	0.558	0.610

k (diffuse attenuation coefficient = slope, m-1)		0.401	k (diffuse attenuation coefficient = slope, m-1)		0.512
k average		0.993	k average		0.836
percent transmittance @	1.0 meter	66.94	percent transmittance @	1.0 meter	59.96
Birgean Percentile Absorption (1m)		33.06	Birgean Percentile Absorption (1m)		40.04



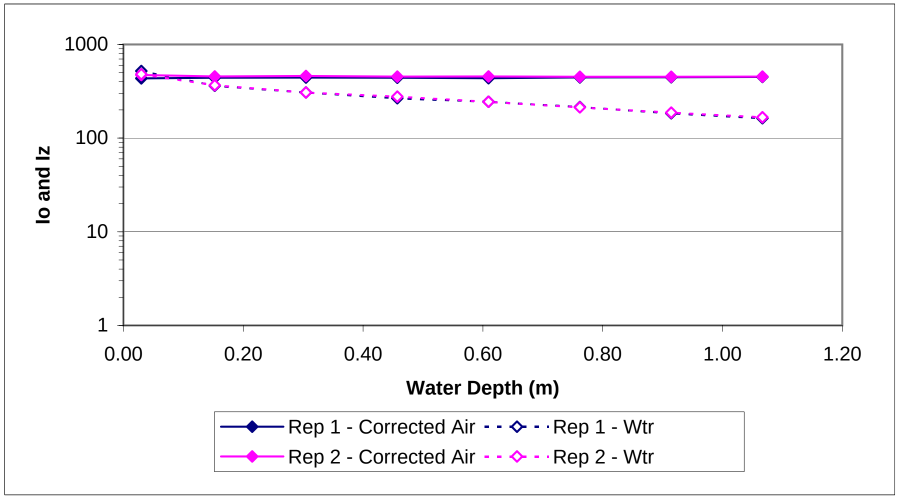


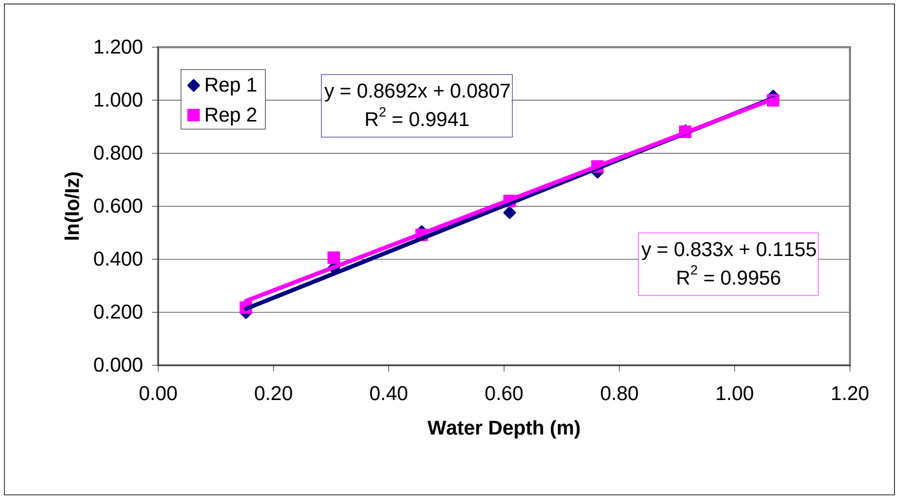
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - JUNIPER CREEK SEGMENT 1 (DOWNSTREAM) - 6/19/2007

Depth (m)	Replicate 1						Depth (m)	Replicate 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	434	453.4	521.3	6.26			0.03	472	492.6	481.2	6.18		
0.15	441	460.9	362.0	5.89	0.198	1.302	0.15	456	475.6	366.7	5.90	0.217	1.426
0.30	444	463.2	307.2	5.73	0.368	1.206	0.30	461	481.3	307.5	5.73	0.405	1.330
0.46	441	460.4	266.4	5.58	0.504	1.102	0.46	453	472.8	277.1	5.62	0.491	1.075
0.61	436	455.1	245.0	5.50	0.576	0.945	0.61	455	475.0	245.0	5.50	0.619	1.016
0.76	445	464.1	214.5	5.37	0.729	0.956	0.76	452	471.5	213.4	5.36	0.750	0.984
0.91	446	465.5	184.2	5.22	0.884	0.967	0.91	452	471.4	187.2	5.23	0.881	0.963
1.07	451	470.6	163.3	5.10	1.016	0.952	1.07	453	472.6	166.7	5.12	0.999	0.937

k (diffuse attenuation coefficient = slope, m-1)		0.869	k (diffuse attenuation coefficient = slope, m-1)		0.833
k average		1.061	k average		1.104
percent transmittance @	1.0 meter	41.93	percent transmittance @	1.0 meter	43.47
Birgean Percentile Absorption (1m)		58.07	Birgean Percentile Absorption (1m)		56.53



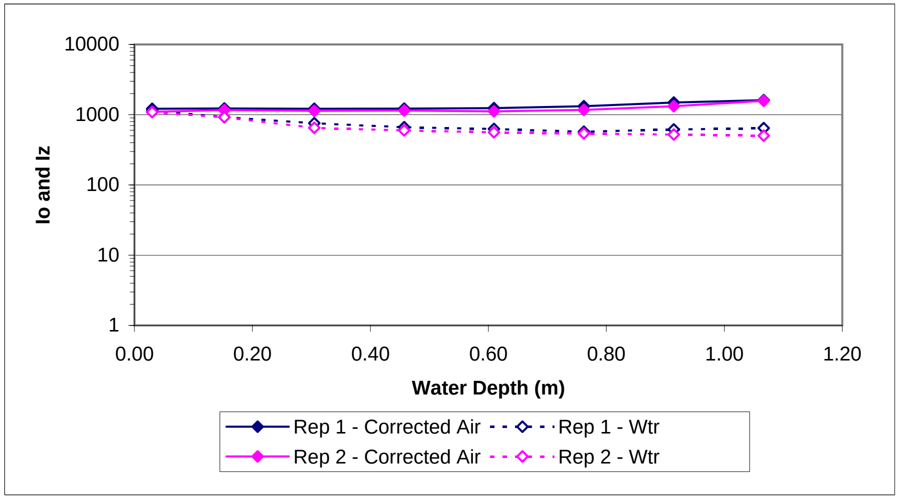


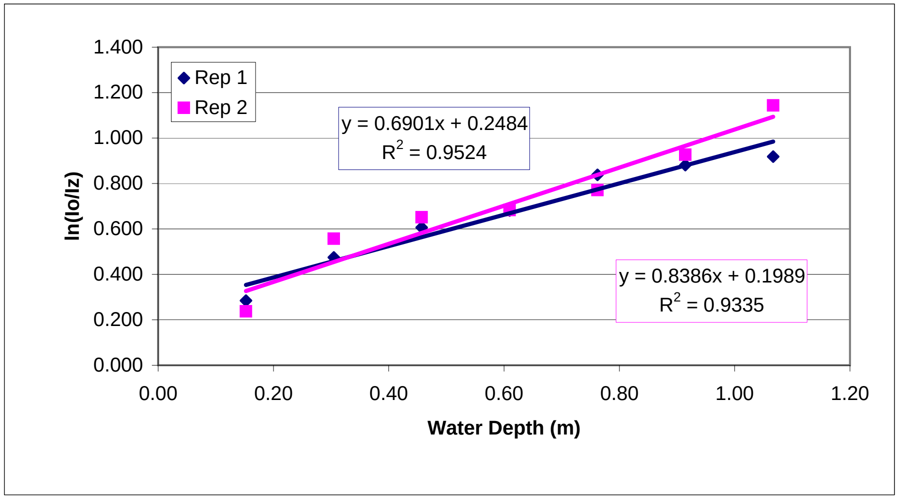
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - JUNIPER CREEK SEGMENT 1 (UPSTREAM) - 6/19/2007

Depth (m)	Replicate 1						Depth (m)	Replicate 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,215	1,258	1,160	7.06			0.03	1,098	1,137	1,089	6.99		
0.15	1,228	1,271	923.9	6.83	0.284	1.865	0.15	1,165	1,206	918.5	6.82	0.237	1.557
0.30	1,216	1,259	756.2	6.63	0.475	1.558	0.30	1,136	1,177	651.0	6.48	0.557	1.828
0.46	1,220	1,263	665.1	6.50	0.607	1.327	0.46	1,148	1,189	598.4	6.39	0.652	1.425
0.61	1,240	1,284	627.5	6.44	0.681	1.118	0.61	1,114	1,154	562.8	6.33	0.683	1.120
0.76	1,323	1,369	572.3	6.35	0.838	1.099	0.76	1,171	1,213	541.7	6.29	0.771	1.012
0.91	1,487	1,538	616.2	6.42	0.881	0.963	0.91	1,320	1,366	522.5	6.26	0.927	1.013
1.07	1,614	1,669	644.3	6.47	0.918	0.861	1.07	1,579	1,633	503.0	6.22	1.144	1.072

Replicate 1			Replicate 2		
k (diffuse attenuation coefficient = slope, m-1)		0.690	k (diffuse attenuation coefficient = slope, m-1)		0.839
k average		1.256	k average		1.290
percent transmittance @	1.0 meter	50.15	percent transmittance @	1.0 meter	43.23
Birgean Percentile Absorption (1m)		49.85	Birgean Percentile Absorption (1m)		56.77



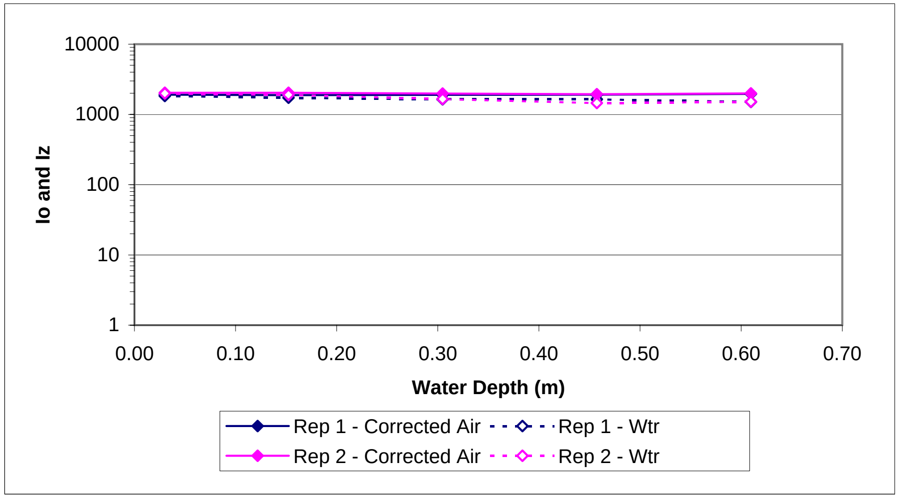


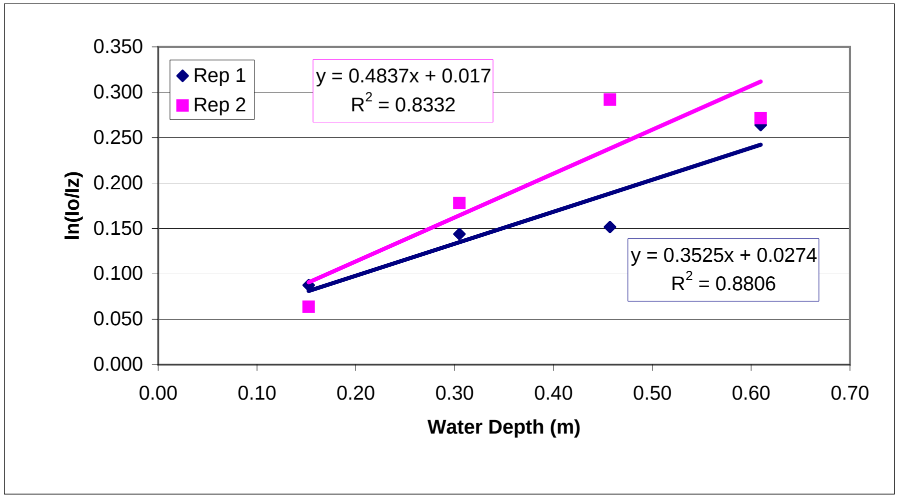
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ALEXANDER SPRINGS CREEK SEGMENT 1 (DOWNSTREAM) - 5/30/2007

Depth (m) z	Replicate 1 corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	Depth (m) z	Replicate 2 corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,906	1,970	1,828	7.51			0.03	2,038	2,106	1,991	7.60		
0.15	1,883	1,946	1,725	7.45	0.087	0.574	0.15	2,029	2,097	1,904	7.55	0.064	0.418
0.30	1,897	1,961	1,643	7.40	0.144	0.472	0.30	1,979	2,045	1,656	7.41	0.178	0.584
0.46	1,905	1,969	1,637	7.40	0.152	0.332	0.46	1,943	2,008	1,451	7.28	0.292	0.638
0.61	1,962	2,028	1,507	7.32	0.264	0.433	0.61	1,988	2,054	1,515	7.32	0.271	0.445

k (diffuse attenuation coefficient = slope, m-1)		0.353	k (diffuse attenuation coefficient = slope, m-1)		0.484
k average		0.453	k average		0.522
percent transmittance @	1.0 meter	70.29	percent transmittance @	1.0 meter	61.65
Birgean Percentile Absorption (1m)		29.71	Birgean Percentile Absorption (1m)		38.35



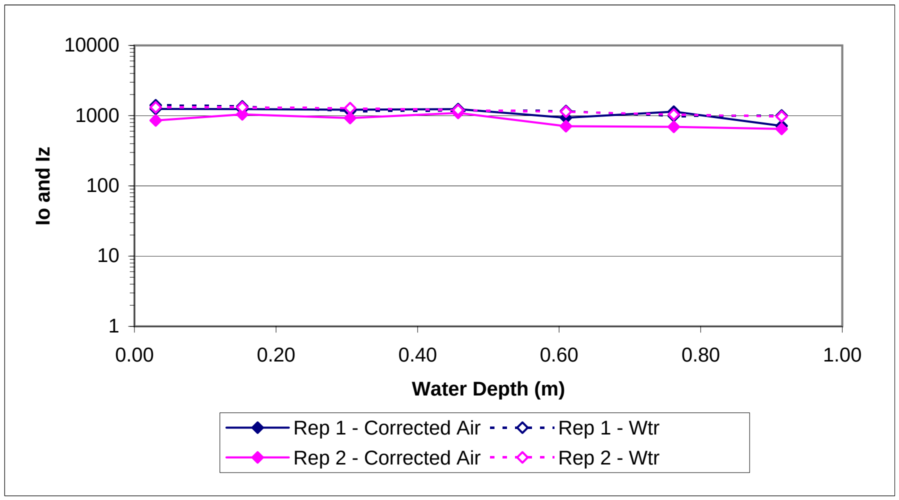


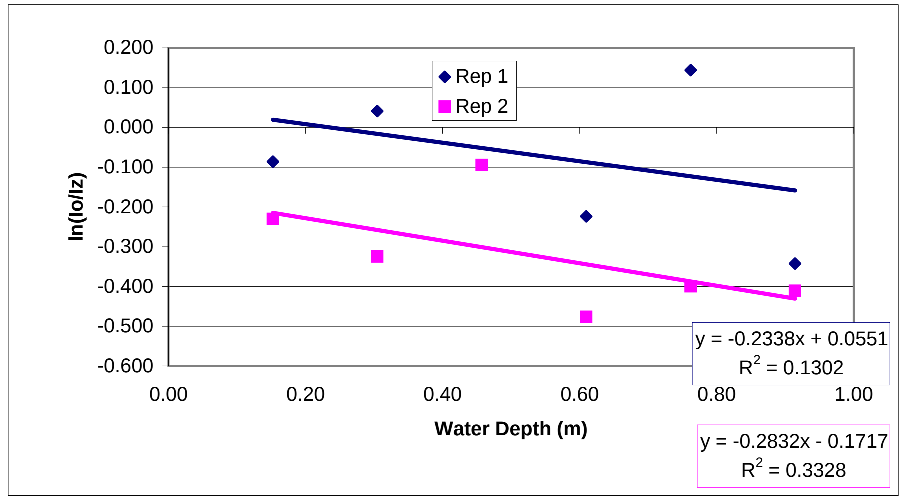
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ALEXANDER SPRINGS CREEK SEGMENT 1 (UPSTREAM) - 5/30/2007

	Replicate 1 [a]							Replicate 2 [a]					
Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,244	1,288	1,407	7.25			0.03	856	888.5	1,311	7.18		
0.15	1,243	1,287	1,355	7.21	-0.086	-0.565	0.15	1,041	1,079	1,311	7.18	-0.230	-1.511
0.30	1,214	1,257	1,165	7.06	0.041	0.135	0.30	926	960.1	1,281	7.16	-0.325	-1.065
0.46	1,242	1,286	1,182	7.07	0.050	0.109	0.46	1,092	1,131	1,200	7.09	-0.095	-0.207
0.61	933	967.3	1,167	7.06	-0.224	-0.367	0.61	709	736.2	1,141	7.04	-0.476	-0.781
0.76	1,142	1,183	989.1	6.90	0.144	0.189	0.76	694	721.1	1,035	6.94	-0.400	-0.525
0.91	715	742.8	1,007	6.91	-0.342	-0.375	0.91	645	671.1	973.5	6.88	-0.411	-0.449

k (diffuse attenuation coefficient = slope, m-1)		-0.234	k (diffuse attenuation coefficient = slope, m-1)		-0.283
k average		-0.146	k average		-0.756
percent transmittance @	1.0 meter	126.34	percent transmittance @	1.0 meter	132.74
Birgean Percentile Absorption (1m)		-26.34	Birgean Percentile Absorption (1m)		-32.74





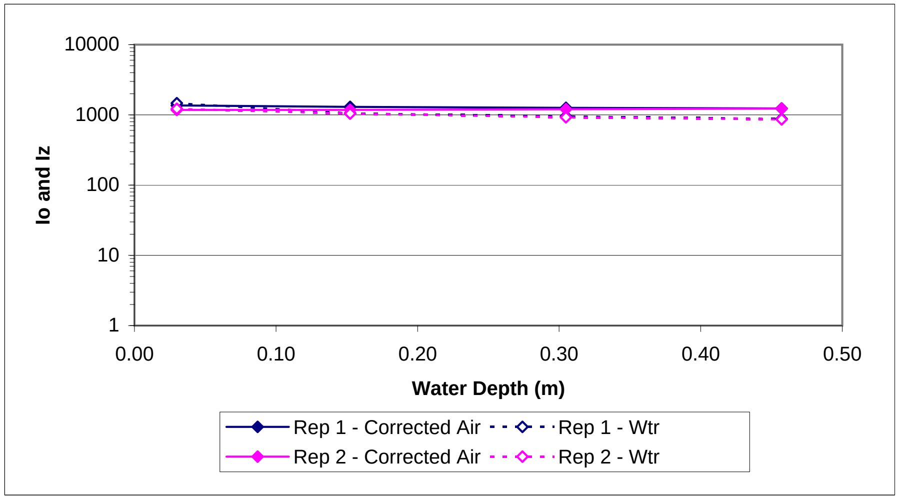
[a] Possible data contamination (data flagged)

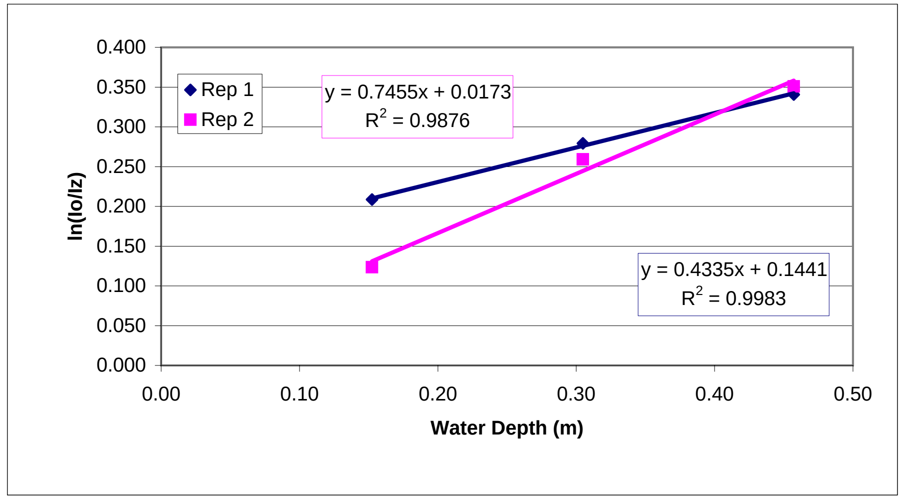
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ALEXANDER SPRINGS CREEK SEGMENT 1 (DOWNSTREAM) - 6/19/2007

	Replicate 1							Replicate 2					
Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,363	1,410	1,466	7.29			0.03	1,176	1,218	1,220	7.11		
0.15	1,298	1,344	1,054	6.96	0.209	1.369	0.15	1,179	1,221	1,042	6.95	0.124	0.811
0.30	1,259	1,303	951.9	6.86	0.279	0.917	0.30	1,199	1,241	924.8	6.83	0.259	0.851
0.46	1,233	1,277	877.3	6.78	0.341	0.745	0.46	1,226	1,269	863.0	6.76	0.351	0.767

k (diffuse attenuation coefficient = slope, m-1)		0.433	k (diffuse attenuation coefficient = slope, m-1)		0.746
k average		1.010	k average		0.810
percent transmittance @	1.0 meter	64.83	percent transmittance @	1.0 meter	47.45
Birgean Percentile Absorption (1m)		35.17	Birgean Percentile Absorption (1m)		52.55



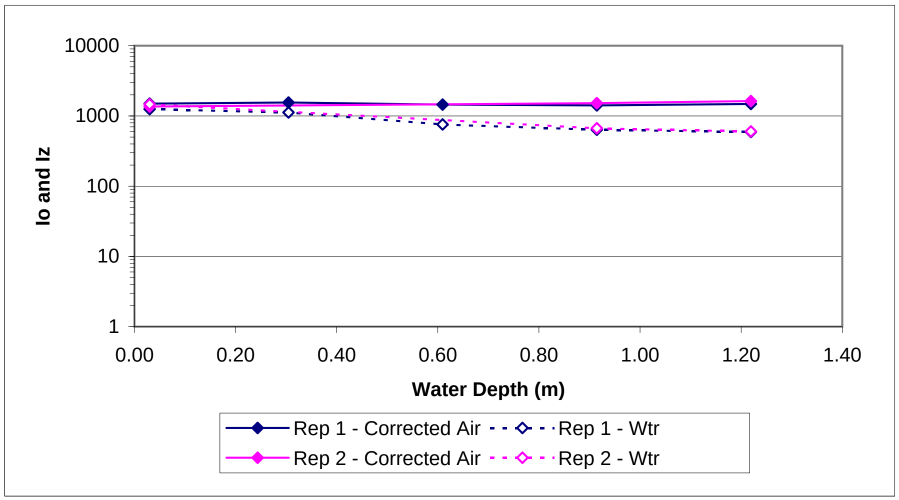


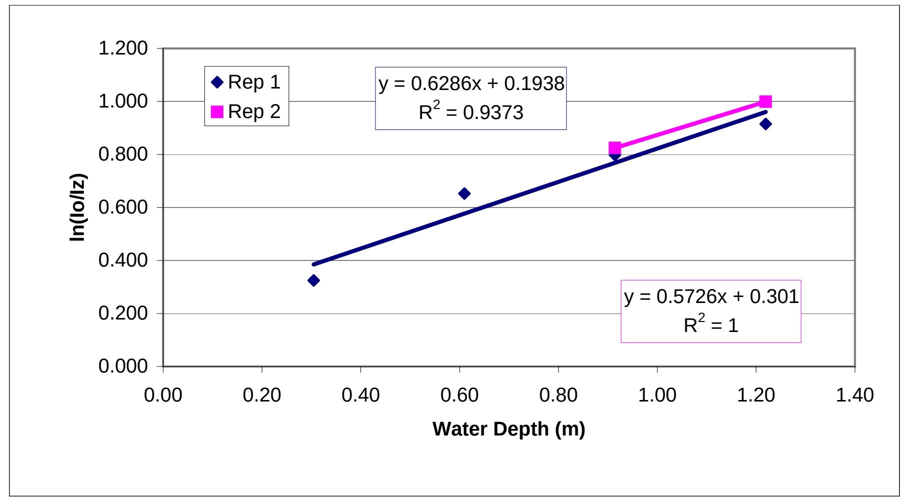
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ALEXANDER SPRINGS CREEK SEGMENT 1 (UPSTREAM) - 6/19/2007

	Replicate 1							Replicate 2					
Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,499	1,551	1,256	7.14			0.03	1,363	1,410.0	1,466	7.29		
0.30	1,556	1,609	1,124	7.02	0.325	1.066	0.91	1,522	1,574	667.1	6.50	0.825	0.902
0.61	1,453	1,503	756	6.63	0.653	1.071	1.22	1,632	1,688	601.0	6.40	0.999	0.820
0.91	1,413	1,462	636.2	6.46	0.798	0.873							
1.22	1,480	1,531.0	593	6.38	0.915	0.751							

k (diffuse attenuation coefficient = slope, m-1)		0.629	k (diffuse attenuation coefficient = slope, m-1)		0.573
k average		0.940	k average		0.861
percent transmittance @	1.0 meter	53.34	percent transmittance @	1.0 meter	56.41
Birgean Percentile Absorption (1m)		46.66	Birgean Percentile Absorption (1m)		43.59





APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES (SUMMER 2007)

Station	Date	Rep	Max Depth (m)	k (diffuse attenuation coefficient = slope, m-1)	Percent Transmittance (1m)	Birgean Percentile Absorption (1m)
WR1-UP	7/31/2007	1	1.52	0.530	58.86	41.14
	7/31/2007	2	1.52	0.551	57.63	42.37
	8/15/2007	1[a]	1.07	-0.361	143.51	-43.51
	8/15/2007	2[a]	1.07	0.167	84.58	15.42
WR1-DN	8/15/2007	1	0.76	1.013	36.30	63.70
	8/15/2007	2	0.76	0.771	46.25	53.75
WR2-UP	8/1/2007	1	0.91	1.238	28.98	71.02
	8/1/2007	2	0.91	1.238	28.98	71.02
	8/16/2007	1	1.37	1.012	36.35	63.65
	8/16/2007	2	1.37	0.869	41.95	58.05
WR2-DN	8/1/2007	1	1.07	1.307	27.06	72.94
	8/1/2007	2	1.07	1.244	28.84	71.16
	8/16/2007	1	0.91	1.153	31.57	68.43
	8/16/2007	2	0.91	1.195	30.27	69.73
RSR1-UP	8/23/2007	1	0.91	0.066	93.66	6.34
	8/23/2007	2	0.91	0.593	55.28	44.72
	9/6/2007	1	0.61	0.524	59.24	40.76
	9/6/2007	2	0.61	0.405	66.73	33.27
RSR1-DN	8/23/2007	1	0.61	0.437	64.60	35.40
	8/23/2007	2	0.61	0.356	70.05	29.95
	9/6/2007	1	0.61	0.512	59.95	40.05
	9/6/2007	2	0.61	0.412	66.20	33.80
RSR2-UP	8/22/2007	1[a]	0.61	-0.723	206.07	-106.07
	8/22/2007	2[a]	0.61	-0.111	111.79	-11.79
	9/5/2007	1	0.61	0.946	38.82	61.18
	9/5/2007	2	0.61	0.926	39.63	60.37
RSR2-DN	8/22/2007	1	0.46	1.252	28.60	71.40
	8/22/2007	2	0.46	2.207	11.00	89.00
	9/5/2007	1	0.61	0.868	42.00	58.00
	9/5/2007	2	0.61	0.958	38.37	61.63
ASC1-UP	7/31/2007	1	1.22	0.688	50.27	49.73
	7/31/2007	2	1.22	0.783	45.69	54.31
	8/15/2007	1	1.37	0.828	43.71	56.29
	8/15/2007	2	1.37	0.868	41.98	58.02
ASC1-DN	7/31/2007	1	0.61	0.775	46.08	53.92
	7/31/2007	2	0.61	0.845	42.97	57.03
	8/15/2007	1	0.46	2.307	9.96	90.04
	8/15/2007	2	0.46	2.536	7.92	92.08
JC1-UP	8/22/2007	1	1.22	0.586	55.66	44.34
	8/22/2007	2	1.22	0.662	51.60	48.40
	9/5/2007	1	1.22	0.307	73.53	26.47
	9/5/2007	2	1.22	0.565	56.86	43.14
JC1-DN	8/22/2007	1	0.91	0.848	42.83	57.17
	8/22/2007	2	0.91	0.574	56.32	43.68
	9/5/2007	1	1.22	0.665	51.45	48.55
	9/5/2007	2	1.22	0.661	51.64	48.36
			Average			
WR1-UP			1.52	0.54	58.25	41.75
WR1-DN			0.76	0.89	41.27	58.73
WR2-UP			1.14	1.09	34.07	65.93
WR2-DN			0.99	1.22	29.44	70.56
RSR1-UP			0.76	0.40	68.73	31.27
RSR1-DN			0.61	0.43	65.20	34.80
RSR2-UP			0.61	0.94	39.22	60.78
RSR2-DN			0.53	1.32	29.99	70.01
ASC1-UP			1.30	0.79	45.41	54.59
ASC1-DN			0.53	1.62	26.73	73.27
JC1-UP			1.22	0.53	59.41	40.59
JC1-DN			1.07	0.69	50.56	49.44

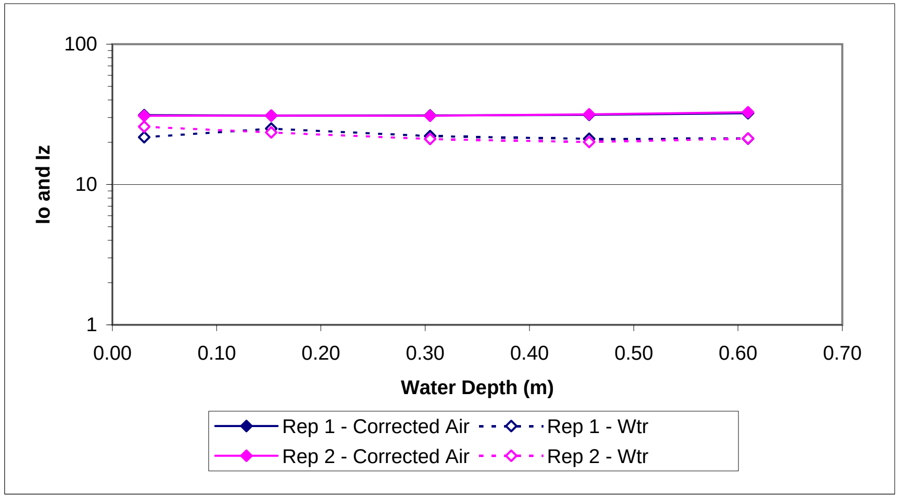
[a] data suspect, possible bad cable connection, water was clear at station

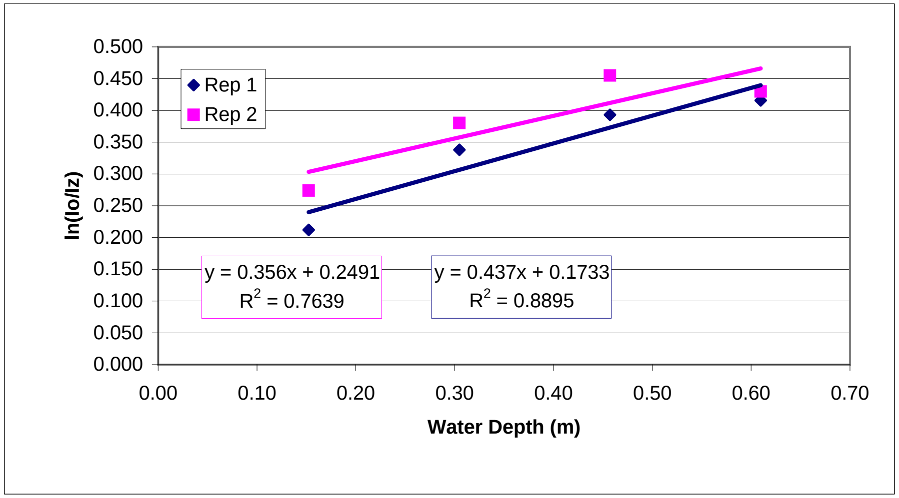
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRINGS RUN SEGMENT 1 (DOWNSTREAM) - 8/23/2007

	Replicate 1							Replicate 2					
Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	31	38.20	21.75	3.08			0.03	31	37.91	25.83	3.25		
0.15	31	37.96	25.04	3.22	0.212	1.392	0.15	31	37.95	23.53	3.16	0.274	1.798
0.30	31	38.04	22.13	3.10	0.338	1.109	0.30	31	37.86	21.10	3.05	0.380	1.247
0.46	31	38.40	21.18	3.05	0.393	0.860	0.46	32	38.66	20.07	3.00	0.455	0.995
0.61	32	39.23	21.24	3.06	0.416	0.682	0.61	33	39.75	21.27	3.06	0.430	0.705

k (diffuse attenuation coefficient = slope, m-1)		0.437	k (diffuse attenuation coefficient = slope, m-1)		0.356
k average		1.011	k average		1.186
percent transmittance @	1.0 meter	64.60	percent transmittance @	1.0 meter	70.05
Birgean Percentile Absorption (1m)		35.40	Birgean Percentile Absorption (1m)		29.95



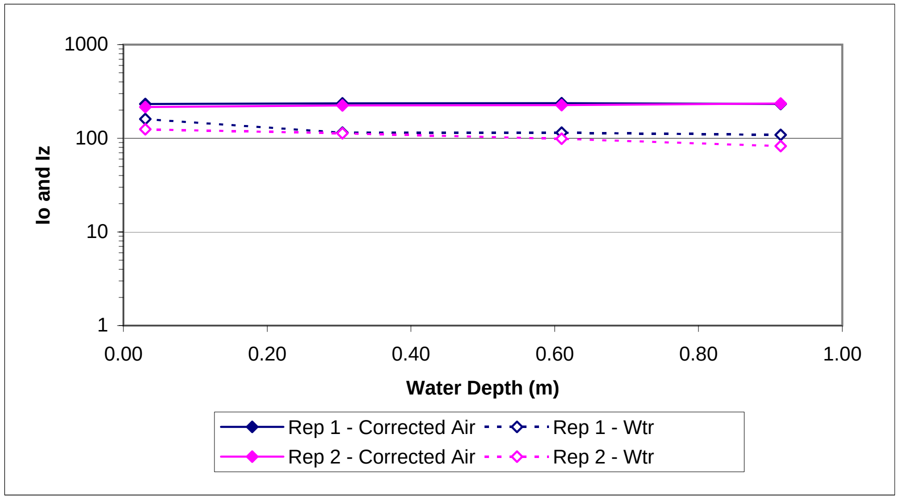


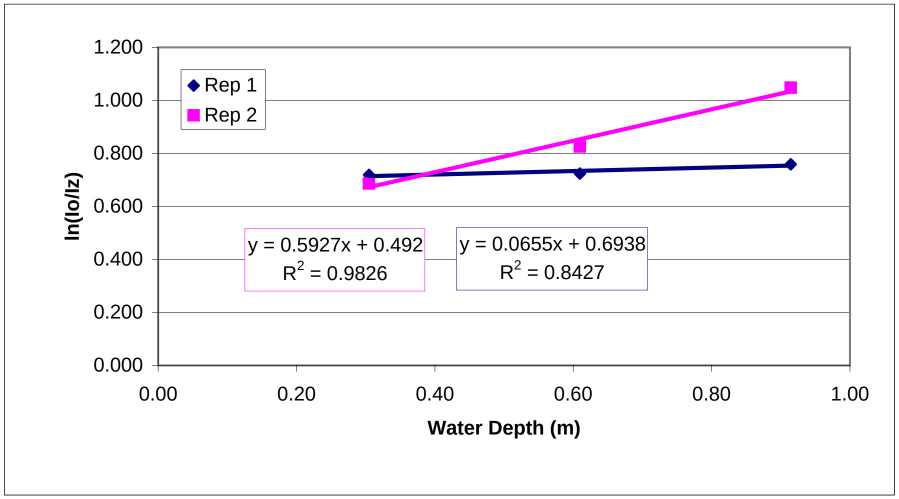
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRINGS RUN SEGMENT 1 (UPSTREAM) - 8/23/2007

Depth (m)	Replicate 1						Depth (m)	Replicate 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	233	245.8	160.8	5.08			0.03	216	228.3	125.0	4.83		
0.30	236	249.0	114.9	4.74	0.719	2.358	0.30	225	237.4	113.0	4.73	0.687	2.252
0.61	237	249.8	114.7	4.74	0.724	1.187	0.61	226	239.3	99.14	4.60	0.826	1.354
0.91	233	245.7	108.9	4.69	0.759	0.830	0.91	235	248.7	82.58	4.41	1.048	1.146

Replicate 1				Replicate 2			
k (diffuse attenuation coefficient = slope, m-1)			0.066	k (diffuse attenuation coefficient = slope, m-1)			0.593
k average			1.458	k average			1.584
percent transmittance @	1.0	meter	93.66	percent transmittance @	1.0	meter	55.28
Birgean Percentile Absorption (1m)			6.34	Birgean Percentile Absorption (1m)			44.72



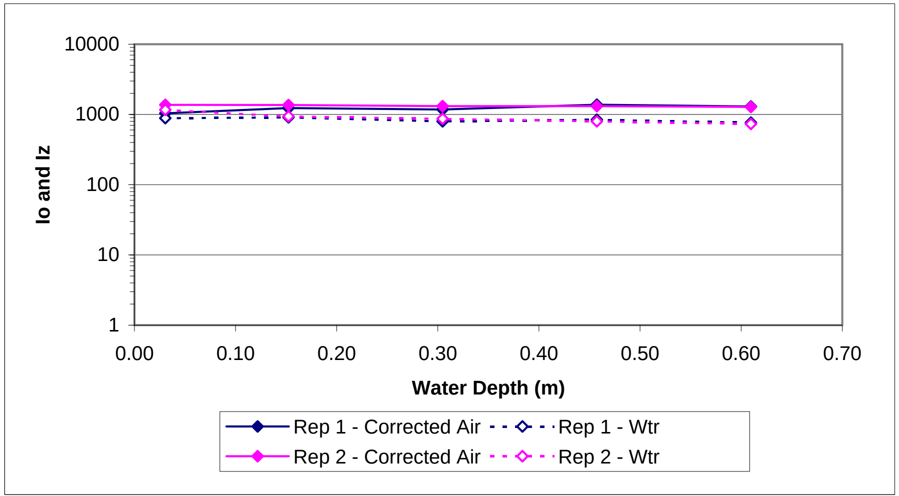


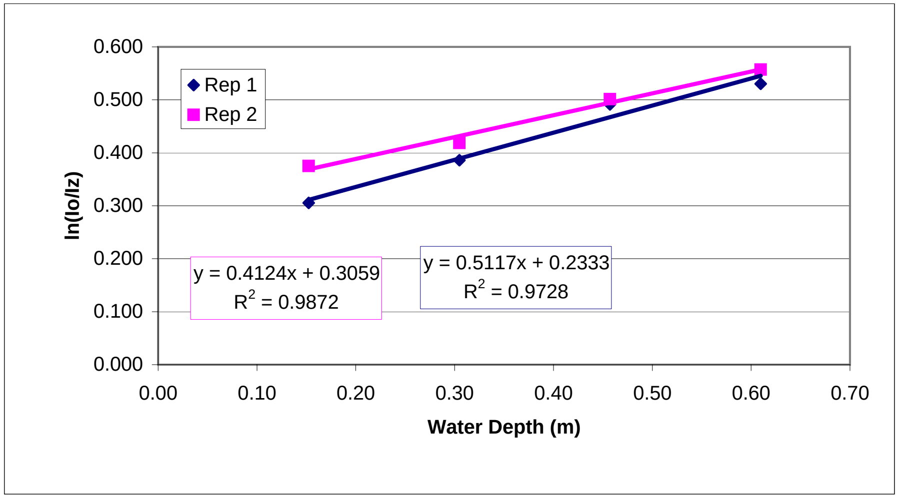
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRINGS RUN SEGMENT 1 (DOWNSTREAM) - 9/06/2007

	Replicate 1							Replicate 2					
Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,036	1,074.00	887.40	6.79			0.03	1,366	1,414.00	1,164.00	7.06		
0.15	1,234	1,278.00	909.50	6.81	0.305	2.004	0.15	1,363	1,411.00	937.00	6.84	0.375	2.461
0.30	1,176	1,218.00	799.60	6.68	0.386	1.266	0.30	1,316	1,362.00	865.80	6.76	0.419	1.374
0.46	1,377	1,425.00	842.50	6.74	0.491	1.075	0.46	1,315	1,361.00	796.50	6.68	0.501	1.097
0.61	1,297	1,343.00	763.50	6.64	0.530	0.870	0.61	1,278	1,323.00	732.20	6.60	0.557	0.914

k (diffuse attenuation coefficient = slope, m-1)		0.512	k (diffuse attenuation coefficient = slope, m-1)		0.412
k average		1.304	k average		1.461
percent transmittance @	1.0 meter	59.95	percent transmittance @	1.0 meter	66.20
Birgean Percentile Absorption (1m)		40.05	Birgean Percentile Absorption (1m)		33.80



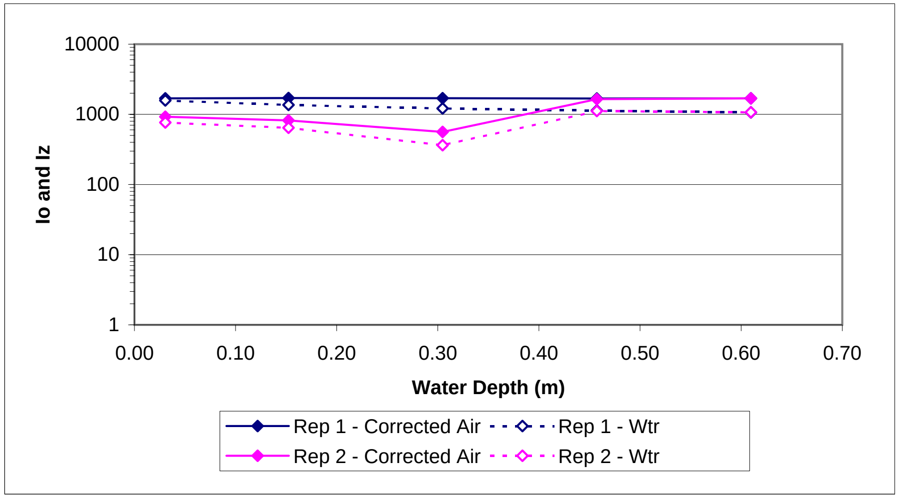


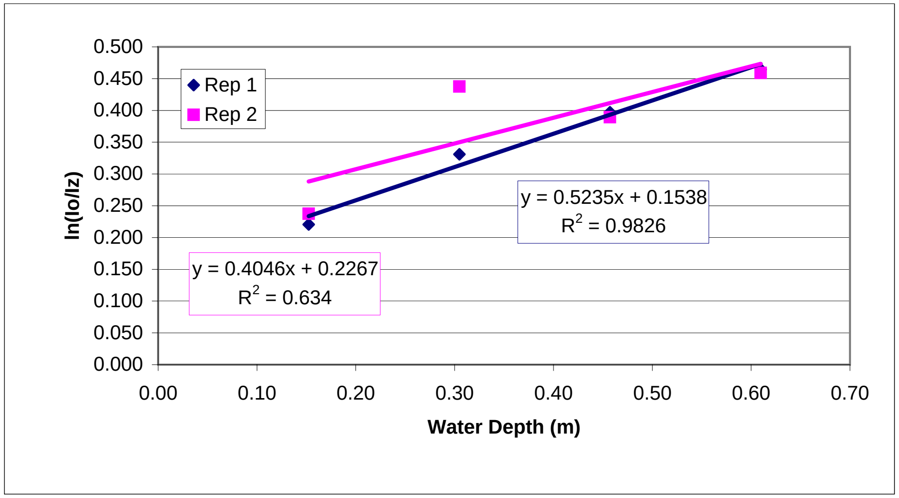
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRINGS RUN SEGMENT 1 (UPSTREAM) - 9/06/2007

Depth (m)	Replicate 1						Depth (m)	Replicate 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,692	1,749.0	1,580.0	7.37			0.03	923	956.7	767.0	6.64		
0.15	1,703	1,761.0	1,366.0	7.22	0.221	1.448	0.15	817	848.3	644.7	6.47	0.237	1.557
0.30	1,694	1,752.0	1,217.0	7.10	0.331	1.086	0.30	563	585.9	363.3	5.90	0.438	1.436
0.46	1,684	1,741.0	1,132.0	7.03	0.397	0.868	0.46	1,646	1,702.0	1,115.0	7.02	0.389	0.852
0.61	1,692	1,749.0	1,063.0	6.97	0.465	0.762	0.61	1,692	1,749.0	1,069.0	6.97	0.459	0.753

k (diffuse attenuation coefficient = slope, m-1)		0.524	k (diffuse attenuation coefficient = slope, m-1)		0.405
k average		1.041	k average		1.149
percent transmittance @	1.0 meter	59.24	percent transmittance @	1.0 meter	66.73
Birgean Percentile Absorption (1m)		40.76	Birgean Percentile Absorption (1m)		33.27



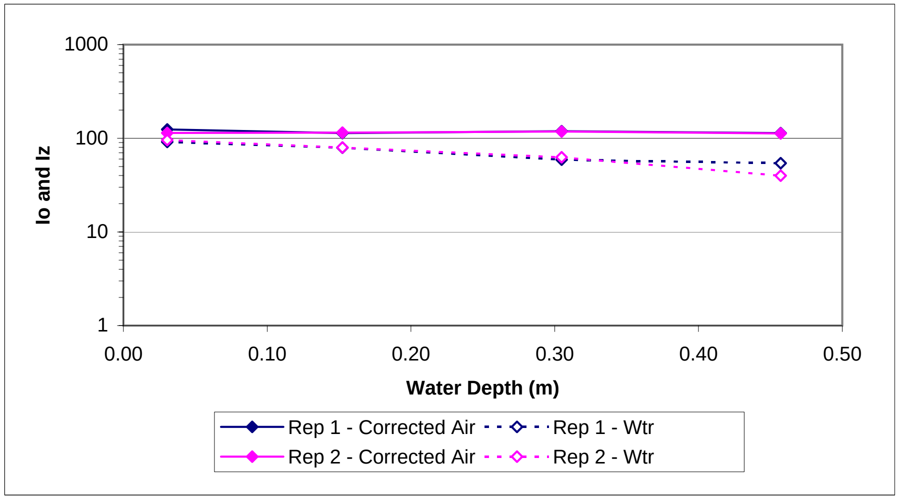


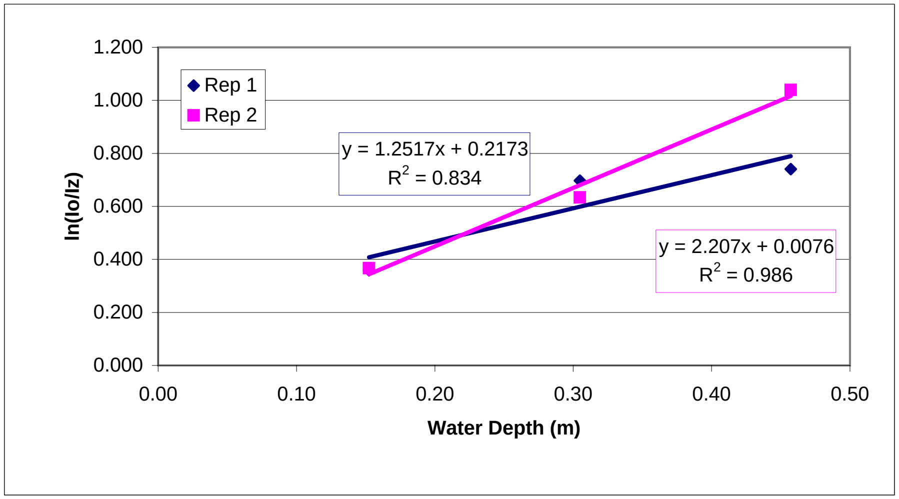
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRINGS RUN SEGMENT 2 (DOWNSTREAM) - 8/22/2007

Depth (m)	Replicate 1						Depth (m)	Replicate 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	124	134	91.5	4.52			0.03	114	124	95.9	4.56		
0.15	114	123	79.4	4.37	0.359	2.355	0.15	115	125	79.7	4.38	0.367	2.408
0.30	119	129	59.2	4.08	0.697	2.287	0.30	118	128	62.7	4.14	0.634	2.080
0.46	114	123	54.2	3.99	0.740	1.619	0.46	113	122	39.9	3.69	1.040	2.274

k (diffuse attenuation coefficient = slope, m-1)			1.252	k (diffuse attenuation coefficient = slope, m-1)			2.207
k average			2.087	k average			2.254
percent transmittance @	1.0	meter	28.60	percent transmittance @	1.0	meter	11.00
Birgean Percentile Absorption (1m)			71.40	Birgean Percentile Absorption (1m)			89.00



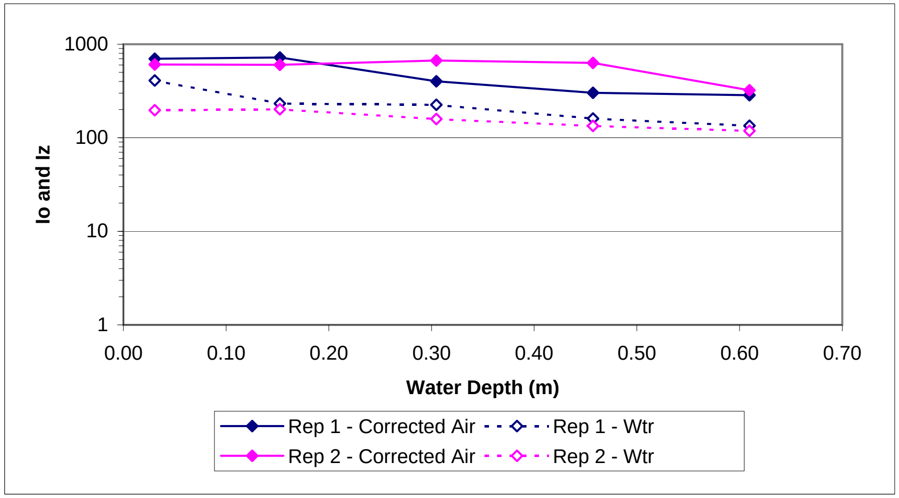


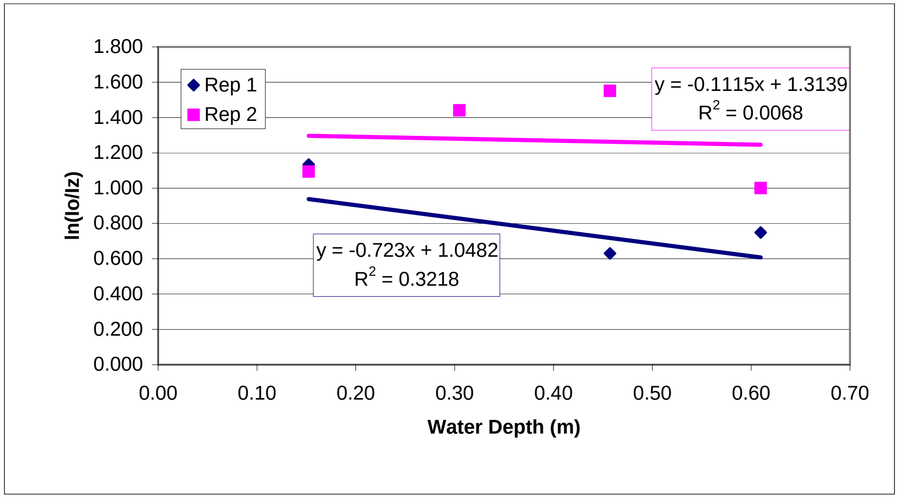
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRINGS RUN SEGMENT 2 (UPSTREAM) - 8/22/2007

Depth (m)	Replicate 1 [a]						Depth (m)	Replicate 2 [a]					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	699	726.8	409.2	6.01			0.03	607	631	197.0	5.28		
0.15	723	750.8	232.7	5.45	1.133	7.437	0.15	601	625	201.3	5.30	1.094	7.176
0.30	402	419.8	225.1	5.42	0.579	1.899	0.30	670	697	158.6	5.07	1.441	4.728
0.46	302	317.1	160.8	5.08	0.630	1.378	0.46	631	656	133.8	4.90	1.551	3.392
0.61	285	299.6	134.7	4.90	0.749	1.229	0.61	322	338	118.4	4.77	1.000	1.641

k (diffuse attenuation coefficient = slope, m-1)		-0.723	k (diffuse attenuation coefficient = slope, m-1)		-0.111
k average		2.985	k average		4.234
percent transmittance @	1.0 meter	206.07	percent transmittance @	1.0 meter	111.79
Birgean Percentile Absorption (1m)		-106.07	Birgean Percentile Absorption (1m)		-11.79





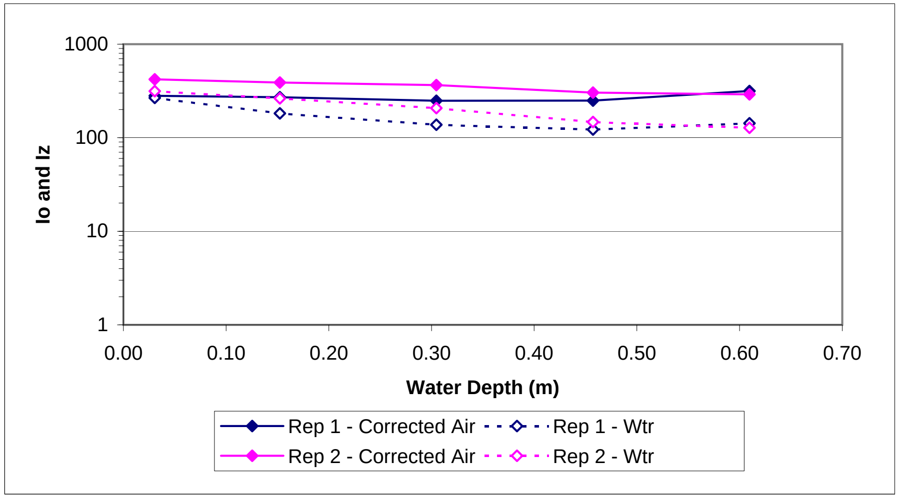
[a] Data suspect, possible bad cable connection

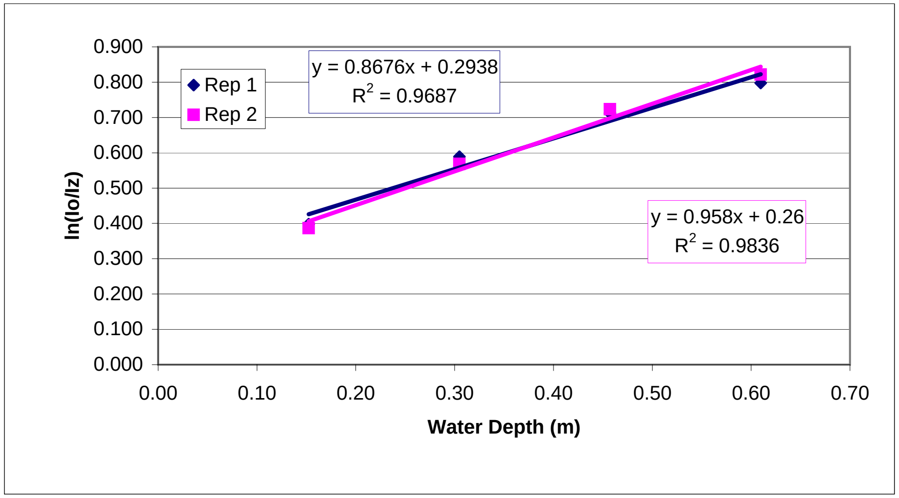
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRINGS RUN SEGMENT 2 (DOWNSTREAM) - 9/05/2007

Depth (m)	Replicate 1						Depth (m)	Replicate 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	280	295	266.6	5.59			0.03	420	439	315.1	5.75		
0.15	271	285	181.8	5.20	0.398	2.612	0.15	388	406	263.8	5.58	0.387	2.537
0.30	248	262	137.7	4.93	0.589	1.933	0.30	366	383	207.2	5.33	0.568	1.865
0.46	250	263	122.5	4.81	0.712	1.558	0.46	304	319	147.3	4.99	0.723	1.582
0.61	316	332	142.4	4.96	0.798	1.309	0.61	291	306	127.9	4.85	0.822	1.348

k (diffuse attenuation coefficient = slope, m-1)		0.868	k (diffuse attenuation coefficient = slope, m-1)		0.958
k average		1.853	k average		1.833
percent transmittance @	1.0 meter	42.00	percent transmittance @	1.0 meter	38.37
Birgean Percentile Absorption (1m)		58.00	Birgean Percentile Absorption (1m)		61.63



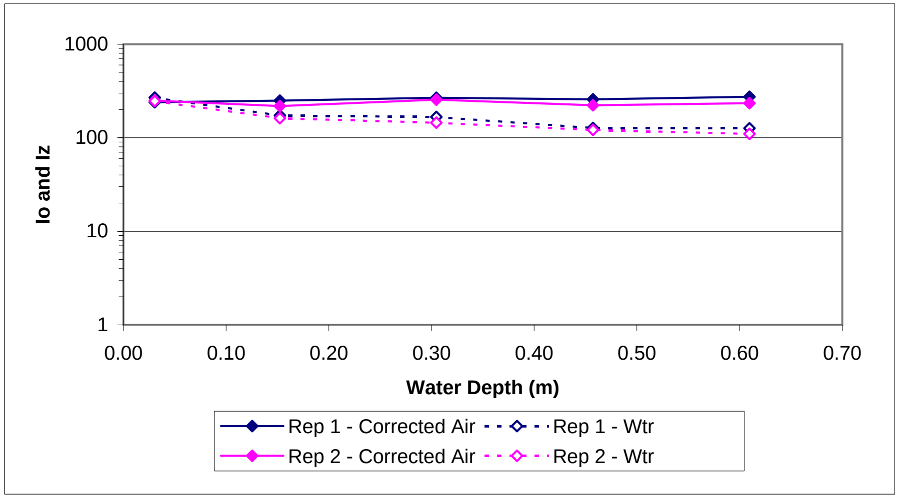


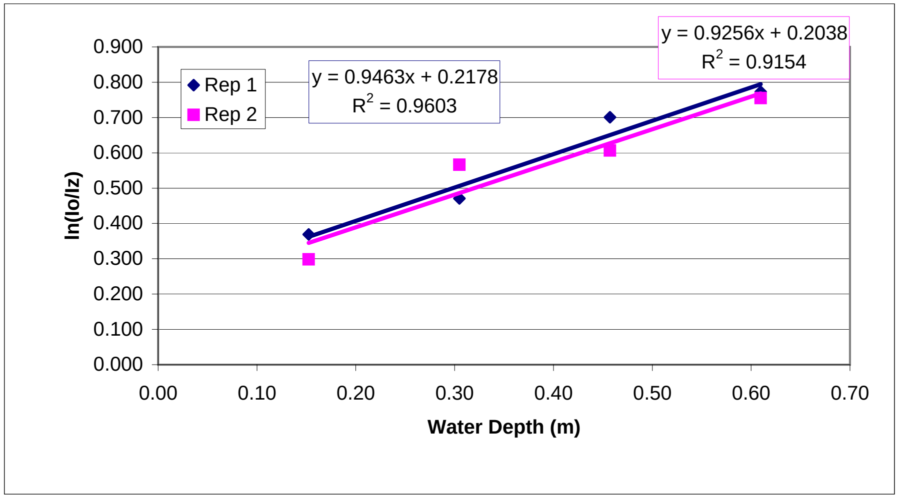
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ROCK SPRINGS RUN SEGMENT 2 (UPSTREAM) - 9/05/2007

Depth (m)	Replicate 1 [a]						Depth (m)	Replicate 2 [a]					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	240	253.4	269.0	5.59			0.03	250	264	246.6	5.51		
0.15	250	263.4	172.7	5.15	0.369	2.421	0.15	218	231	162.0	5.09	0.298	1.957
0.30	267	281.6	167.0	5.12	0.471	1.545	0.30	256	270	145.2	4.98	0.566	1.857
0.46	257	270.8	127.5	4.85	0.701	1.533	0.46	222	235	121.2	4.80	0.606	1.327
0.61	274	288.2	126.4	4.84	0.773	1.268	0.61	234	247	109.9	4.70	0.755	1.239

k (diffuse attenuation coefficient = slope, m-1)		0.946	k (diffuse attenuation coefficient = slope, m-1)		0.926
k average		1.691	k average		1.595
percent transmittance @	1.0 meter	38.82	percent transmittance @	1.0 meter	39.63
Birgean Percentile Absorption (1m)		61.18	Birgean Percentile Absorption (1m)		60.37





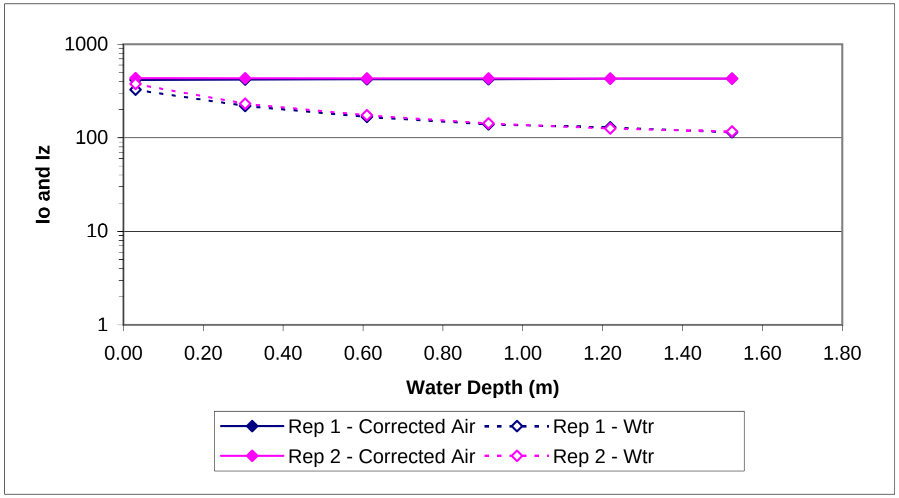
[a] Data suspect, possible bad cable connection

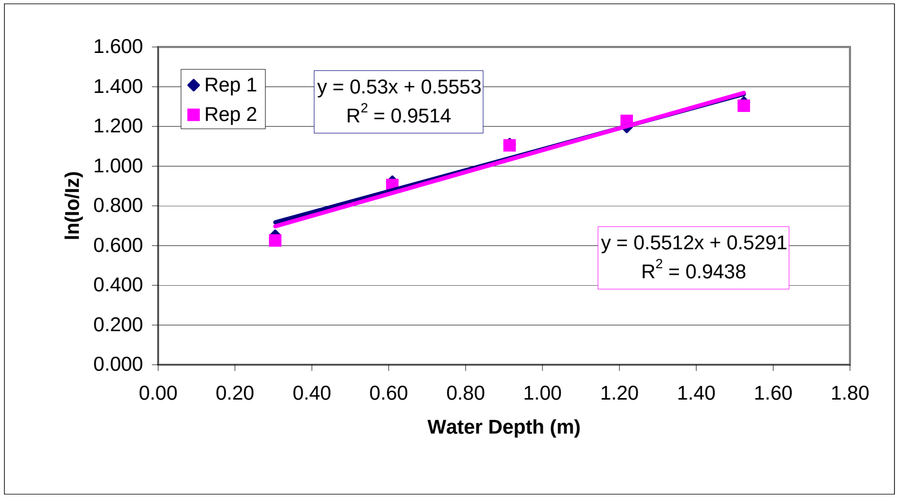
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 1 (UPSTREAM) - 7/31/2007

Depth (m)	Replicate 1						Depth (m)	Replicate 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	416	435	327.5	5.79			0.03	434	453	377.6	5.93		
0.30	419	438	219.0	5.39	0.650	2.132	0.30	433	452	231.5	5.44	0.625	2.051
0.61	422	441	167.9	5.12	0.922	1.512	0.61	432	451	174.7	5.16	0.904	1.484
0.91	422	441	139.1	4.94	1.111	1.215	0.91	431	450	142.8	4.96	1.105	1.208
1.22	429	448	129.4	4.86	1.197	0.982	1.22	430	449	125.9	4.84	1.228	1.007
1.52	428	448	114.5	4.74	1.320	0.866	1.52	430	449	116.7	4.76	1.304	0.855

k (diffuse attenuation coefficient = slope, m-1)		0.530	k (diffuse attenuation coefficient = slope, m-1)		0.551
k average		1.341	k average		1.321
percent transmittance @	1.0 meter	58.86	percent transmittance @	1.0 meter	57.63
Birgean Percentile Absorption (1m)		41.14	Birgean Percentile Absorption (1m)		42.37



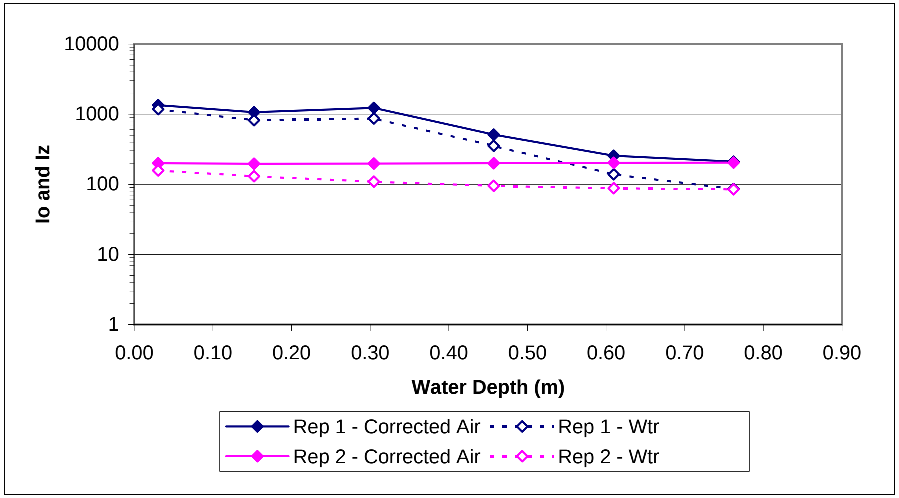


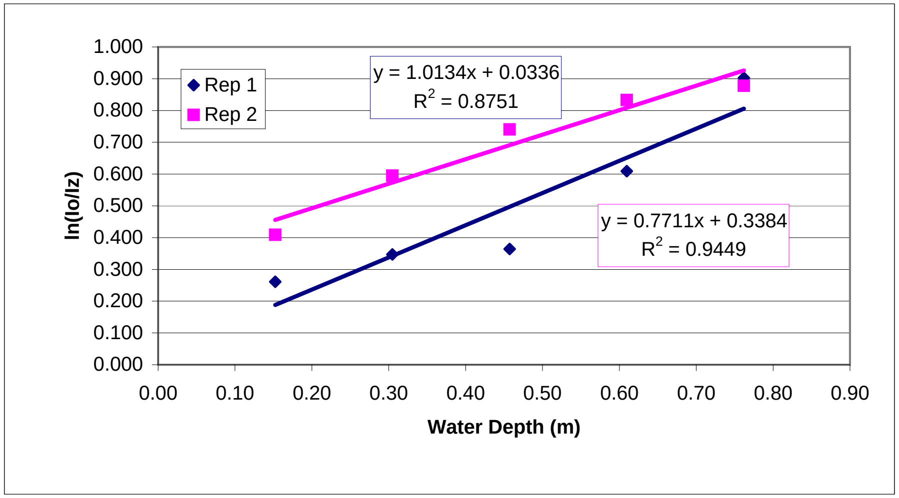
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 1 (DOWNSTREAM) - 8/15/2007

Depth (m) z	Replicate 1 corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	Depth (m) z	Replicate 2 corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,347	1,394	1,178.0	7.07			0.03	200	212	157.4	5.06		
0.15	1,065	1,103	819.8	6.71	0.261	1.714	0.15	197	209	130.7	4.87	0.409	2.684
0.30	1,230	1,273	868.8	6.77	0.347	1.139	0.30	197	209	108.8	4.69	0.595	1.952
0.46	510	532	354.4	5.87	0.364	0.797	0.46	200	212	95.2	4.56	0.740	1.619
0.61	255	269	138.9	4.93	0.609	1.000	0.61	202	215	88.0	4.48	0.833	1.367
0.76	211	223	85.4	4.45	0.902	1.184	0.76	204	216	84.8	4.44	0.878	1.152

k (diffuse attenuation coefficient = slope, m-1)		1.013	k (diffuse attenuation coefficient = slope, m-1)		0.771
k average		1.167	k average		1.755
percent transmittance @	1.0 meter	36.30	percent transmittance @	1.0 meter	46.25
Birgean Percentile Absorption (1m)		63.70	Birgean Percentile Absorption (1m)		53.75



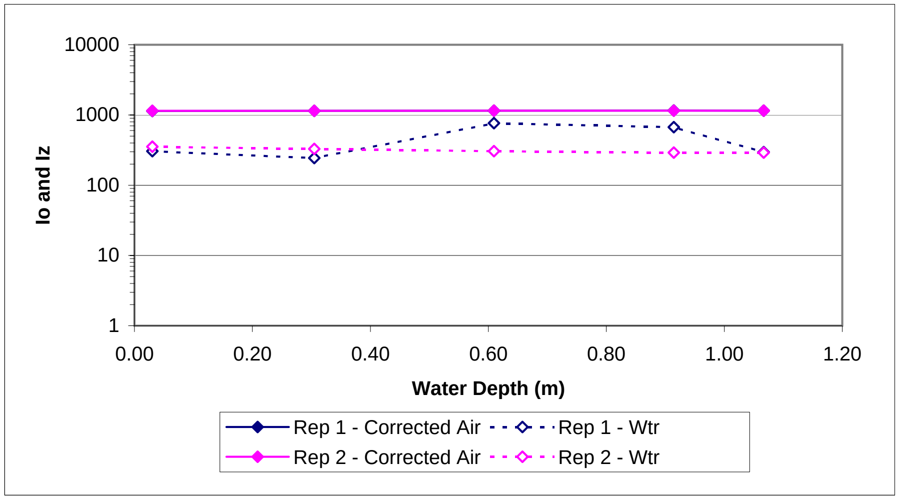


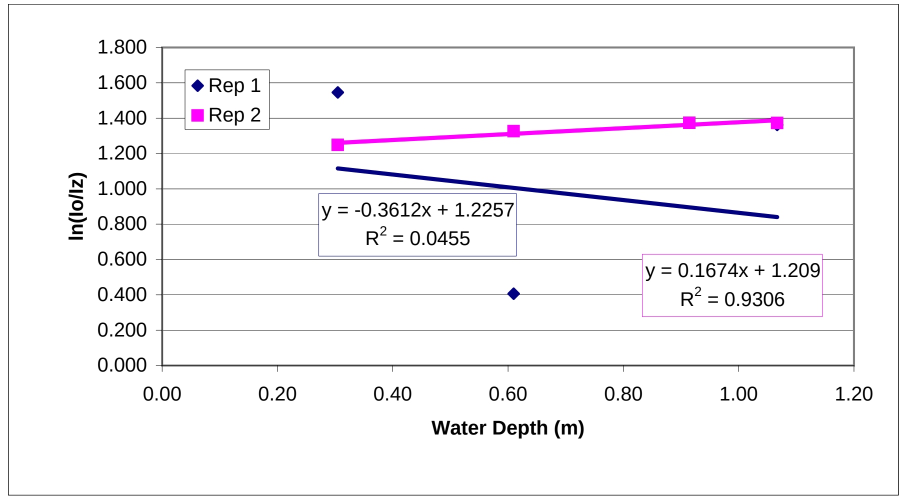
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 1 (UPSTREAM) - 8/15/2007

Depth (m)	Replicate 1[a]						Depth (m)	Replicate 2[a]					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,141	1,182	306.3	5.72			0.03	1,149	1,190	353.7	5.87		
0.30	1,143	1,184	243.8	5.50	1.545	5.070	0.30	1,146	1,187	328.8	5.80	1.249	4.097
0.61	1,151	1,192	766.3	6.64	0.407	0.667	0.61	1,150	1,191	305.3	5.72	1.326	2.176
0.91	1,156	1,197	671.2	6.51	0.543	0.594	0.91	1,154	1,195	292.2	5.68	1.373	1.502
1.07	1,153	1,194	295.5	5.69	1.361	1.276	1.07	1,150	1,191	291.5	5.68	1.372	1.287

k (diffuse attenuation coefficient = slope, m-1)			-0.361	k (diffuse attenuation coefficient = slope, m-1)			0.167
k average			1.902	k average			2.265
percent transmittance @	1.0	meter	143.51	percent transmittance @	1.0	meter	84.58
Birgean Percentile Absorption (1m)			-43.51	Birgean Percentile Absorption (1m)			15.42





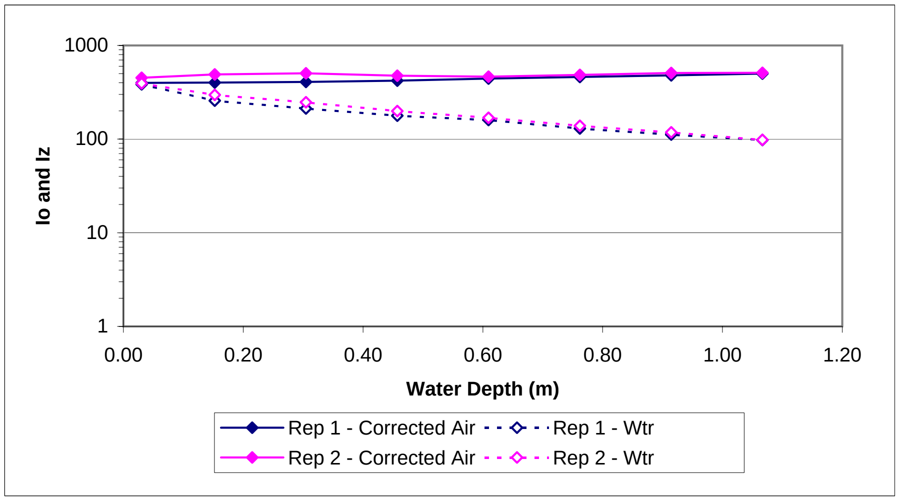
[a] Data suspect, possible bad cable connection, water was clear at station, PAR collected on sunny side of canoe (SKN, 8/20/07)

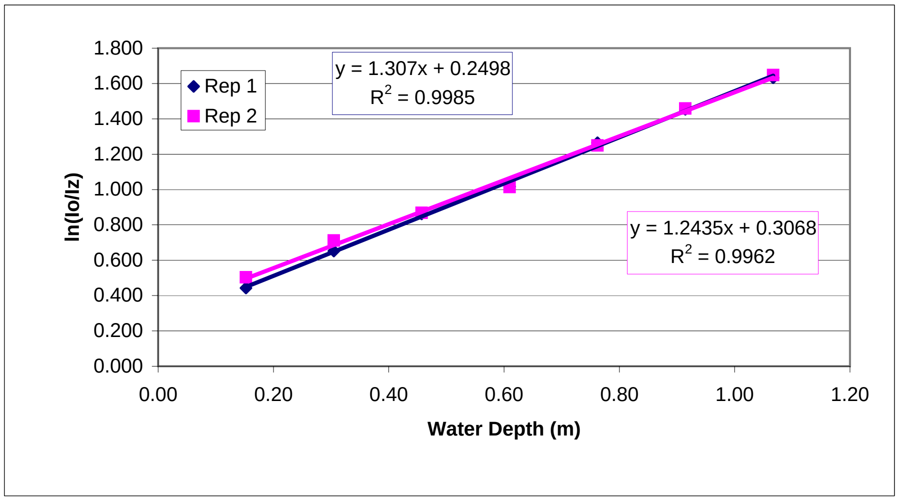
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 2 (DOWNSTREAM) - 8/1/2007

Depth (m)	Replicate 1						Depth (m)	Replicate 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	399	417	384.8	5.95			0.03	452	471	394.2	5.98		
0.15	401	419	257.6	5.55	0.442	2.903	0.15	490	511	296.2	5.69	0.504	3.306
0.30	408	427	212.6	5.36	0.652	2.140	0.30	505	527	247.9	5.51	0.712	2.336
0.46	420	439	177.5	5.18	0.862	1.886	0.46	475	495	199.3	5.29	0.868	1.898
0.61	442	462	160.0	5.08	1.017	1.669	0.61	465	485	168.7	5.13	1.014	1.664
0.76	460	480	129.9	4.87	1.265	1.660	0.76	484	505	138.8	4.93	1.250	1.640
0.91	478	499	111.8	4.72	1.454	1.590	0.91	508	530	118.2	4.77	1.459	1.595
1.07	500	522	97.8	4.58	1.633	1.531	1.07	511	532	98.3	4.59	1.648	1.544

k (diffuse attenuation coefficient = slope, m-1)		1.307	k (diffuse attenuation coefficient = slope, m-1)		1.244
k average		1.911	k average		1.998
percent transmittance @	1.0 meter	27.06	percent transmittance @	1.0 meter	28.84
Birgean Percentile Absorption (1m)		72.94	Birgean Percentile Absorption (1m)		71.16



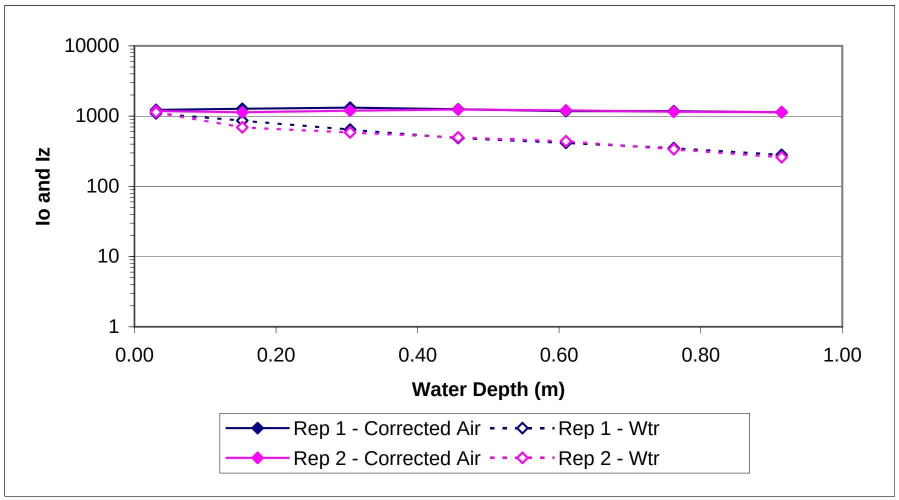


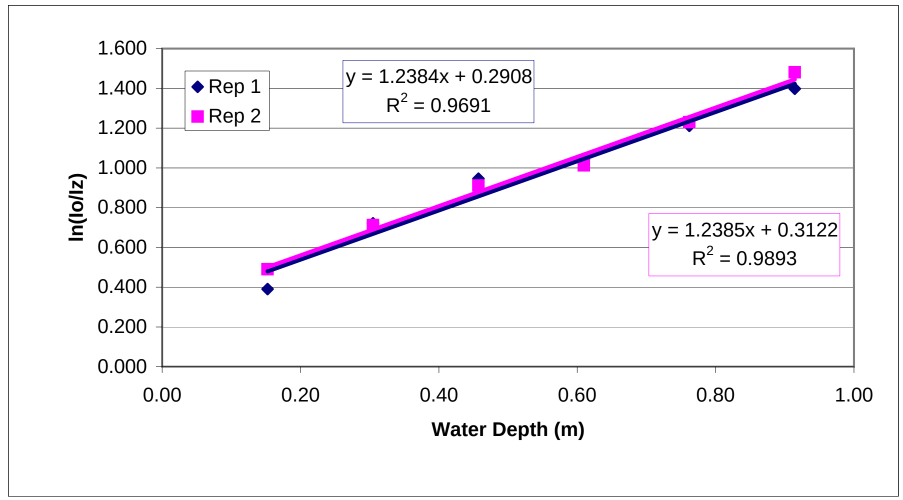
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 2 (UPSTREAM) - 8/1/2007

Depth (m)	Replicate 1						Depth (m)	Replicate 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,229	1,272	1,096.0	7.00			0.03	1,185	1,227	1,137.0	7.04		
0.15	1,273	1,318	861.9	6.76	0.390	2.560	0.15	1,133	1,174	694.1	6.54	0.490	3.218
0.30	1,322	1,368	642.9	6.47	0.721	2.365	0.30	1,193	1,235	585.1	6.37	0.712	2.337
0.46	1,255	1,299	487.2	6.19	0.946	2.069	0.46	1,237	1,281	497.4	6.21	0.911	1.993
0.61	1,179	1,221	415.7	6.03	1.043	1.710	0.61	1,208	1,251	439.1	6.08	1.012	1.660
0.76	1,174	1,216	349.8	5.86	1.211	1.589	0.76	1,154	1,195	337.4	5.82	1.230	1.614
0.91	1,135	1,176	280.6	5.64	1.398	1.529	0.91	1,140	1,181	259.3	5.56	1.481	1.620

k (diffuse attenuation coefficient = slope, m-1)		1.238	k (diffuse attenuation coefficient = slope, m-1)		1.238
k average		1.970	k average		2.074
percent transmittance @	1.0 meter	28.98	percent transmittance @	1.0 meter	28.98
Birgean Percentile Absorption (1m)		71.02	Birgean Percentile Absorption (1m)		71.02



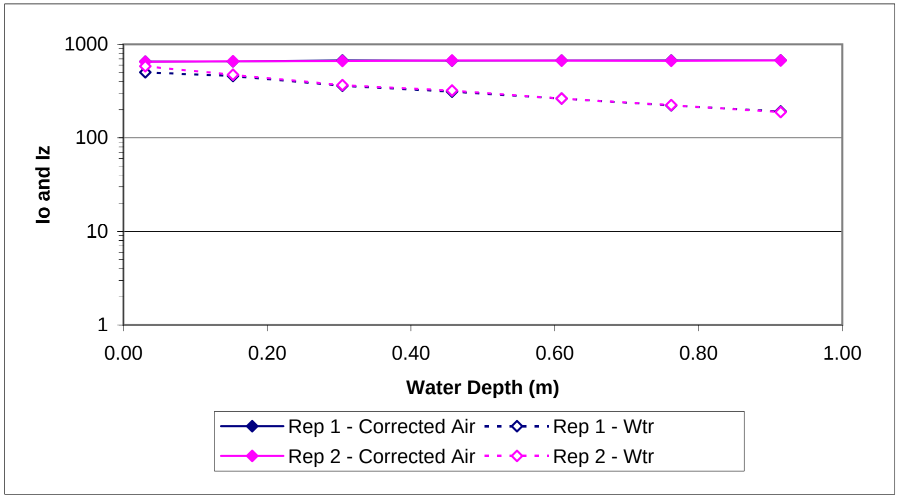


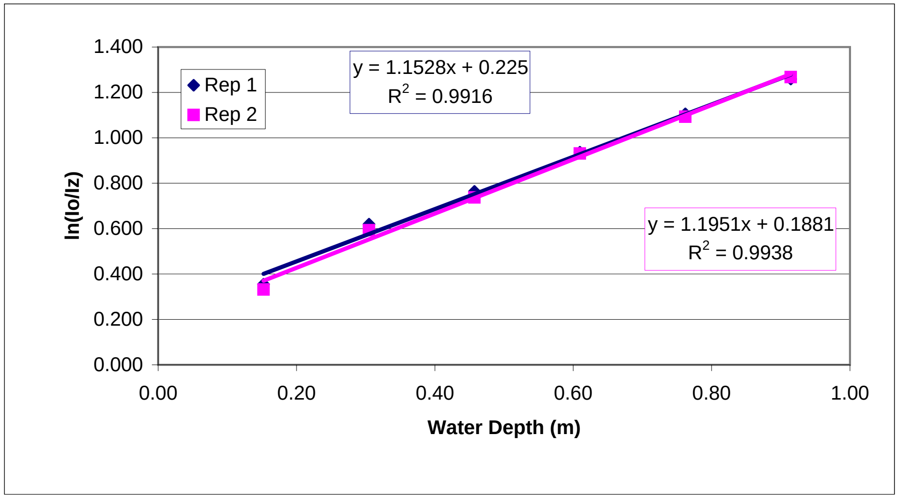
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 2 (DOWNSTREAM) - 8/16/2007

Depth (m)	Replicate 1						Depth (m)	Replicate 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	653	679	503.2	6.22			0.03	652	678	584.1	6.37		
0.15	656	682	459.6	6.13	0.355	2.330	0.15	659	685	473.0	6.16	0.331	2.174
0.30	672	699	361.7	5.89	0.620	2.033	0.30	663	689	366.5	5.90	0.593	1.946
0.46	670	697	312.1	5.74	0.764	1.671	0.46	671	698	321.1	5.77	0.738	1.613
0.61	672	699	263.6	5.57	0.936	1.536	0.61	670	696	264.0	5.58	0.931	1.527
0.76	673	700	222.9	5.41	1.106	1.451	0.76	668	694	223.9	5.41	1.093	1.434
0.91	674	700	191.3	5.25	1.259	1.377	0.91	671	698	189.0	5.24	1.268	1.386

k (diffuse attenuation coefficient = slope, m-1)		1.153	k (diffuse attenuation coefficient = slope, m-1)		1.195
k average		1.733	k average		1.680
percent transmittance @	1.0 meter	31.57	percent transmittance @	1.0 meter	30.27
Birgean Percentile Absorption (1m)		68.43	Birgean Percentile Absorption (1m)		69.73



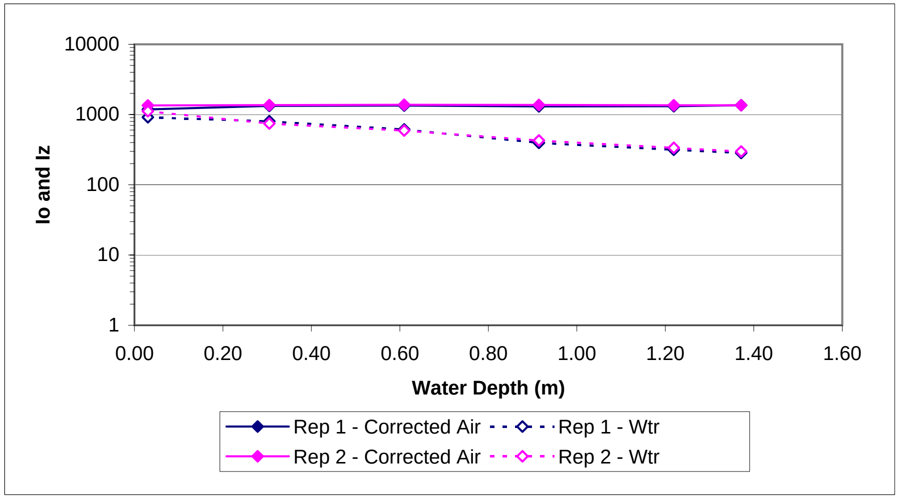


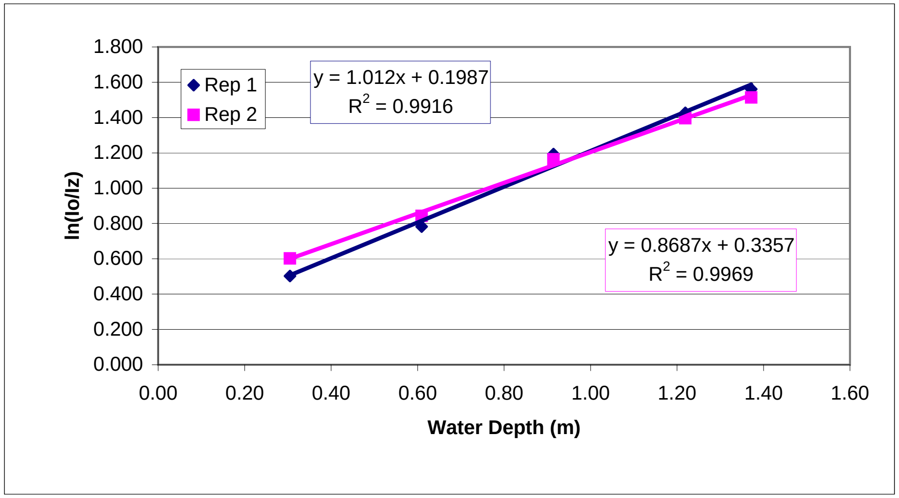
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - WEKIVA RIVER SEGMENT 2 (UPSTREAM) - 8/16/2007

Depth (m)	Replicate 1						Depth (m)	Replicate 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,185	1,227	913.9	6.82			0.03	1,347	1,394	1,116.0	7.02		
0.30	1,327	1,373	802.9	6.69	0.502	1.647	0.30	1,360	1,407	744.8	6.61	0.602	1.975
0.61	1,344	1,391	614.9	6.42	0.782	1.283	0.61	1,374	1,422	591.3	6.38	0.843	1.383
0.91	1,305	1,351	395.7	5.98	1.194	1.305	0.91	1,366	1,414	426.9	6.06	1.163	1.272
1.22	1,315	1,361	315.6	5.75	1.427	1.171	1.22	1,354	1,401	335.2	5.81	1.396	1.145
1.37	1,357	1,404	284.7	5.65	1.561	1.138	1.37	1,355	1,402	298.2	5.70	1.514	1.104

k (diffuse attenuation coefficient = slope, m-1)		1.012	k (diffuse attenuation coefficient = slope, m-1)		0.869
k average		1.309	k average		1.376
percent transmittance @	1.0 meter	36.35	percent transmittance @	1.0 meter	41.95
Birgean Percentile Absorption (1m)		63.65	Birgean Percentile Absorption (1m)		58.05



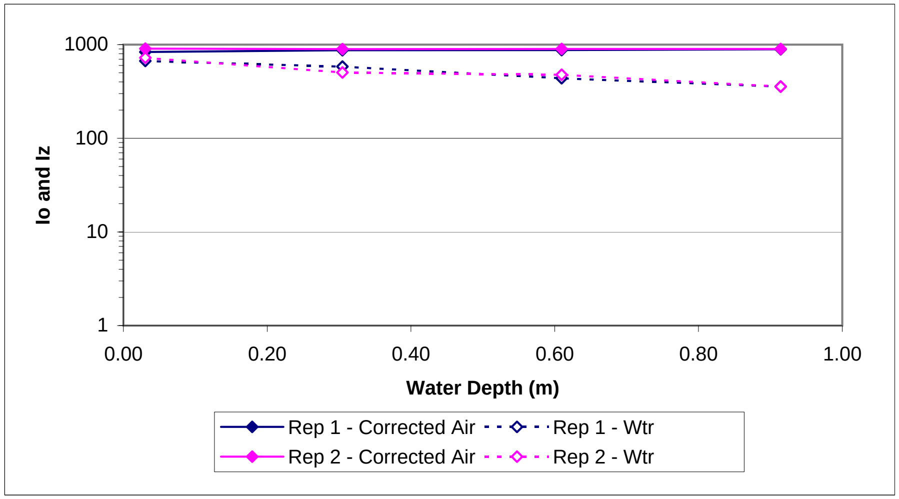


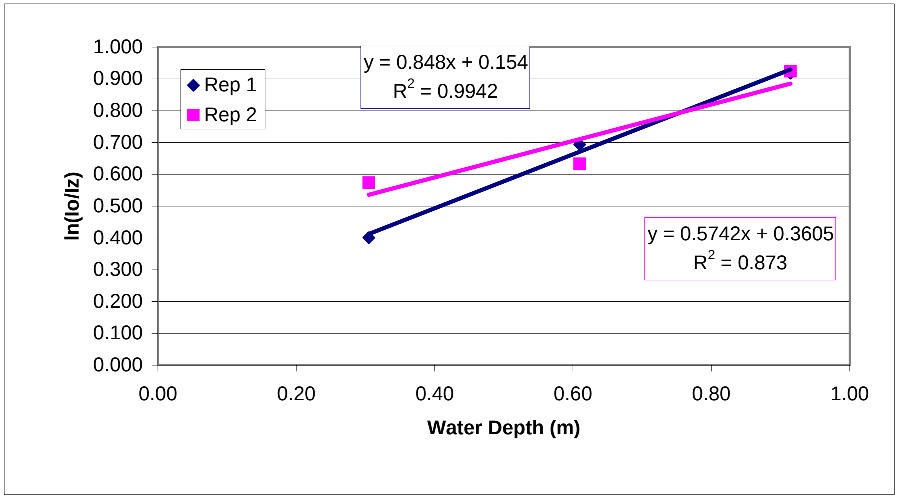
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - JUNIPER CREEK SEGMENT 1 (DOWNSTREAM) - 8/22/2007

Depth (m)	Replicate 1						Depth (m)	Replicate 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	833	864.3	669.0	6.51			0.03	907	941.0	723.1	6.58		
0.30	871	903.8	583.4	6.37	0.401	1.316	0.30	894	927.7	503.8	6.22	0.574	1.883
0.61	876	909.1	438.0	6.08	0.694	1.138	0.61	900	933.6	477.8	6.17	0.633	1.039
0.91	894	927.0	356.9	5.88	0.918	1.004	0.91	900	933.1	357.1	5.88	0.924	1.011

k (diffuse attenuation coefficient = slope, m-1)		0.848	k (diffuse attenuation coefficient = slope, m-1)		0.574
k average		1.153	k average		1.311
percent transmittance @	1.0 meter	42.83	percent transmittance @	1.0 meter	56.32
Birgean Percentile Absorption (1m)		57.17	Birgean Percentile Absorption (1m)		43.68



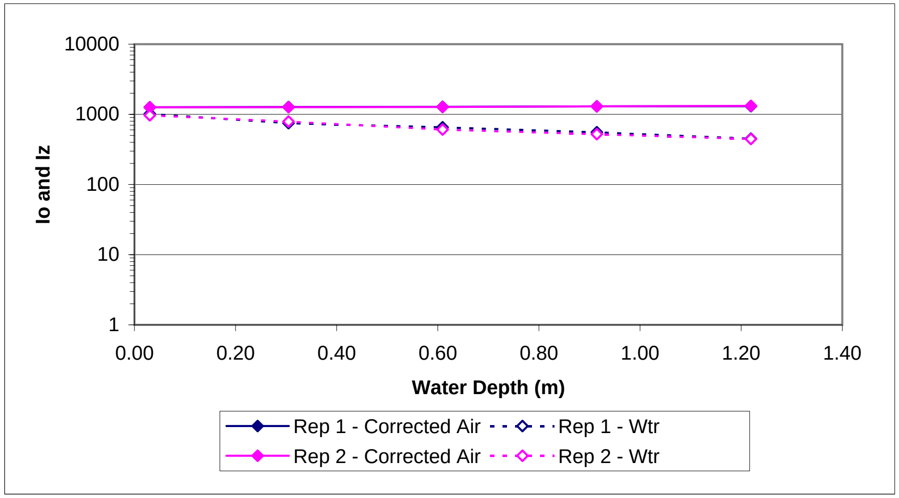


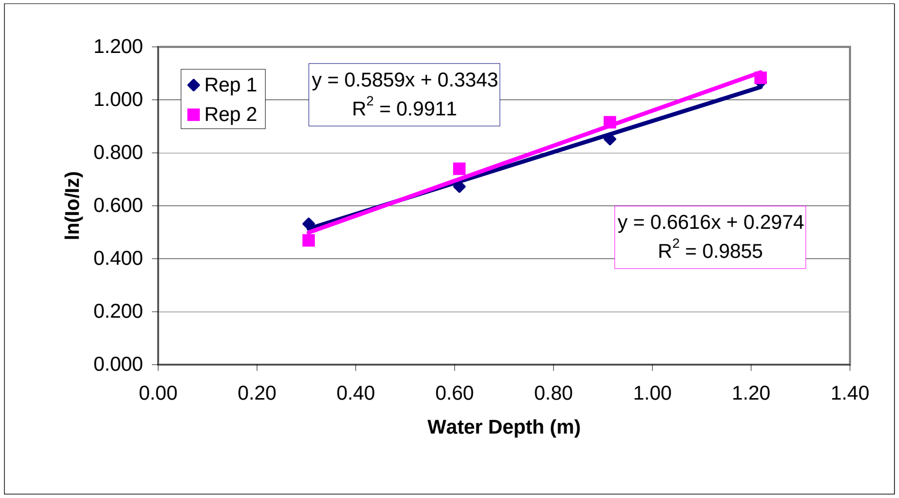
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - JUNIPER CREEK SEGMENT 1 (UPSTREAM) - 8/22/2007

Depth (m)	Replicate 1						Depth (m)	Replicate 2					
	corr	raw						corr	raw				
z	Air (Io)	Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	Air (Io)	Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,263	1,307	1,015	6.92			0.03	1,258	1,302	970.3	6.88		
0.30	1,272	1,317	747.5	6.62	0.532	1.745	0.30	1,265	1,309	791.0	6.67	0.469	1.539
0.61	1,279	1,324	653.1	6.48	0.672	1.103	0.61	1,270	1,315	606.6	6.41	0.739	1.213
0.91	1,300	1,346	555.0	6.32	0.851	0.931	0.91	1,300	1,346	520.7	6.26	0.915	1.001
1.22	1,307	1,353	449.6	6.11	1.067	0.875	1.22	1,319	1,365	446.7	6.10	1.083	0.888

k (diffuse attenuation coefficient = slope, m-1)		0.586	k (diffuse attenuation coefficient = slope, m-1)		0.662
k average		1.163	k average		1.160
percent transmittance @	1.0 meter	55.66	percent transmittance @	1.0 meter	51.60
Birgean Percentile Absorption (1m)		44.34	Birgean Percentile Absorption (1m)		48.40



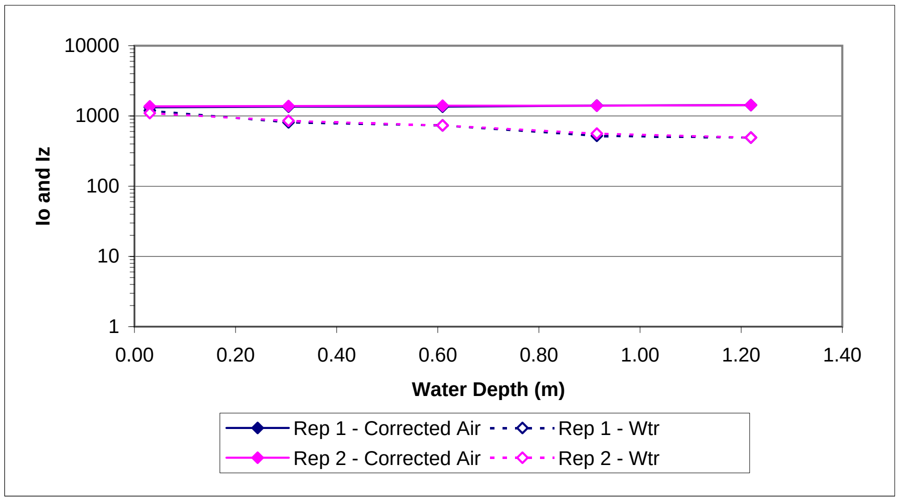


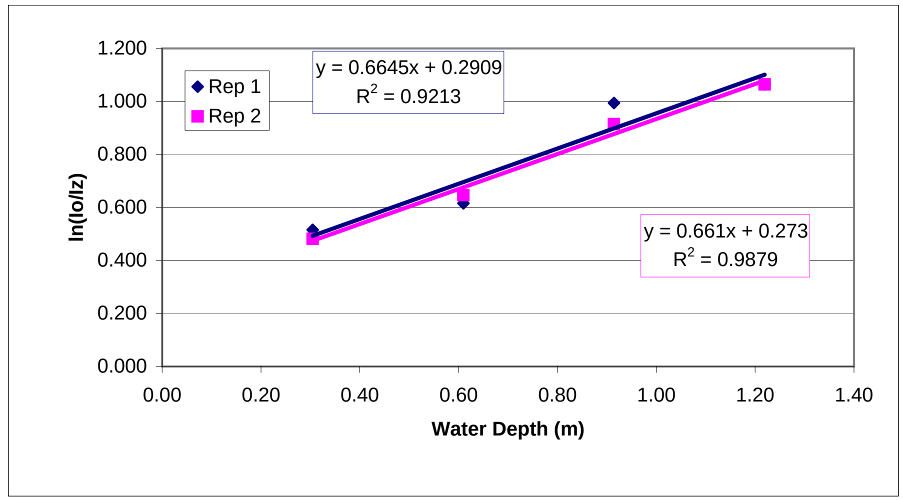
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - JUNIPER CREEK SEGMENT 1 (DOWNSTREAM) - 9/5/2007

Depth (m)	Replicate 1						Depth (m)	Replicate 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,329	1375.0	1193.0	7.08			0.03	1,369	1,417.0	1,100.0	7.00		
0.30	1,355	1402.0	809.3	6.70	0.515	1.690	0.30	1,383	1,431.0	854.2	6.75	0.482	1.581
0.61	1,355	1402.0	732.1	6.60	0.615	1.010	0.61	1,402	1,451.0	734.6	6.60	0.647	1.061
0.91	1,409	1458.0	521.3	6.26	0.994	1.087	0.91	1,399	1,448.0	560.9	6.33	0.914	1.000
1.22	1,426	1475.0	491.9	6.20	1.064	0.873	1.22	1,426	1,475.0	491.9	6.20	1.064	0.873

k (diffuse attenuation coefficient = slope, m-1)		0.665	k (diffuse attenuation coefficient = slope, m-1)		0.661
k average		1.165	k average		1.128
percent transmittance @	1.0 meter	51.45	percent transmittance @	1.0 meter	51.64
Birgean Percentile Absorption (1m)		48.55	Birgean Percentile Absorption (1m)		48.36



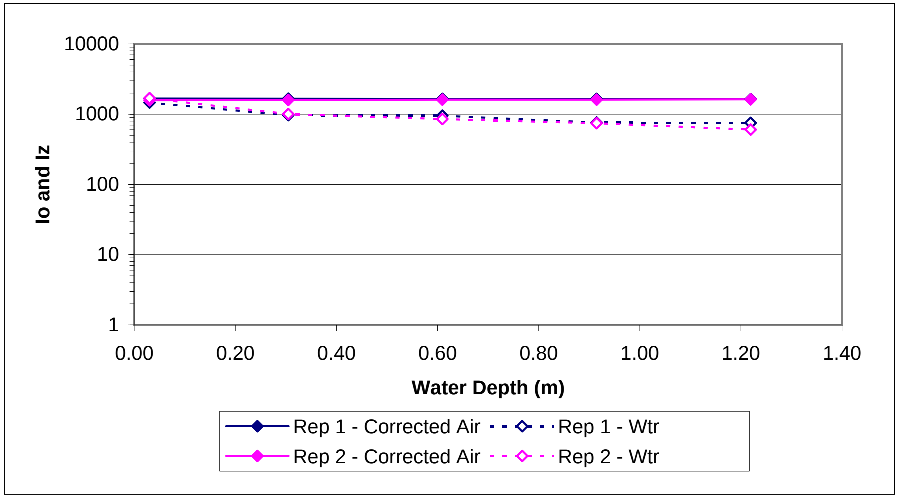


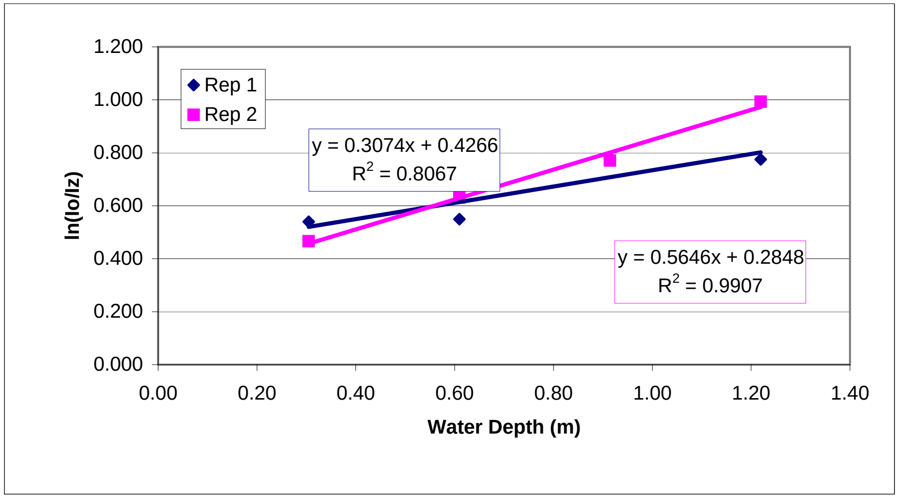
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - JUNIPER CREEK SEGMENT 1 (UPSTREAM) - 9/05/2007

Depth (m) z	Replicate 1 corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	Depth (m) z	Replicate 2 corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,670	1,727	1,468	7.29			0.03	1,577	1,631	1,693.0	7.43		
0.30	1,666	1,723	971.5	6.88	0.540	1.770	0.30	1,598	1,653	1,003.0	6.91	0.466	1.529
0.61	1,655	1,711	955.5	6.86	0.549	0.901	0.61	1,608	1,663	856.0	6.75	0.631	1.034
0.91	1,658	1,714	759.8	6.63	0.780	0.853	0.91	1,610	1,665	744.8	6.61	0.771	0.843
1.22	1,634	1,690	753.0	6.62	0.775	0.636	1.22	1,632	1,688	604.8	6.40	0.993	0.814

k (diffuse attenuation coefficient = slope, m-1)		0.307	k (diffuse attenuation coefficient = slope, m-1)		0.565
k average		1.040	k average		1.055
percent transmittance @	1.0 meter	73.53	percent transmittance @	1.0 meter	56.86
Birgean Percentile Absorption (1m)		26.47	Birgean Percentile Absorption (1m)		43.14



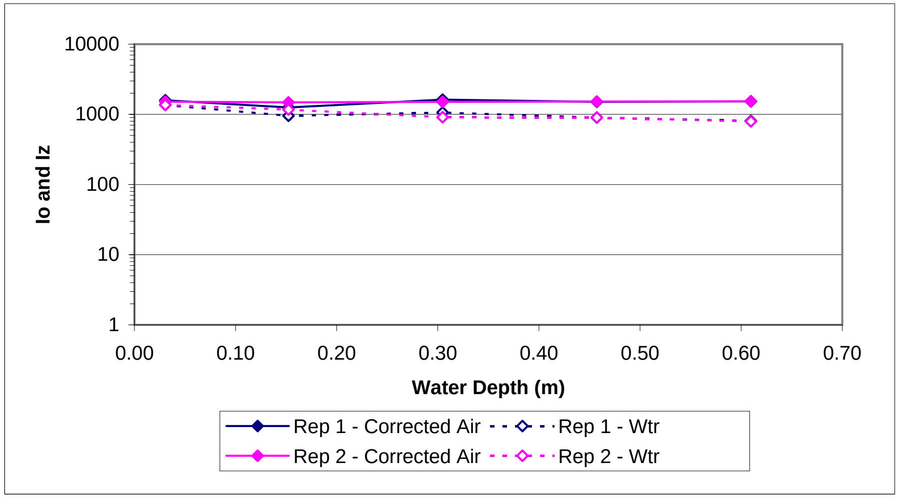


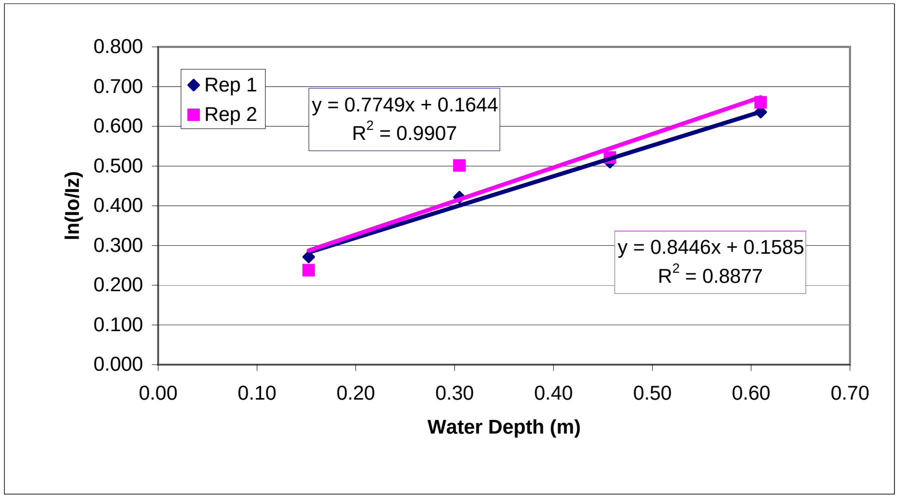
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ALEXANDER SPRINGS CREEK SEGMENT 1 (DOWNSTREAM) - 7/31/2007

	Replicate 1							Replicate 2					
Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	Depth (m) z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,583	1,637	1,362.0	7.22			0.03	1,515	1,567	1,360.0	7.22		
0.15	1,253	1,297	955.1	6.86	0.271	1.781	0.15	1,483	1,534	1,169.0	7.06	0.238	1.561
0.30	1,621	1,676	1,063.0	6.97	0.422	1.384	0.30	1,502	1,554	909.8	6.81	0.502	1.645
0.46	1,502	1,554	902.4	6.81	0.510	1.115	0.46	1,518	1,570	901.1	6.80	0.521	1.140
0.61	1,526	1,578	807.9	6.69	0.636	1.043	0.61	1,534	1,587	792.8	6.68	0.660	1.083

k (diffuse attenuation coefficient = slope, m-1)		0.775	k (diffuse attenuation coefficient = slope, m-1)		0.845
k average		1.330	k average		1.357
percent transmittance @	1.0 meter	46.08	percent transmittance @	1.0 meter	42.97
Birgean Percentile Absorption (1m)		53.92	Birgean Percentile Absorption (1m)		57.03



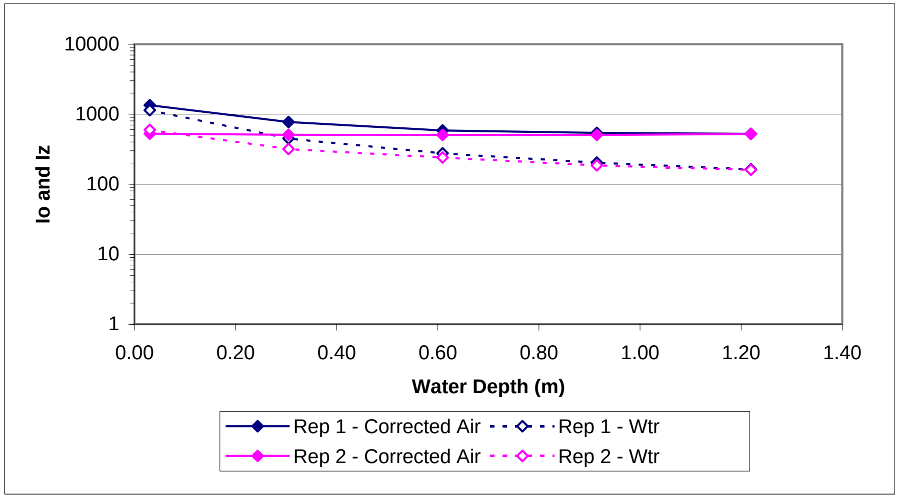


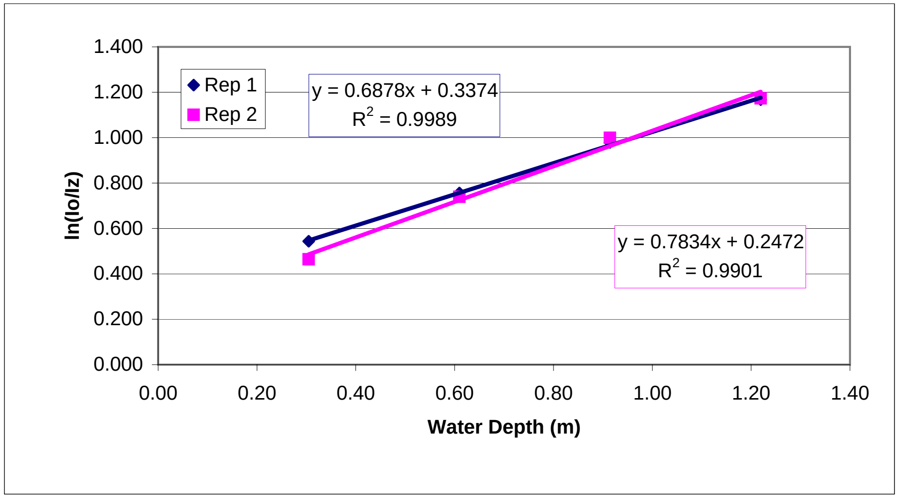
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ALEXANDER SPRINGS CREEK SEGMENT 1 (UPSTREAM) - 7/31/2007

Depth (m) z	Replicate 1 corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	Depth (m) z	Replicate 2 corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,342	1,389	1,143.0	7.04			0.03	526	548	596.9	6.39		
0.30	773	803	449.2	6.11	0.543	1.783	0.30	507	528	318.5	5.76	0.464	1.522
0.61	586	610	275.2	5.62	0.756	1.240	0.61	505	527	241.1	5.49	0.740	1.213
0.91	541	564	203.3	5.31	0.979	1.070	0.91	505	526	185.7	5.22	0.999	1.093
1.22	525	547	163.3	5.10	1.168	0.958	1.22	520	542	160.9	5.08	1.173	0.962

k (diffuse attenuation coefficient = slope, m-1)		0.688	k (diffuse attenuation coefficient = slope, m-1)		0.783
k average		1.263	k average		1.198
percent transmittance @	1.0 meter	50.27	percent transmittance @	1.0 meter	45.69
Birgean Percentile Absorption (1m)		49.73	Birgean Percentile Absorption (1m)		54.31



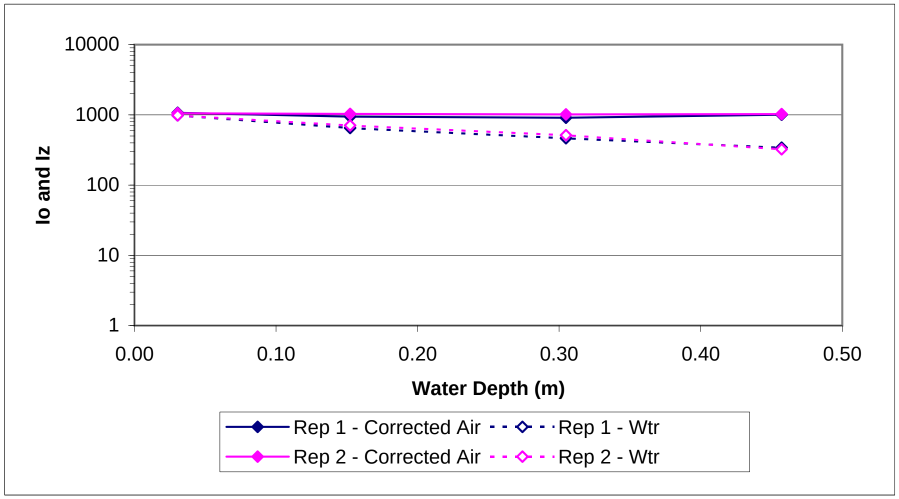


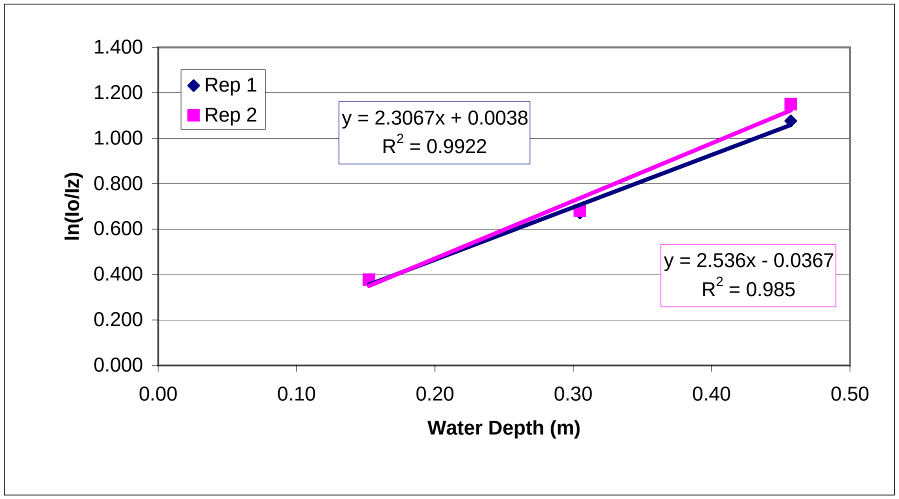
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ALEXANDER SPRINGS CREEK SEGMENT 1 (DOWNSTREAM) - 8/15/2007

Depth (m) z	Replicate 1 corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	Depth (m) z	Replicate 2 corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,069	1,108	986.6	6.89			0.03	1,054	1,092	985.4	6.89		
0.15	944	979	649.8	6.48	0.373	2.449	0.15	1,034	1,071	708.7	6.56	0.377	2.476
0.30	908	941	464.0	6.14	0.671	2.201	0.30	1,017	1,054	514.6	6.24	0.681	2.235
0.46	1,003	1,040	342.0	5.83	1.076	2.354	0.46	1,025	1,062	324.4	5.78	1.150	2.516

k (diffuse attenuation coefficient = slope, m-1)		2.307	k (diffuse attenuation coefficient = slope, m-1)		2.536
k average		2.335	k average		2.409
percent transmittance @	1.0 meter	9.96	percent transmittance @	1.0 meter	7.92
Birgean Percentile Absorption (1m)		90.04	Birgean Percentile Absorption (1m)		92.08



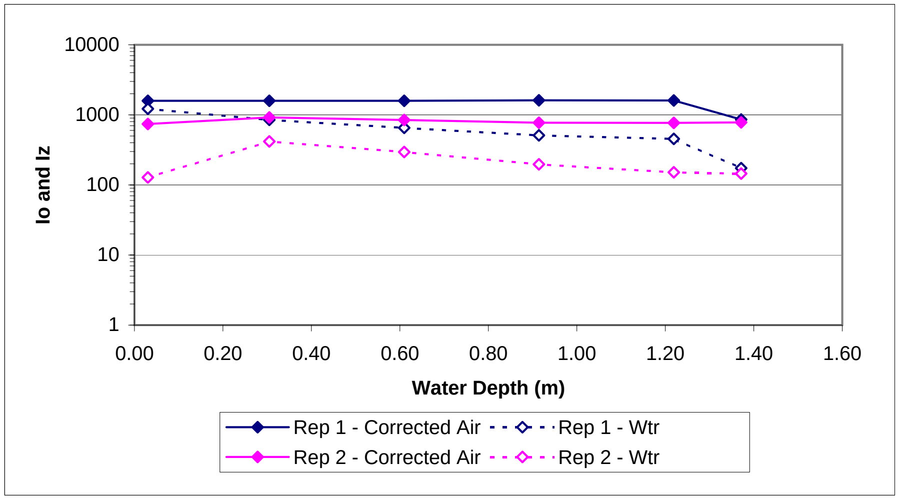


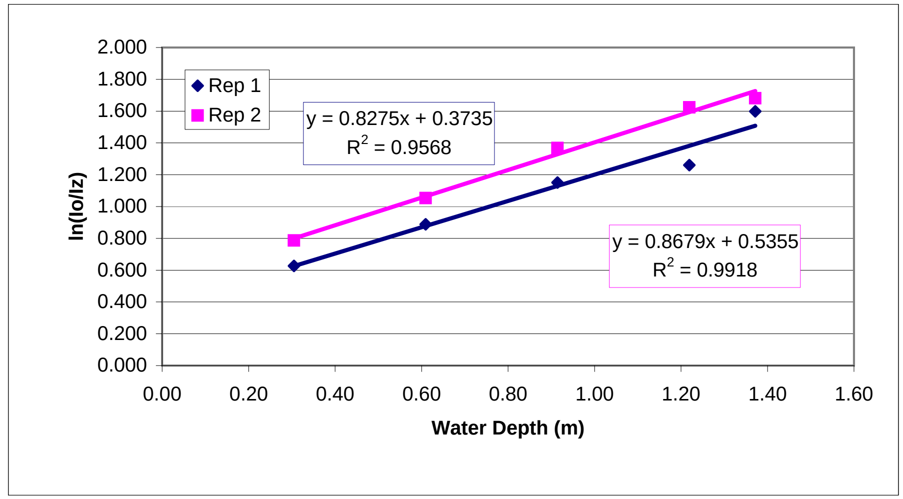
APPENDIX D

WEKIVA PLRG LIGHT ATTENUATION ESTIMATES - ALEXANDER SPRINGS CREEK SEGMENT 1 (UPSTREAM) - 8/15/2007

Depth (m)	Replicate 1						Depth (m)	Replicate 2					
z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)	z	corr Air (Io)	raw Air (Io)	Water (Iz)	ln(Iz)	ln(Io/Iz)	k (m-1)
0.03	1,586	1,640	1,222.0	7.11			0.03	742	771	128.0	4.85		
0.30	1,591	1,645	849.9	6.75	0.627	2.056	0.30	919	953	418.5	6.04	0.787	2.582
0.61	1,588	1,642	653.0	6.48	0.888	1.457	0.61	846	878	295.1	5.69	1.053	1.728
0.91	1,610	1,665	509.3	6.23	1.151	1.259	0.91	775	804	197.2	5.28	1.368	1.496
1.22	1,605	1,660	455.2	6.12	1.260	1.034	1.22	769	798	151.6	5.02	1.624	1.332
1.37	858	890	173.5	5.16	1.598	1.165	1.37	779	809	145.1	4.98	1.681	1.226

k (diffuse attenuation coefficient = slope, m-1)			0.828	k (diffuse attenuation coefficient = slope, m-1)			0.868
k average			1.394	k average			1.673
percent transmittance @	1.0	meter	43.71	percent transmittance @	1.0	meter	41.98
Birgean Percentile Absorption (1m)			56.29	Birgean Percentile Absorption (1m)			58.02





Appendix E

Detailed Estimates of Stream Segment Ecosystem Metabolism in the Wekiva River System and Reference Streams

APPENDIX E
WEKIVA PLRG - DAILY METABOLISM ESTIMATES

Site	Segment	Season	Date	GPP (g $O_2/m^2/d$)	NPP24 (g $O_2/m^2/d$)	R24 (g $O_2/m^2/d$)	P/R Ratio	PAR (24hr) (mol/m^2/d)	PAR Efficiency (%)	EE (g O_2/mol)
ASC	1	May-05	4/30/05	11.04	-1.20	12.24	0.90	12.57	7.09	0.88
ASC	1	May-05	5/1/05	8.81	-2.61	11.42	0.77	25.17	2.83	0.35
ASC	1	May-05	5/2/05	12.17	1.02	11.16	1.09	31.19	3.15	0.39
ASC	1	May-05	5/3/05	11.04	1.66	9.38	1.18	4.92	18.13	2.25
ASC	1	May-05	5/4/05	5.33	-3.59	8.92	0.60	15.49	2.78	0.34
ASC	1	May-05	5/5/05	3.32	-8.02	11.33	0.29	20.68	1.29	0.16
ASC	1	May-05	5/6/05	5.19	-6.58	11.77	0.44	31.84	1.32	0.16
ASC	1	May-05	5/7/05	5.11	-5.30	10.41	0.49	27.48	1.50	0.19
ASC	1	May-05	5/8/05	5.63	-5.82	11.45	0.49	33.80	1.34	0.17
ASC	1	May-05	5/9/05	6.09	-5.16	11.25	0.54	25.72	1.91	0.24
ASC	1	May-05	5/10/05	6.57	-3.63	10.20	0.64	23.64	2.24	0.28
ASC	1	May-05	5/11/05	5.26	-2.39	7.65	0.69	31.99	1.33	0.16
ASC	1	May-05	5/12/05	7.87	-2.01	9.88	0.80	32.59	1.95	0.24
ASC	1	May-05	5/13/05	9.06	-0.56	9.62	0.94	31.83	2.30	0.28
ASC	1	May-05	5/14/05	8.17	-0.89	9.06	0.90	33.44	1.97	0.24
ASC	1	May-05	5/15/05	8.63	-0.66	9.30	0.93	28.52	2.44	0.30
ASC	1	May-05	5/16/05	9.44	0.76	8.68	1.09	28.41	2.68	0.33
ASC	1	May-05	5/17/05	7.09	-3.17	10.26	0.69	32.10	1.78	0.22
ASC	1	May-05	5/18/05	8.69	-1.83	10.51	0.83	32.94	2.13	0.26
ASC	1	May-05	5/19/05	8.89	-1.44	10.33	0.86	31.60	2.27	0.28
ASC	1	May-05	5/20/05	8.27	-1.56	9.83	0.84	27.50	2.43	0.30
ASC	1	May-05	5/21/05	8.80	-0.20	9.00	0.98	29.32	2.42	0.30
ASC	1	May-05	5/22/05	9.12	-2.10	11.22	0.81	32.64	2.26	0.28
ASC	1	May-05	5/23/05	8.61	-2.78	11.38	0.76	22.75	3.05	0.38
ASC	1	Aug-05	8/10/05	5.80	3.20	2.60	2.23	33.01	1.42	0.18
ASC	1	Aug-05	8/11/05	4.43	-0.88	5.30	0.83	14.48	2.47	0.31
ASC	1	Aug-05	8/12/05	4.59	-0.98	5.57	0.82	27.56	1.34	0.17
ASC	1	Aug-05	8/13/05	4.50	-0.61	5.11	0.88	16.62	2.18	0.27
ASC	1	Aug-05	8/14/05	4.76	0.39	4.36	1.09	27.89	1.38	0.17
ASC	1	Aug-05	8/15/05	6.16	2.34	3.82	1.61	25.90	1.92	0.24
ASC	1	Aug-05	8/16/05	6.14	2.42	3.71	1.65	26.13	1.90	0.23
ASC	1	Aug-05	8/17/05	5.21	1.66	3.55	1.47	23.82	1.76	0.22
ASC	1	Aug-05	8/18/05	4.81	0.32	4.49	1.07	24.08	1.61	0.20
ASC	1	Aug-05	8/19/05	6.37	1.40	4.96	1.28	22.89	2.25	0.28
ASC	1	Aug-05	8/20/05	4.20	-0.85	5.05	0.83	29.15	1.16	0.14
ASC	1	Aug-05	8/21/05	5.38	0.79	4.59	1.17	25.01	1.74	0.22
ASC	1	Aug-05	8/22/05	5.82	1.94	3.88	1.50	22.71	2.07	0.26
ASC	1	Aug-05	8/23/05	5.23	1.41	3.82	1.37	20.05	2.11	0.26
ASC	1	Aug-05	8/24/05	5.33	1.67	3.66	1.46	15.62	2.76	0.34
ASC	1	Aug-05	8/25/05	5.56	1.97	3.58	1.55	23.71	1.89	0.23
ASC	1	Aug-05	8/26/05	5.13	0.70	4.43	1.16	25.44	1.63	0.20
ASC	1	Aug-05	8/27/05	5.37	0.63	4.74	1.13	18.06	2.40	0.30
ASC	1	Aug-05	8/28/05	5.34	0.36	4.98	1.07	24.76	1.74	0.22
ASC	1	Dec-05	11/30/05	5.43	1.73	3.71	1.47	14.37	3.05	0.38
ASC	1	Dec-05	12/1/05	4.75	0.96	3.79	1.25	15.25	2.51	0.31
ASC	1	Dec-05	12/2/05	4.67	1.10	3.57	1.31	15.75	2.39	0.30
ASC	1	Dec-05	12/3/05	4.59	1.50	3.09	1.49	15.74	2.35	0.29
ASC	1	Dec-05	12/4/05	4.84	1.01	3.83	1.26	15.87	2.46	0.30
ASC	1	Dec-05	12/5/05	5.17	2.10	3.07	1.68	12.19	3.42	0.42
ASC	1	Dec-05	12/6/05	5.40	1.95	3.45	1.56	10.30	4.23	0.52
ASC	1	Dec-05	12/7/05	3.86	0.48	3.38	1.14	5.86	5.32	0.66
ASC	1	Dec-05	12/8/05	2.24	-1.72	3.96	0.57	2.07	8.73	1.08
ASC	1	Dec-05	12/9/05	2.38	-1.28	3.66	0.65	3.77	5.09	0.63
ASC	1	Dec-05	12/10/05	4.84	1.44	3.40	1.42	11.35	3.44	0.43
ASC	1	Dec-05	12/11/05	2.33	-1.66	3.99	0.58	2.63	7.15	0.89
ASC	1	Dec-05	12/12/05	4.21	0.83	3.38	1.24	12.59	2.70	0.33
ASC	1	Feb-06	1/24/06	5.21	-0.04	5.25	0.99	10.75	3.91	0.48
ASC	1	Feb-06	1/25/06	5.35	1.12	4.23	1.26	20.14	2.15	0.27
ASC	1	Feb-06	1/26/06	5.81	2.73	3.08	1.88	20.94	2.24	0.28
ASC	1	Feb-06	1/27/06	5.37	1.24	4.13	1.30	13.63	3.18	0.39
ASC	1	Feb-06	1/28/06	5.82	1.26	4.56	1.28	13.67	3.44	0.43
ASC	1	Feb-06	1/29/06	6.34	0.76	5.58	1.14	16.96	3.02	0.37
ASC	1	Feb-06	1/30/06	4.20	-2.64	6.83	0.61	6.28	5.40	0.67
ASC	1	Feb-06	1/31/06	5.62	0.08	5.54	1.01	22.30	2.03	0.25
ASC	1	Feb-06	2/1/06	5.57	-0.22	5.80	0.96	23.13	1.95	0.24
ASC	1	Feb-06	2/2/06	4.81	-2.98	7.79	0.62	15.77	2.46	0.30
ASC	1	Feb-06	2/3/06	0.11	-5.62	5.73	0.02	0.80	1.11	0.14
ASC	1	Feb-06	2/4/06	2.24	-5.07	7.30	0.31	4.48	4.03	0.50
ASC	1	Feb-06	2/5/06	3.67	-4.22	7.88	0.47	19.23	1.54	0.19
ASC	1	Feb-06	2/6/06	3.46	-2.06	5.52	0.63	20.46	1.36	0.17
ASC	1	Feb-06	2/7/06	1.87	-2.60	4.47	0.42	14.37	1.05	0.13
ASC	1	Feb-06	2/8/06	4.46	2.31	2.15	2.08	21.99	1.64	0.20
ASC	1	Feb-06	2/9/06	5.04	3.34	1.70	2.96	20.83	1.95	0.24
ASC	1	Feb-06	2/10/06	4.67	-0.70	5.37	0.87	18.29	2.06	0.26
ASC	1	Feb-06	2/11/06	2.59	-3.69	6.29	0.41	12.65	1.66	0.21
ASC	1	Feb-06	2/12/06	3.49	-1.41	4.91	0.71	23.61	1.19	0.15
ASC	1	Feb-06	2/13/06	4.41	1.85	2.56	1.72	24.81	1.44	0.18
ASC	1	Nov-06	11/17/06	5.63	4.19	1.44	3.91	16.10	2.82	0.35

APPENDIX E
WEKIVA PLRG - DAILY METABOLISM ESTIMATES

Site	Segment	Season	Date	GPP (g $O_2/m^2/d$)	NPP24 (g $O_2/m^2/d$)	R24 (g $O_2/m^2/d$)	P/R Ratio	PAR (24hr) (mol/m^2/d)	PAR Efficiency (%)	EE (g O_2/mol)
ASC	1	Nov-06	11/18/06	5.42	4.07	1.35	4.02	16.02	2.73	0.34
ASC	1	Nov-06	11/19/06	5.71	4.40	1.31	4.36	16.54	2.79	0.35
ASC	1	Nov-06	11/20/06	5.69	3.73	1.97	2.89	16.88	2.72	0.34
ASC	1	Nov-06	11/21/06	5.07	3.20	1.87	2.71	16.32	2.51	0.31
ASC	1	Nov-06	11/22/06	2.89	2.09	0.80	3.61	13.09	1.78	0.22
ASC	1	Jan-07	1/24/07	3.80	-4.10	7.90	0.48	4.28	7.16	0.89
ASC	1	Jan-07	1/25/07	4.93	-1.78	6.71	0.73	6.62	6.01	0.74
ASC	1	Jan-07	1/26/07	5.58	-1.09	6.67	0.84	15.49	2.91	0.36
ASC	1	Jan-07	1/27/07	5.35	-1.73	7.07	0.76	16.70	2.58	0.32
ASC	1	Jan-07	1/28/07	4.81	-2.08	6.89	0.70	14.09	2.76	0.34
ASC	1	Jan-07	1/29/07	4.92	-0.38	5.30	0.93	18.16	2.19	0.27
ASC	1	Jan-07	1/30/07	4.94	0.38	4.56	1.08	11.10	3.59	0.45
ASC	1	Jan-07	1/31/07	5.19	1.69	3.50	1.48	18.39	2.28	0.28
ASC	1	Jan-07	2/1/07	4.23	2.33	1.90	2.23	9.98	3.42	0.42
ASC	1	Jan-07	2/2/07	3.18	1.01	2.16	1.47	6.71	3.82	0.47
ASC	1	Jan-07	2/3/07	3.58	0.71	2.87	1.25	4.20	6.88	0.85
ASC	1	Jan-07	2/4/07	4.97	3.20	1.77	2.81	12.82	3.13	0.39
ASC	1	Jun-07	5/31/07	7.13	1.71	5.41	1.32	32.11	1.79	0.22
ASC	1	Jun-07	6/1/07	5.57	0.03	5.54	1.01	19.20	2.34	0.29
ASC	1	Jun-07	6/2/07	4.81	0.48	4.33	1.11	20.15	1.93	0.24
ASC	1	Jun-07	6/3/07	8.06	3.18	4.88	1.65	48.01	1.36	0.17
ASC	1	Jun-07	6/4/07	6.21	-0.18	6.39	0.97	44.80	1.12	0.14
ASC	1	Jun-07	6/5/07	6.27	0.87	5.40	1.16	43.22	1.17	0.15
ASC	1	Jun-07	6/6/07	8.02	3.85	4.18	1.92	25.19	2.57	0.32
ASC	1	Jun-07	6/7/07	5.27	-1.35	6.63	0.80	34.48	1.23	0.15
ASC	1	Jun-07	6/8/07	5.67	-0.92	6.59	0.86	36.84	1.24	0.15
ASC	1	Jun-07	6/9/07	6.12	-0.50	6.62	0.92	37.39	1.32	0.16
ASC	1	Jun-07	6/10/07	5.72	-0.40	6.12	0.94	35.38	1.31	0.16
ASC	1	Jun-07	6/11/07	9.07	4.36	4.70	1.93	39.15	1.87	0.23
ASC	1	Jun-07	6/12/07	5.51	-0.66	6.17	0.89	25.69	1.73	0.21
ASC	1	Jun-07	6/13/07	5.78	-0.40	6.19	0.94	28.39	1.65	0.20
ASC	1	Jun-07	6/14/07	6.13	0.09	6.04	1.01	39.48	1.25	0.16
ASC	1	Jun-07	6/15/07	5.97	-0.02	5.99	1.00	49.77	0.97	0.12
ASC	1	Jun-07	6/16/07	7.10	0.52	6.57	1.08	42.69	1.34	0.17
ASC	1	Jun-07	6/17/07	4.72	-5.23	9.95	0.47	48.12	0.79	0.10
ASC	1	Jun-07	6/18/07	4.70	-5.49	10.20	0.46	47.65	0.80	0.10
ASC	1	Jun-07	6/19/07	3.52	-4.34	7.86	0.45	18.91	1.50	0.19
ASC	1	Aug-07	8/1/07	5.35	-2.16	7.51	0.71	26.72	1.62	0.20
ASC	1	Aug-07	8/2/07	5.07	-1.99	7.06	0.72	8.78	4.66	0.58
ASC	1	Aug-07	8/3/07	7.95	0.11	7.84	1.01	39.65	1.62	0.20
ASC	1	Aug-07	8/4/07	6.76	-2.85	9.61	0.70	39.27	1.39	0.17
ASC	1	Aug-07	8/5/07	6.24	-3.74	9.98	0.63	35.03	1.44	0.18
ASC	1	Aug-07	8/6/07	8.11	0.08	8.03	1.01	37.15	1.76	0.22
ASC	1	Aug-07	8/7/07	10.02	4.50	5.52	1.82	30.74	2.63	0.33
ASC	1	Aug-07	8/8/07	9.64	2.29	7.35	1.31	31.18	2.50	0.31
ASC	1	Aug-07	8/9/07	6.36	-2.94	9.30	0.68	35.40	1.45	0.18
ASC	1	Aug-07	8/10/07	5.74	-2.68	8.42	0.68	35.70	1.30	0.16
ASC	1	Aug-07	8/11/07	6.46	-2.45	8.91	0.72	38.04	1.37	0.17
ASC	1	Aug-07	8/12/07	7.07	-1.41	8.48	0.83	37.44	1.52	0.19
ASC	1	Aug-07	8/13/07	7.35	-0.51	7.85	0.94	31.57	1.88	0.23
ASC	1	Aug-07	8/14/07	8.60	1.66	6.94	1.24	38.54	1.80	0.22
ASC	1	Aug-07	8/15/07	1.24	-5.67	6.91	0.18	12.86	0.78	0.10
JC	1	Apr-05	4/1/05	7.35	-0.14	7.50	0.98	16.61	3.57	0.44
JC	1	Apr-05	4/2/05	2.56	-9.82	12.38	0.21	11.64	1.77	0.22
JC	1	Apr-05	4/3/05	3.93	-1.16	5.10	0.77	11.06	2.87	0.36
JC	1	Apr-05	4/4/05	10.96	3.87	7.08	1.55	14.50	6.10	0.76
JC	1	Apr-05	4/5/05	7.43	-2.33	9.76	0.76	14.80	4.05	0.50
JC	1	Apr-05	4/6/05	10.82	3.92	6.90	1.57	8.72	10.02	1.24
JC	1	Apr-05	4/7/05	2.77	-12.63	15.39	0.18	15.94	1.40	0.17
JC	1	Apr-05	4/8/05	4.91	-2.23	7.13	0.69	7.75	5.11	0.63
JC	1	Apr-05	4/9/05	5.79	-0.95	6.75	0.86	11.34	4.12	0.51
JC	1	Apr-05	4/10/05	9.19	0.62	8.57	1.07	15.81	4.69	0.58
JC	1	Apr-05	4/11/05	5.29	-4.07	9.36	0.57	14.76	2.89	0.36
JC	1	Apr-05	4/12/05	5.08	-0.13	5.21	0.97	17.97	2.28	0.28
JC	1	Apr-05	4/13/05	9.52	4.66	4.86	1.96	14.04	5.48	0.68
JC	1	Apr-05	4/14/05	5.49	-8.89	14.39	0.38	20.13	2.20	0.27
JC	1	Apr-05	4/15/05	6.93	-3.86	10.79	0.64	19.85	2.82	0.35
JC	1	Apr-05	4/16/05	10.62	1.47	9.15	1.16	21.38	4.01	0.50
JC	1	Apr-05	4/17/05	9.94	-1.33	11.27	0.88	21.52	3.73	0.46
JC	1	Jul-05	7/12/05	2.05	-6.18	8.24	0.25	13.42	1.23	0.15
JC	1	Jul-05	7/13/05	3.32	-4.06	7.38	0.45	12.98	2.06	0.26
JC	1	Jul-05	7/14/05	1.92	-7.07	9.00	0.21	16.73	0.93	0.11
JC	1	Jul-05	7/15/05	1.19	-5.49	6.68	0.18	13.63	0.71	0.09
JC	1	Jul-05	7/16/05	5.21	-1.60	6.81	0.76	12.18	3.45	0.43
JC	1	Jul-05	7/17/05	5.01	-4.36	9.37	0.53	16.28	2.49	0.31
JC	1	Jul-05	7/18/05	3.65	-6.59	10.24	0.36	13.31	2.21	0.27
JC	1	Jul-05	7/19/05	3.42	-3.31	6.72	0.51	16.94	1.63	0.20
JC	1	Jul-05	7/20/05	5.48	-3.19	8.67	0.63	17.21	2.57	0.32

APPENDIX E
WEKIVA PLRG - DAILY METABOLISM ESTIMATES

Site	Segment	Season	Date	GPP (g $O_2/m^2/d$)	NPP24 (g $O_2/m^2/d$)	R24 (g $O_2/m^2/d$)	P/R Ratio	PAR (24hr) (mol/m^2/d)	PAR Efficiency (%)	EE (g O_2/mol)
JC	1	Jul-05	7/21/05	6.19	-1.35	7.54	0.82	17.13	2.92	0.36
JC	1	Jul-05	7/22/05	7.56	0.18	7.38	1.02	10.66	5.73	0.71
JC	1	Jul-05	7/23/05	5.45	-3.27	8.72	0.62	16.18	2.72	0.34
JC	1	Jul-05	7/24/05	1.23	-9.16	10.39	0.12	20.13	0.49	0.06
JC	1	Jul-05	7/25/05	5.51	-0.80	6.30	0.87	23.68	1.88	0.23
JC	1	Jul-05	7/26/05	3.24	-4.07	7.31	0.44	24.33	1.07	0.13
JC	1	Jul-05	7/27/05	5.03	-3.12	8.16	0.62	20.19	2.01	0.25
JC	1	Jul-05	7/28/05	5.08	-3.59	8.67	0.59	18.02	2.28	0.28
JC	1	Jul-05	7/29/05	2.84	-5.31	8.15	0.35	17.83	1.29	0.16
JC	1	Jul-05	7/30/05	3.17	-4.35	7.52	0.42	11.24	2.28	0.28
JC	1	Jul-05	7/31/05	4.64	-3.32	7.96	0.58	14.96	2.51	0.31
JC	1	Dec-05	12/14/05	5.23	-1.10	6.33	0.83	8.25	5.12	0.63
JC	1	Dec-05	12/15/05	3.76	-2.37	6.13	0.61	7.66	3.96	0.49
JC	1	Dec-05	12/16/05	5.76	0.62	5.14	1.12	8.60	5.40	0.67
JC	1	Dec-05	12/17/05	1.55	-5.94	7.49	0.21	2.17	5.74	0.71
JC	1	Dec-05	12/18/05	5.50	0.40	5.10	1.08	1.31	33.83	4.19
JC	1	Dec-05	12/19/05	3.57	0.07	3.50	1.02	2.94	9.81	1.22
JC	1	Dec-05	12/20/05	2.57	-1.92	4.49	0.57	7.13	2.91	0.36
JC	1	Dec-05	12/21/05	2.78	-2.51	5.29	0.53	7.80	2.88	0.36
JC	1	Dec-05	12/22/05	3.01	-6.14	9.16	0.33	9.63	2.53	0.31
JC	1	Dec-05	12/23/05	-0.44	-7.61	7.17	-0.06	10.14	-0.35	-0.04
JC	1	Dec-05	12/24/05	4.78	0.45	4.33	1.10	7.69	5.02	0.62
JC	1	Dec-05	12/25/05	2.60	-3.15	5.76	0.45	5.39	3.90	0.48
JC	1	Dec-05	12/26/05	3.94	-2.22	6.16	0.64	9.49	3.36	0.42
JC	1	Dec-05	12/27/05	3.32	-4.65	7.97	0.42	10.30	2.60	0.32
JC	1	Dec-05	12/28/05	4.07	-3.23	7.30	0.56	9.22	3.56	0.44
JC	1	Dec-05	12/29/05	1.80	-4.78	6.57	0.27	10.38	1.40	0.17
JC	1	Dec-05	12/30/05	3.22	-1.78	5.00	0.64	10.82	2.40	0.30
JC	1	Dec-05	12/31/05	4.70	-0.34	5.04	0.93	9.25	4.10	0.51
JC	1	Dec-05	1/1/06	4.88	-0.60	5.48	0.89	10.22	3.86	0.48
JC	1	Dec-05	1/2/06	7.48	1.98	5.51	1.36	9.82	6.15	0.76
JC	1	Feb-06	2/15/06	4.88	0.38	4.49	1.09	15.68	2.51	0.31
JC	1	Feb-06	2/16/06	4.89	0.82	4.08	1.20	13.78	2.87	0.36
JC	1	Feb-06	2/17/06	1.87	-2.84	4.70	0.40	12.67	1.19	0.15
JC	1	Feb-06	2/18/06	7.35	3.99	3.35	2.19	16.91	3.51	0.43
JC	1	Feb-06	2/19/06	3.63	-2.97	6.59	0.55	5.99	4.89	0.61
JC	1	Feb-06	2/20/06	4.60	-0.52	5.13	0.90	14.63	2.54	0.31
JC	1	Feb-06	2/21/06	5.10	0.39	4.71	1.08	16.68	2.47	0.31
JC	1	Feb-06	2/22/06	7.58	3.82	3.77	2.01	16.09	3.81	0.47
JC	1	Feb-06	2/23/06	9.27	4.07	5.19	1.78	15.68	4.77	0.59
JC	1	Feb-06	2/24/06	4.39	-0.49	4.88	0.90	3.63	9.77	1.21
JC	1	Feb-06	2/25/06	7.41	1.56	5.85	1.27	10.84	5.52	0.68
JC	1	Feb-06	2/26/06	4.36	-0.68	5.05	0.86	6.10	5.78	0.72
JC	1	Feb-06	2/27/06	2.50	-2.63	5.13	0.49	13.97	1.44	0.18
JC	1	Feb-06	2/28/06	4.98	-0.08	5.06	0.98	16.27	2.47	0.31
JC	1	Feb-06	3/1/06	3.55	-0.39	3.94	0.90	18.29	1.57	0.19
JC	1	Feb-06	3/2/06	1.91	-4.27	6.18	0.31	17.67	0.87	0.11
JC	1	Feb-06	3/3/06	2.06	-6.40	8.46	0.24	16.44	1.01	0.13
JC	1	Feb-06	3/4/06	5.20	0.83	4.38	1.19	16.84	2.49	0.31
JC	1	Feb-06	3/5/06	1.67	-4.17	5.85	0.29	20.42	0.66	0.08
JC	1	Feb-06	3/6/06	10.73	3.75	6.98	1.54	20.21	4.28	0.53
JC	1	Oct-06	10/5/06	4.63	2.13	2.50	1.85	19.40	1.93	0.24
JC	1	Oct-06	10/6/06	5.03	1.04	3.99	1.26	22.03	1.84	0.23
JC	1	Oct-06	10/7/06	7.15	6.95	0.20	36.55	20.28	2.85	0.35
JC	1	Oct-06	10/8/06	17.32	19.81	-2.49	-6.97	15.05	9.29	1.15
JC	1	Oct-06	10/9/06	13.24	6.47	6.77	1.96	22.76	4.70	0.58
JC	1	Oct-06	10/10/06	16.85	12.49	4.36	3.86	23.47	5.80	0.72
JC	1	Oct-06	10/11/06	17.35	12.47	4.87	3.56	16.26	8.61	1.07
JC	1	Jan-07	1/24/07	2.53	-4.41	6.94	0.36	2.83	7.21	0.89
JC	1	Jan-07	1/25/07	1.23	-4.31	5.54	0.22	4.39	2.27	0.28
JC	1	Jan-07	1/26/07	3.78	-0.32	4.09	0.92	10.31	2.96	0.37
JC	1	Jan-07	1/27/07	1.93	-3.43	5.37	0.36	11.15	1.40	0.17
JC	1	Jan-07	1/28/07	3.58	-1.24	4.82	0.74	9.44	3.06	0.38
JC	1	Jan-07	1/29/07	1.92	-3.84	5.76	0.33	12.20	1.27	0.16
JC	1	Jan-07	1/30/07	6.48	0.75	5.73	1.13	7.49	6.99	0.87
JC	1	Jan-07	1/31/07	3.25	-3.92	7.17	0.45	12.44	2.11	0.26
JC	1	Jan-07	2/1/07	5.67	-0.67	6.33	0.89	6.78	6.75	0.84
JC	1	Jan-07	2/2/07	3.31	-2.53	5.84	0.57	4.57	5.85	0.72
JC	1	Jan-07	2/3/07	-0.18	-3.52	3.33	-0.05	2.87	-0.51	-0.06
JC	1	Jan-07	2/4/07	3.11	1.98	1.13	2.75	8.79	2.85	0.35
JC	1	Jun-07	5/31/07	4.52	-0.19	4.70	0.96	25.04	1.46	0.18
JC	1	Jun-07	6/1/07	9.83	9.57	0.25	38.93	14.90	5.32	0.66
JC	1	Jun-07	6/2/07	6.83	-3.91	10.74	0.64	15.56	3.54	0.44
JC	1	Jun-07	6/3/07	2.43	-4.44	6.88	0.35	36.87	0.53	0.07
JC	1	Jun-07	6/4/07	5.82	0.16	5.66	1.03	34.23	1.37	0.17
JC	1	Aug-07	8/23/07	7.54	3.57	3.97	1.90	25.78	2.36	0.29
JC	1	Aug-07	8/24/07	1.85	-6.72	8.57	0.22	17.85	0.84	0.10
JC	1	Aug-07	8/25/07	16.58	17.11	-0.53	-31.26	26.60	5.03	0.62

APPENDIX E
WEKIVA PLRG - DAILY METABOLISM ESTIMATES

Site	Segment	Season	Date	GPP (g $O_2/m^2/d$)	NPP24 (g $O_2/m^2/d$)	R24 (g $O_2/m^2/d$)	P/R Ratio	PAR (24hr) (mol/m^2/d)	PAR Efficiency (%)	EE (g O_2/mol)
JC	1	Aug-07	8/26/07	5.54	-2.53	8.07	0.69	30.00	1.49	0.18
JC	1	Aug-07	8/27/07	17.78	18.28	-0.50	-35.32	27.80	5.16	0.64
JC	1	Aug-07	8/28/07	12.54	2.05	10.49	1.20	33.19	3.05	0.38
JC	1	Aug-07	8/29/07	9.97	7.18	2.79	3.57	23.19	3.47	0.43
JC	1	Aug-07	8/30/07	13.24	10.80	2.44	5.42	29.22	3.66	0.45
JC	1	Aug-07	8/31/07	15.99	13.41	2.59	6.18	19.74	6.54	0.81
JC	1	Aug-07	9/1/07	9.65	-0.95	10.60	0.91	18.95	4.11	0.51
JC	1	Aug-07	9/2/07	2.27	-2.72	4.99	0.45	25.52	0.72	0.09
JC	1	Aug-07	9/3/07	8.35	3.85	4.50	1.86	27.69	2.43	0.30
JC	1	Aug-07	9/4/07	7.02	3.51	3.50	2.00	29.60	1.91	0.24
RSR	1	Apr-05	4/2/05	1.52	-10.17	11.69	0.13	25.24	0.49	0.06
RSR	1	Apr-05	4/3/05	1.38	-9.92	11.29	0.12	25.22	0.44	0.05
RSR	1	Apr-05	4/4/05	0.90	-9.84	10.74	0.08	24.53	0.30	0.04
RSR	1	Apr-05	4/5/05	1.53	-7.97	9.50	0.16	22.25	0.56	0.07
RSR	1	Apr-05	4/6/05	2.75	-6.41	9.17	0.30	12.47	1.78	0.22
RSR	1	Apr-05	4/7/05	1.75	-9.22	10.97	0.16	22.20	0.64	0.08
RSR	1	Apr-05	4/8/05	1.77	-11.13	12.90	0.14	21.22	0.67	0.08
RSR	1	Apr-05	4/9/05	-0.07	-13.81	13.74	-0.01	23.39	-0.03	0.00
RSR	1	Apr-05	4/10/05	2.73	-8.45	11.18	0.24	26.22	0.84	0.10
RSR	1	Apr-05	4/11/05	1.71	-9.66	11.37	0.15	22.48	0.61	0.08
RSR	1	Apr-05	4/12/05	2.39	-8.67	11.06	0.22	25.70	0.75	0.09
RSR	1	Apr-05	4/13/05	2.68	-8.83	11.51	0.23	19.64	1.10	0.14
RSR	1	Apr-05	4/14/05	1.67	-10.52	12.19	0.14	27.09	0.50	0.06
RSR	1	Apr-05	4/15/05	2.33	-9.02	11.35	0.21	26.20	0.72	0.09
RSR	1	Apr-05	4/16/05	2.42	-8.88	11.31	0.21	27.53	0.71	0.09
RSR	1	Apr-05	4/17/05	2.18	-8.10	10.28	0.21	27.28	0.65	0.08
RSR	1	Apr-05	4/18/05	2.50	-8.08	10.59	0.24	26.70	0.76	0.09
RSR	1	Apr-05	4/19/05	2.48	-8.64	11.12	0.22	20.18	0.99	0.12
RSR	1	Jul-05	7/13/05	1.47	-6.71	8.18	0.18	11.61	1.02	0.13
RSR	1	Jul-05	7/14/05	1.13	-7.68	8.81	0.13	14.73	0.62	0.08
RSR	1	Jul-05	7/15/05	1.14	-6.79	7.93	0.14	13.58	0.68	0.08
RSR	1	Jul-05	7/16/05	0.62	-6.82	7.44	0.08	10.01	0.50	0.06
RSR	1	Jul-05	7/17/05	0.73	-7.02	7.75	0.09	12.29	0.48	0.06
RSR	1	Jul-05	7/18/05	1.47	-5.81	7.28	0.20	10.33	1.15	0.14
RSR	1	Jul-05	7/19/05	1.10	-6.76	7.86	0.14	14.27	0.62	0.08
RSR	1	Jul-05	7/20/05	1.10	-6.59	7.69	0.14	15.42	0.57	0.07
RSR	1	Jul-05	7/21/05	0.23	-8.00	8.23	0.03	16.54	0.11	0.01
RSR	1	Jul-05	7/25/05	-0.65	-5.21	4.57	-0.14	19.30	-0.27	-0.03
RSR	1	Jul-05	7/26/05	-0.52	-6.33	5.80	-0.09	19.40	-0.22	-0.03
RSR	1	Jul-05	7/27/05	0.63	-7.33	7.96	0.08	15.30	0.33	0.04
RSR	1	Jul-05	7/28/05	1.10	-7.13	8.23	0.13	13.64	0.65	0.08
RSR	1	Jul-05	7/29/05	-0.20	-8.51	8.31	-0.02	14.25	-0.11	-0.01
RSR	1	Jul-05	7/30/05	0.06	-7.25	7.31	0.01	15.88	0.03	0.00
RSR	1	Jul-05	7/31/05	0.59	-6.63	7.23	0.08	16.91	0.28	0.04
RSR	1	Jul-05	8/1/05	0.06	-7.75	7.81	0.01	16.55	0.03	0.00
RSR	1	Jul-05	8/2/05	1.17	-5.91	7.08	0.16	13.51	0.70	0.09
RSR	1	Dec-05	12/15/05	1.18	-5.17	6.35	0.19	6.54	1.46	0.18
RSR	1	Dec-05	12/16/05	1.03	-6.72	7.76	0.13	7.33	1.14	0.14
RSR	1	Dec-05	12/17/05	0.28	-7.91	8.19	0.03	1.81	1.25	0.15
RSR	1	Dec-05	12/18/05	0.47	-8.06	8.53	0.06	1.34	2.83	0.35
RSR	1	Dec-05	12/19/05	0.72	-7.96	8.68	0.08	2.86	2.03	0.25
RSR	1	Dec-05	12/20/05	0.69	-8.82	9.51	0.07	6.41	0.87	0.11
RSR	1	Dec-05	12/21/05	0.92	-8.78	9.70	0.09	6.68	1.11	0.14
RSR	1	Dec-05	12/22/05	0.86	-8.67	9.52	0.09	7.98	0.87	0.11
RSR	1	Dec-05	12/23/05	1.22	-9.85	11.07	0.11	8.14	1.21	0.15
RSR	1	Dec-05	12/24/05	1.25	-11.40	12.65	0.10	5.99	1.69	0.21
RSR	1	Dec-05	12/25/05	0.82	-13.57	14.39	0.06	4.23	1.57	0.19
RSR	1	Dec-05	12/26/05	1.47	-11.97	13.44	0.11	8.03	1.47	0.18
RSR	1	Dec-05	12/27/05	1.53	-10.52	12.05	0.13	8.07	1.53	0.19
RSR	1	Dec-05	12/28/05	0.51	-13.11	13.62	0.04	7.02	0.59	0.07
RSR	1	Dec-05	12/29/05	0.11	-11.59	11.70	0.01	7.90	0.11	0.01
RSR	1	Dec-05	12/30/05	0.76	-9.48	10.24	0.07	8.11	0.75	0.09
RSR	1	Feb-06	2/17/06	1.72	-2.39	4.11	0.42	14.82	0.94	0.12
RSR	1	Feb-06	2/18/06	1.50	-2.62	4.12	0.36	19.41	0.62	0.08
RSR	1	Feb-06	2/19/06	1.00	-3.62	4.62	0.22	6.63	1.22	0.15
RSR	1	Feb-06	2/20/06	1.15	-3.27	4.42	0.26	15.91	0.58	0.07
RSR	1	Feb-06	2/21/06	1.22	-3.51	4.73	0.26	17.44	0.57	0.07
RSR	1	Feb-06	2/22/06	2.03	-1.33	3.36	0.60	16.33	1.00	0.12
RSR	1	Feb-06	2/23/06	0.80	-3.35	4.14	0.19	15.75	0.41	0.05
RSR	1	Feb-06	2/24/06	0.86	-1.64	2.50	0.34	3.96	1.75	0.22
RSR	1	Feb-06	2/25/06	0.74	-1.77	2.51	0.29	11.06	0.54	0.07
RSR	1	Feb-06	2/26/06	0.79	-2.26	3.05	0.26	8.85	0.72	0.09
RSR	1	Feb-06	2/27/06	1.25	-2.05	3.31	0.38	19.54	0.52	0.06
RSR	1	Feb-06	2/28/06	0.86	-4.98	5.84	0.15	21.29	0.33	0.04
RSR	1	Oct-06	10/6/06	1.52	-1.70	3.22	0.47	25.35	0.48	0.06
RSR	1	Oct-06	10/7/06	2.16	-1.85	4.02	0.54	22.65	0.77	0.10
RSR	1	Oct-06	10/8/06	1.67	-3.57	5.23	0.32	16.33	0.82	0.10
RSR	1	Oct-06	10/9/06	1.27	-2.99	4.26	0.30	23.96	0.43	0.05

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Site	Segment	Season	Date	GPP (g $O_2/m^2/d$)	NPP24 (g $O_2/m^2/d$)	R24 (g $O_2/m^2/d$)	P/R Ratio	PAR (24hr) (mol/m^2/d)	PAR Efficiency (%)	EE (g O_2/mol)
RSR	1	Oct-06	10/10/06	1.42	-2.62	4.04	0.35	23.99	0.48	0.06
RSR	1	Oct-06	10/11/06	0.72	-3.91	4.63	0.16	16.13	0.36	0.04
RSR	1	Oct-06	10/12/06	1.33	-1.21	2.54	0.52	18.90	0.57	0.07
RSR	1	Oct-06	10/13/06	1.57	-0.80	2.37	0.66	20.37	0.62	0.08
RSR	1	Oct-06	10/14/06	1.43	-1.23	2.66	0.54	21.35	0.54	0.07
RSR	1	Oct-06	10/15/06	0.90	-1.96	2.86	0.32	22.34	0.33	0.04
RSR	1	Oct-06	10/16/06	1.65	-1.31	2.95	0.56	14.25	0.93	0.12
RSR	1	Oct-06	10/17/06	2.43	-1.82	4.25	0.57	14.10	1.39	0.17
RSR	1	Oct-06	10/18/06	1.68	-4.85	6.53	0.26	19.21	0.70	0.09
RSR	1	Jan-07	1/5/07	0.96	-3.59	4.55	0.21	5.46	1.41	0.18
RSR	1	Jan-07	1/6/07	1.00	-4.17	5.17	0.19	9.02	0.89	0.11
RSR	1	Jan-07	1/7/07	1.06	-4.80	5.86	0.18	10.71	0.80	0.10
RSR	1	Jan-07	1/8/07	0.43	-6.57	7.01	0.06	7.17	0.49	0.06
RSR	1	Jan-07	1/9/07	0.56	-5.72	6.28	0.09	11.05	0.41	0.05
RSR	1	Jan-07	1/10/07	0.66	-5.20	5.86	0.11	11.99	0.45	0.06
RSR	1	Jan-07	1/11/07	0.25	-5.64	5.89	0.04	11.71	0.17	0.02
RSR	1	Jan-07	1/12/07	0.62	-4.90	5.53	0.11	11.91	0.42	0.05
RSR	1	Jan-07	1/13/07	0.49	-5.92	6.41	0.08	11.12	0.35	0.04
RSR	1	Jan-07	1/14/07	0.04	-6.23	6.28	0.01	10.49	0.03	0.00
RSR	1	Jan-07	1/15/07	0.41	-4.67	5.08	0.08	13.26	0.25	0.03
RSR	1	Jan-07	1/16/07	0.37	-4.48	4.85	0.08	12.76	0.24	0.03
RSR	1	Jan-07	1/17/07	0.96	-3.25	4.21	0.23	8.86	0.87	0.11
RSR	1	May-07	5/9/07	2.27	-2.76	5.03	0.45	28.76	0.64	0.08
RSR	1	May-07	5/10/07	1.49	-4.01	5.49	0.27	16.10	0.74	0.09
RSR	1	May-07	5/11/07	1.92	-3.23	5.15	0.37	28.56	0.54	0.07
RSR	1	May-07	5/12/07	1.87	-4.38	6.26	0.30	32.12	0.47	0.06
RSR	1	May-07	5/13/07	2.28	-3.49	5.77	0.40	22.12	0.83	0.10
RSR	1	May-07	5/14/07	1.20	-4.25	5.45	0.22	15.11	0.64	0.08
RSR	1	May-07	5/15/07	2.04	-2.27	4.31	0.47	36.23	0.45	0.06
RSR	1	May-07	5/16/07	1.67	-2.74	4.40	0.38	33.68	0.40	0.05
RSR	1	May-07	5/17/07	2.61	-2.31	4.92	0.53	30.94	0.68	0.08
RSR	1	May-07	5/18/07	1.92	-3.93	5.84	0.33	25.63	0.60	0.07
RSR	1	May-07	5/19/07	1.65	-4.73	6.38	0.26	37.27	0.36	0.04
RSR	1	May-07	5/20/07	1.84	-2.57	4.41	0.42	40.51	0.37	0.05
RSR	1	May-07	5/21/07	2.06	-1.86	3.92	0.53	42.15	0.40	0.05
RSR	1	Aug-07	8/24/07	3.60	-3.02	6.62	0.54	20.54	1.41	0.18
RSR	1	Aug-07	8/25/07	4.26	-2.42	6.68	0.64	30.37	1.13	0.14
RSR	1	Aug-07	8/26/07	4.01	-3.70	7.71	0.52	33.97	0.95	0.12
RSR	1	Aug-07	8/27/07	3.66	-3.39	7.05	0.52	31.24	0.95	0.12
RSR	1	Aug-07	8/28/07	3.50	-4.61	8.10	0.43	37.00	0.76	0.09
RSR	1	Aug-07	8/29/07	3.02	-4.58	7.61	0.40	25.65	0.95	0.12
RSR	1	Aug-07	8/30/07	3.80	-4.20	8.00	0.47	32.06	0.96	0.12
RSR	1	Aug-07	8/31/07	1.91	-6.90	8.81	0.22	21.50	0.72	0.09
RSR	1	Aug-07	9/1/07	1.90	-5.77	7.66	0.25	20.47	0.75	0.09
RSR	1	Aug-07	9/2/07	1.75	-6.45	8.20	0.21	27.35	0.52	0.06
RSR	1	Aug-07	9/3/07	2.39	-6.04	8.43	0.28	29.43	0.66	0.08
RSR	1	Aug-07	9/4/07	2.43	-6.21	8.64	0.28	31.22	0.63	0.08
RSR	1	Aug-07	9/5/07	2.37	-6.21	8.58	0.28	27.81	0.69	0.09
RSR	2	Apr-05	4/2/05	0.03	-8.40	8.43	0.00	11.82	0.02	0.00
RSR	2	Apr-05	4/3/05	0.38	-6.92	7.30	0.05	11.67	0.26	0.03
RSR	2	Apr-05	4/4/05	0.41	-6.35	6.76	0.06	11.13	0.29	0.04
RSR	2	Apr-05	4/5/05	0.68	-6.08	6.76	0.10	9.91	0.55	0.07
RSR	2	Apr-05	4/6/05	0.60	-6.51	7.12	0.08	5.47	0.89	0.11
RSR	2	Apr-05	4/7/05	0.44	-7.42	7.86	0.06	9.66	0.37	0.05
RSR	2	Apr-05	4/8/05	0.42	-7.96	8.39	0.05	9.05	0.38	0.05
RSR	2	Apr-05	4/9/05	0.41	-7.80	8.21	0.05	10.09	0.32	0.04
RSR	2	Apr-05	4/10/05	0.44	-6.69	7.13	0.06	11.16	0.32	0.04
RSR	2	Apr-05	4/11/05	0.46	-6.81	7.26	0.06	9.46	0.39	0.05
RSR	2	Apr-05	4/12/05	0.66	-6.55	7.22	0.09	10.89	0.49	0.06
RSR	2	Apr-05	4/13/05	0.49	-7.24	7.73	0.06	8.21	0.48	0.06
RSR	2	Apr-05	4/14/05	0.31	-6.96	7.27	0.04	11.35	0.22	0.03
RSR	2	Apr-05	4/15/05	0.62	-6.20	6.82	0.09	11.04	0.45	0.06
RSR	2	Apr-05	4/16/05	0.46	-6.24	6.70	0.07	11.57	0.32	0.04
RSR	2	Apr-05	4/17/05	0.56	-6.20	6.76	0.08	11.44	0.40	0.05
RSR	2	Apr-05	4/18/05	0.66	-6.24	6.90	0.10	11.15	0.48	0.06
RSR	2	Apr-05	4/19/05	0.73	-6.56	7.29	0.10	8.40	0.71	0.09
RSR	2	Apr-05	4/20/05	0.65	-7.38	8.03	0.08	8.38	0.63	0.08
RSR	2	Jul-05	7/13/05	0.39	-11.21	11.60	0.03	7.28	0.43	0.05
RSR	2	Jul-05	7/14/05	1.58	-10.07	11.65	0.14	9.38	1.36	0.17
RSR	2	Jul-05	7/15/05	0.72	-10.59	11.31	0.06	8.55	0.68	0.08
RSR	2	Jul-05	7/16/05	0.53	-11.26	11.79	0.04	7.18	0.59	0.07
RSR	2	Jul-05	7/17/05	0.72	-11.62	12.33	0.06	8.70	0.67	0.08
RSR	2	Jul-05	7/18/05	0.46	-12.66	13.12	0.04	7.06	0.53	0.07
RSR	2	Jul-05	7/19/05	0.50	-13.21	13.71	0.04	9.38	0.43	0.05
RSR	2	Jul-05	7/20/05	0.38	-13.42	13.80	0.03	9.75	0.32	0.04
RSR	2	Jul-05	7/21/05	0.42	-14.40	14.82	0.03	8.78	0.39	0.05
RSR	2	Jul-05	7/22/05	0.45	-15.00	15.45	0.03	5.18	0.70	0.09
RSR	2	Jul-05	7/23/05	0.59	-15.72	16.31	0.04	7.85	0.60	0.07

APPENDIX E
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Site	Segment	Season	Date	GPP (g $O_2/m^2/d$)	NPP24 (g $O_2/m^2/d$)	R24 (g $O_2/m^2/d$)	P/R Ratio	PAR (24hr) (mol/m^2/d)	PAR Efficiency (%)	EE (g O_2/mol)
RSR	2	Jul-05	7/24/05	0.69	-16.51	17.20	0.04	9.73	0.57	0.07
RSR	2	Jul-05	7/25/05	0.31	-17.73	18.04	0.02	10.87	0.23	0.03
RSR	2	Jul-05	7/26/05	0.70	-17.02	17.71	0.04	10.82	0.52	0.06
RSR	2	Jul-05	7/27/05	0.69	-17.63	18.32	0.04	8.77	0.64	0.08
RSR	2	Jul-05	7/28/05	0.56	-18.30	18.86	0.03	7.43	0.61	0.08
RSR	2	Dec-05	12/15/05	0.94	-6.71	7.65	0.12	12.94	0.58	0.07
RSR	2	Dec-05	12/16/05	0.77	-8.12	8.89	0.09	12.58	0.49	0.06
RSR	2	Dec-05	12/17/05	0.58	-7.95	8.53	0.07	3.02	1.54	0.19
RSR	2	Dec-05	12/18/05	-0.04	-9.11	9.07	0.00	2.37	-0.13	-0.02
RSR	2	Dec-05	12/19/05	0.35	-7.92	8.27	0.04	5.28	0.54	0.07
RSR	2	Dec-05	12/20/05	0.62	-6.80	7.42	0.08	10.66	0.47	0.06
RSR	2	Dec-05	12/21/05	0.19	-6.73	6.92	0.03	11.00	0.14	0.02
RSR	2	Dec-05	12/22/05	0.57	-4.59	5.17	0.11	13.13	0.35	0.04
RSR	2	Dec-05	12/23/05	0.89	-4.03	4.92	0.18	13.29	0.54	0.07
RSR	2	Dec-05	12/24/05	1.33	-4.21	5.53	0.24	10.04	1.07	0.13
RSR	2	Dec-05	12/25/05	0.40	-7.93	8.33	0.05	7.18	0.45	0.06
RSR	2	Dec-05	12/26/05	0.25	-8.52	8.76	0.03	13.74	0.14	0.02
RSR	2	Dec-05	12/27/05	0.59	-7.29	7.88	0.08	13.25	0.36	0.04
RSR	2	Dec-05	12/28/05	0.22	-7.99	8.21	0.03	11.45	0.15	0.02
RSR	2	Dec-05	12/29/05	0.51	-7.75	8.26	0.06	13.28	0.31	0.04
RSR	2	Dec-05	12/30/05	1.16	-7.47	8.63	0.13	13.58	0.69	0.09
RSR	2	Dec-05	12/31/05	0.88	-8.40	9.28	0.09	11.40	0.62	0.08
RSR	2	Dec-05	1/1/06	0.99	-9.64	10.63	0.09	12.85	0.62	0.08
RSR	2	Dec-05	1/2/06	1.17	-11.56	12.73	0.09	12.61	0.75	0.09
RSR	2	Feb-06	2/16/06	0.95	-7.74	8.69	0.11	23.22	0.33	0.04
RSR	2	Feb-06	2/17/06	1.24	-7.64	8.88	0.14	20.51	0.49	0.06
RSR	2	Feb-06	2/18/06	1.02	-8.59	9.61	0.11	27.30	0.30	0.04
RSR	2	Feb-06	2/19/06	0.83	-9.01	9.84	0.08	9.44	0.71	0.09
RSR	2	Feb-06	2/20/06	1.25	-8.39	9.64	0.13	22.91	0.44	0.05
RSR	2	Feb-06	2/21/06	1.26	-9.81	11.06	0.11	25.43	0.40	0.05
RSR	2	Feb-06	2/22/06	1.18	-10.87	12.05	0.10	24.08	0.39	0.05
RSR	2	Feb-06	2/23/06	0.89	-11.75	12.64	0.07	23.59	0.30	0.04
RSR	2	Feb-06	2/24/06	1.36	-11.25	12.61	0.11	6.02	1.82	0.23
RSR	2	Feb-06	2/25/06	0.90	-12.91	13.81	0.07	16.89	0.43	0.05
RSR	2	Feb-06	2/26/06	0.07	-13.98	14.05	0.00	14.24	0.04	0.00
RSR	2	Feb-06	2/27/06	1.00	-12.03	13.03	0.08	30.24	0.27	0.03
RSR	2	Feb-06	2/28/06	1.34	-12.26	13.60	0.10	29.61	0.37	0.05
RSR	2	Feb-06	3/1/06	0.51	-13.66	14.17	0.04	30.85	0.13	0.02
RSR	2	Feb-06	3/2/06	0.88	-12.61	13.49	0.07	28.39	0.25	0.03
RSR	2	Feb-06	3/3/06	0.49	-12.68	13.17	0.04	25.95	0.15	0.02
RSR	2	Feb-06	3/4/06	0.64	-12.28	12.91	0.05	25.83	0.20	0.02
RSR	2	Feb-06	3/5/06	0.83	-11.09	11.91	0.07	30.84	0.22	0.03
RSR	2	Feb-06	3/6/06	0.89	-10.66	11.54	0.08	30.24	0.24	0.03
RSR	2	Oct-06	10/8/06	1.62	-7.69	9.31	0.17	12.83	1.02	0.13
RSR	2	Oct-06	10/9/06	1.35	-8.00	9.34	0.14	19.40	0.56	0.07
RSR	2	Oct-06	10/10/06	1.24	-7.81	9.04	0.14	20.01	0.50	0.06
RSR	2	Oct-06	10/11/06	1.75	-7.14	8.89	0.20	13.87	1.02	0.13
RSR	2	Oct-06	10/12/06	1.85	-7.65	9.49	0.19	16.74	0.89	0.11
RSR	2	Oct-06	10/13/06	1.93	-7.69	9.61	0.20	18.58	0.84	0.10
RSR	2	Oct-06	10/14/06	1.79	-7.97	9.75	0.18	20.07	0.72	0.09
RSR	2	Oct-06	10/15/06	2.16	-7.28	9.44	0.23	21.63	0.81	0.10
RSR	2	Oct-06	10/16/06	0.91	-8.49	9.40	0.10	14.21	0.52	0.06
RSR	2	Oct-06	10/17/06	1.56	-7.42	8.99	0.17	14.49	0.87	0.11
RSR	2	Oct-06	10/18/06	2.07	-7.79	9.86	0.21	20.31	0.82	0.10
RSR	2	Jan-07	1/4/07	1.12	-6.68	7.80	0.14	7.47	1.21	0.15
RSR	2	Jan-07	1/5/07	1.16	-7.32	8.47	0.14	5.36	1.75	0.22
RSR	2	Jan-07	1/6/07	1.03	-7.20	8.23	0.13	8.83	0.94	0.12
RSR	2	Jan-07	1/7/07	1.09	-6.76	7.84	0.14	10.45	0.84	0.10
RSR	2	Jan-07	1/8/07	0.14	-7.09	7.23	0.02	6.98	0.17	0.02
RSR	2	Jan-07	1/9/07	0.91	-5.03	5.94	0.15	10.72	0.69	0.08
RSR	2	Jan-07	1/10/07	0.77	-4.35	5.12	0.15	11.60	0.54	0.07
RSR	2	Jan-07	1/11/07	1.11	-3.92	5.04	0.22	11.29	0.80	0.10
RSR	2	Jan-07	1/12/07	1.43	-4.30	5.73	0.25	11.44	1.01	0.12
RSR	2	Jan-07	1/13/07	1.59	-5.78	7.38	0.22	10.66	1.21	0.15
RSR	2	Jan-07	1/14/07	1.38	-7.49	8.87	0.16	10.01	1.11	0.14
RSR	2	Jan-07	1/15/07	1.47	-7.18	8.65	0.17	12.63	0.94	0.12
RSR	2	Jan-07	1/16/07	1.25	-7.73	8.97	0.14	12.11	0.83	0.10
RSR	2	Jan-07	1/17/07	1.05	-8.48	9.53	0.11	12.08	0.70	0.09
RSR	2	May-07	5/10/07	1.39	-6.93	8.32	0.17	3.06	3.67	0.45
RSR	2	May-07	5/11/07	1.84	-7.65	9.49	0.19	5.53	2.68	0.33
RSR	2	May-07	5/12/07	2.25	-6.64	8.89	0.25	6.42	2.83	0.35
RSR	2	May-07	5/13/07	1.27	-7.66	8.93	0.14	4.34	2.36	0.29
RSR	2	May-07	5/14/07	0.71	-7.33	8.04	0.09	2.86	2.02	0.25
RSR	2	May-07	5/15/07	1.75	-5.75	7.50	0.23	7.12	1.98	0.25
RSR	2	May-07	5/16/07	1.71	-5.77	7.47	0.23	6.66	2.07	0.26
RSR	2	May-07	5/17/07	1.78	-6.18	7.96	0.22	6.01	2.40	0.30
RSR	2	May-07	5/18/07	1.29	-7.17	8.46	0.15	4.88	2.13	0.26
RSR	2	May-07	5/19/07	1.62	-6.22	7.84	0.21	7.24	1.81	0.22

APPENDIX E
WEKIVA PLRG - DAILY METABOLISM ESTIMATES

Site	Segment	Season	Date	GPP (g $O_2/m^2/d$)	NPP24 (g $O_2/m^2/d$)	R24 (g $O_2/m^2/d$)	P/R Ratio	PAR (24hr) (mol/m^2/d)	PAR Efficiency (%)	EE (g O_2/mol)
RSR	2	May-07	5/20/07	1.57	-5.30	6.88	0.23	7.91	1.60	0.20
RSR	2	May-07	5/21/07	1.81	-4.15	5.96	0.30	7.91	1.84	0.23
RSR	2	May-07	5/22/07	1.73	-4.21	5.94	0.29	7.66	1.82	0.23
RSR	2	May-07	5/23/07	1.74	-4.34	6.08	0.29	6.41	2.19	0.27
RSR	2	Aug-07	8/23/07	3.15	-5.81	8.95	0.35	23.63	1.08	0.13
RSR	2	Aug-07	8/24/07	1.82	-8.55	10.38	0.18	16.57	0.89	0.11
RSR	2	Aug-07	8/25/07	2.37	-7.06	9.43	0.25	25.05	0.76	0.09
RSR	2	Aug-07	8/26/07	1.68	-8.15	9.83	0.17	28.63	0.47	0.06
RSR	2	Aug-07	8/27/07	1.54	-8.15	9.69	0.16	26.89	0.46	0.06
RSR	2	Aug-07	8/28/07	1.57	-8.73	10.30	0.15	32.55	0.39	0.05
RSR	2	Aug-07	8/29/07	1.42	-8.81	10.23	0.14	23.05	0.50	0.06
RSR	2	Aug-07	8/30/07	1.71	-8.60	10.32	0.17	29.44	0.47	0.06
RSR	2	Aug-07	8/31/07	0.30	-10.08	10.38	0.03	20.15	0.12	0.02
RSR	2	Aug-07	9/1/07	1.15	-7.19	8.33	0.14	19.60	0.47	0.06
RSR	2	Aug-07	9/2/07	1.28	-6.70	7.98	0.16	26.76	0.39	0.05
WR	1	May-05	4/30/05	2.28	-3.06	5.34	0.43	8.32	2.21	0.27
WR	1	May-05	5/1/05	1.32	-4.53	5.85	0.23	16.65	0.64	0.08
WR	1	May-05	5/2/05	2.12	-3.20	5.31	0.40	20.64	0.83	0.10
WR	1	May-05	5/3/05	2.29	-2.66	4.96	0.46	3.25	5.69	0.70
WR	1	May-05	5/4/05	1.68	-4.29	5.97	0.28	10.27	1.32	0.16
WR	1	May-05	5/5/05	1.17	-4.34	5.51	0.21	14.14	0.67	0.08
WR	1	May-05	5/6/05	1.37	-4.19	5.56	0.25	22.31	0.50	0.06
WR	1	May-05	5/7/05	1.06	-4.43	5.49	0.19	19.38	0.44	0.05
WR	1	May-05	5/8/05	1.09	-4.95	6.04	0.18	23.63	0.37	0.05
WR	1	May-05	5/9/05	1.21	-5.09	6.30	0.19	17.83	0.55	0.07
WR	1	May-05	5/10/05	1.31	-5.32	6.63	0.20	16.20	0.65	0.08
WR	1	May-05	5/11/05	1.18	-5.42	6.61	0.18	21.67	0.44	0.05
WR	1	May-05	5/12/05	1.38	-4.93	6.31	0.22	22.10	0.50	0.06
WR	1	May-05	5/13/05	1.59	-4.54	6.13	0.26	21.42	0.60	0.07
WR	1	May-05	5/14/05	1.43	-4.86	6.29	0.23	22.36	0.52	0.06
WR	1	May-05	5/15/05	1.61	-5.17	6.78	0.24	18.98	0.68	0.08
WR	1	May-05	5/16/05	1.58	-5.52	7.10	0.22	18.84	0.68	0.08
WR	1	May-05	5/17/05	1.73	-5.61	7.34	0.24	21.65	0.65	0.08
WR	1	May-05	5/18/05	1.78	-5.09	6.87	0.26	22.25	0.65	0.08
WR	1	May-05	5/19/05	1.78	-5.10	6.89	0.26	21.33	0.67	0.08
WR	1	May-05	5/20/05	1.92	-5.04	6.96	0.28	18.50	0.84	0.10
WR	1	May-05	5/21/05	1.61	-5.75	7.35	0.22	19.67	0.66	0.08
WR	1	May-05	5/22/05	1.55	-5.74	7.29	0.21	22.10	0.57	0.07
WR	1	May-05	5/23/05	1.96	-5.13	7.09	0.28	15.38	1.03	0.13
WR	1	May-05	5/24/05	1.86	-5.39	7.24	0.26	20.30	0.74	0.09
WR	1	May-05	5/25/05	2.09	-5.01	7.10	0.29	18.93	0.89	0.11
WR	1	May-05	5/26/05	2.03	-4.54	6.57	0.31	16.61	0.99	0.12
WR	1	Aug-05	8/11/05	1.96	-5.13	7.09	0.28	10.09	1.57	0.19
WR	1	Aug-05	8/12/05	0.99	-6.55	7.54	0.13	19.17	0.42	0.05
WR	1	Aug-05	8/13/05	2.03	-5.05	7.08	0.29	11.51	1.42	0.18
WR	1	Aug-05	8/14/05	1.34	-6.02	7.35	0.18	19.22	0.56	0.07
WR	1	Aug-05	8/15/05	1.77	-5.61	7.38	0.24	17.85	0.80	0.10
WR	1	Aug-05	8/16/05	1.80	-5.61	7.40	0.24	17.96	0.81	0.10
WR	1	Aug-05	8/17/05	1.74	-5.37	7.11	0.24	16.29	0.86	0.11
WR	1	Aug-05	8/18/05	2.09	-5.04	7.12	0.29	16.49	1.02	0.13
WR	1	Aug-05	8/19/05	1.58	-5.54	7.12	0.22	15.93	0.80	0.10
WR	1	Aug-05	8/20/05	1.53	-5.55	7.07	0.22	20.49	0.60	0.07
WR	1	Aug-05	8/21/05	1.96	-5.25	7.21	0.27	17.38	0.91	0.11
WR	1	Aug-05	8/22/05	1.55	-5.44	6.99	0.22	15.65	0.80	0.10
WR	1	Aug-05	8/23/05	1.84	-4.91	6.76	0.27	13.69	1.09	0.13
WR	1	Aug-05	8/24/05	1.68	-4.94	6.63	0.25	10.64	1.28	0.16
WR	1	Aug-05	8/25/05	1.60	-5.39	6.99	0.23	16.15	0.80	0.10
WR	1	Aug-05	8/26/05	1.62	-4.95	6.57	0.25	17.40	0.75	0.09
WR	1	Aug-05	8/27/05	1.65	-5.08	6.73	0.24	12.37	1.08	0.13
WR	1	Aug-05	8/28/05	1.41	-5.41	6.82	0.21	16.94	0.67	0.08
WR	1	Aug-05	8/29/05	1.89	-5.20	7.09	0.27	15.78	0.97	0.12
WR	1	Aug-05	8/30/05	2.05	-5.13	7.18	0.29	13.81	1.20	0.15
WR	1	Dec-05	12/1/05	0.48	-1.90	2.38	0.20	5.79	0.67	0.08
WR	1	Dec-05	12/2/05	0.75	-1.19	1.94	0.39	6.90	0.88	0.11
WR	1	Dec-05	12/3/05	0.59	-1.26	1.85	0.32	7.67	0.62	0.08
WR	1	Dec-05	12/4/05	0.59	-2.70	3.29	0.18	8.19	0.58	0.07
WR	1	Dec-05	12/5/05	0.61	-4.02	4.63	0.13	6.24	0.79	0.10
WR	1	Dec-05	12/6/05	1.28	-2.74	4.02	0.32	5.23	1.98	0.25
WR	1	Dec-05	12/7/05	0.39	-2.94	3.34	0.12	2.96	1.08	0.13
WR	1	Dec-05	12/8/05	0.22	-4.43	4.64	0.05	0.62	2.85	0.35
WR	1	Dec-05	12/9/05	-0.24	-5.96	5.72	-0.04	0.95	-2.00	-0.25
WR	1	Dec-05	12/10/05	0.19	-3.85	4.05	0.05	2.67	0.58	0.07
WR	1	Dec-05	12/11/05	0.05	-3.48	3.54	0.02	0.58	0.75	0.09
WR	1	Dec-05	12/12/05	0.40	-2.04	2.44	0.16	2.77	1.16	0.14
WR	1	Dec-05	12/13/05	0.88	-1.38	2.26	0.39	4.06	1.75	0.22
WR	1	Feb-06	1/26/06	1.43	-0.80	2.23	0.64	4.25	2.71	0.34
WR	1	Feb-06	1/27/06	1.12	-1.20	2.33	0.48	2.77	3.27	0.40
WR	1	Feb-06	1/28/06	1.50	-0.72	2.22	0.68	2.76	4.39	0.54

APPENDIX E
WEKIVA PLRG - DAILY METABOLISM ESTIMATES

Site	Segment	Season	Date	GPP (g $O_2/m^2/d$)	NPP24 (g $O_2/m^2/d$)	R24 (g $O_2/m^2/d$)	P/R Ratio	PAR (24hr) (mol/m^2/d)	PAR Efficiency (%)	EE (g O_2/mol)
WR	1	Feb-06	1/29/06	1.20	-1.02	2.23	0.54	3.30	2.94	0.36
WR	1	Feb-06	1/31/06	2.31	0.76	1.55	1.49	4.09	4.57	0.57
WR	1	Feb-06	2/1/06	1.66	-0.44	2.10	0.79	4.16	3.22	0.40
WR	1	Feb-06	2/2/06	1.41	-1.38	2.79	0.51	2.80	4.07	0.50
WR	1	Feb-06	2/5/06	0.43	-1.79	2.22	0.19	1.42	2.45	0.30
WR	1	Feb-06	2/6/06	0.18	-2.25	2.43	0.08	1.92	0.77	0.10
WR	1	Feb-06	2/7/06	0.07	-2.75	2.82	0.02	1.57	0.36	0.04
WR	1	Feb-06	2/8/06	0.77	-1.72	2.48	0.31	2.71	2.28	0.28
WR	1	Feb-06	2/9/06	0.95	-1.76	2.70	0.35	2.77	2.76	0.34
WR	1	Feb-06	2/10/06	0.84	-1.55	2.39	0.35	2.52	2.68	0.33
WR	1	Feb-06	2/11/06	-0.10	-3.28	3.18	-0.03	1.78	-0.44	-0.05
WR	1	Feb-06	2/12/06	1.96	0.21	1.74	1.12	3.22	4.91	0.61
WR	1	Feb-06	2/13/06	1.47	-0.80	2.27	0.65	3.38	3.52	0.44
WR	1	Feb-06	2/14/06	1.18	-1.32	2.50	0.47	3.53	2.69	0.33
WR	1	Oct-06	10/25/06	0.48	-9.36	9.84	0.05	14.45	0.27	0.03
WR	1	Oct-06	10/26/06	1.21	-8.15	9.36	0.13	10.95	0.89	0.11
WR	1	Oct-06	10/27/06	1.53	-7.91	9.44	0.16	8.97	1.38	0.17
WR	1	Oct-06	10/28/06	1.14	-5.64	6.78	0.17	9.57	0.96	0.12
WR	1	Oct-06	10/29/06	1.09	-4.28	5.37	0.20	11.88	0.74	0.09
WR	1	Oct-06	10/30/06	1.12	-4.54	5.66	0.20	10.63	0.85	0.11
WR	1	Oct-06	10/31/06	0.95	-5.44	6.39	0.15	12.24	0.63	0.08
WR	1	Oct-06	11/1/06	0.97	-5.72	6.69	0.15	4.29	1.83	0.23
WR	1	Oct-06	11/2/06	1.05	-5.42	6.47	0.16	7.12	1.19	0.15
WR	1	Oct-06	11/3/06	1.21	-3.79	5.00	0.24	6.40	1.52	0.19
WR	1	Oct-06	11/4/06	0.98	-4.07	5.05	0.19	10.37	0.77	0.09
WR	1	Oct-06	11/5/06	0.74	-5.16	5.91	0.13	9.66	0.62	0.08
WR	1	Oct-06	11/6/06	1.50	-3.49	5.00	0.30	7.29	1.67	0.21
WR	1	Oct-06	11/7/06	2.20	-2.20	4.40	0.50	2.75	6.45	0.80
WR	1	Oct-06	11/8/06	0.68	-4.24	4.92	0.14	5.46	1.01	0.13
WR	1	Jan-07	1/24/07	1.00	-3.64	4.64	0.22	1.99	4.04	0.50
WR	1	Jan-07	1/25/07	1.33	-3.04	4.36	0.30	3.13	3.43	0.43
WR	1	Jan-07	1/26/07	1.35	-2.46	3.81	0.35	7.40	1.47	0.18
WR	1	Jan-07	1/27/07	1.98	-2.66	4.64	0.43	8.08	1.98	0.24
WR	1	Jan-07	1/28/07	1.99	-4.72	6.72	0.30	6.90	2.33	0.29
WR	1	Jan-07	1/29/07	1.70	-3.05	4.75	0.36	9.00	1.52	0.19
WR	1	Jan-07	1/30/07	1.63	-2.45	4.08	0.40	5.57	2.37	0.29
WR	1	Jan-07	1/31/07	2.08	-1.76	3.84	0.54	9.34	1.79	0.22
WR	1	Jan-07	2/1/07	1.04	-3.19	4.22	0.25	5.13	1.63	0.20
WR	1	Jan-07	2/2/07	0.81	-2.72	3.53	0.23	3.49	1.88	0.23
WR	1	Jan-07	2/3/07	1.10	-3.68	4.78	0.23	2.21	4.02	0.50
WR	1	Jan-07	2/4/07	2.45	-1.70	4.15	0.59	6.84	2.89	0.36
WR	1	Apr-07	4/13/07	3.39	-2.57	5.97	0.57	24.13	1.14	0.14
WR	1	Apr-07	4/14/07	0.66	-4.30	4.96	0.13	1.32	4.01	0.50
WR	1	Apr-07	4/19/07	9.78	7.69	2.10	4.67	18.72	4.22	0.52
WR	1	Apr-07	4/20/07	6.55	5.25	1.30	5.03	20.26	2.61	0.32
WR	1	Apr-07	4/21/07	4.66	1.94	2.72	1.71	15.67	2.40	0.30
WR	1	Apr-07	4/22/07	4.29	-0.10	4.39	0.98	23.55	1.47	0.18
WR	1	Apr-07	4/23/07	5.87	2.76	3.11	1.89	22.65	2.09	0.26
WR	1	Apr-07	4/24/07	2.98	-0.61	3.60	0.83	17.05	1.41	0.18
WR	1	Aug-07	8/1/07	5.75	-2.50	8.26	0.70	14.81	3.14	0.39
WR	1	Aug-07	8/2/07	2.99	-5.45	8.44	0.35	4.75	5.09	0.63
WR	1	Aug-07	8/3/07	5.14	-3.53	8.68	0.59	20.99	1.98	0.25
WR	1	Aug-07	8/4/07	5.51	-4.63	10.14	0.54	20.31	2.19	0.27
WR	1	Aug-07	8/5/07	5.92	-3.98	9.90	0.60	17.72	2.70	0.33
WR	1	Aug-07	8/6/07	7.34	-2.39	9.73	0.75	18.36	3.23	0.40
WR	1	Aug-07	8/7/07	7.36	-2.80	10.16	0.72	14.86	4.00	0.50
WR	1	Aug-07	8/8/07	7.76	-0.67	8.43	0.92	14.74	4.25	0.53
WR	1	Aug-07	8/9/07	6.98	-0.98	7.96	0.88	16.34	3.45	0.43
WR	1	Aug-07	8/10/07	6.35	-4.13	10.48	0.61	16.11	3.18	0.39
WR	1	Aug-07	8/11/07	8.60	-1.24	9.84	0.87	16.78	4.14	0.51
WR	1	Aug-07	8/12/07	6.67	-2.64	9.31	0.72	16.14	3.34	0.41
WR	1	Aug-07	8/13/07	6.90	-3.23	10.12	0.68	13.31	4.18	0.52
WR	1	Aug-07	8/14/07	7.71	-2.59	10.31	0.75	15.88	3.92	0.49
WR	2	May-05	4/30/05	1.85	-14.07	15.92	0.12	14.32	1.05	0.13
WR	2	May-05	5/1/05	2.30	-14.25	16.54	0.14	29.12	0.64	0.08
WR	2	May-05	5/2/05	4.03	-11.68	15.71	0.26	35.75	0.91	0.11
WR	2	May-05	5/3/05	4.38	-12.62	17.00	0.26	5.64	6.27	0.78
WR	2	May-05	5/4/05	3.39	-12.99	16.38	0.21	17.73	1.55	0.19
WR	2	May-05	5/5/05	5.42	-10.69	16.11	0.34	22.75	1.92	0.24
WR	2	May-05	5/6/05	7.74	-7.07	14.81	0.52	35.20	1.78	0.22
WR	2	May-05	5/7/05	8.60	-6.90	15.50	0.55	30.47	2.28	0.28
WR	2	May-05	5/8/05	6.87	-9.10	15.96	0.43	37.87	1.46	0.18
WR	2	May-05	5/9/05	7.38	-7.97	15.35	0.48	29.13	2.05	0.25
WR	2	May-05	5/10/05	6.96	-8.13	15.09	0.46	26.60	2.11	0.26
WR	2	May-05	5/11/05	5.78	-9.37	15.15	0.38	35.77	1.31	0.16
WR	2	May-05	5/12/05	7.19	-7.55	14.74	0.49	37.01	1.57	0.19
WR	2	May-05	5/13/05	8.12	-6.49	14.61	0.56	35.82	1.83	0.23
WR	2	May-05	5/14/05	0.59	-15.14	15.74	0.04	38.06	0.13	0.02

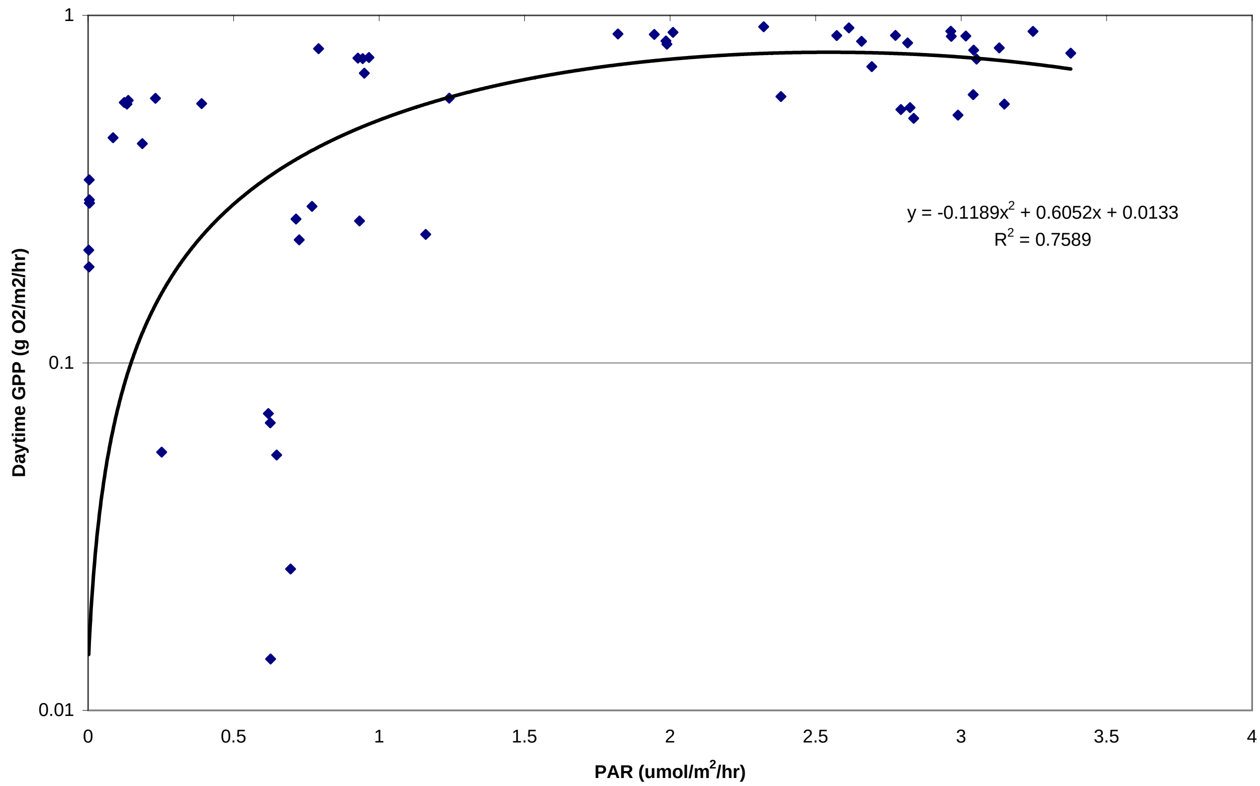
APPENDIX E
WEKIVA PLRG - DAILY METABOLISM ESTIMATES

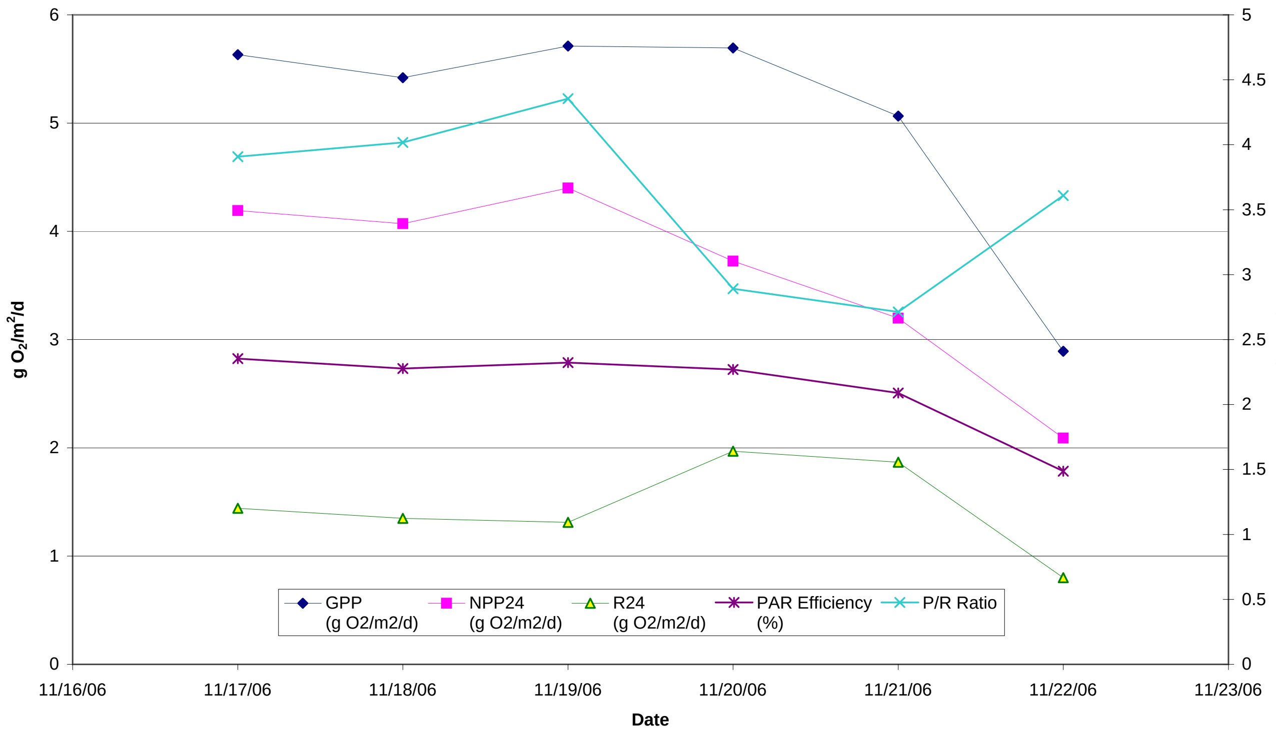
Site	Segment	Season	Date	GPP (g O_2/m^2/d)	NPP24 (g O_2/m^2/d)	R24 (g O_2/m^2/d)	P/R Ratio	PAR (24hr) (mol/m^2/d)	PAR Efficiency (%)	EE (g O_2/mol)
WR	2	Aug-05	8/10/05	4.63	-1.64	6.27	0.74	35.40	1.05	0.13
WR	2	Aug-05	8/11/05	4.24	-2.24	6.47	0.65	15.77	2.17	0.27
WR	2	Aug-05	8/12/05	2.42	-3.32	5.74	0.42	29.77	0.65	0.08
WR	2	Aug-05	8/13/05	2.56	-3.97	6.53	0.39	17.95	1.15	0.14
WR	2	Aug-05	8/14/05	1.56	-6.19	7.75	0.20	30.40	0.41	0.05
WR	2	Aug-05	8/15/05	2.27	-5.40	7.67	0.30	28.41	0.65	0.08
WR	2	Aug-05	8/16/05	2.56	-4.85	7.41	0.35	29.00	0.71	0.09
WR	2	Aug-05	8/17/05	2.73	-3.50	6.23	0.44	26.17	0.84	0.10
WR	2	Aug-05	8/18/05	2.39	-4.10	6.49	0.37	27.28	0.71	0.09
WR	2	Aug-05	8/19/05	2.83	-3.65	6.48	0.44	26.18	0.87	0.11
WR	2	Aug-05	8/20/05	3.33	-2.78	6.11	0.54	33.72	0.80	0.10
WR	2	Aug-05	8/21/05	4.08	-2.93	7.01	0.58	28.59	1.15	0.14
WR	2	Aug-05	8/22/05	4.02	-3.08	7.10	0.57	25.99	1.25	0.15
WR	2	Aug-05	8/23/05	5.96	0.65	5.31	1.12	22.97	2.10	0.26
WR	2	Aug-05	8/24/05	5.07	-1.30	6.38	0.80	18.01	2.27	0.28
WR	2	Aug-05	8/25/05	4.64	-1.02	5.65	0.82	27.49	1.36	0.17
WR	2	Aug-05	8/26/05	5.90	0.32	5.57	1.06	29.28	1.63	0.20
WR	2	Aug-05	8/27/05	3.06	-4.49	7.55	0.41	20.96	1.18	0.15
WR	2	Aug-05	8/28/05	3.73	-3.67	7.41	0.50	29.17	1.03	0.13
WR	2	Aug-05	8/29/05	-0.04	-5.23	5.19	-0.01	26.66	-0.01	0.00
WR	2	Aug-05	8/30/05	6.16	-0.49	6.65	0.93	23.50	2.11	0.26
WR	2	Aug-05	8/31/05	6.11	-0.43	6.54	0.93	27.68	1.78	0.22
WR	2	Dec-05	11/30/05	3.72	-2.96	6.68	0.56	15.34	1.96	0.24
WR	2	Dec-05	12/1/05	3.78	-2.48	6.26	0.60	16.25	1.88	0.23
WR	2	Dec-05	12/2/05	2.69	-4.03	6.72	0.40	16.69	1.30	0.16
WR	2	Dec-05	12/3/05	2.94	-3.55	6.49	0.45	16.46	1.44	0.18
WR	2	Dec-05	12/4/05	3.22	-3.01	6.23	0.52	16.54	1.57	0.19
WR	2	Dec-05	12/5/05	4.06	-1.82	5.88	0.69	12.67	2.59	0.32
WR	2	Dec-05	12/6/05	4.16	-1.98	6.14	0.68	10.79	3.11	0.39
WR	2	Dec-05	12/7/05	4.13	-2.31	6.44	0.64	7.28	4.58	0.57
WR	2	Jan-06	1/25/06	5.27	-2.88	8.16	0.65	20.35	2.09	0.26
WR	2	Jan-06	1/26/06	3.95	-4.28	8.23	0.48	20.90	1.52	0.19
WR	2	Jan-06	1/27/06	5.37	-0.13	5.50	0.98	13.41	3.23	0.40
WR	2	Jan-06	1/28/06	5.76	0.21	5.55	1.04	13.46	3.46	0.43
WR	2	Jan-06	1/29/06	5.75	-0.54	6.29	0.91	16.86	2.75	0.34
WR	2	Jan-06	1/30/06	4.35	-1.83	6.18	0.70	6.36	5.53	0.68
WR	2	Jan-06	1/31/06	5.90	0.18	5.72	1.03	22.48	2.12	0.26
WR	2	Jan-06	2/1/06	5.45	-0.83	6.27	0.87	23.07	1.91	0.24
WR	2	Jan-06	2/2/06	5.95	0.11	5.84	1.02	15.88	3.03	0.38
WR	2	Nov-06	10/26/06	5.55	-1.83	7.38	0.75	20.07	2.23	0.28
WR	2	Nov-06	10/27/06	5.27	-3.44	8.71	0.61	16.56	2.57	0.32
WR	2	Nov-06	10/28/06	5.69	-2.74	8.42	0.67	17.79	2.58	0.32
WR	2	Nov-06	10/29/06	5.60	-2.56	8.15	0.69	22.23	2.03	0.25
WR	2	Nov-06	10/30/06	5.91	-1.91	7.81	0.76	20.02	2.38	0.30
WR	2	Nov-06	10/31/06	6.52	-1.42	7.95	0.82	23.21	2.27	0.28
WR	2	Nov-06	11/1/06	5.18	-4.21	9.39	0.55	8.20	5.10	0.63
WR	2	Nov-06	11/2/06	5.94	-2.91	8.85	0.67	13.69	3.50	0.43
WR	2	Nov-06	11/3/06	5.47	-3.68	9.15	0.60	12.39	3.56	0.44
WR	2	Nov-06	11/4/06	5.87	-0.86	6.73	0.87	20.21	2.34	0.29
WR	2	Nov-06	11/5/06	5.53	-1.00	6.53	0.85	18.96	2.35	0.29
WR	2	Nov-06	11/6/06	5.89	-1.90	7.79	0.76	14.41	3.30	0.41
WR	2	Nov-06	11/7/06	3.32	-5.41	8.72	0.38	6.12	4.37	0.54
WR	2	Jan-07	1/25/07	5.03	-2.20	7.23	0.70	6.86	5.92	0.73
WR	2	Jan-07	1/26/07	6.33	-3.00	9.33	0.68	16.06	3.18	0.39
WR	2	Jan-07	1/27/07	7.59	-2.04	9.63	0.79	17.32	3.54	0.44
WR	2	Jan-07	1/28/07	7.17	-3.05	10.22	0.70	14.63	3.96	0.49
WR	2	Jan-07	1/29/07	7.87	-0.71	8.57	0.92	18.86	3.37	0.42
WR	2	Jan-07	1/30/07	9.18	2.17	7.02	1.31	11.54	6.42	0.80
WR	2	Jan-07	1/31/07	10.05	3.28	6.76	1.49	19.13	4.24	0.53
WR	2	Jan-07	2/1/07	8.86	0.10	8.77	1.01	10.39	6.89	0.85
WR	2	Jan-07	2/2/07	6.90	-4.03	10.92	0.63	6.98	7.97	0.99
WR	2	Jan-07	2/3/07	4.97	-5.54	10.50	0.47	4.38	9.16	1.13
WR	2	Jan-07	2/4/07	9.04	1.66	7.38	1.23	13.37	5.46	0.68
WR	2	Jan-07	2/5/07	5.80	-0.41	6.21	0.93	4.85	9.65	1.20
WR	2	Apr-07	4/11/07	8.58	0.79	7.80	1.10	40.21	1.72	0.21
WR	2	Apr-07	4/12/07	7.46	-4.36	11.82	0.63	31.51	1.91	0.24
WR	2	Apr-07	4/13/07	8.28	-4.13	12.41	0.67	44.21	1.51	0.19
WR	2	Apr-07	4/14/07	7.22	-4.87	12.09	0.60	38.36	1.52	0.19
WR	2	Apr-07	4/15/07	5.52	-6.41	11.93	0.46	26.36	1.69	0.21
WR	2	Apr-07	4/16/07	8.00	0.61	7.39	1.08	45.47	1.42	0.18
WR	2	Apr-07	4/17/07	8.17	0.58	7.59	1.08	46.12	1.43	0.18
WR	2	Apr-07	4/18/07	7.78	-1.29	9.06	0.86	30.39	2.07	0.26
WR	2	Apr-07	4/19/07	7.62	-1.94	9.57	0.80	35.91	1.71	0.21
WR	2	Apr-07	4/20/07	8.21	-1.93	10.14	0.81	39.16	1.69	0.21
WR	2	Apr-07	4/21/07	8.03	-2.16	10.19	0.79	30.52	2.12	0.26
WR	2	Apr-07	4/22/07	7.39	-2.18	9.57	0.77	46.21	1.29	0.16
WR	2	Apr-07	4/23/07	7.62	-1.69	9.31	0.82	44.79	1.37	0.17
WR	2	Aug-07	8/2/07	2.82	-6.54	9.37	0.30	8.47	2.69	0.33

APPENDIX E
WEKIVA PLRG - DAILY METABOLISM ESTIMATES

Site	Segment	Season	Date	GPP (g $O_2/m^2/d$)	NPP24 (g $O_2/m^2/d$)	R24 (g $O_2/m^2/d$)	P/R Ratio	PAR (24hr) (mol/m^2/d)	PAR Efficiency (%)	EE (g O_2/mol)
WR	2	Aug-07	8/3/07	2.66	-5.38	8.04	0.33	44.68	0.48	0.06
WR	2	Aug-07	8/8/07	5.13	-6.63	11.76	0.44	31.38	1.32	0.16
WR	2	Aug-07	8/9/07	6.23	-5.27	11.50	0.54	35.90	1.40	0.17
WR	2	Aug-07	8/10/07	5.76	-5.62	11.38	0.51	36.46	1.28	0.16
WR	2	Aug-07	8/11/07	7.12	-3.83	10.95	0.65	39.13	1.47	0.18
WR	2	Aug-07	8/12/07	7.25	-3.81	11.06	0.66	38.80	1.51	0.19
WR	2	Aug-07	8/13/07	5.69	-5.33	11.01	0.52	32.95	1.39	0.17
WR	2	Aug-07	8/14/07	6.66	-4.88	11.54	0.58	40.53	1.33	0.16
WR	2	Aug-07	8/15/07	6.20	-5.55	11.75	0.53	36.15	1.39	0.17
WR	2	Aug-07	8/16/07	0.95	-10.86	11.81	0.08	2.21	3.47	0.43

ASC	1	Average		5.71	-0.39	6.10	1.16	23.12	2.53	0.31
		Median		5.38	-0.11	5.56	0.99	22.82	2.09	0.26
		Max	8/15/07	12.17	4.50	12.24	4.36	49.77	18.13	2.25
		Min	4/30/05	0.11	-8.02	0.80	0.02	0.80	0.78	0.10
		Std Dev		1.99	2.57	2.80	0.73	11.12	1.96	0.24
		Count		130	130	130	130	130	130	130
JC	1	Average		5.68	-0.52	6.21	0.96	15.14	3.62	0.45
		Median		4.90	-1.20	5.99	0.76	14.93	2.87	0.36
		Max	9/4/07	17.78	19.81	15.39	38.93	36.87	33.83	4.19
		Min	4/1/05	-0.44	-12.63	-2.49	-35.32	1.31	-0.51	-0.06
		Std Dev		3.86	5.42	2.81	6.80	7.20	3.56	0.44
		Count		114	114	114	114	114	114	114
RSR	1	Average		1.42	-5.85	7.27	0.23	18.20	0.71	0.09
		Median		1.30	-5.79	7.15	0.21	16.54	0.64	0.08
		Max	9/5/07	4.26	-0.80	14.39	0.66	42.15	2.83	0.35
		Min	4/2/05	-0.65	-13.81	2.37	-0.14	1.34	-0.27	-0.03
		Std Dev		0.93	3.03	2.95	0.17	9.05	0.46	0.06
		Count		116	116	116	116	116	116	116
RSR	2	Average		1.00	-8.59	9.59	0.11	13.56	0.76	0.09
		Median		0.90	-7.73	8.89	0.10	11.29	0.54	0.07
		Max	9/2/07	3.15	-3.92	18.86	0.35	32.55	3.67	0.45
		Min	4/2/05	-0.04	-18.30	4.92	0.00	2.37	-0.13	-0.02
		Std Dev		0.57	3.09	2.95	0.07	7.48	0.65	0.08
		Count		123	123	123	123	123	123	123
WR	1	Average		2.12	-3.50	5.62	0.44	11.74	1.75	0.22
		Median		1.55	-4.05	5.94	0.26	12.06	1.18	0.15
		Max	8/14/07	9.78	7.69	10.48	5.03	24.13	6.45	0.80
		Min	4/30/05	-0.24	-9.36	1.30	-0.04	0.58	-2.00	-0.25
		Std Dev		2.01	2.35	2.33	0.64	7.09	1.41	0.17
		Count		126	126	126	126	126	126	126
WR	2	Average		5.38	-3.78	9.16	0.63	24.08	2.37	0.29
		Median		5.60	-3.05	8.04	0.63	23.07	1.88	0.23
		Max	8/16/07	10.05	3.28	17.00	1.49	46.21	9.65	1.20
		Min	4/30/05	-0.04	-15.14	5.19	-0.01	2.21	-0.01	0.00
		Std Dev		2.09	3.59	3.27	0.28	11.15	1.79	0.22
		Count		103	103	103	103	103	103	103





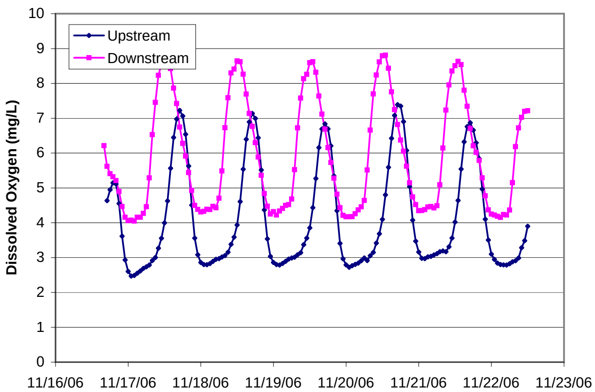
Stats	GPP	NPP24	R24	PAR	PAR Eff.
	(g O_2/m^2/d)			(mol/m^2/d)	(%)
Avg	5.07	3.61	1.46	15.82	2.56
Max	5.71	4.40	1.97	16.88	2.82
Min	2.89	2.09	0.80	13.09	1.78

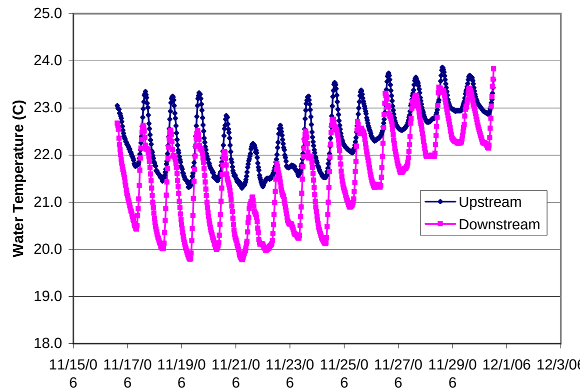
APPENDIX E

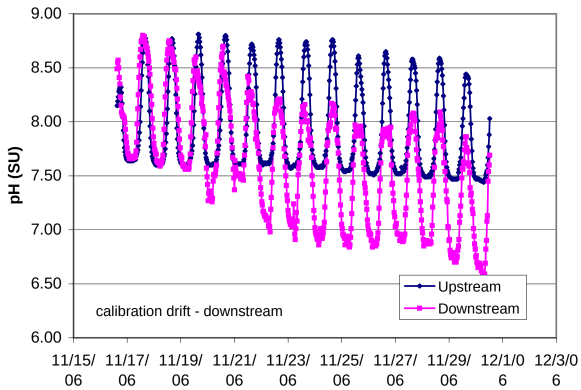
ALEXANDER SPRINGS CREEK - SEGMENT 1 METABOLISM ESTIMATES

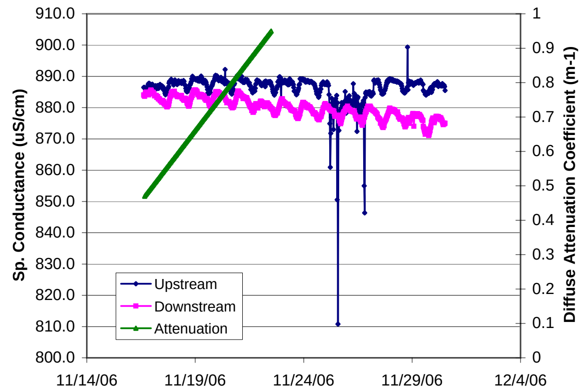
APPENDIX E

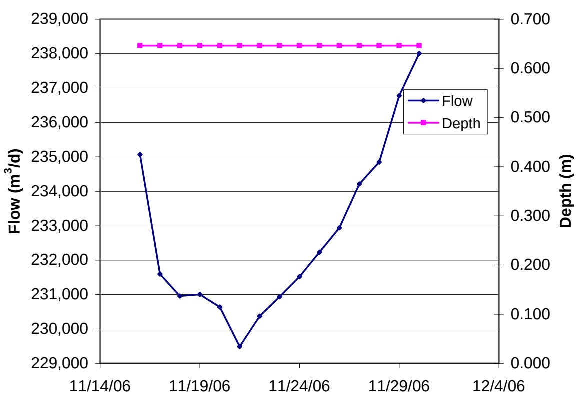
ALEXANDER SPRINGS CREEK - SEGMENT 1 METABOLISM SUMMARY

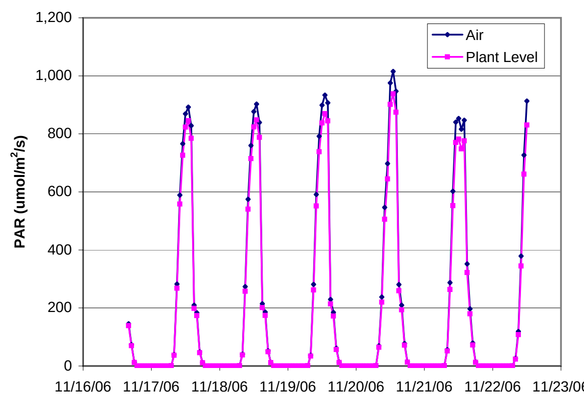


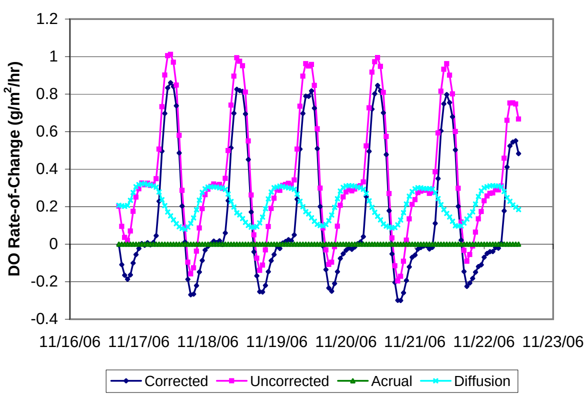




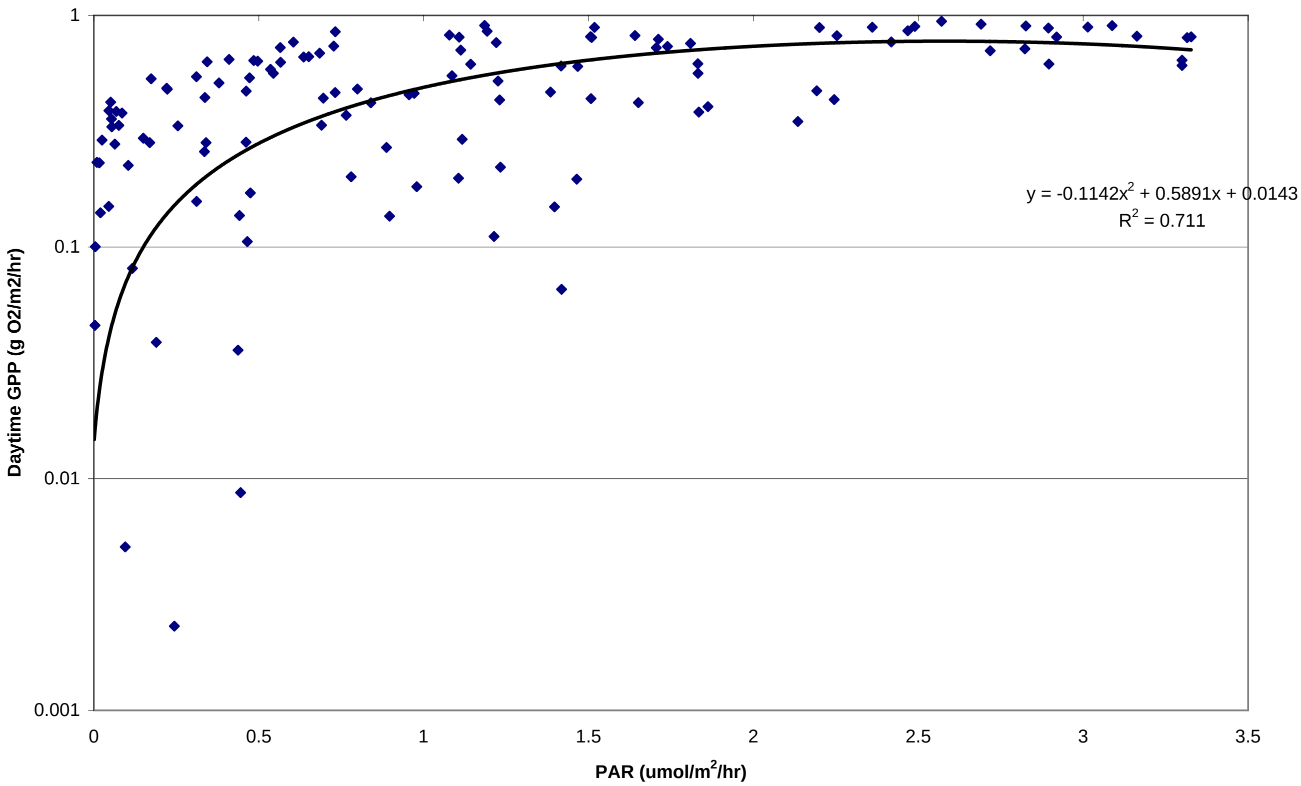


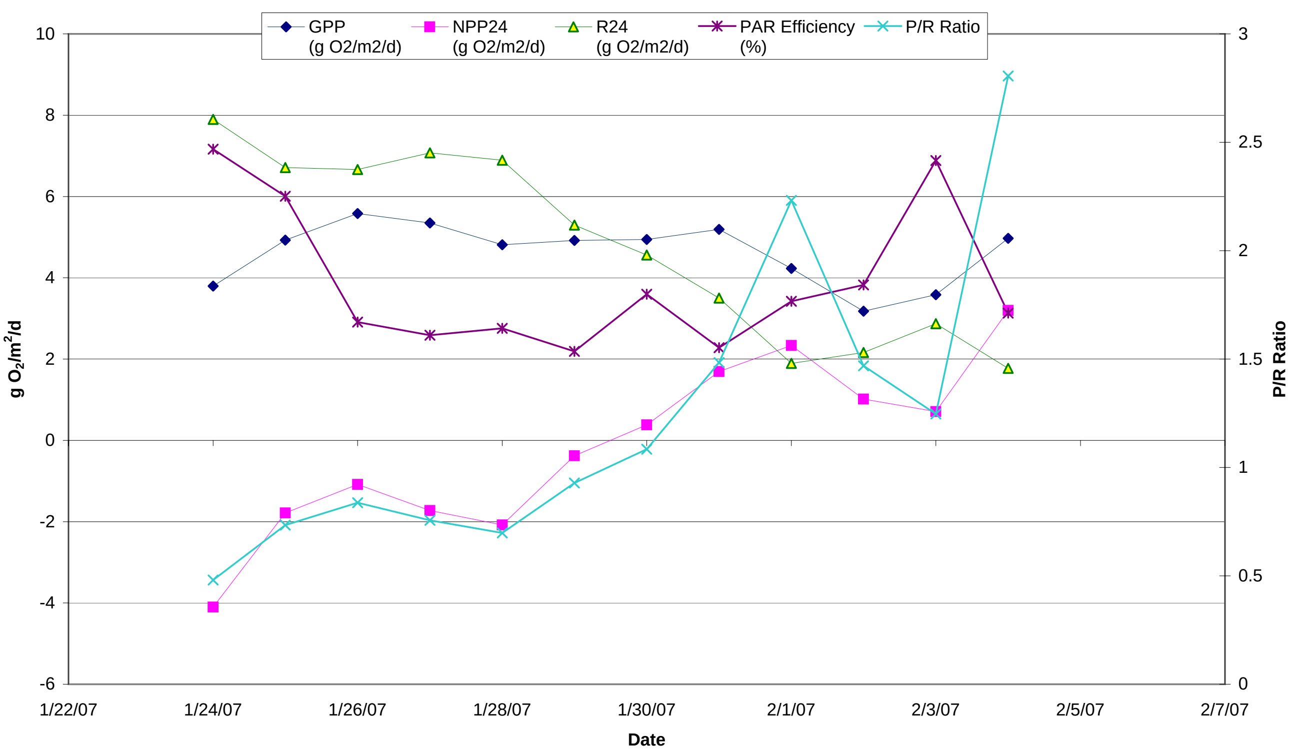






Parameter	Units	Avg	Min	Max	N
DO - up	mg/L	4.11	2.47	7.39	140
down		5.95	4.05	8.81	141
Wtr Temp - up	C	22.4	21.3	23.9	668
down		21.6	19.8	23.8	668
pH - up	SU	7.92	7.44	8.81	668
down		7.62	6.54	8.80	668
SpCond - up	uS/cm	886	811	899	668
down		880	871	886	668
Flow - up	m^3/d	232,705	229,489	238,003	15
Depth	m	0.65	0.65	0.65	15
PAR - air	$umol/m^2/s$	190	0.0	1,015	141
plant		177	0.0	938	141
DO rate chng	$g/m^2/hr$				
corr		0.153	-0.300	0.860	140
uncorr		0.369	-0.196	1.012	140





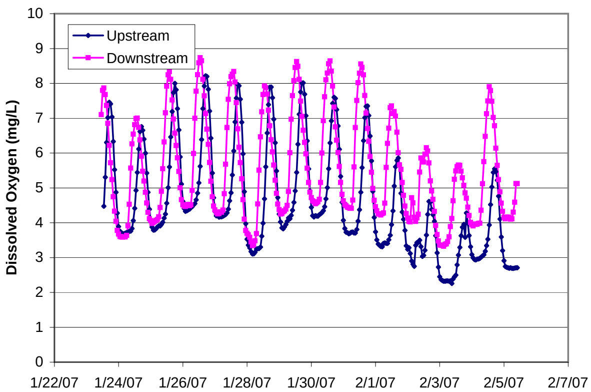
APPENDIX E

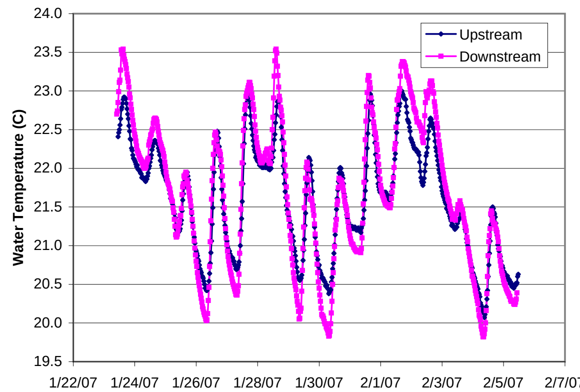
ALEXANDER SPRINGS CREEK - SEGMENT 1 METABOLISM ESTIMATES

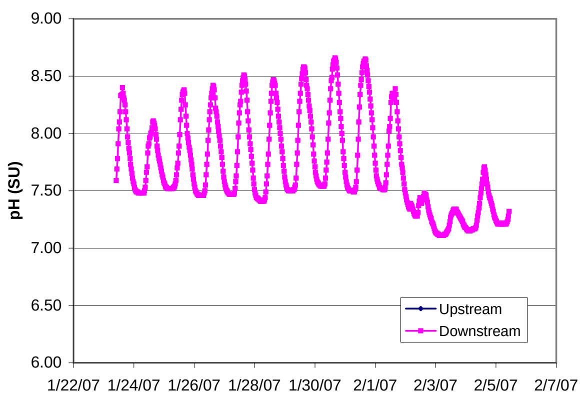
Stats	GPP	NPP24	R24	PAR	PAR Eff.
		($g\ O_2/m^2/d$)		($mol/m^2/d$)	(%)
Avg	4.62	-0.15	4.77	11.54	3.90
Max	5.58	3.20	7.90	18.39	7.16
Min	3.18	-4.10	1.77	4.20	2.19

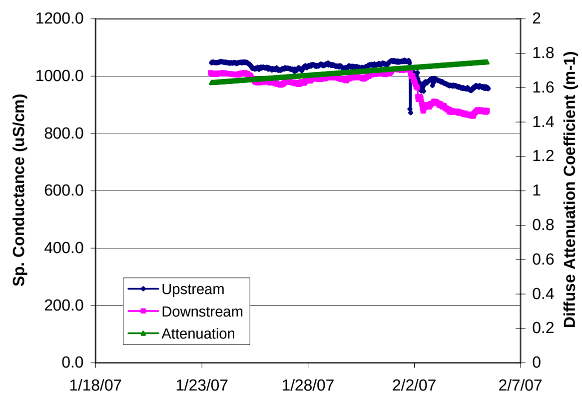
APPENDIX E

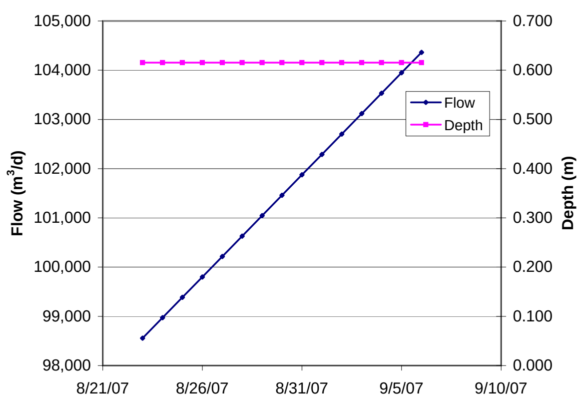
ALEXANDER SPRINGS CREEK - SEGMENT 1 METABOLISM SUMMARY

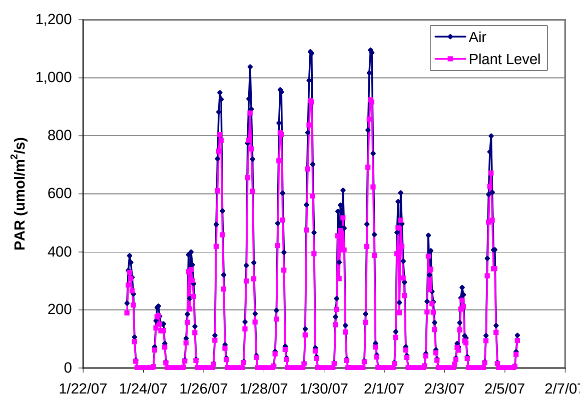


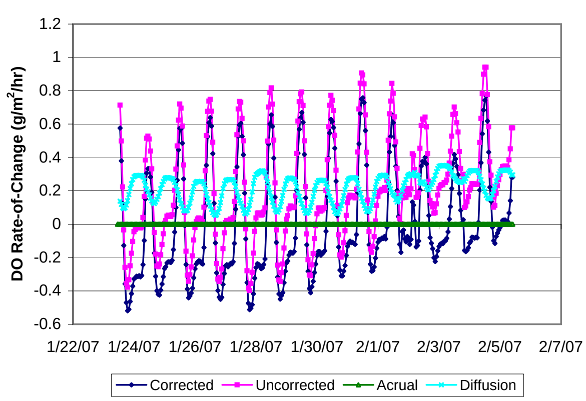




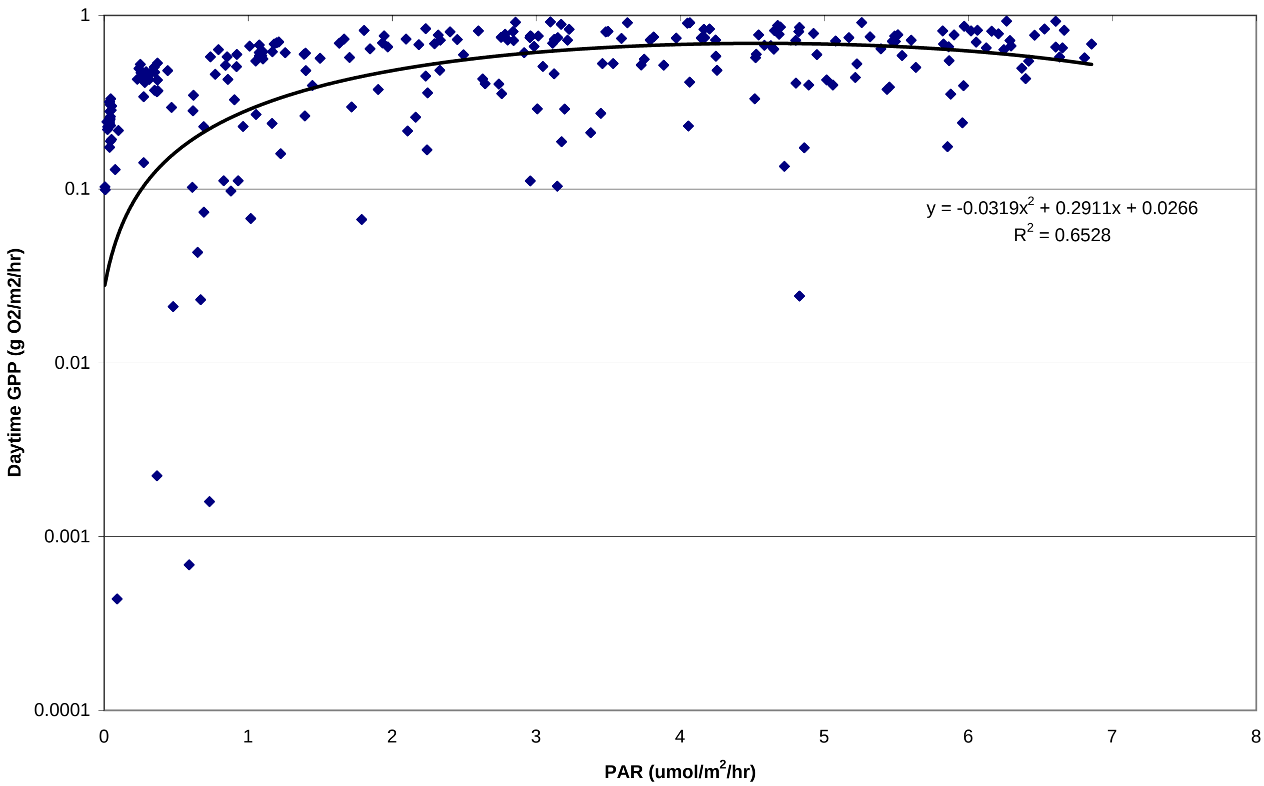


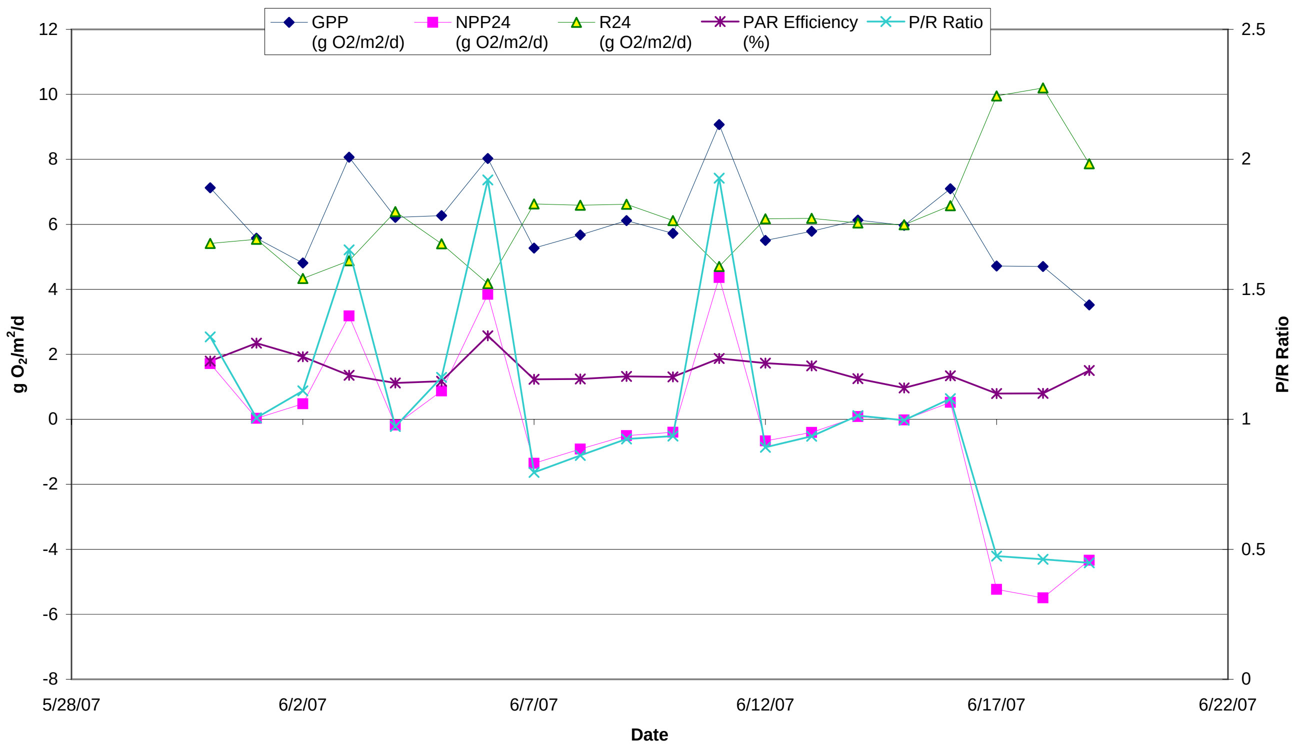






Parameter	Units	Avg	Min	Max	N
DO - up	mg/L	4.60	2.26	8.22	310
down		5.54	3.33	8.74	312
Wtr Temp - up	C	21.6	20.1	23.0	626
down		21.7	19.8	23.5	626
pH - up	SU	---	---	---	---
down		7.72	7.11	8.66	626
SpCond - up	uS/cm	1019	872	1056	626
down		968	860	1025	626
Flow - up	m^3/d	257,171	240,472	273,869	14
Depth	m	0.73	0.73	0.73	14
PAR - air	$umol/m^2/s$	153	0.0	1,096	312
plant		129	0.0	924	312
DO rate chng	$g/m^2/hr$				
corr		-0.003	-0.519	0.768	310
uncorr		0.213	-0.399	0.941	310





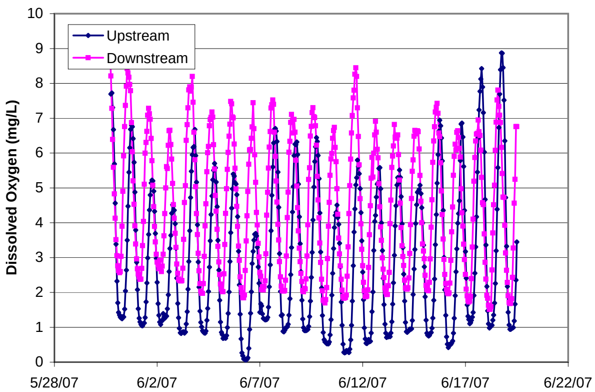
Stats	GPP	NPP24	R24	PAR	PAR Eff.
	($g O_2/m^2/d$)			($mol/m^2/d$)	(%)
Avg	6.07	-0.22	6.29	35.83	1.46
Max	9.07	4.36	10.20	49.77	2.57
Min	3.52	-5.49	4.18	18.91	0.79

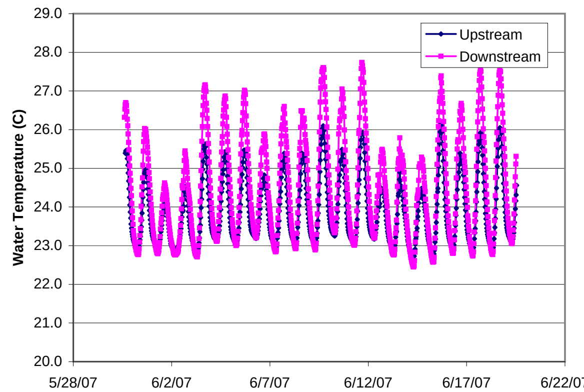
APPENDIX E

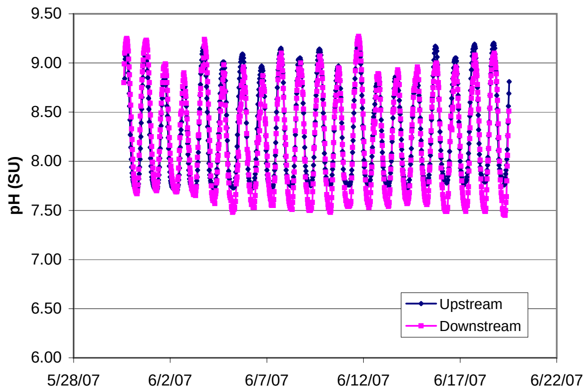
ALEXANDER SPRINGS CREEK - SEGMENT 1 METABOLISM ESTIMATES

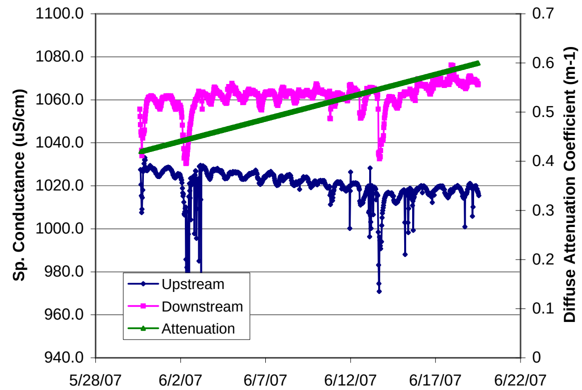
APPENDIX E

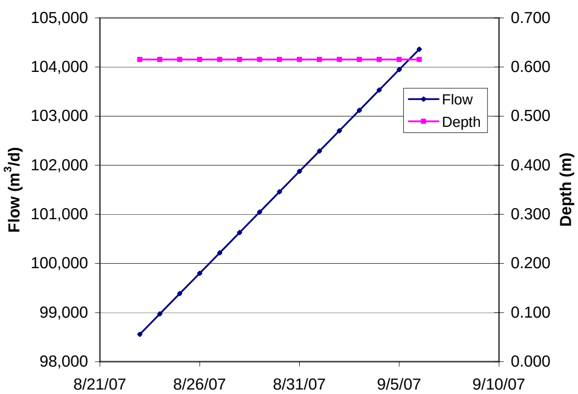
ALEXANDER SPRINGS CREEK - SEGMENT 1 METABOLISM SUMMARY

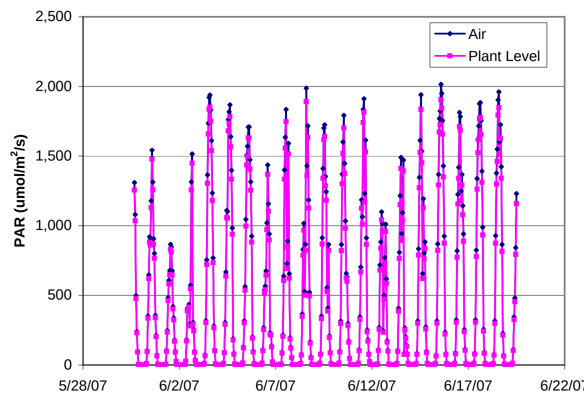


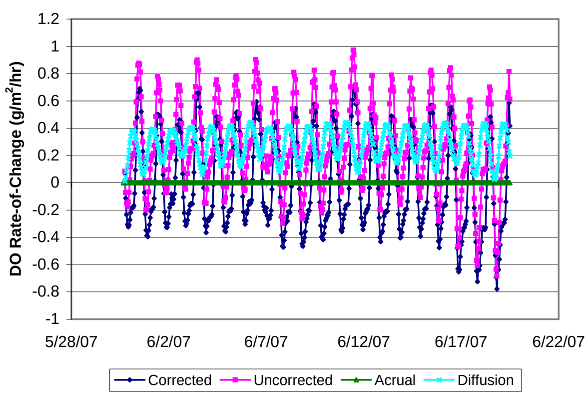




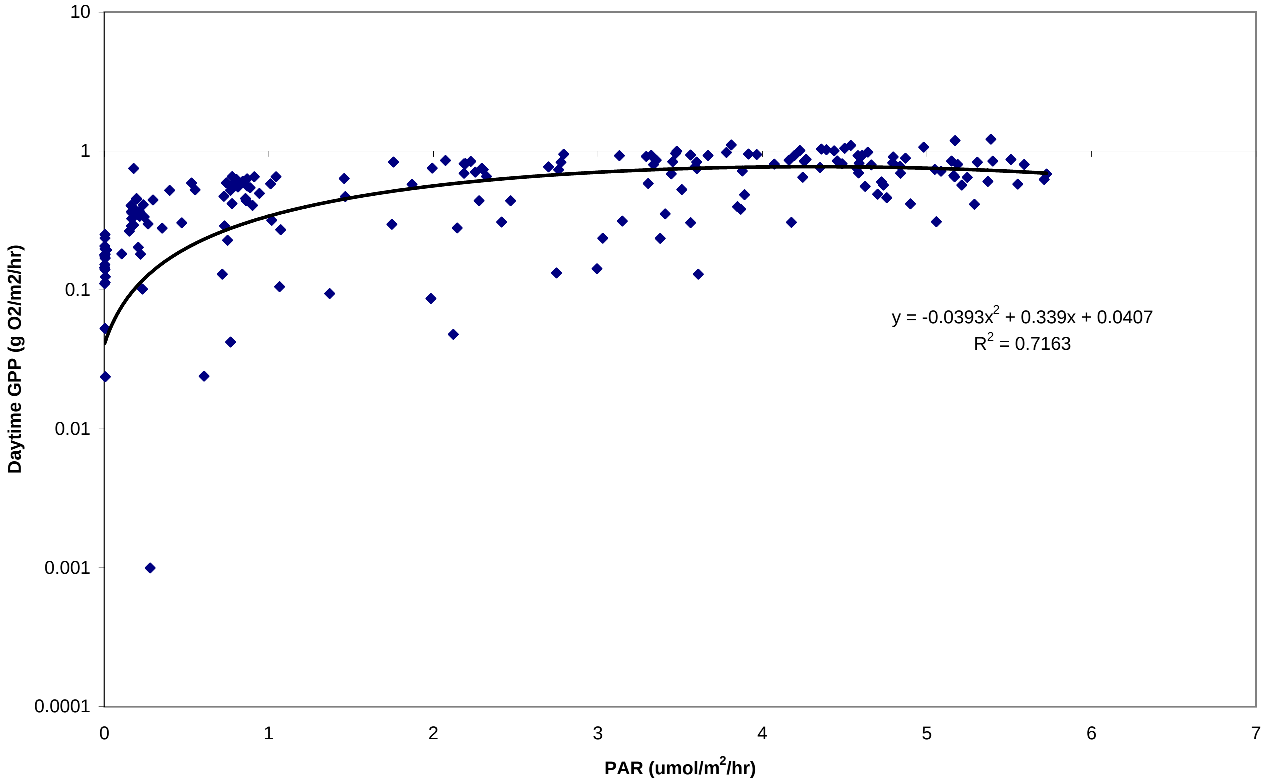


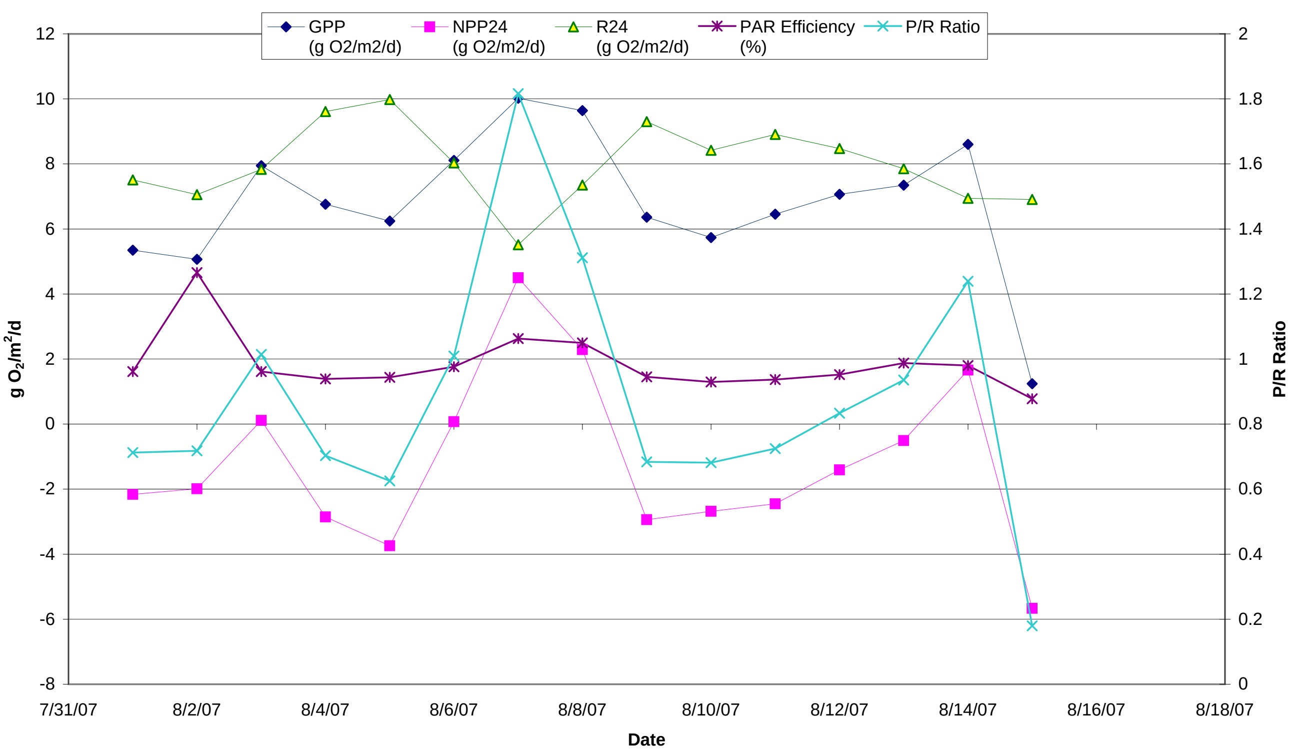






Parameter	Units	Avg	Min	Max	N
DO - up	mg/L	2.904	0.064	8.873	475
down		4.471	1.513	8.446	477
Wtr Temp - up	C	23.9	22.7	26.2	956
down		24.5	22.5	27.7	957
pH - up	SU	8.29	7.69	9.20	956
down		8.24	7.45	9.27	957
SpCond - up	uS/cm	1020	953	1033	956
down		1061	1030	1076	957
Flow - up	m^3/d	199,139	187,003	211,274	21
Depth	m	0.61	0.60	0.61	21
PAR - air	$umol/m^2/s$	441	0.0	2,015	477
plant		419	0.0	1904	477
DO rate chng	$g/m^2/hr$				
corr		-0.006	-0.778	0.710	475
uncorr		0.271	-0.682	0.973	475



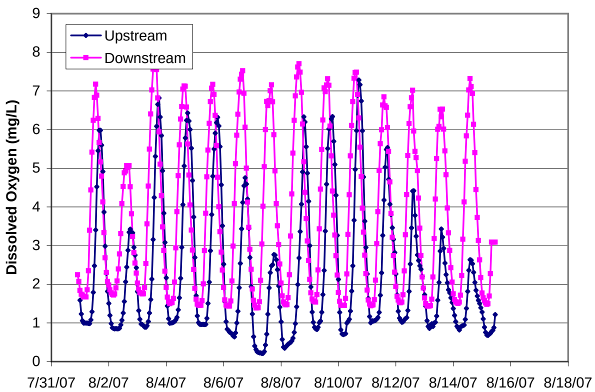


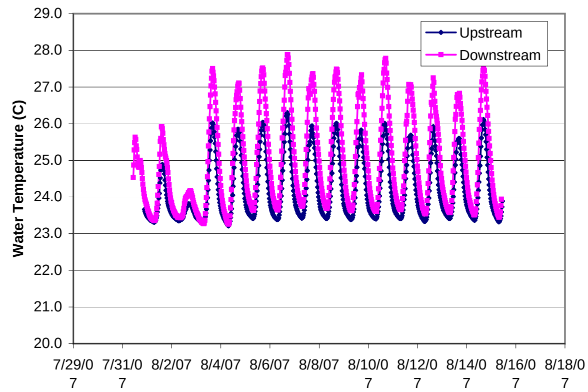
Stats	GPP	NPP24	R24	PAR	PAR Eff.
		(g O_2/m^2/d)		(mol/m^2/d)	(%)
Avg	6.80	-1.18	7.98	31.87	1.85
Max	10.02	4.50	9.98	39.65	4.66
Min	1.24	-5.67	5.52	8.78	0.78

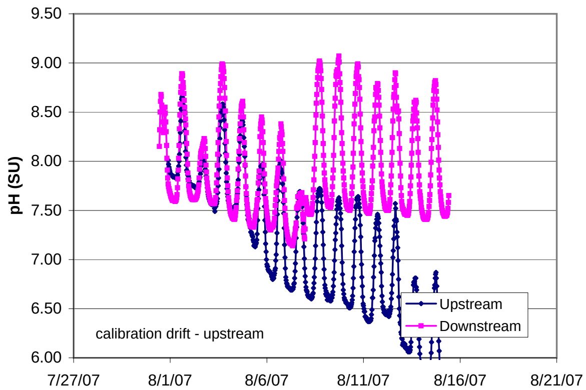
APPENDIX E

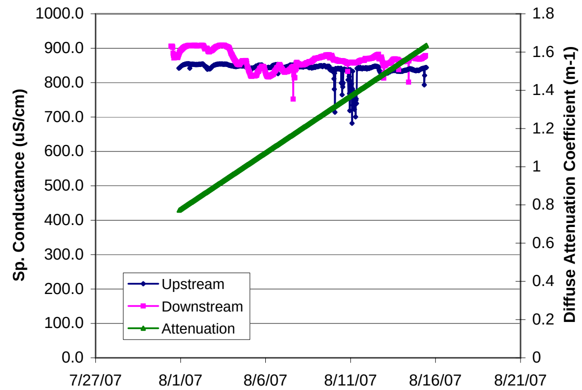
ALEXANDER SPRINGS CREEK - SEGMENT 1 METABOLISM ESTIMATES

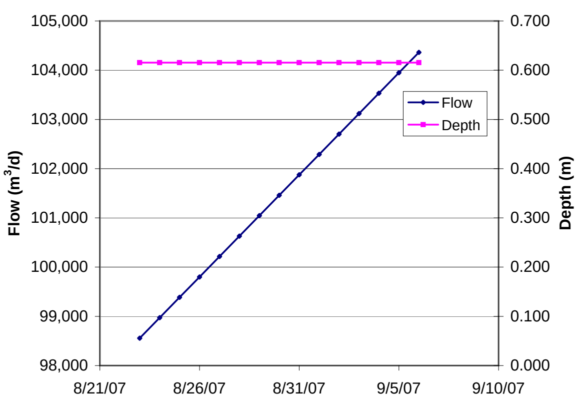
APPENDIX E
ALEXANDER SPRINGS CREEK - SEGMENT 1 METABOLISM SUMMARY

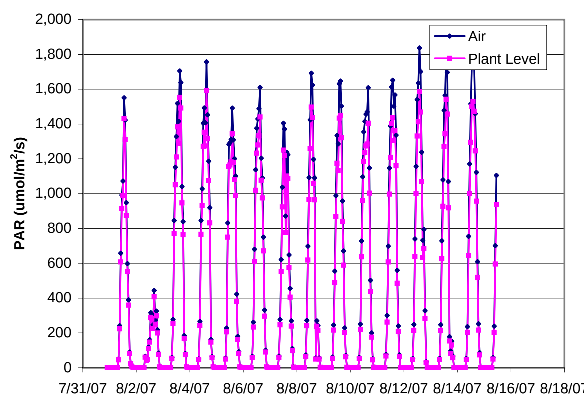


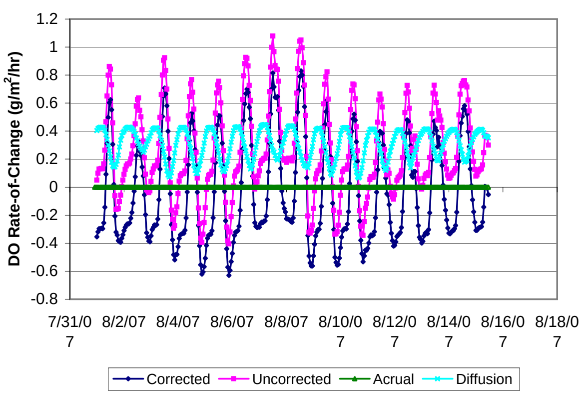




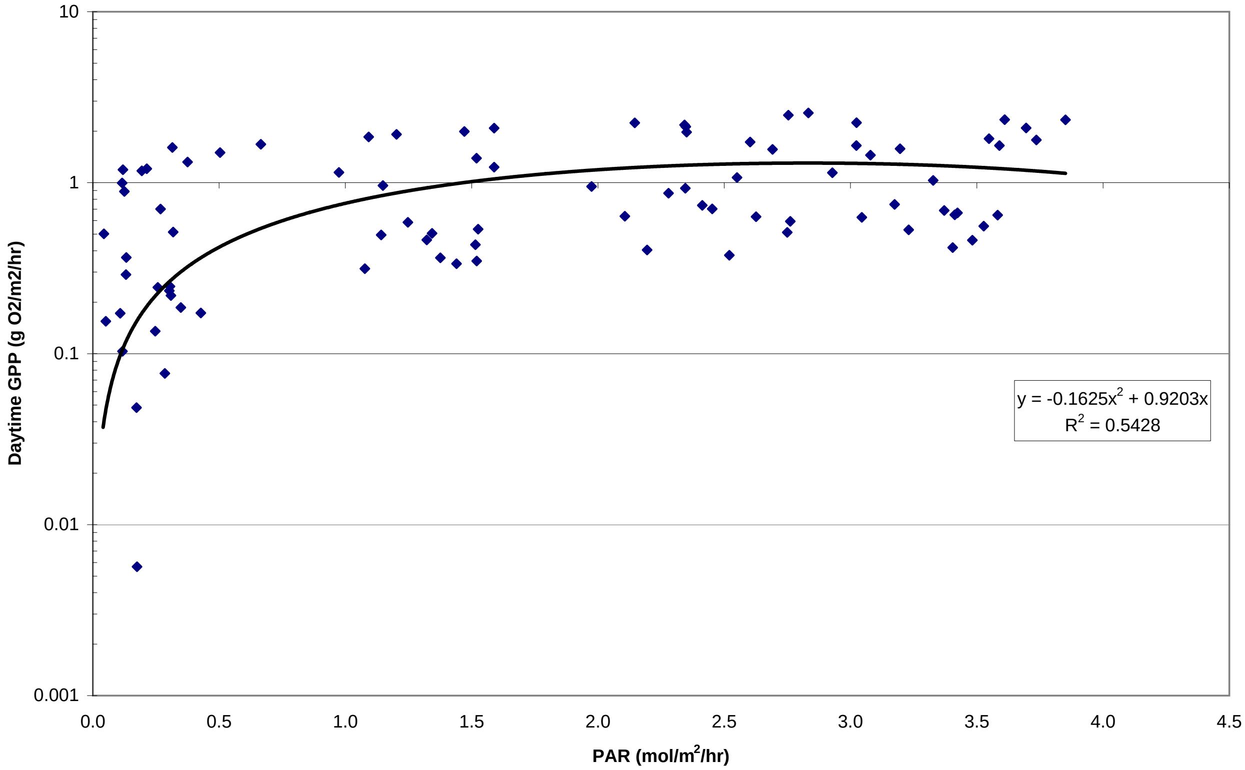


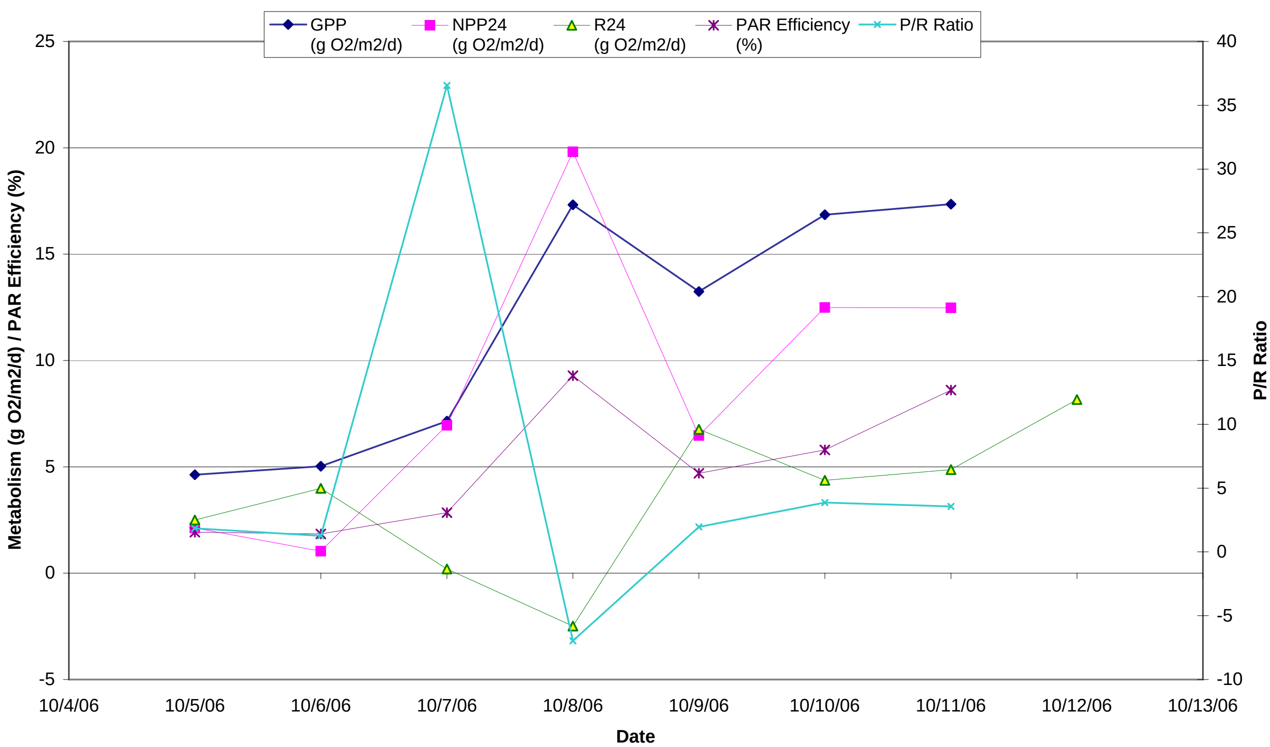






Parameter	Units	Avg	Min	Max	N
DO - up	mg/L	2.34	0.21	7.28	348
down		3.84	1.39	7.95	350
Wtr Temp - up	C	24.2	23.2	26.3	700
down		25.0	23.3	27.9	720
pH - up	SU	7.12	5.72	8.65	700
down		7.91	7.14	9.07	720
SpCond - up	uS/cm	841	682	855	700
down		867	752	909	720
Flow - up	m^3/d	203,565	182,924	224,206	16
Depth	m	0.65	0.65	0.68	16
PAR - air	$umol/m^2/s$	423	0.0	1,837	350
plant		374	0.0	1591	350
DO rate chng	$g/m^2/hr$				
corr		-0.040	-0.630	0.830	348
uncorr		0.265	-0.405	1.079	348





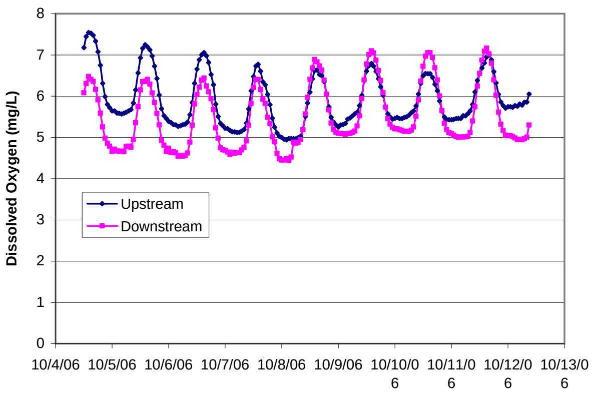
	GPP	NPP24	R24	PAR	PAR Eff.
Stats		($g\ O_2/m^2/d$)		($mol/m^2/d$)	(%)
Avg	11.65	8.77	3.55	19.89	5.00
Max	17.35	19.81	8.17	23.47	9.29
Min	4.63	1.04	-2.49	15.05	1.84

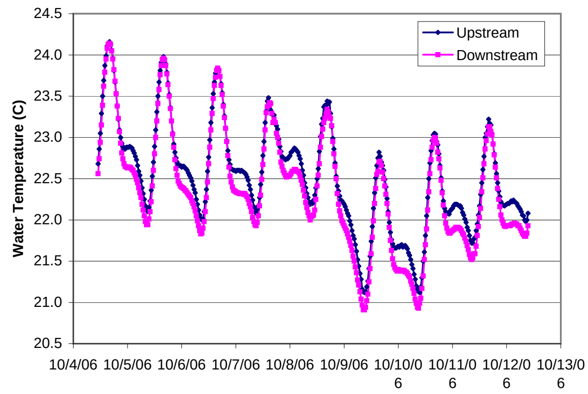
APPENDIX E

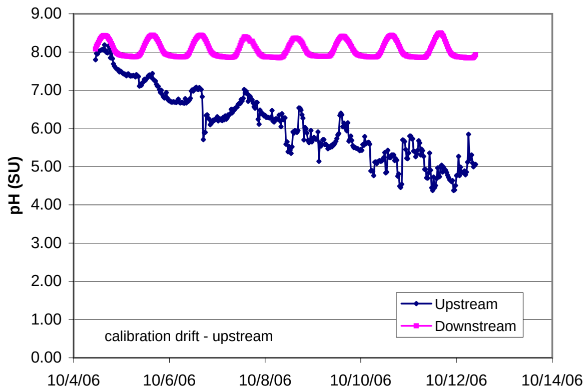
JUNIPER CREEK - SEGMENT 1 METABOLISM ESTIMATES

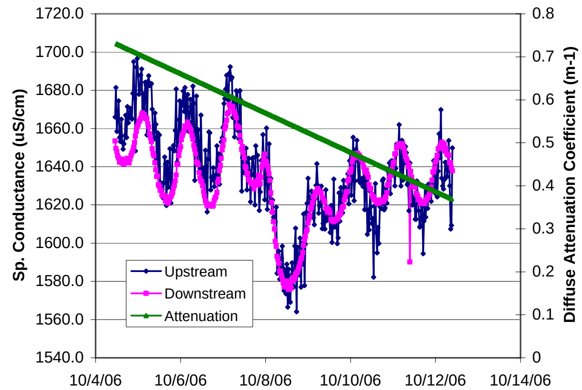
APPENDIX E

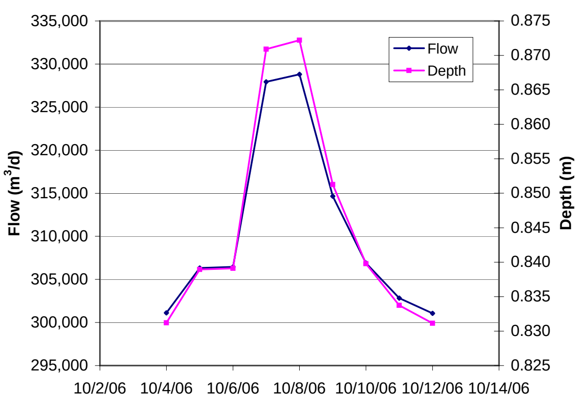
JUNIPER CREEK - SEGMENT 1 METABOLISM SUMMARY

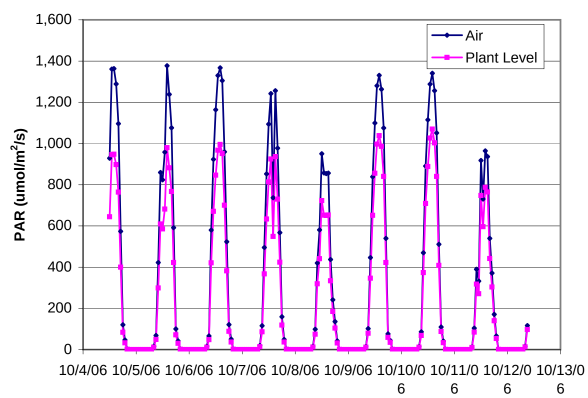


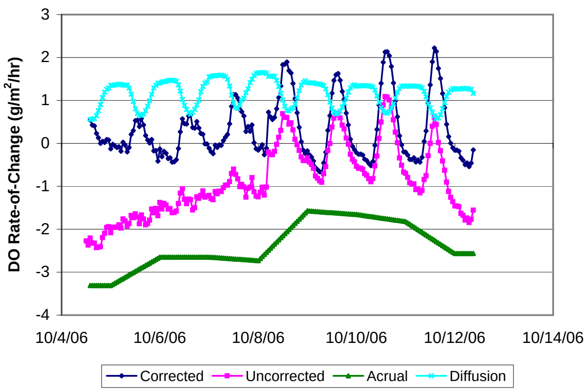




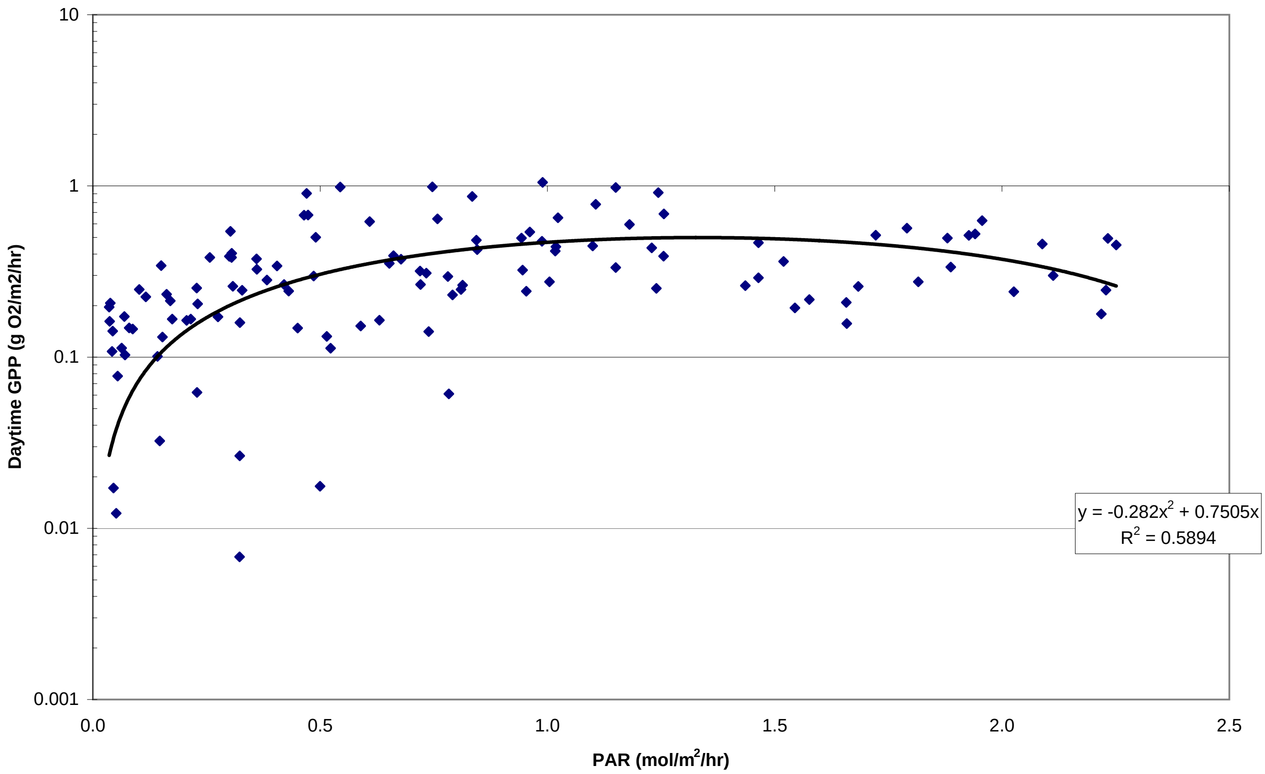


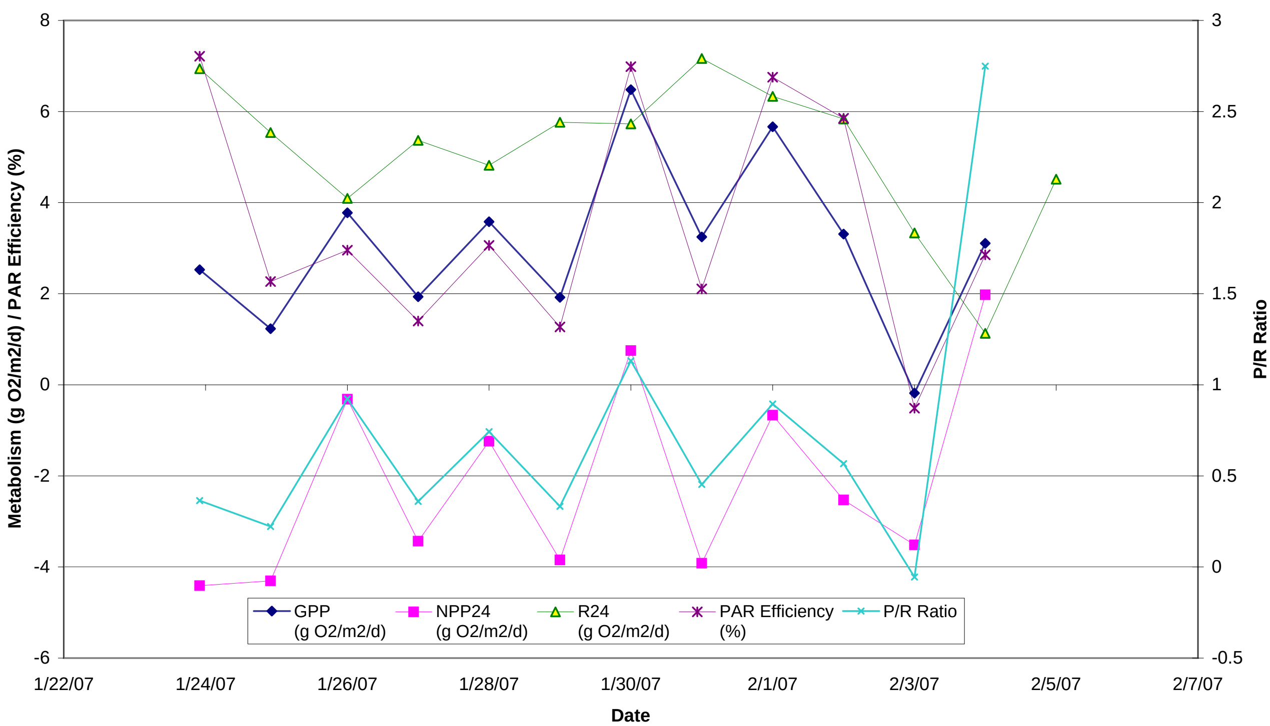






Parameter	Units	Avg	Min	Max	N
DO - up	mg/L	5.91	4.94	7.54	188
down		5.50	4.44	7.16	188
Wtr Temp - up	C	22.5	21.1	24.2	382
down		22.4	20.9	24.1	382
pH - up	SU	6.12	4.38	8.19	382
down		8.06	7.85	8.50	382
SpCond - up	uS/cm	1637	1564	1697	382
down		1633	1576	1673	382
Flow - up	m^3/d	310,677	301,061	328,816	9
Depth	m	0.85	0.83	0.87	9
PAR - air	$umol/m^2/s$	304	0.0	1,377	190
plant		229	0.0	1070	190
DO rate chng	$g/m^2/hr$				
corr		0.310	-0.680	2.219	188
uncorr		-0.876	-2.428	1.090	188



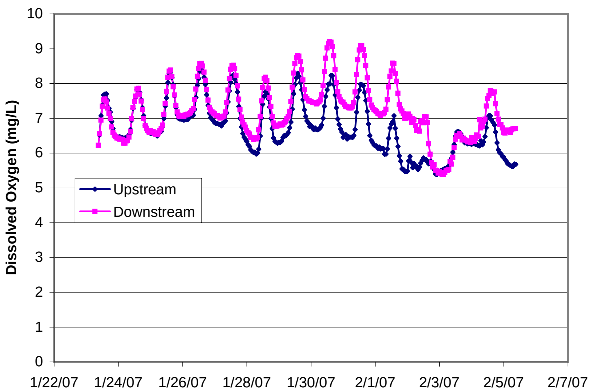


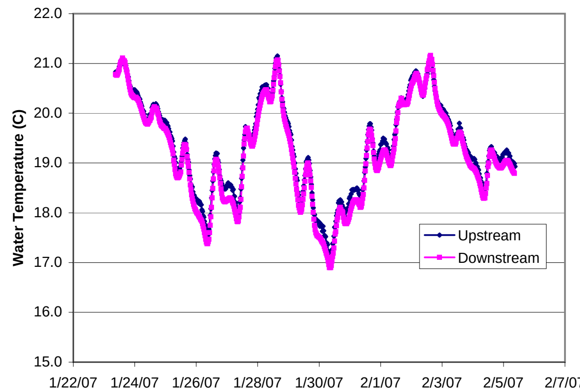
Stats	GPP	NPP24	R24	PAR	PAR Eff.
	(g O_2/m^2/d)			(mol/m^2/d)	(%)
Avg	3.05	-2.12	5.12	7.77	3.52
Max	6.48	1.98	7.17	12.44	7.21
Min	-0.18	-4.41	1.13	2.83	-0.51

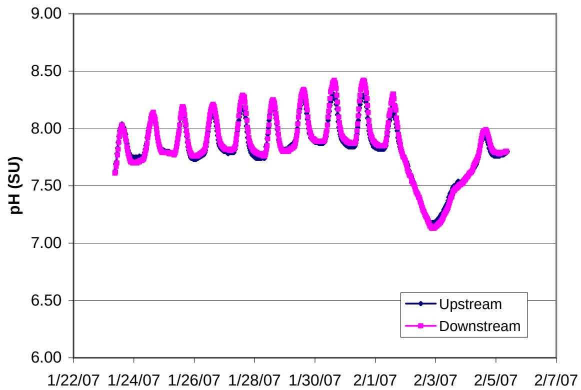
APPENDIX E
JUNIPER CREEK - SEGMENT 1 METABOLISM ESTIMATES

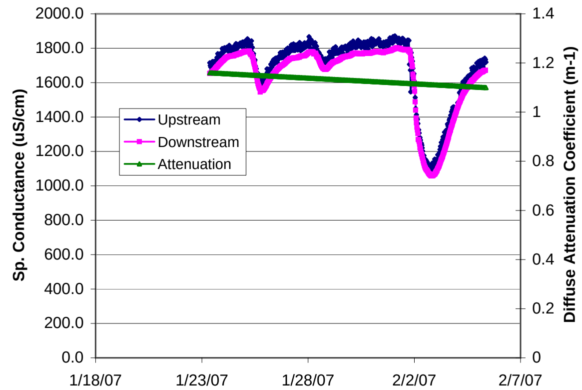
APPENDIX E

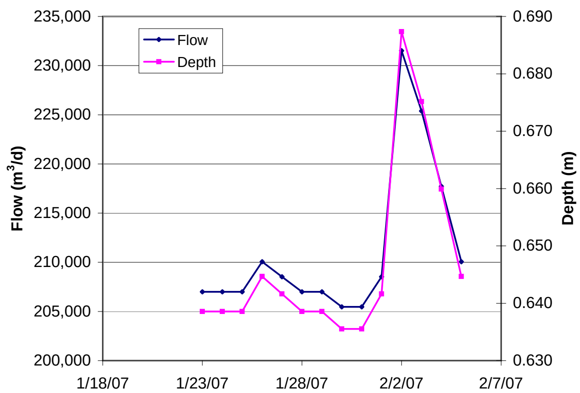
JUNIPER CREEK - SEGMENT 1 METABOLISM SUMMARY

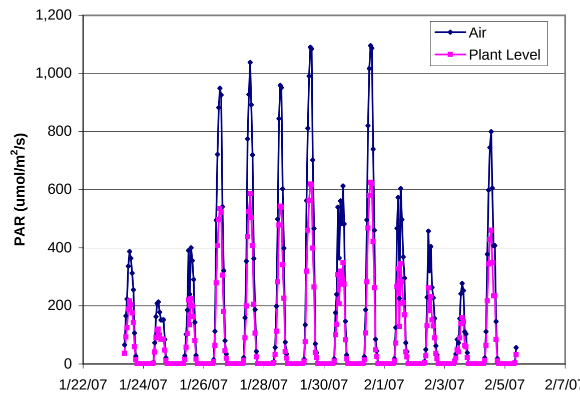


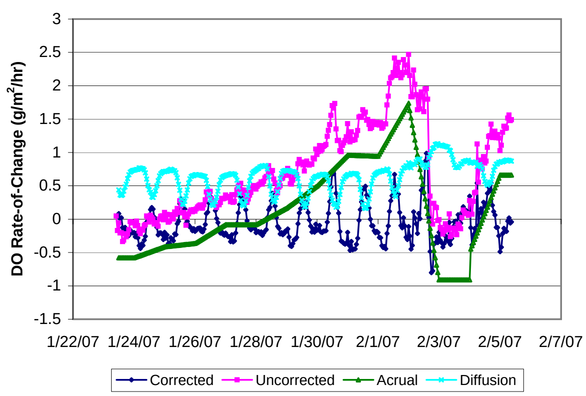




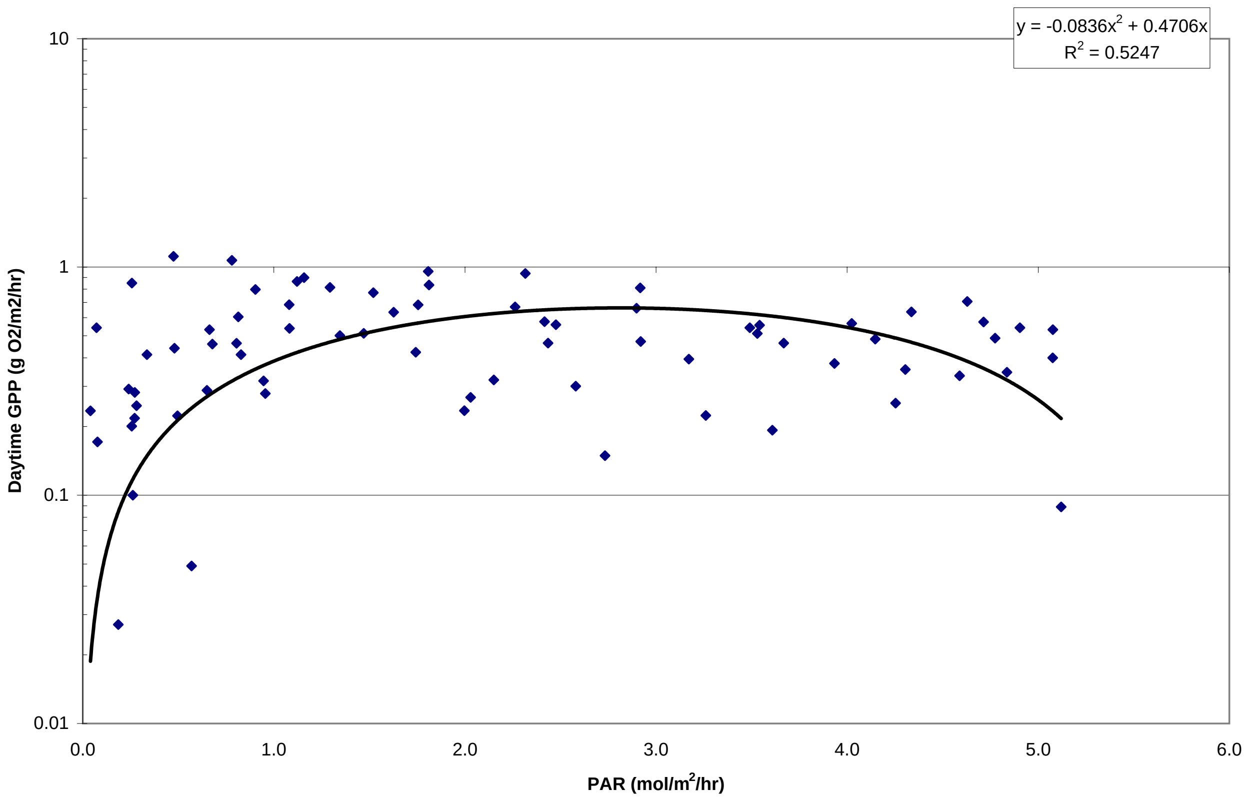


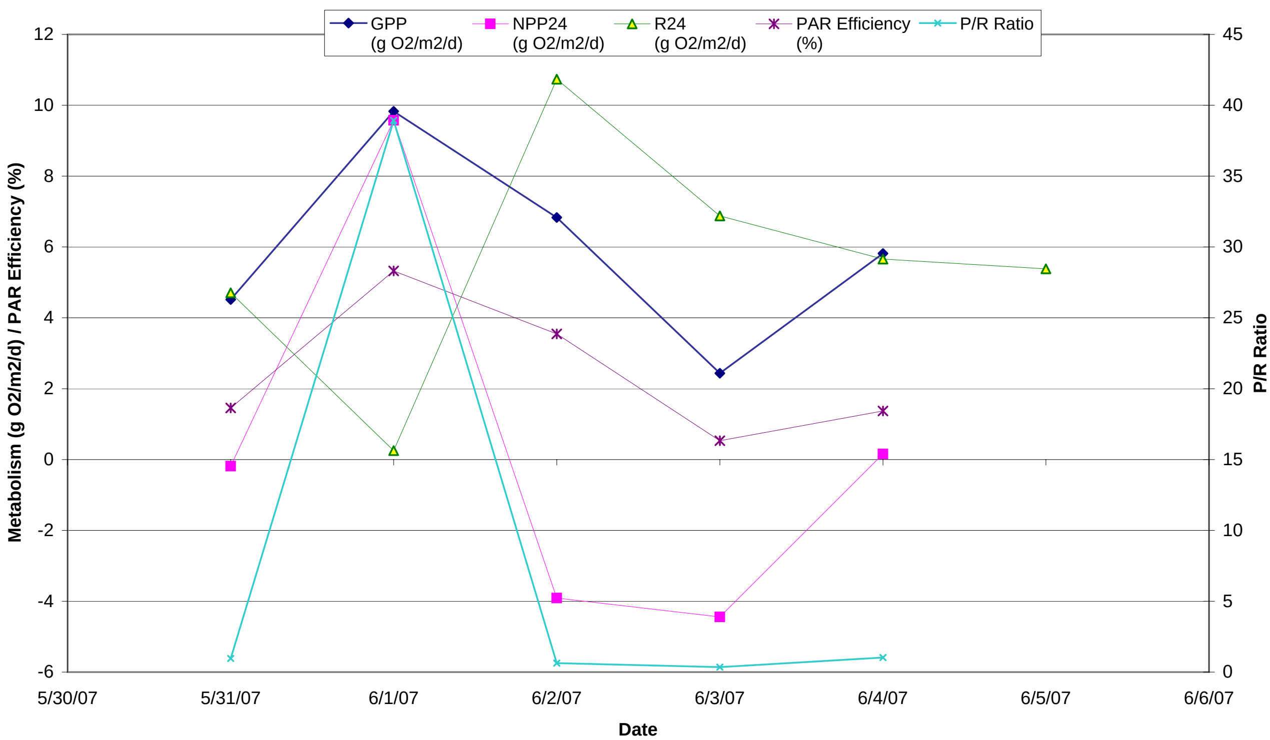






Parameter	Units	Avg	Min	Max	N
DO - up	mg/L	6.724	5.385	8.391	310
down		7.214	5.387	9.208	310
Wtr Temp - up	C	19.3	17.1	21.2	625
down		19.2	16.9	21.2	624
pH - up	SU	7.82	7.17	8.30	625
down		7.84	7.13	8.42	624
SpCond - up	uS/cm	1688	1088	1872	625
down		1637	1058	1802	624
Flow - up	m^3/d	211,266	205,465	231,513	14
Depth	m	0.65	0.64	0.69	14
PAR - air	$umol/m^2/s$	153	0.0	1,096	313
plant		87	0.0	625	313
DO rate chng	$g/m^2/hr$				
corr		-0.059	-0.803	0.987	310
uncorr		0.713	-0.337	2.471	310



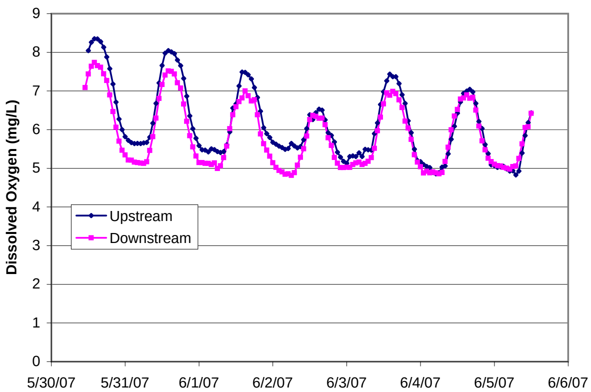


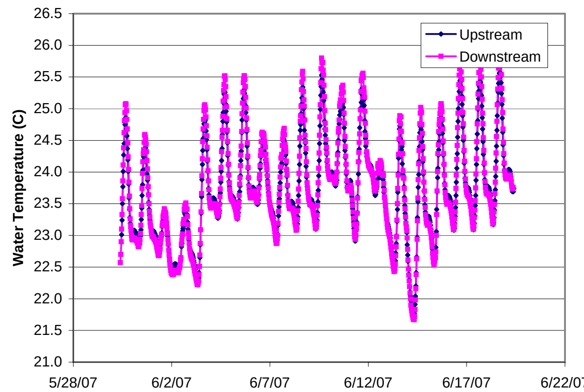
Stats	GPP	NPP24	R24	PAR	PAR Eff.
		(g $O_2/m^2/d$)		($mol/m^2/d$)	(%)
Avg	5.88	0.24	5.60	25.32	2.45
Max	9.83	9.57	10.74	36.87	5.32
Min	2.43	-4.44	0.25	14.90	0.53

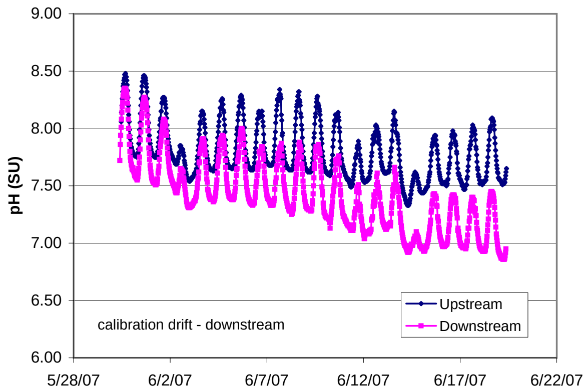
APPENDIX E
JUNIPER CREEK - SEGMENT 1 METABOLISM ESTIMATES

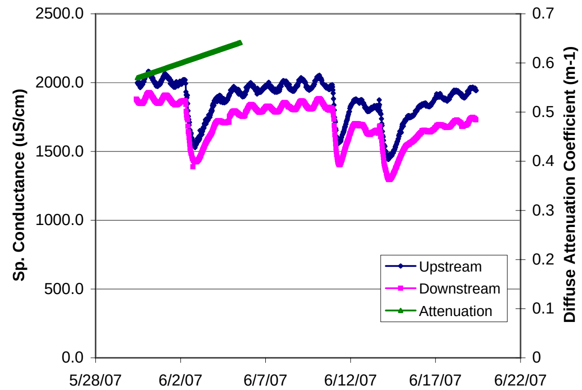
APPENDIX E

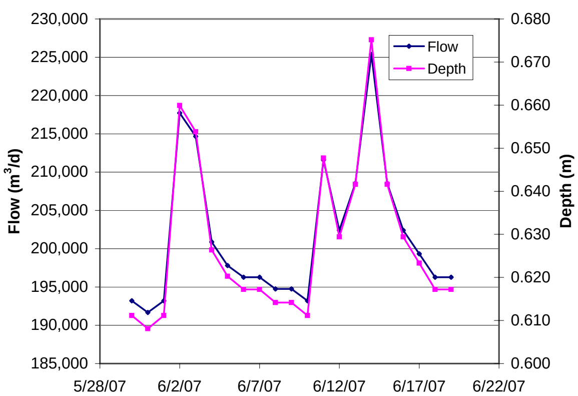
JUNIPER CREEK - SEGMENT 1 METABOLISM SUMMARY

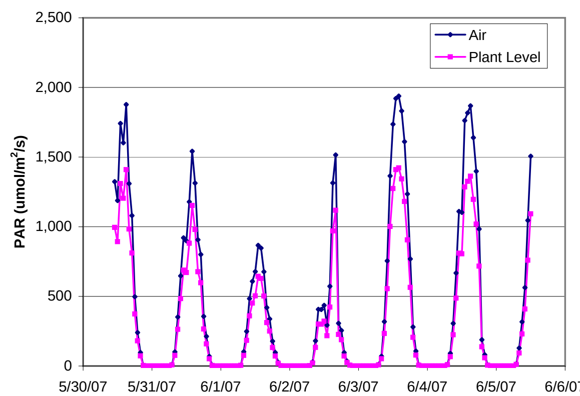


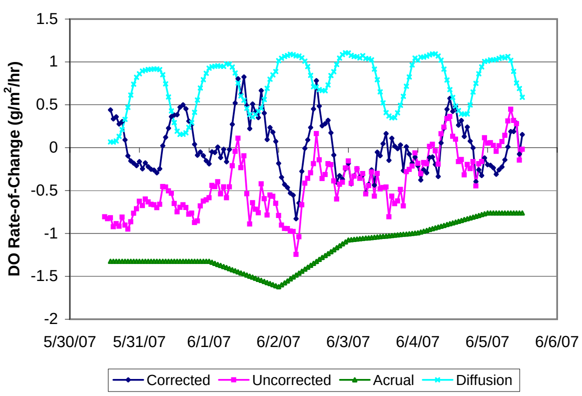




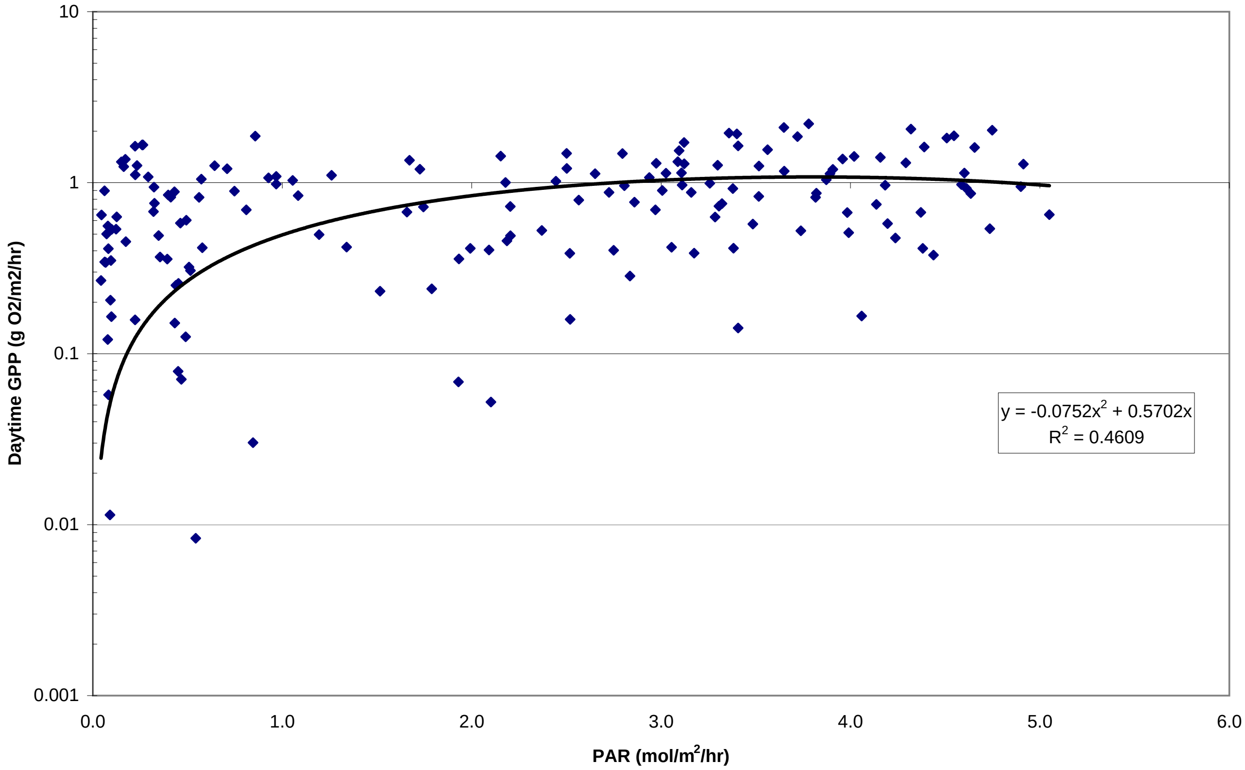


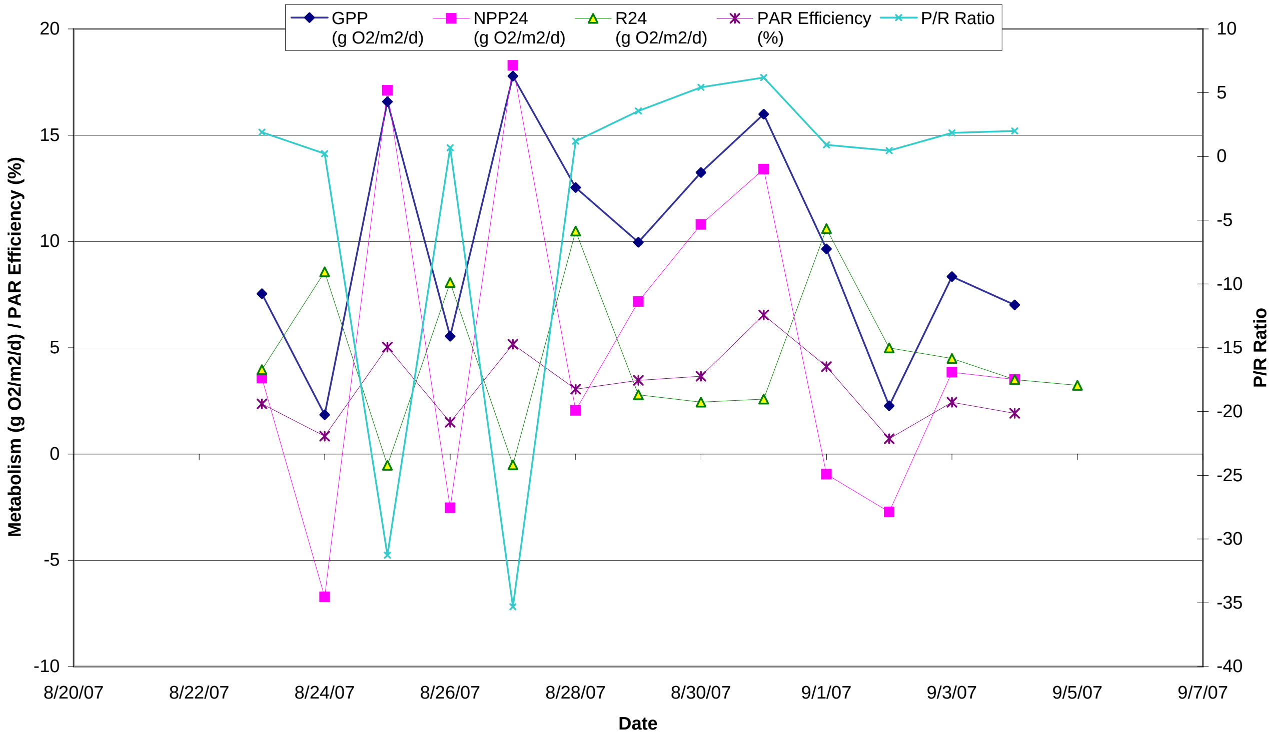






Parameter	Units	Avg	Min	Max	N
DO - up	mg/L	6.151	4.830	8.351	145
down		5.860	4.816	7.737	146
Wtr Temp - up	C	23.7	21.8	25.6	958
down		23.8	21.7	25.9	960
pH - up	SU	7.80	7.33	8.48	958
down		7.42	6.86	8.35	960
SpCond - up	uS/cm	1871	1441	2083	958
down		1708	1295	1928	960
Flow - up	m^3/d	201,671	191,675	225,384	21
Depth	m	0.63	0.61	0.68	21
PAR - air	$umol/m^2/s$	427	0.0	1,938	146
plant		315	0.0	1422	146
DO rate chng	$g/m^2/hr$				
corr		0.009	-0.828	0.824	143
uncorr		-0.410	-1.243	0.447	143



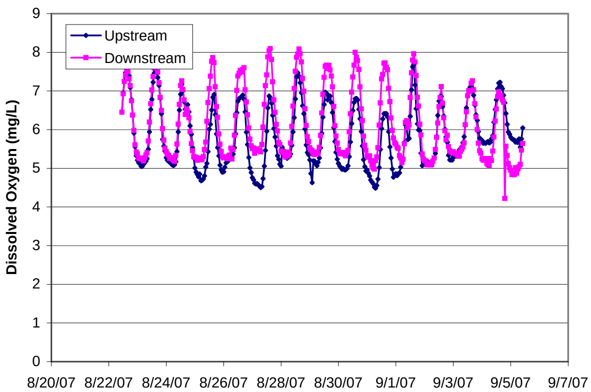


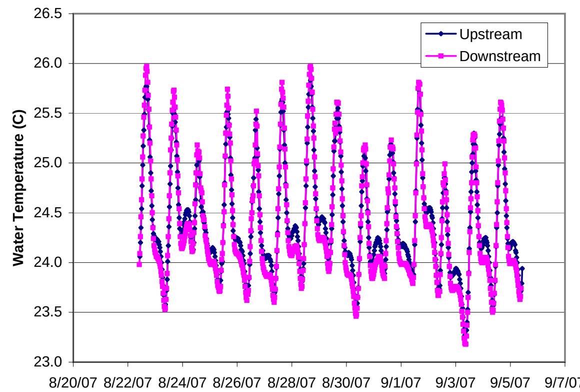
APPENDIX E
JUNIPER CREEK - SEGMENT 1 METABOLISM ESTIMATES

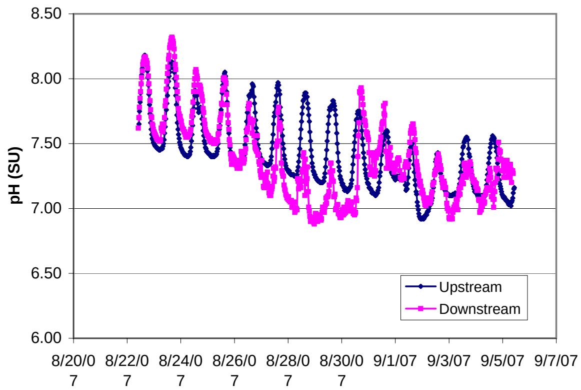
	GPP	NPP24	R24	PAR	PAR Eff.
Stats	($g\ O_2/m^2/d$)			($mol/m^2/d$)	(%)
Avg	9.87	5.14	4.62	25.78	3.14
Max	17.78	18.28	10.60	33.19	6.54
Min	1.85	-6.72	-0.53	17.85	0.72

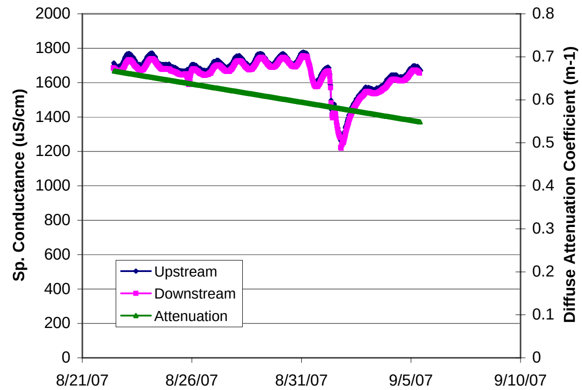
APPENDIX E

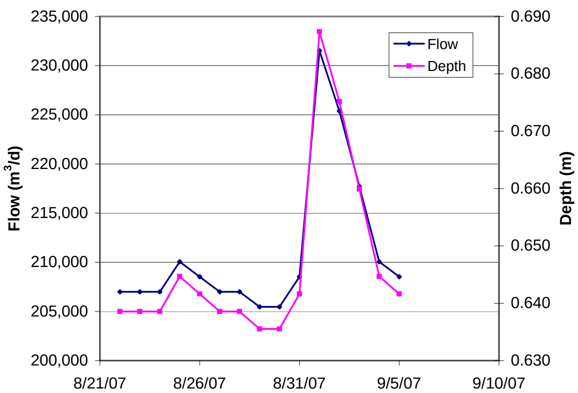
JUNIPER CREEK - SEGMENT 1 METABOLISM SUMMARY

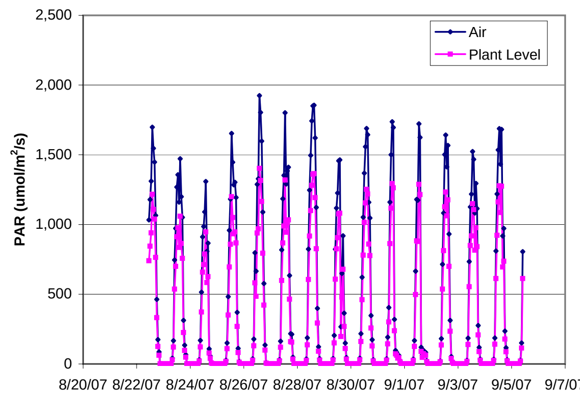


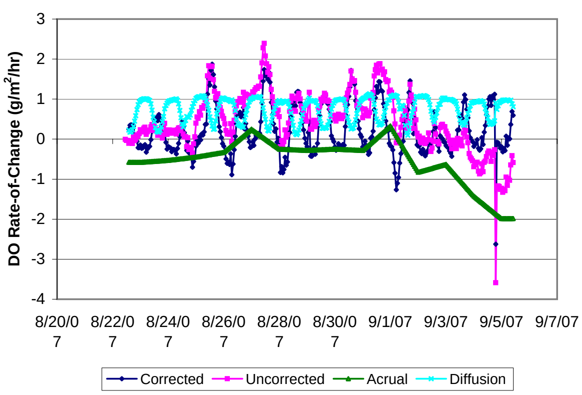




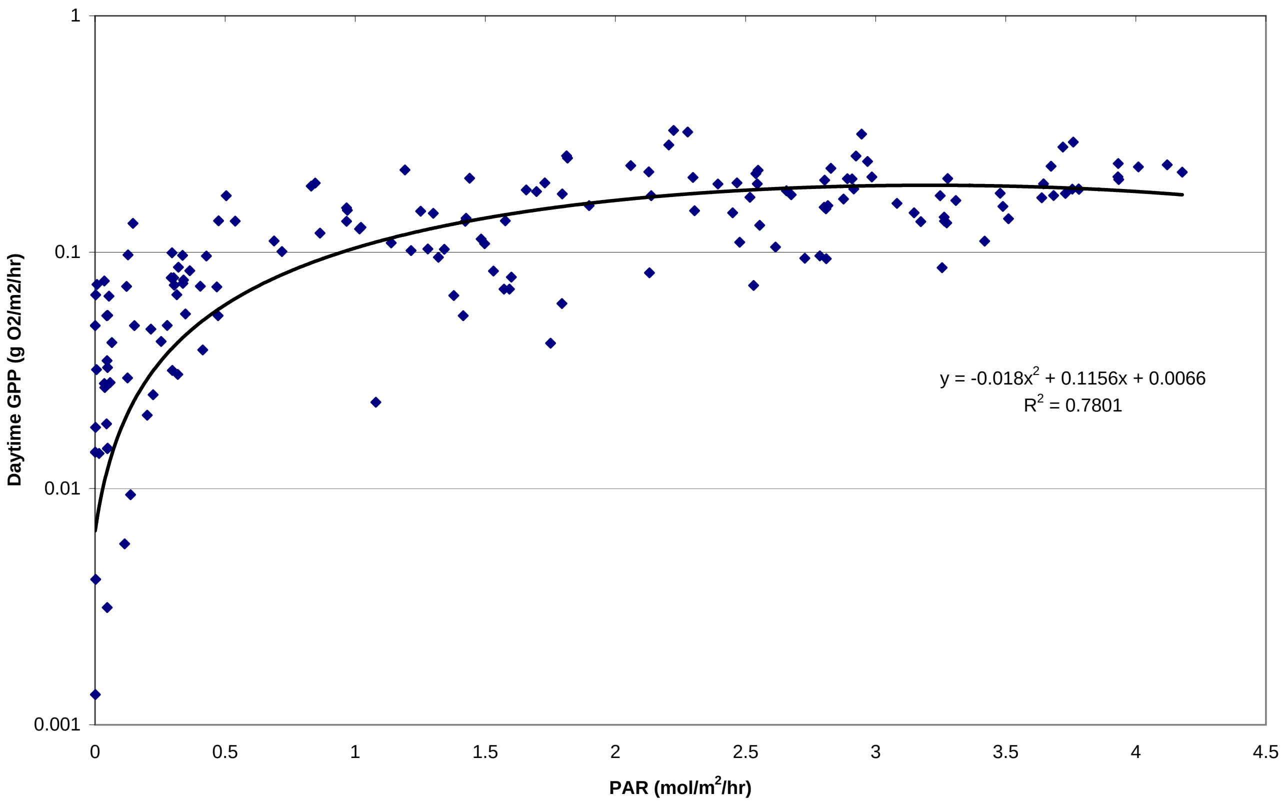


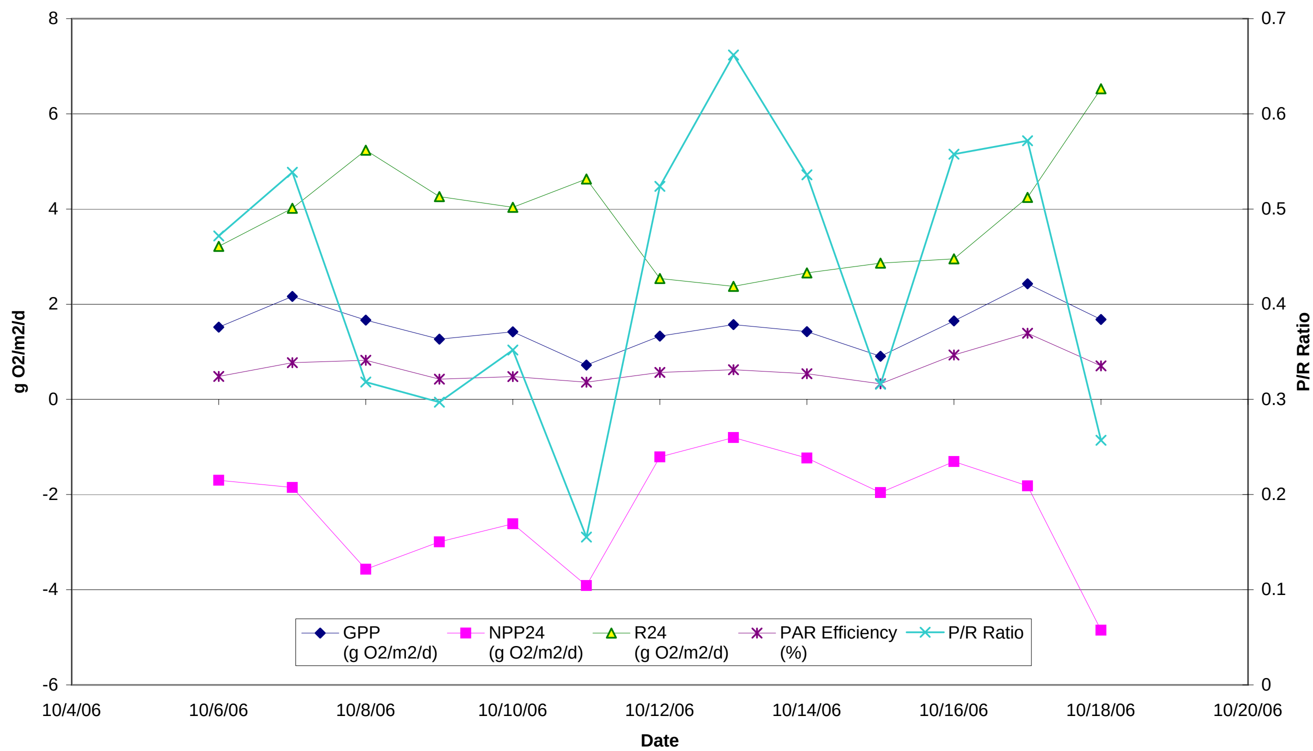






Parameter	Units	Avg	Min	Max	N
DO - up	mg/L	5.813	4.485	7.685	336
down		6.117	4.220	8.094	336
Wtr Temp - up	C	24.4	23.3	25.9	673
down		24.4	23.2	26.0	672
pH - up	SU	7.42	6.92	8.18	673
down		7.38	6.88	8.32	672
SpCond - up	uS/cm	1662	1264	1778	673
down		1639	1219	1756	672
Flow - up	m^3/d	211,083	205,465	231,513	15
Depth	m	0.65	0.64	0.69	15
PAR - air	umol/m^2/s	408	0.0	1,924	336
plant		301	0.0	1403	336
DO rate chng	g/m^2/hr				
corr		0.203	-2.627	1.873	333
uncorr		0.443	-3.588	2.393	333

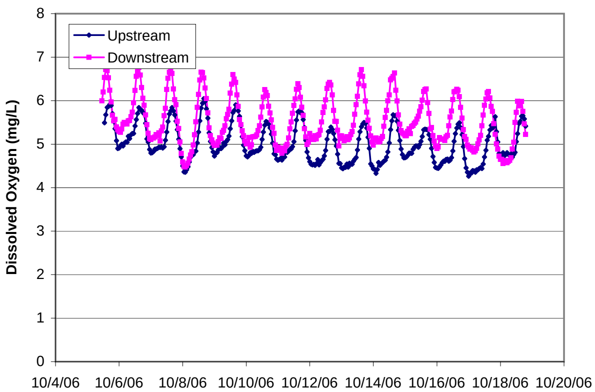


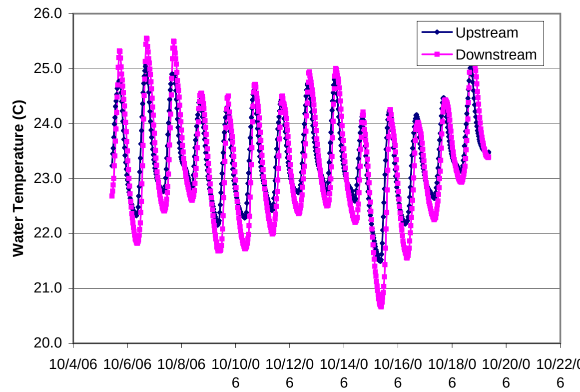


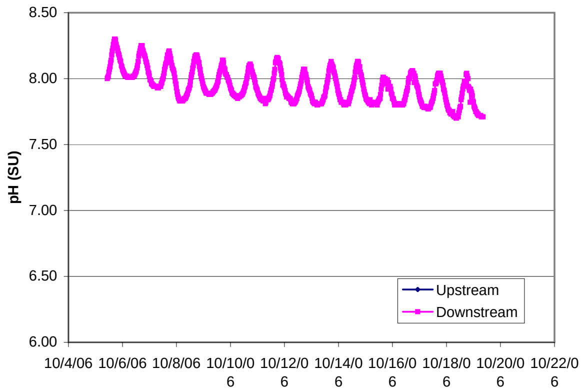
Stats	GPP	NPP24	R24	PAR	PAR Eff.
	(g O_2/m^2/d)			(mol/m^2/d)	(%)
Avg	1.52	-2.29	3.81	19.92	0.65
Max	2.43	-0.80	6.53	25.35	1.39
Min	0.72	-4.85	2.37	14.10	0.33

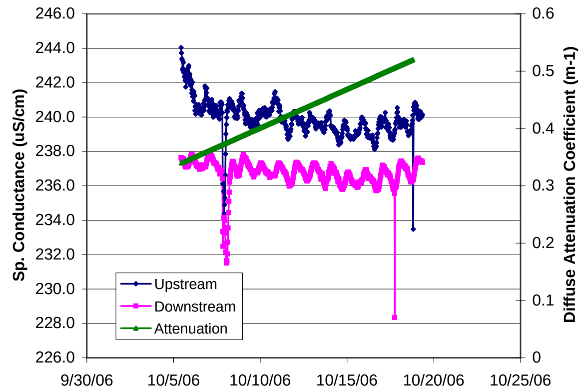
APPENDIX E
ROCK SPRING RUN - SEGMENT 1 METABOLISM ESTIMATES

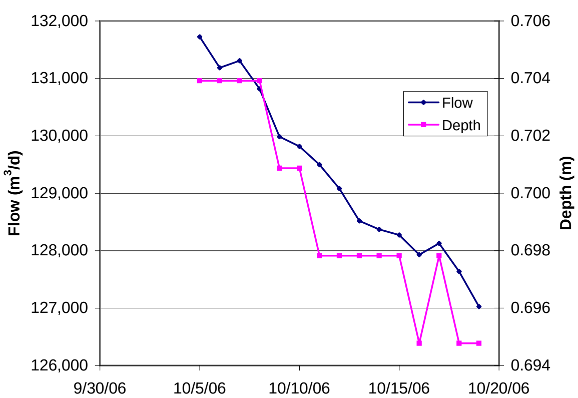
APPENDIX E
ROCK SPRING RUN - SEGMENT 1 METABOLISM SUMMARY

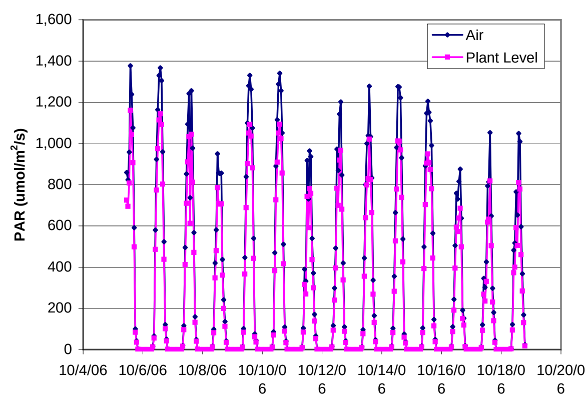


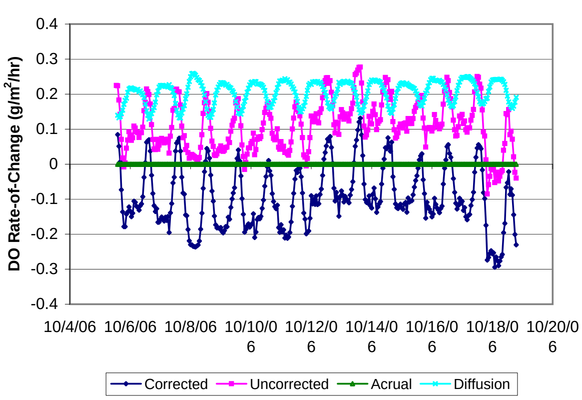




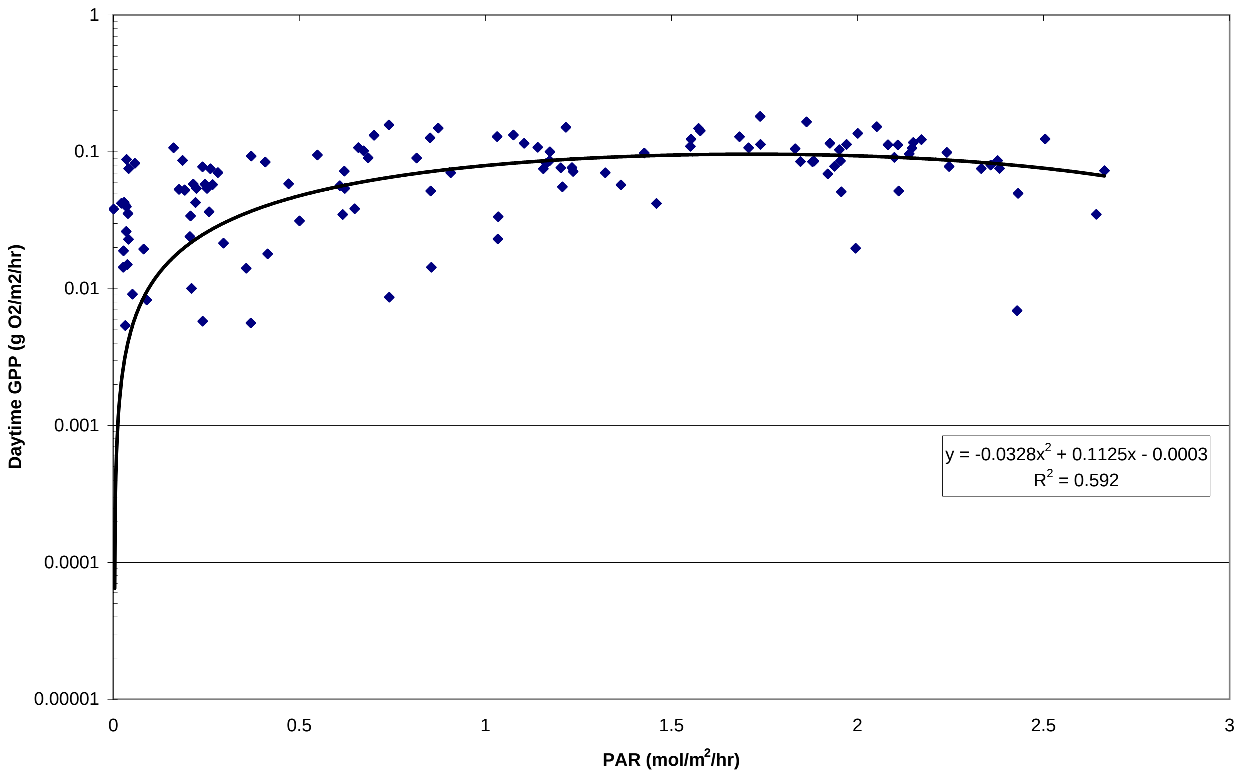


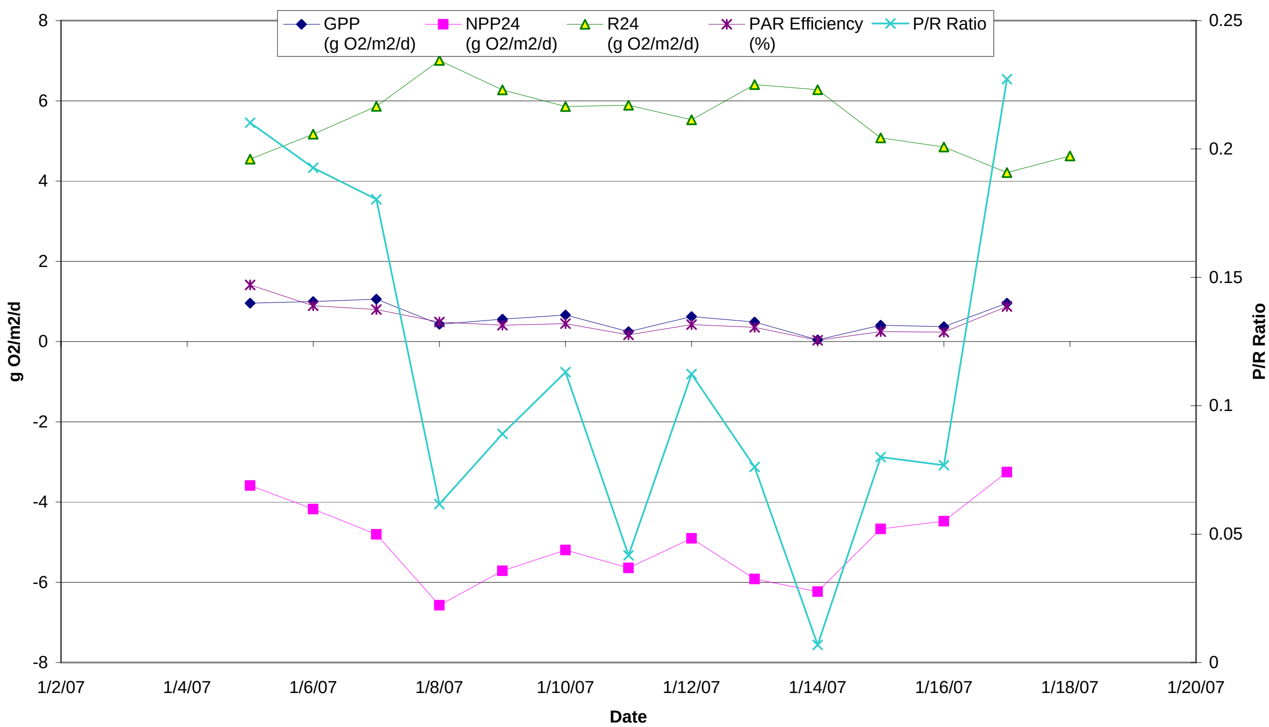






Parameter	Units	Avg	Min	Max	N
DO - up	mg/L	5.01	4.26	6.05	318
down		5.52	4.47	6.76	318
Wtr Temp - up	C	23.4	21.5	25.1	669
down		23.3	20.7	25.6	669
pH - up	SU	---	---	---	---
down		7.94	7.70	8.30	669
SpCond - up	uS/cm	240	233	244	669
down		237	228	238	669
Flow - up	m^3/d	129,287	127,026	131,724	15
Depth	m	0.70	0.69	0.70	15
PAR - air	$umol/m^2/s$	296	0.0	1,377	321
plant		240	0.0	1161	321
DO rate chng	$g/m^2/hr$				
corr		-0.096	-0.294	0.131	318
uncorr		0.109	-0.085	0.277	318



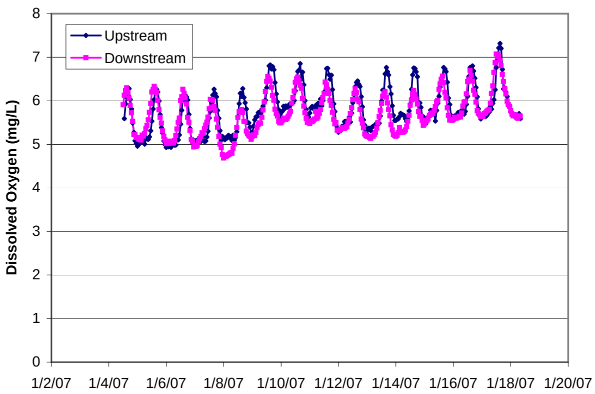


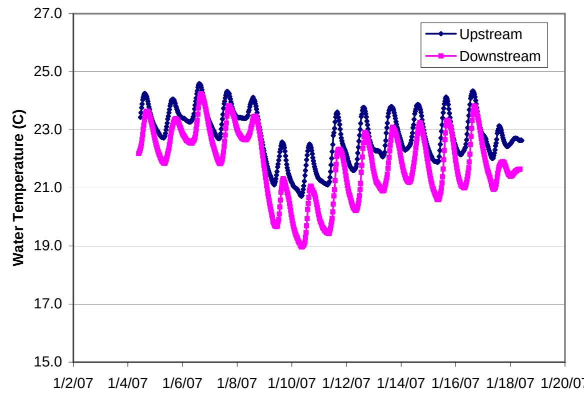
APPENDIX E
ROCK SPRING RUN - SEGMENT 1 METABOLISM ESTIMATES

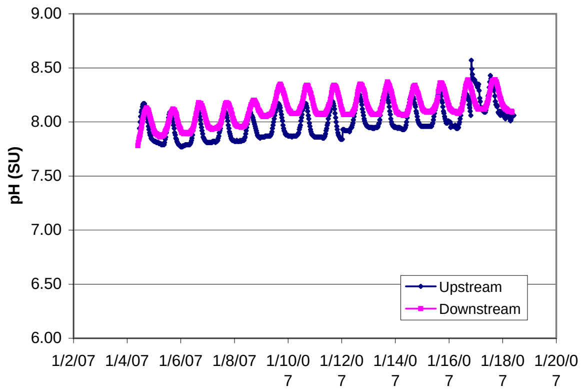
Stats	GPP	NPP24	R24	PAR	PAR Eff.
	(g O_2/m^2/d)			(mol/m^2/d)	(%)
Avg	0.60	-5.01	5.54	10.42	0.52
Max	1.06	-3.25	7.01	13.26	1.41
Min	0.04	-6.57	4.21	5.46	0.03

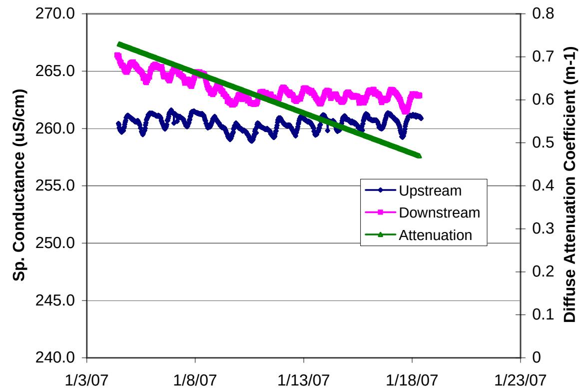
APPENDIX E

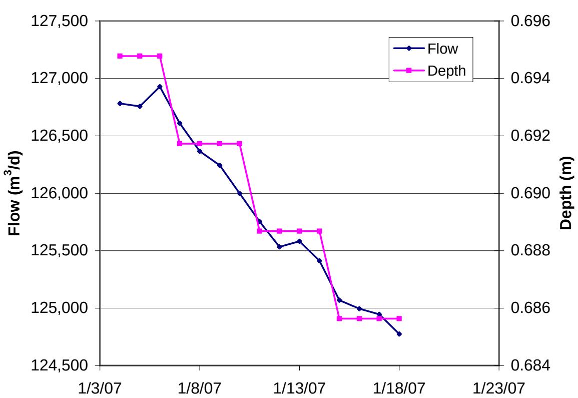
ROCK SPRING RUN - SEGMENT 1 METABOLISM SUMMARY

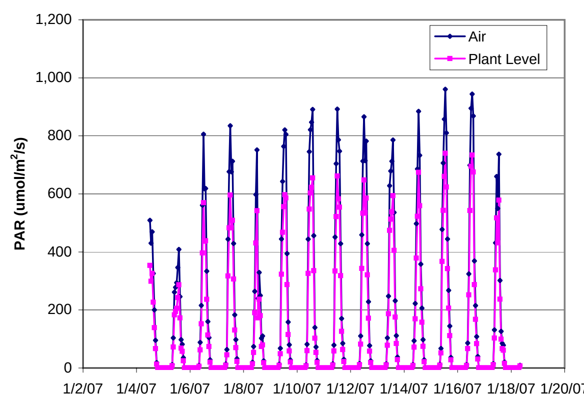


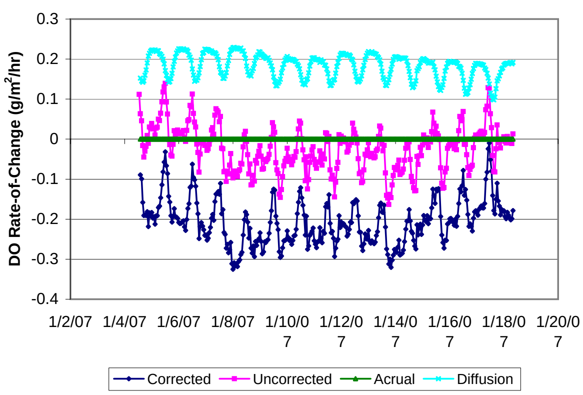




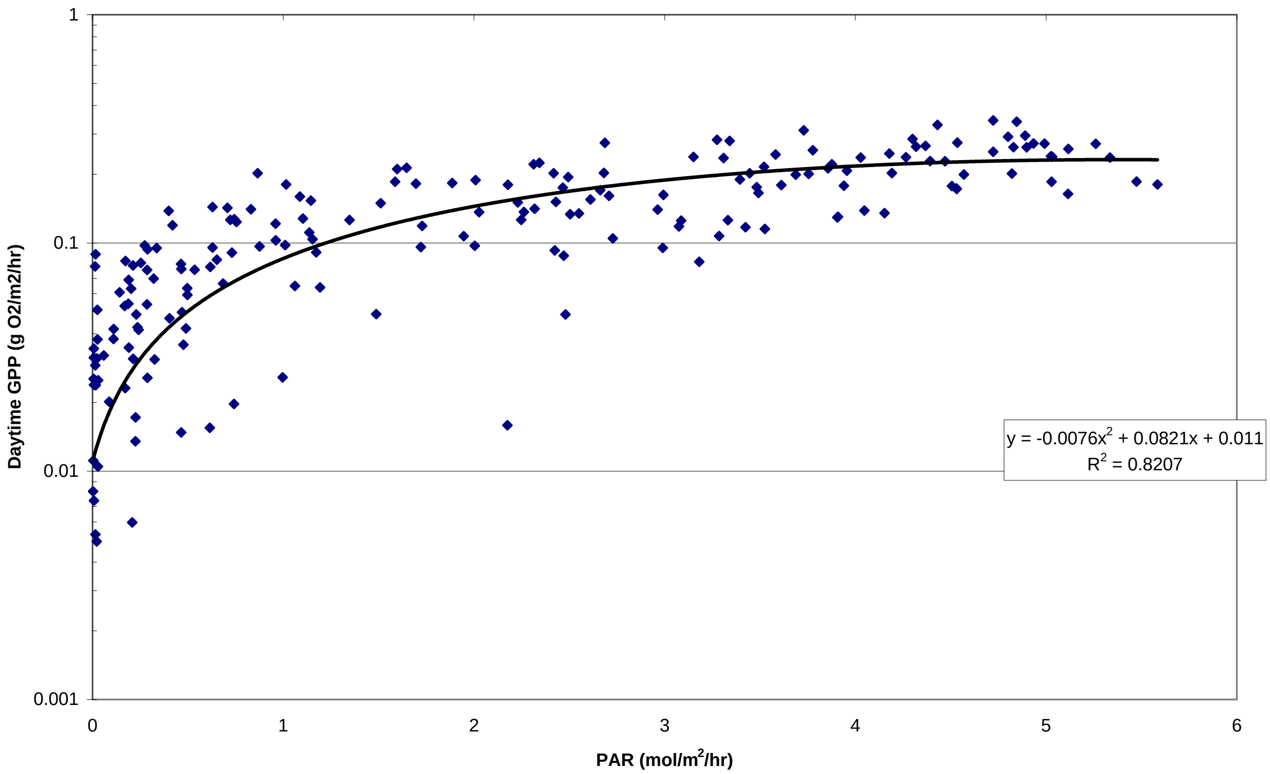


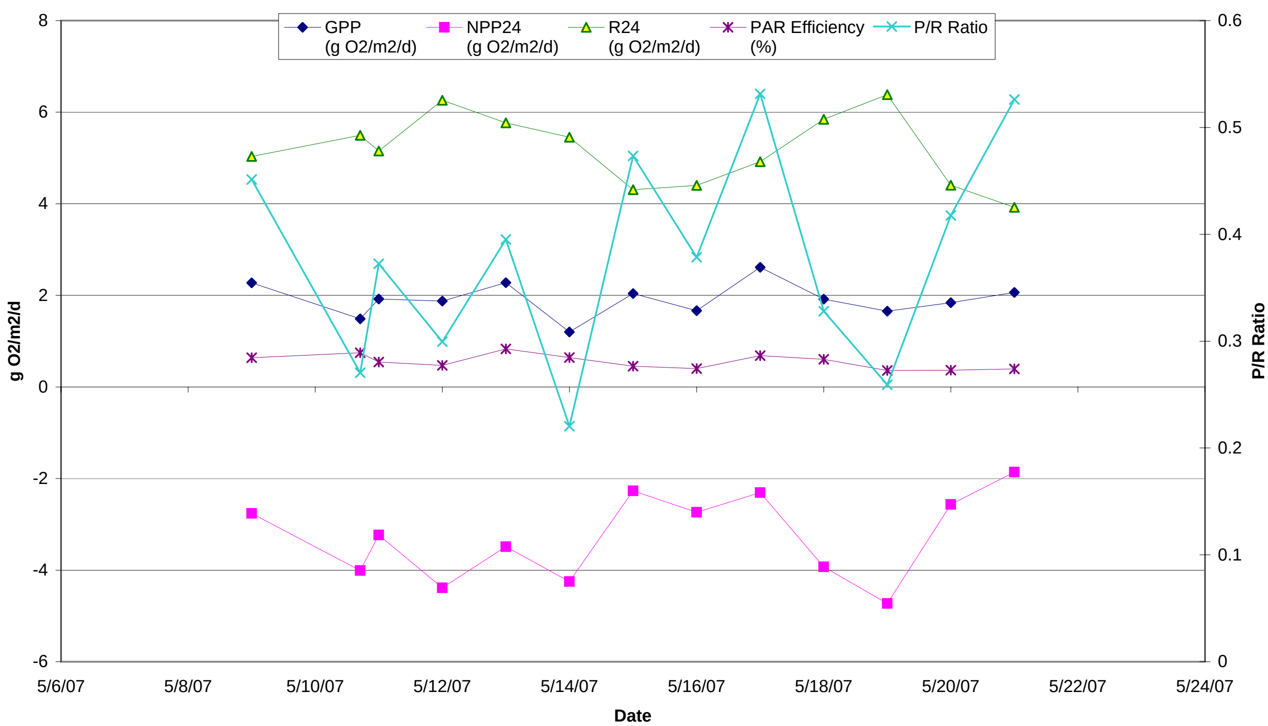






Parameter	Units	Avg	Min	Max	N
DO - up	mg/L	5.80	4.93	7.32	331
down		5.68	4.69	7.07	331
Wtr Temp - up	C	22.8	20.7	24.6	671
down		21.9	19.0	24.2	671
pH - up	SU	8.00	7.77	8.57	671
down		8.12	7.78	8.39	671
SpCond - up	uS/cm	260	259	262	663
down		263	261	266	671
Flow - up	m^3/d	125,850	124,775	126,928	15
Depth	m	0.69	0.69	0.69	15
PAR - air	umol/m^2/s	158	0.0	0,961	333
plant		117	0.0	740	333
DO rate chng	g/m^2/hr				
corr		-0.207	-0.325	-0.010	331
uncorr		-0.024	-0.163	0.139	331

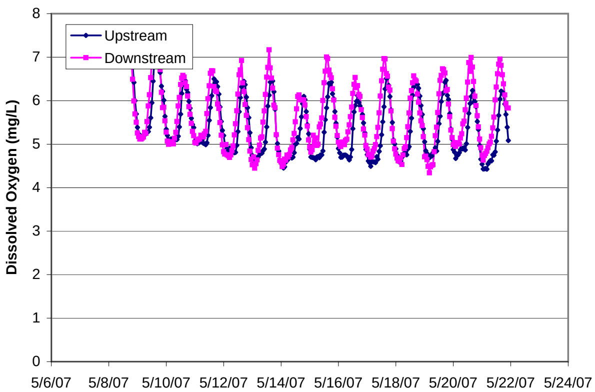


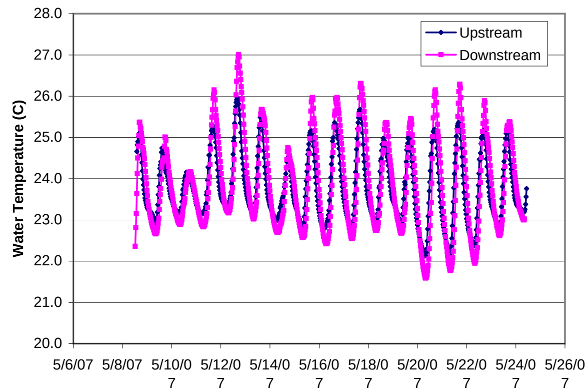


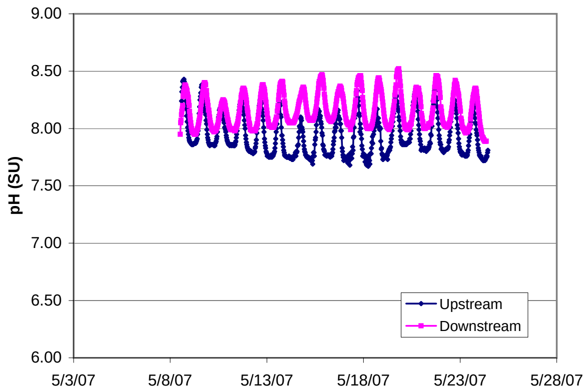
Stats	GPP	NPP24	R24	PAR	PAR Eff.
		(g $O_2/m^2/d$)		(mol/m^2/d)	(%)
Avg	1.91	-3.27	5.18	29.94	0.55
Max	2.61	-1.86	6.38	42.15	0.83
Min	1.20	-4.73	3.92	15.11	0.36

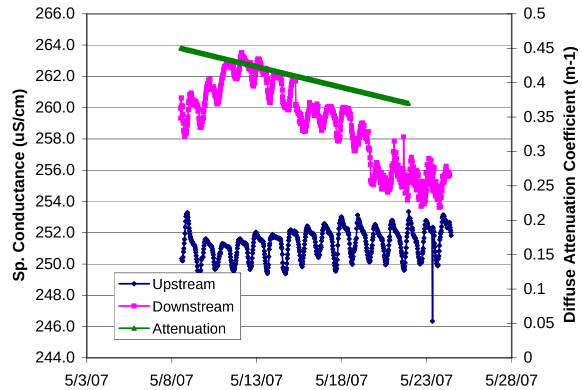
APPENDIX E
ROCK SPRING RUN - SEGMENT 1 METABOLISM ESTIMATES

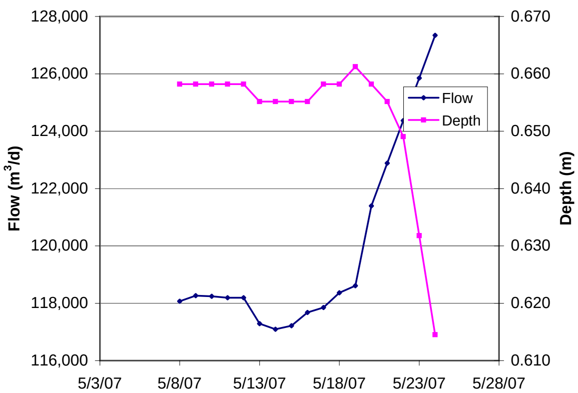
APPENDIX E
ROCK SPRING RUN - SEGMENT 1 METABOLISM SUMMARY

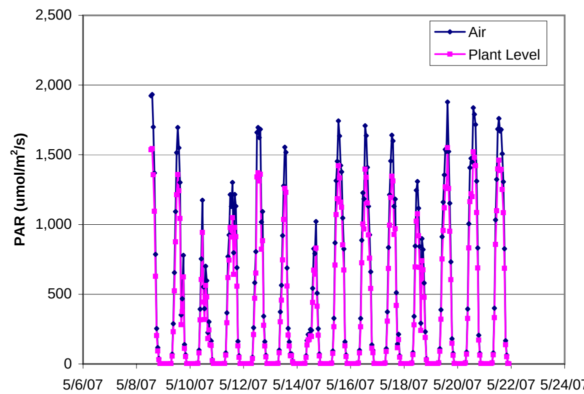


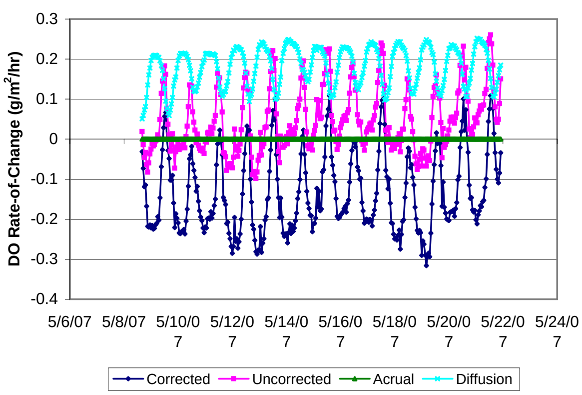




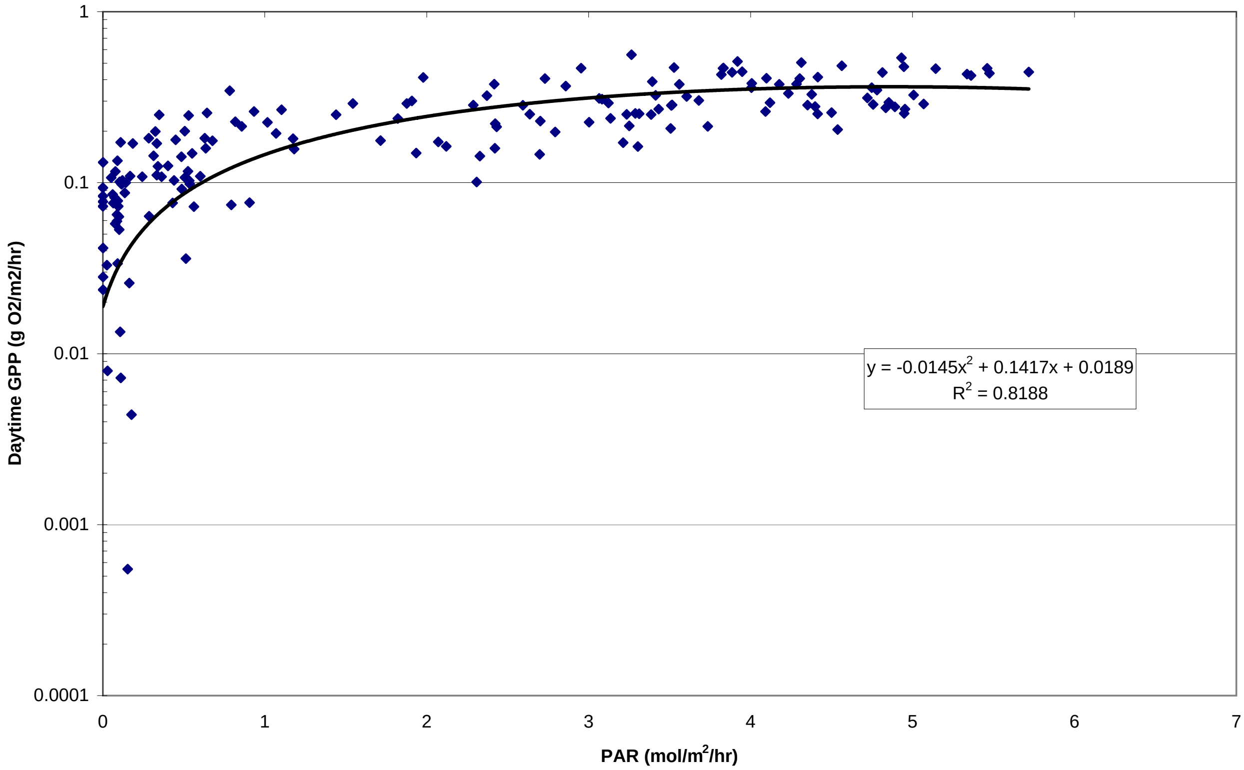








Parameter	Units	Avg	Min	Max	N
DO - up	mg/L	5.39	4.43	7.38	319
down		5.62	4.34	7.48	319
Wtr Temp - up	C	23.8	22.1	26.0	762
down		23.9	21.6	27.0	761
pH - up	SU	7.94	7.67	8.43	762
down		8.16	7.89	8.52	761
SpCond - up	uS/cm	251	246	253	762
down		259	254	264	761
Flow - up	m^3/d	119,819	117,093	127,341	17
Depth	m	0.65	0.61	0.66	17
PAR - air	$umol/m^2/s$	434	0.0	1,933	322
plant		354	0.0	1551	322
DO rate chng	$g/m^2/hr$				
corr		-0.135	-0.316	0.109	319
uncorr		0.047	-0.099	0.260	319

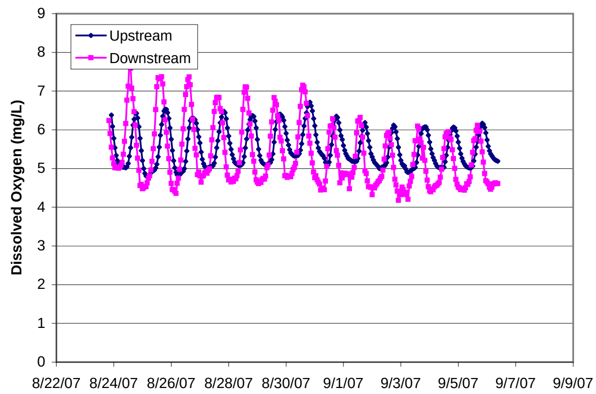


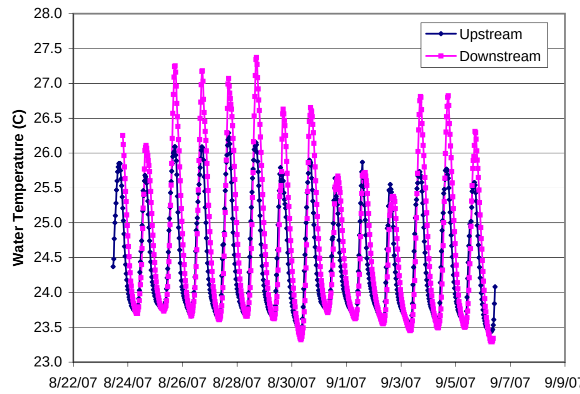
Stats	GPP	NPP24	R24	PAR	PAR Eff.
	(g O_2/m^2/d)			(mol/m^2/d)	(%)
Avg	2.97	-4.88	7.90	28.35	0.85
Max	4.26	-2.42	8.81	37.00	1.41
Min	1.75	-6.90	6.62	20.47	0.52

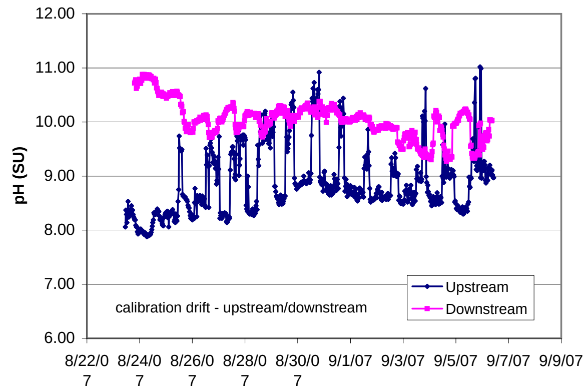
APPENDIX E

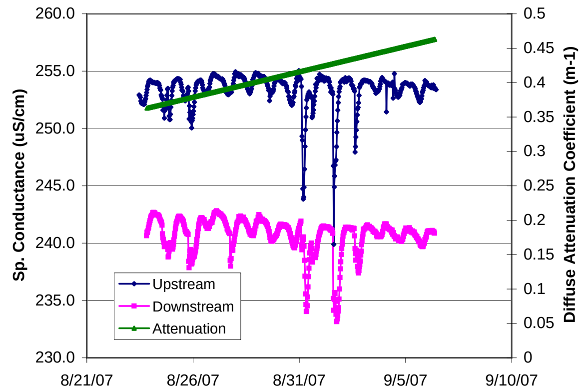
ROCK SPRING RUN - SEGMENT 1 METABOLISM ESTIMATES

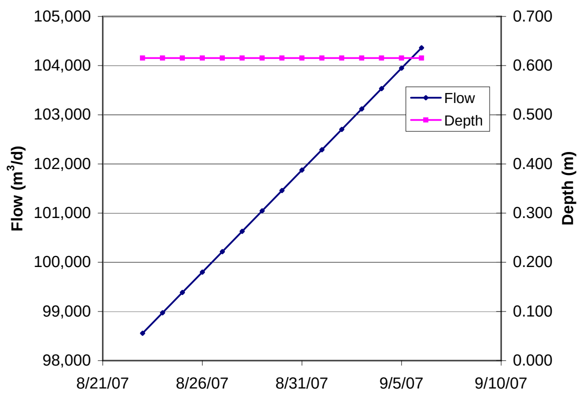
APPENDIX E
ROCK SPRING RUN - SEGMENT 1 METABOLISM SUMMARY

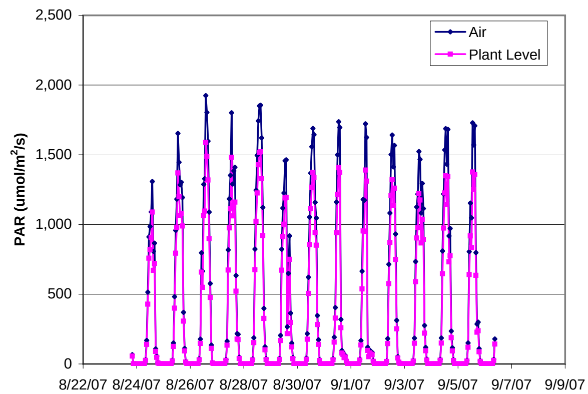


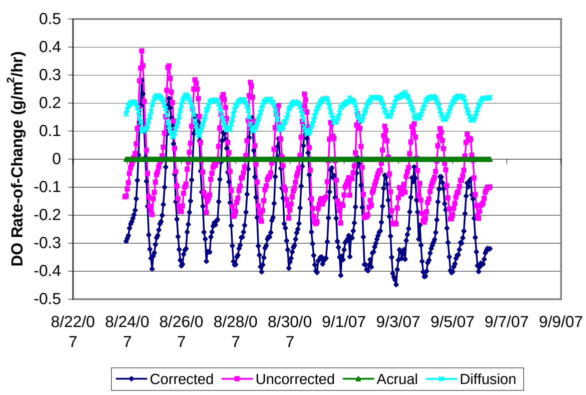




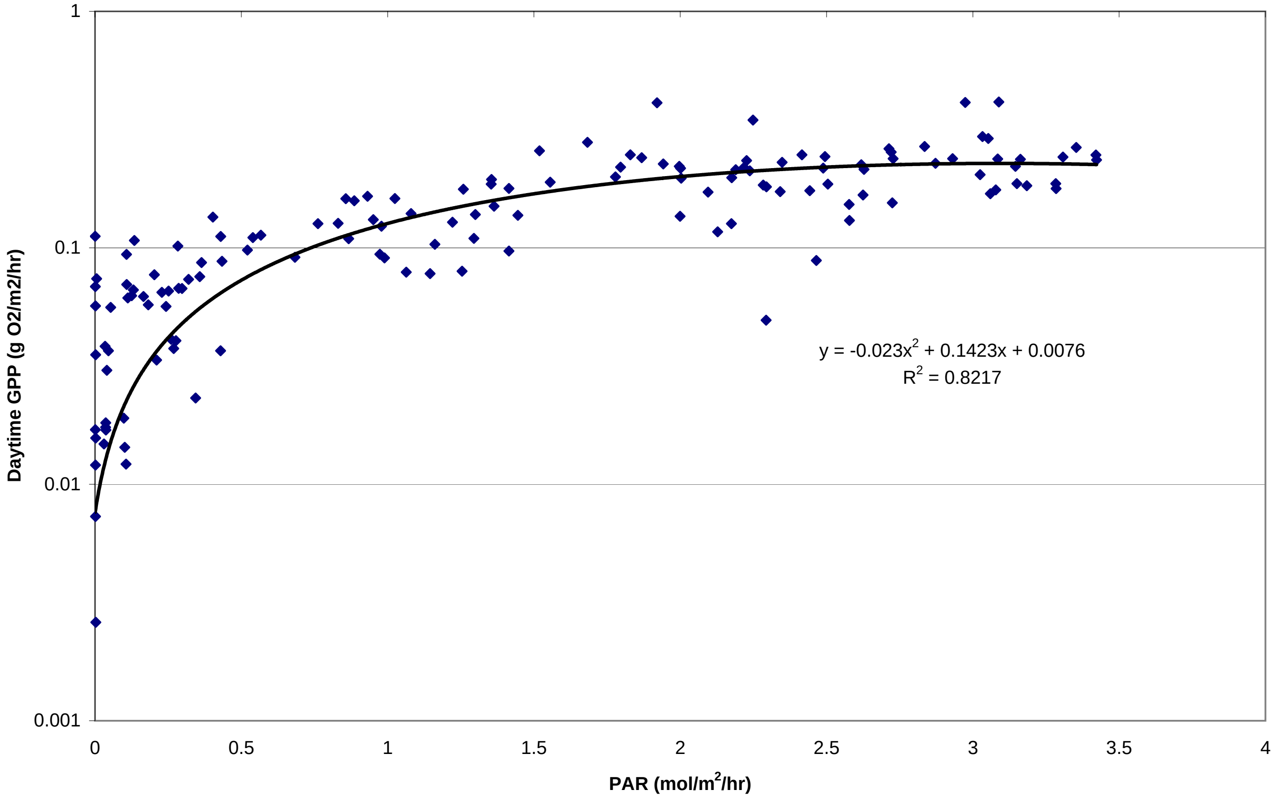








Parameter	Units	Avg	Min	Max	N
DO - up	mg/L	5.55	4.80	6.71	323
down		5.35	4.18	7.70	323
Wtr Temp - up	C	24.4	23.4	26.3	672
down		24.7	23.3	27.4	652
pH - up	SU	8.87	7.88	11.02	672
down		10.04	9.27	10.88	652
SpCond - up	uS/cm	253	240	255	670
down		241	233	243	652
Flow - up	m^3/d	101,460	98,557	104,363	15
Depth	m	0.62	0.62	0.62	15
PAR - air	$umol/m^2/s$	387	0.0	1,924	326
plant		315	0.0	1588	326
DO rate chng	$g/m^2/hr$				
corr		-0.210	-0.448	0.282	323
uncorr		-0.034	-0.231	0.387	323



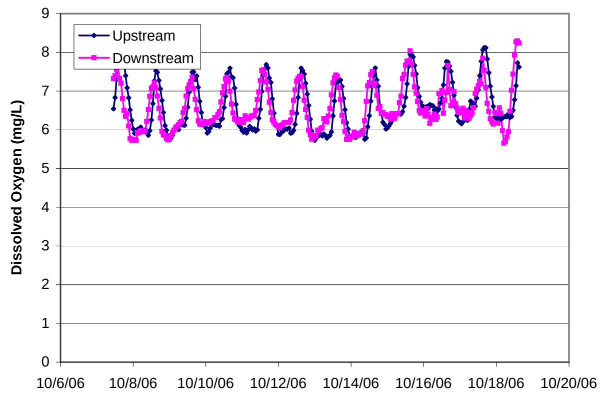
Stats	GPP	NPP24	R24	PAR	PAR Eff.
	(g $O_2/m^2/d$)			($mol/m^2/d$)	(%)
Avg	1.66	-7.72	9.38	17.47	0.78
Max	2.16	-7.14	9.86	21.63	1.02
Min	0.91	-8.49	8.89	12.83	0.50

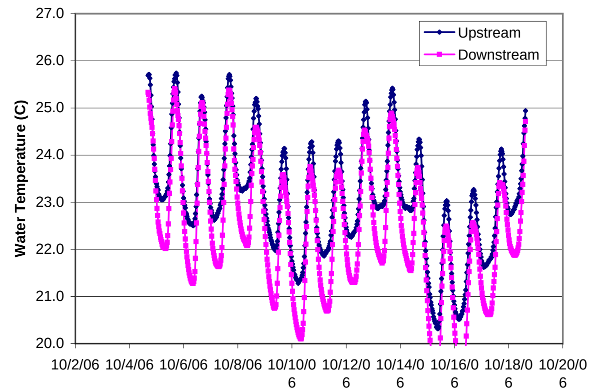
APPENDIX E

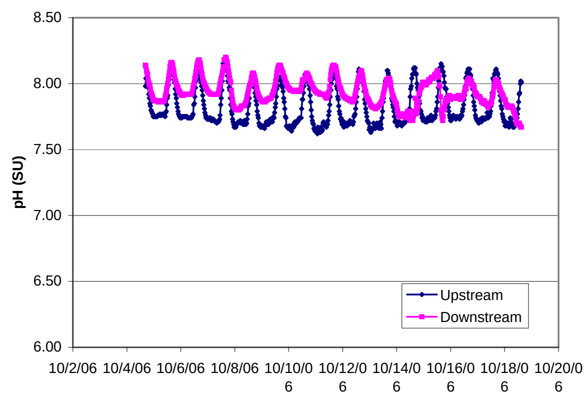
ROCK SPRING RUN - SEGMENT 2 METABOLISM ESTIMATES

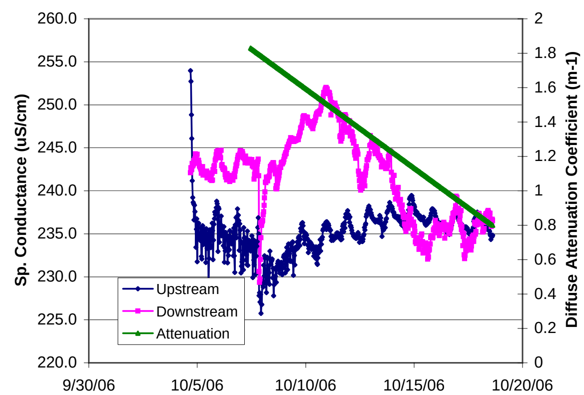
APPENDIX E

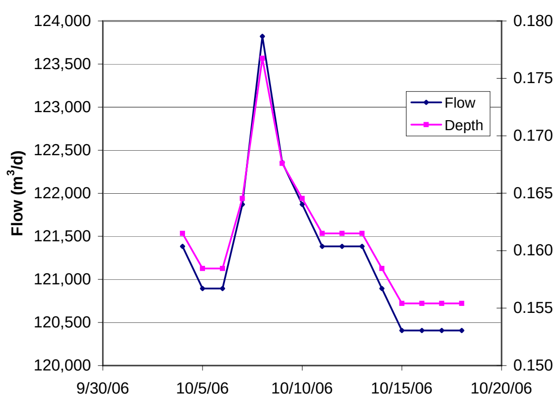
ROCK SPRING RUN - SEGMENT 2 METABOLISM SUMMARY

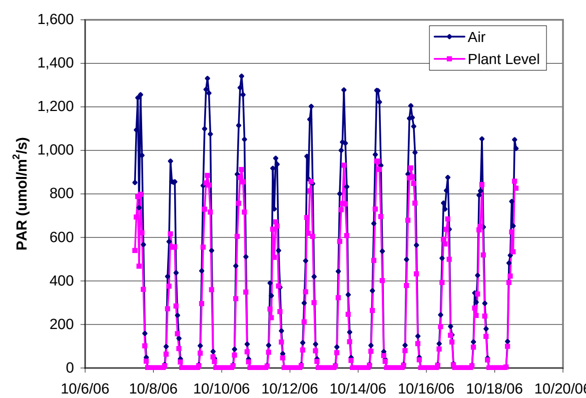


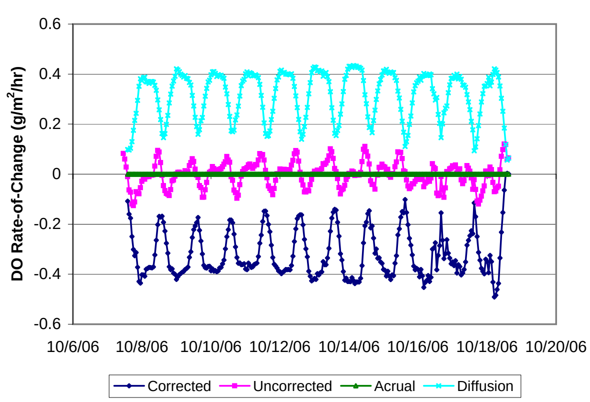




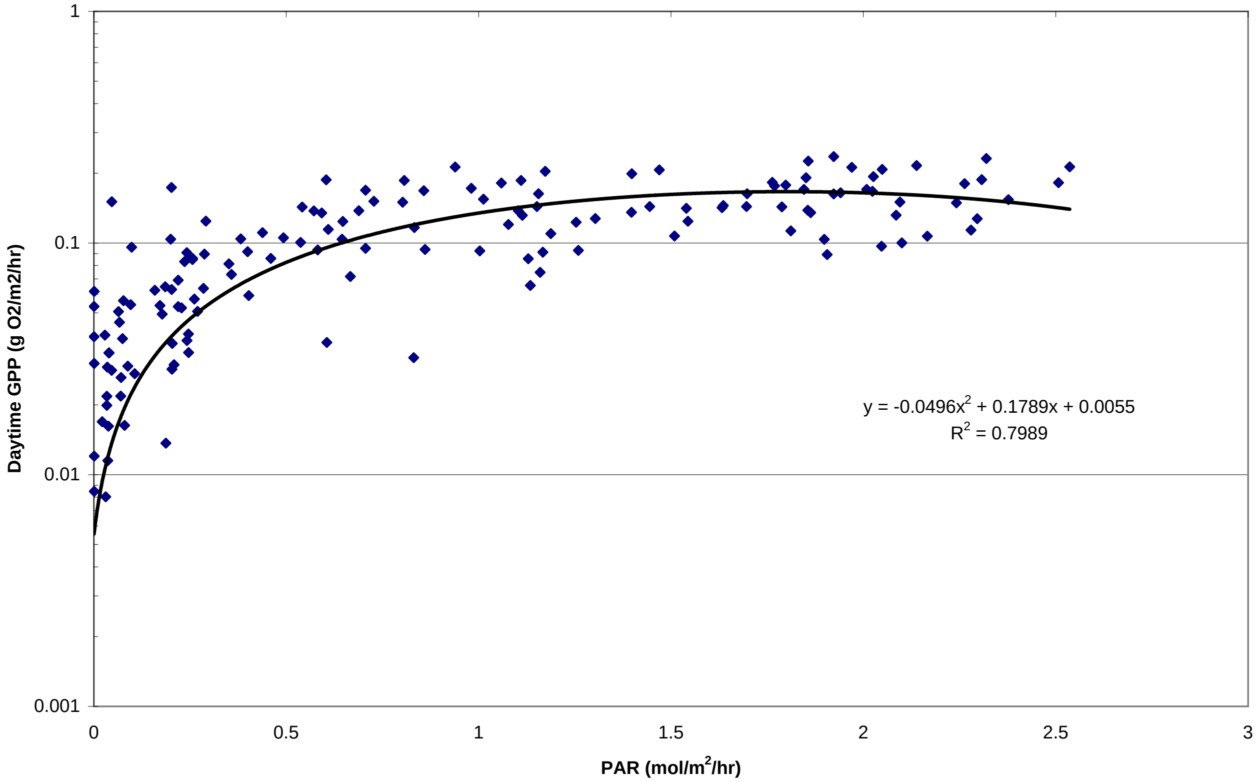


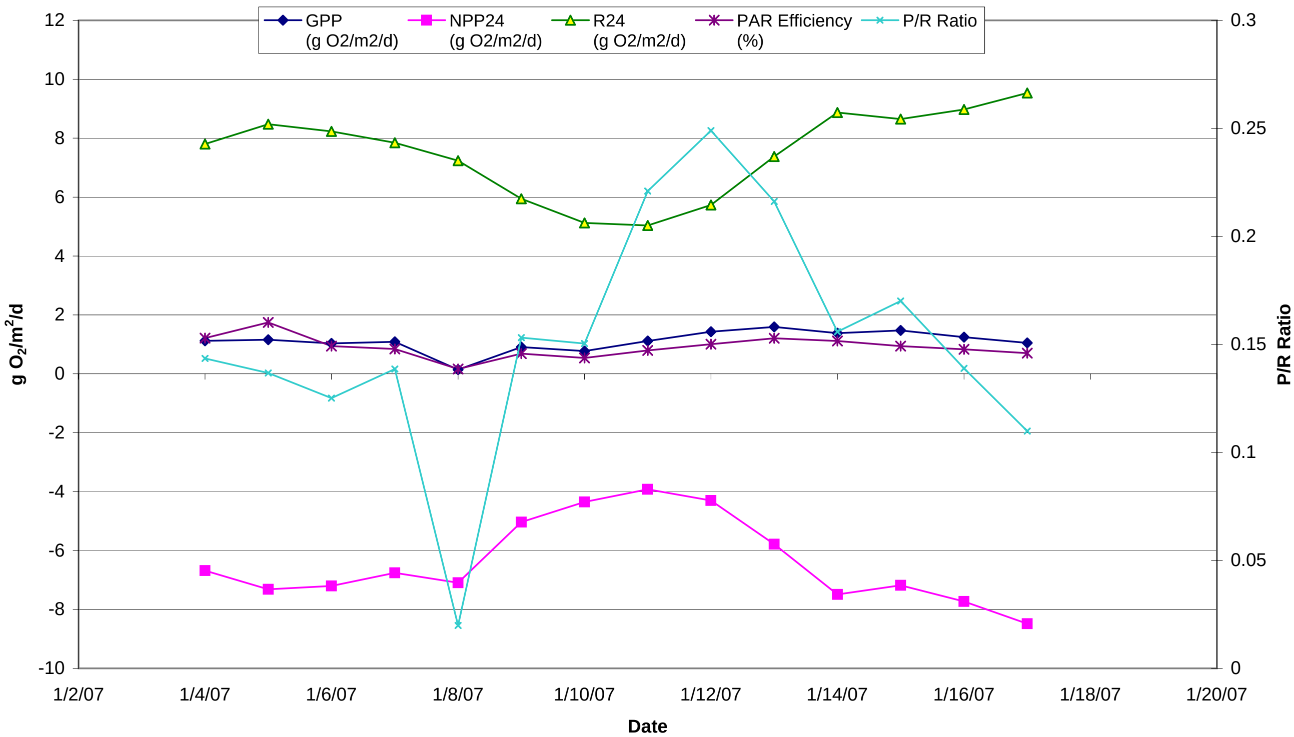






Parameter	Units	Avg	Min	Max	N
DO - up	mg/L	6.57	5.73	8.12	266
down		6.55	5.66	8.30	266
Wtr Temp - up	C	23.1	20.3	25.7	670
down		22.4	19.0	25.4	670
pH - up	SU	---	---	---	---
down		7.94	7.67	8.20	670
SpCond - up	uS/cm	235	226	254	670
down		242	229	252	670
Flow - up	m^3/d	121,318	120,407	123,821	15
Depth	m	0.16	0.16	0.18	15
PAR - air	umol/m^2/s	290	0.0	1,341	269
plant		208	0.0	951	269
DO rate chng	g/m^2/hr				
corr		-0.318	-0.491	0.003	266
uncorr		-0.002	-0.126	0.121	266





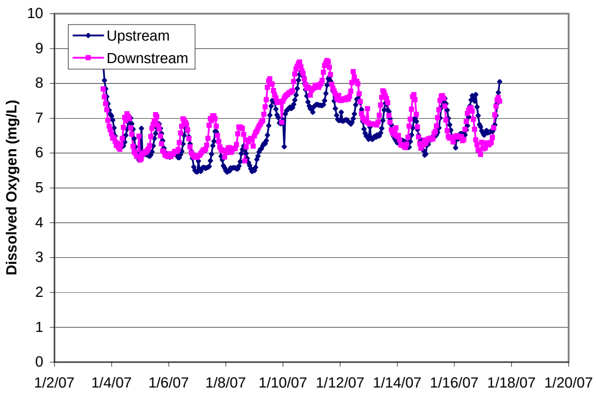
Stats	GPP	NPP24	R24	PAR	PAR Eff.
	$(g\ O_2/m^2/d)$			$(mol/m^2/d)$	(%)
Avg	1.11	-6.38	7.49	10.12	0.91
Max	1.59	-3.92	9.53	12.63	1.75
Min	0.14	-8.48	5.04	5.36	0.17

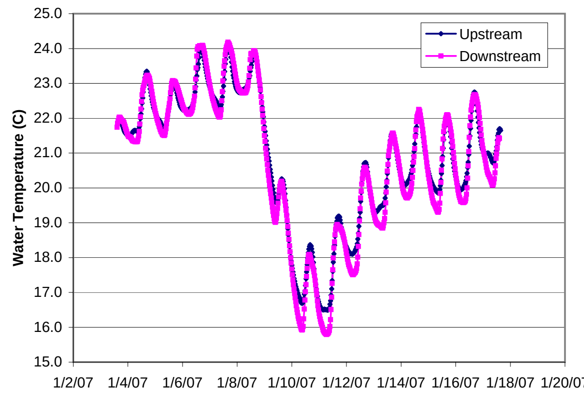
APPENDIX E

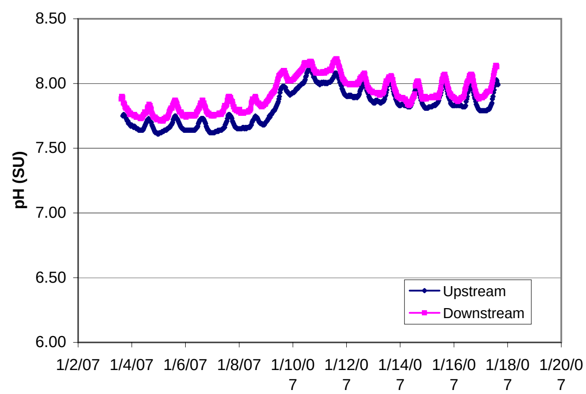
ROCK SPRING RUN - SEGMENT 2 METABOLISM ESTIMATES

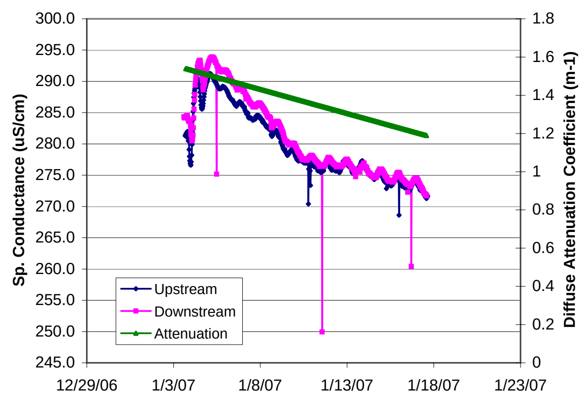
APPENDIX E

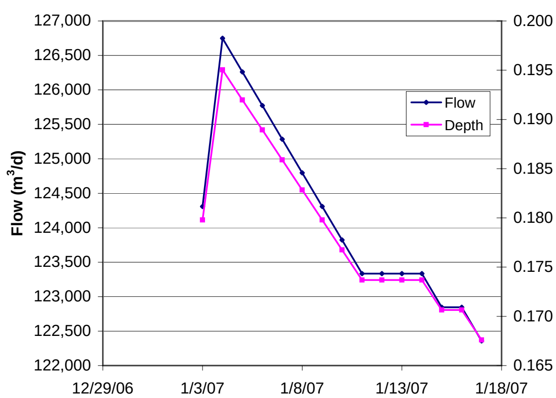
ROCK SPRING RUN - SEGMENT 2 METABOLISM SUMMARY

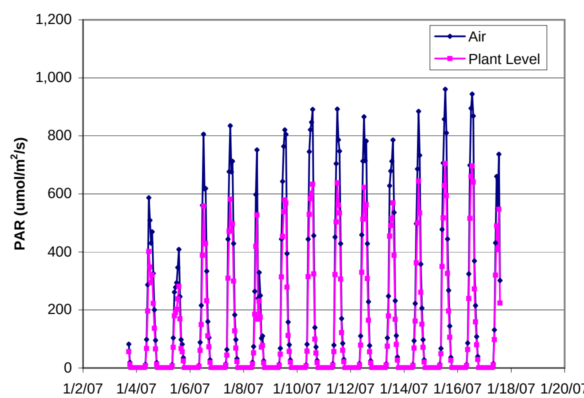


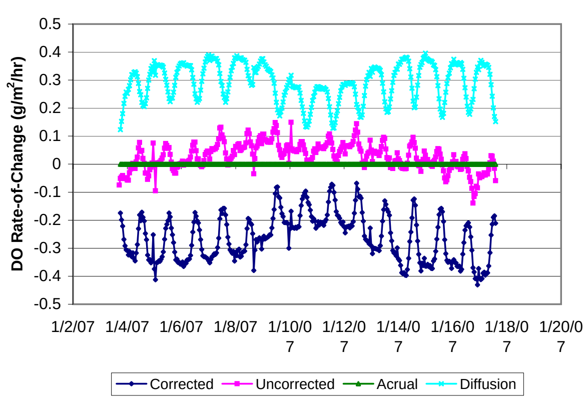




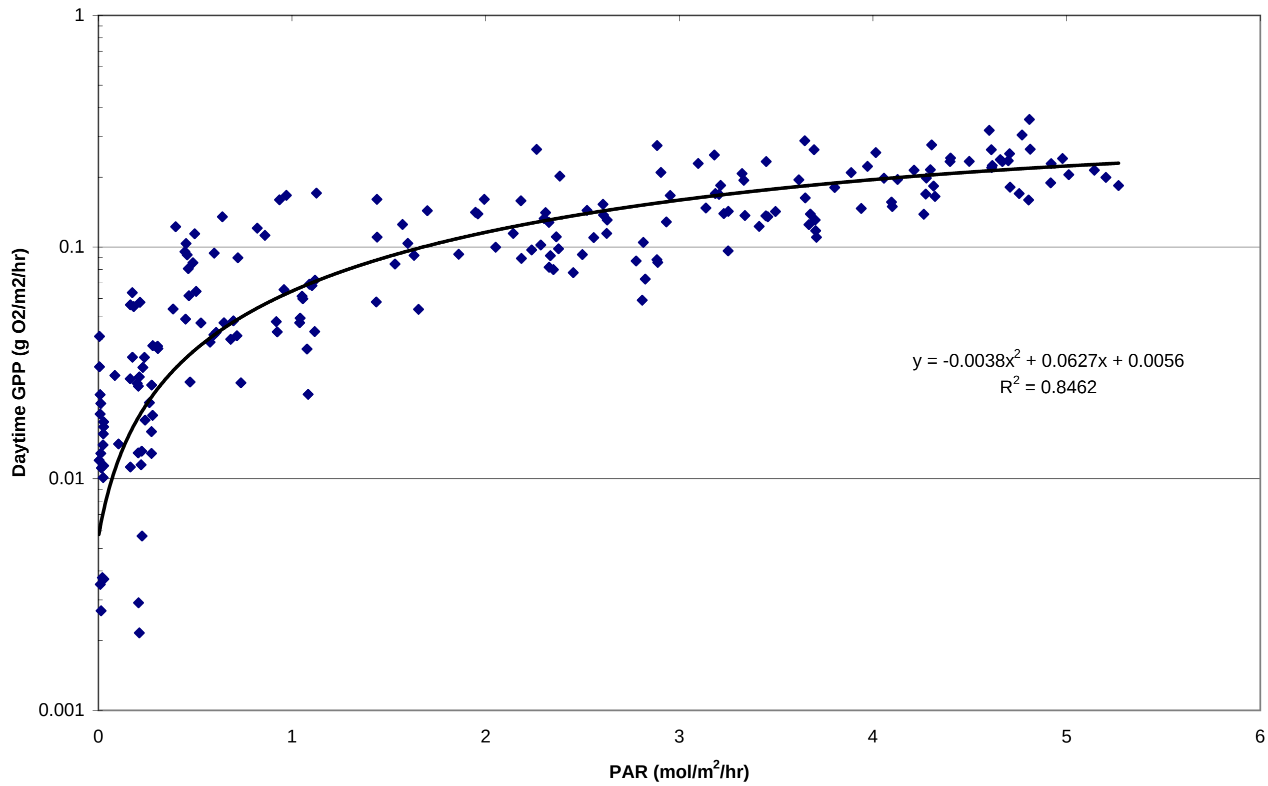


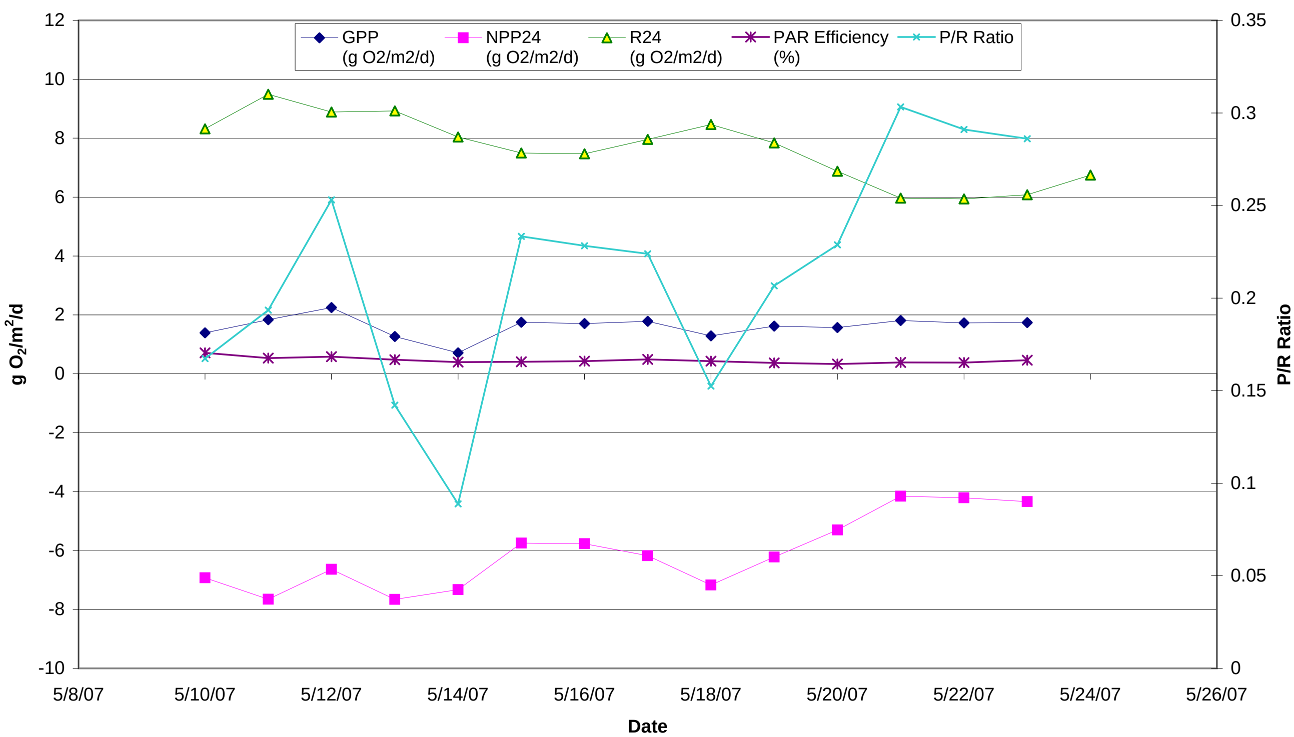






Parameter	Units	Avg	Min	Max	N
DO - up	mg/L	6.62	5.46	8.35	333
down		6.88	5.77	8.65	333
Wtr Temp - up	C	20.9	16.5	24.1	672
down		20.7	15.8	24.2	673
pH - up	SU	7.82	7.61	8.11	672
down		7.91	7.71	8.19	673
SpCond - up	uS/cm	280	269	291	672
down		281	250	294	673
Flow - up	m^3/d	124,179	122,358	126,748	15
Depth	m	0.18	0.17	0.20	15
PAR - air	umol/m^2/s	160	0.0	961	334
plant		114	0.0	705	334
DO rate chng	g/m^2/hr				
corr		-0.264	-0.431	-0.068	333
uncorr		0.028	-0.139	0.149	333



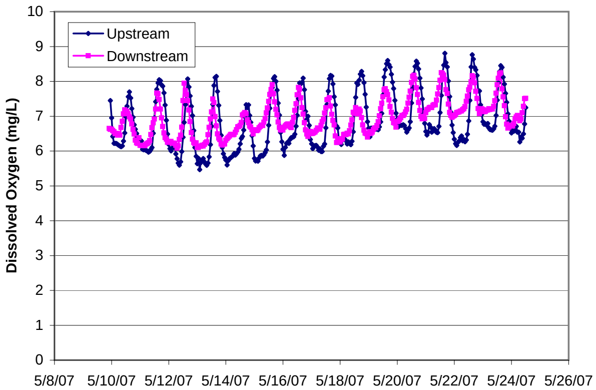


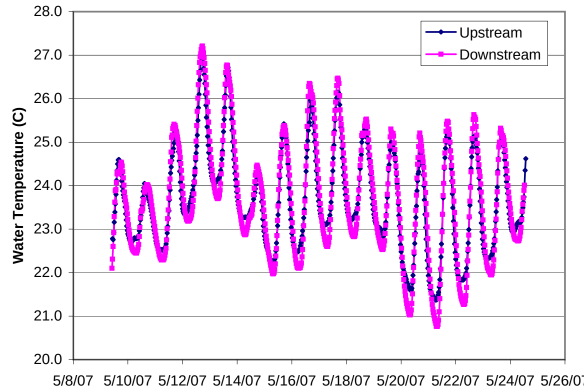
Stats	GPP	NPP24	R24	PAR	PAR Eff.
	(g $O_2/m^2/d$)			(mol/m²/d)	(%)
Avg	1.60	-6.09	7.63	29.29	0.46
Max	2.25	-4.15	9.49	38.06	0.71
Min	0.71	-7.66	5.94	14.58	0.33

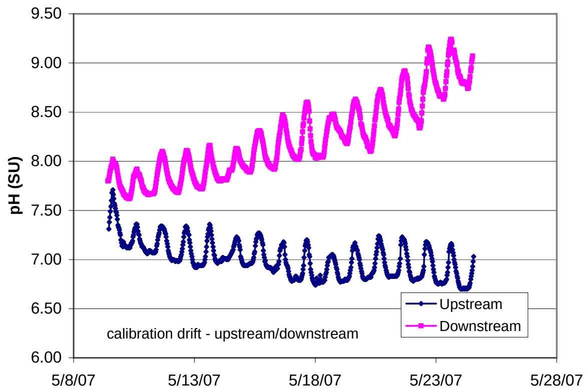
APPENDIX E
ROCK SPRING RUN - SEGMENT 2 METABOLISM ESTIMATES

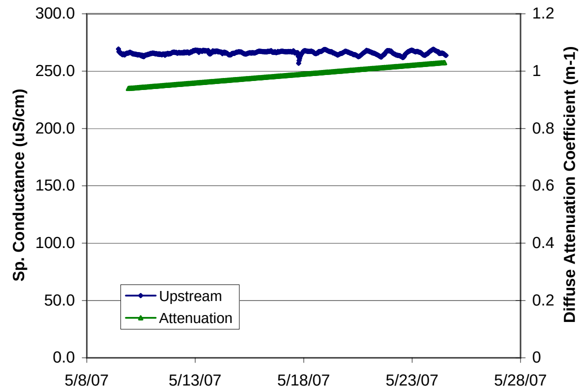
APPENDIX E

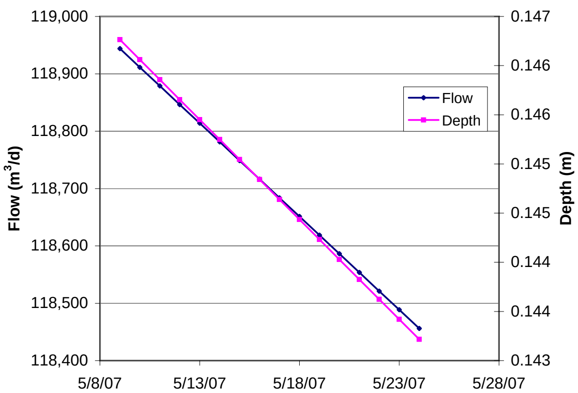
ROCK SPRING RUN - SEGMENT 2 METABOLISM SUMMARY

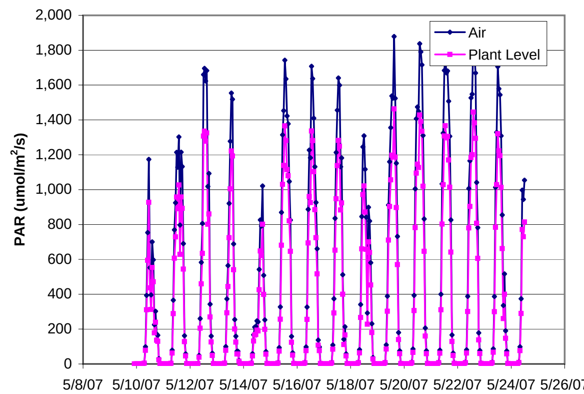


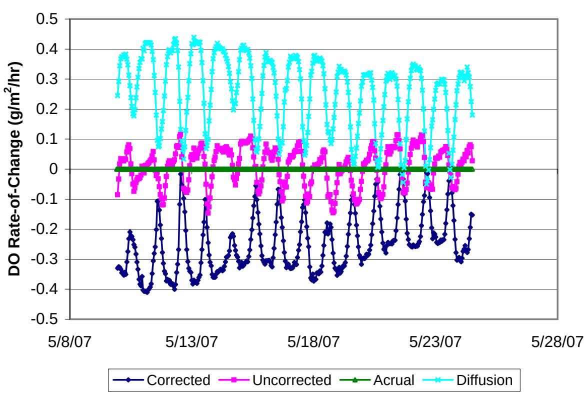




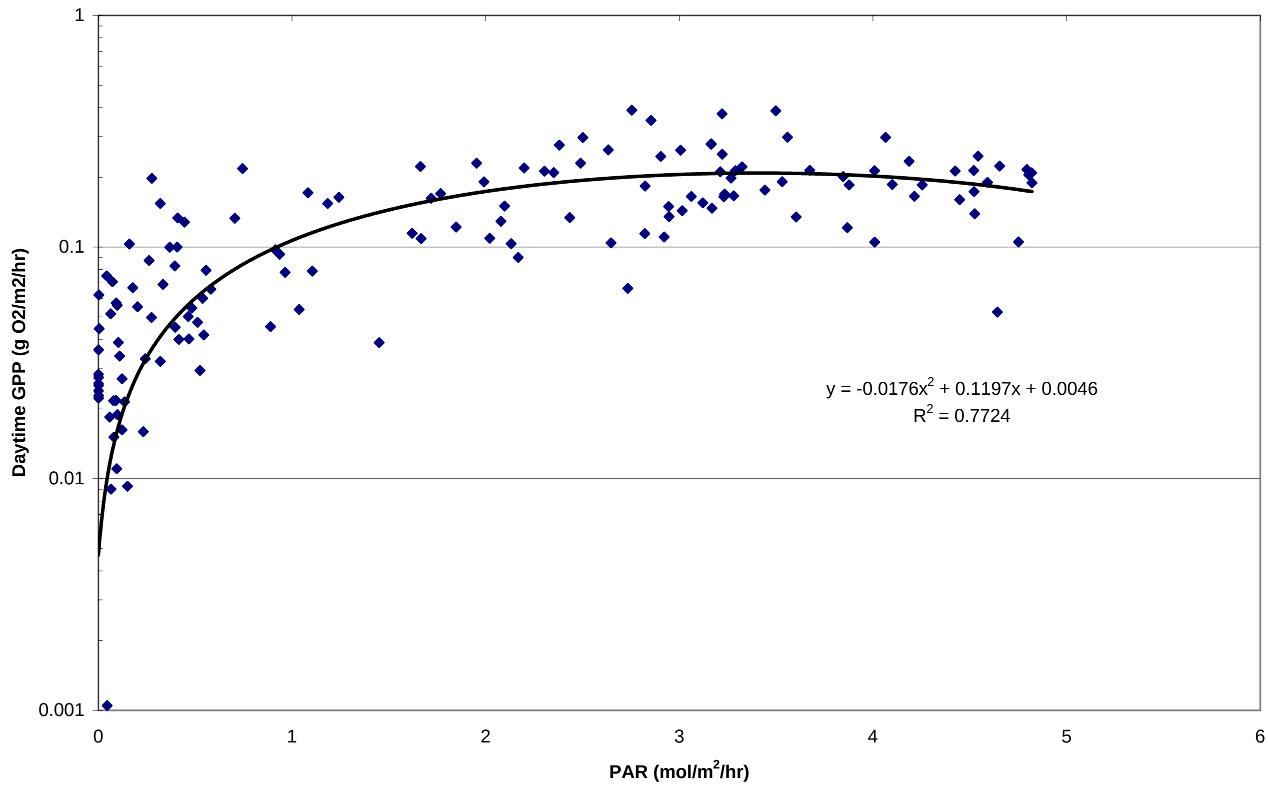








Parameter	Units	Avg	Min	Max	N
DO - up	mg/L	6.85	5.47	8.80	350
down		6.94	6.08	8.25	351
Wtr Temp - up	C	23.7	21.4	27.0	727
down		23.7	20.8	27.2	726
pH - up	SU	7.01	6.70	9.73	727
down		8.22	7.62	9.24	726
SpCond - up	uS/cm	266	1	269	727
down		83	71	106	703
Flow - up	m^3/d	118,700	118,456	118,944	16
Depth	m	0.14	0.14	0.15	16
PAR - air	umol/m^2/s	425	0.0	1,879	351
plant		332	0.0	1463	351
DO rate chng	g/m^2/hr				
corr		-0.252	-0.410	0.006	350
uncorr		0.009	-0.147	0.116	350



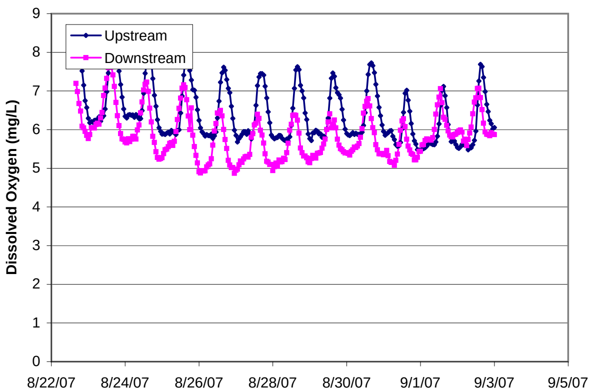
Stats	GPP	NPP24	R24	PAR	PAR Eff.
	(g O_2/m^2/d)			(mol/m^2/d)	(%)
Avg	1.64	-7.98	9.50	24.75	0.55
Max	3.15	-5.81	10.38	32.55	1.08
Min	0.30	-10.08	7.98	16.57	0.12

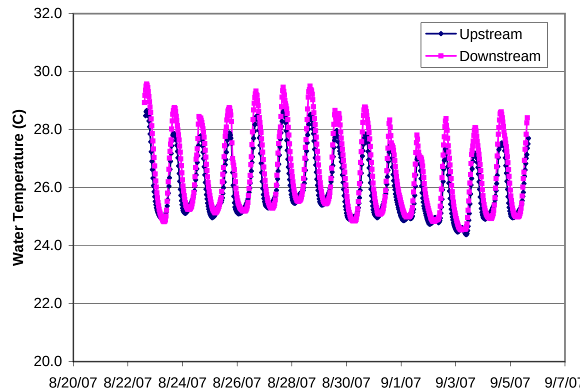
APPENDIX E

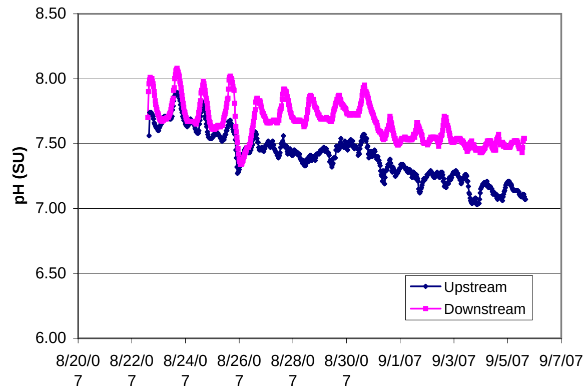
ROCK SPRING RUN - SEGMENT 2 METABOLISM ESTIMATES

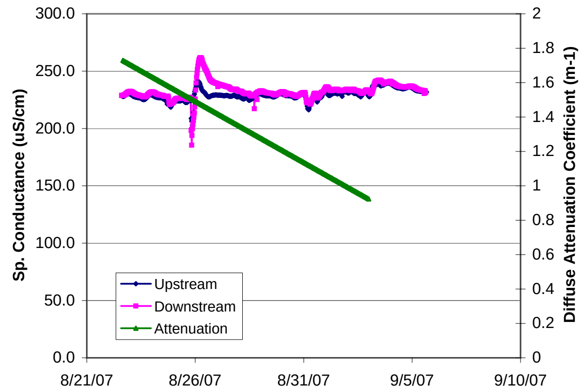
APPENDIX E

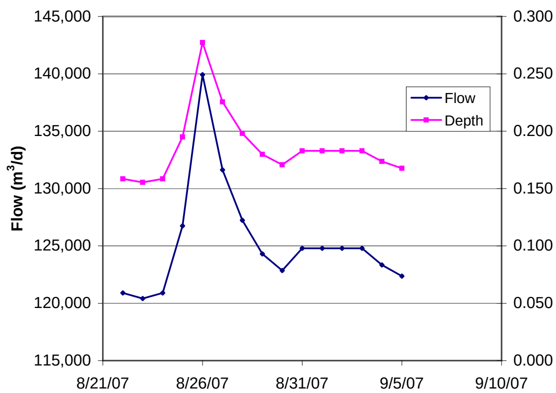
ROCK SPRING RUN - SEGMENT 2 METABOLISM SUMMARY

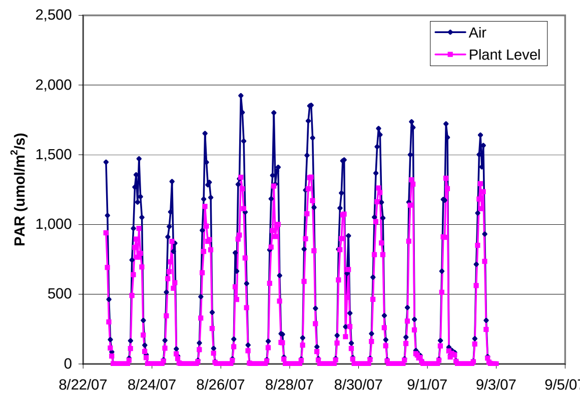


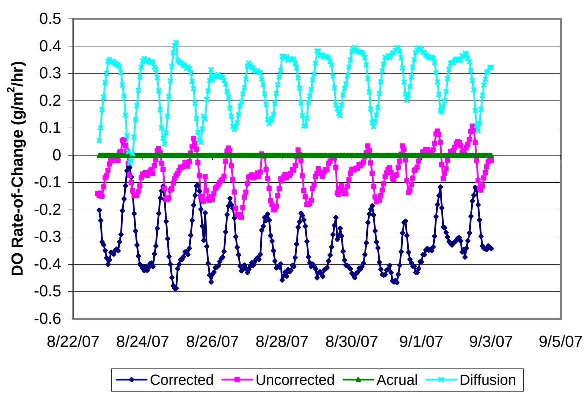




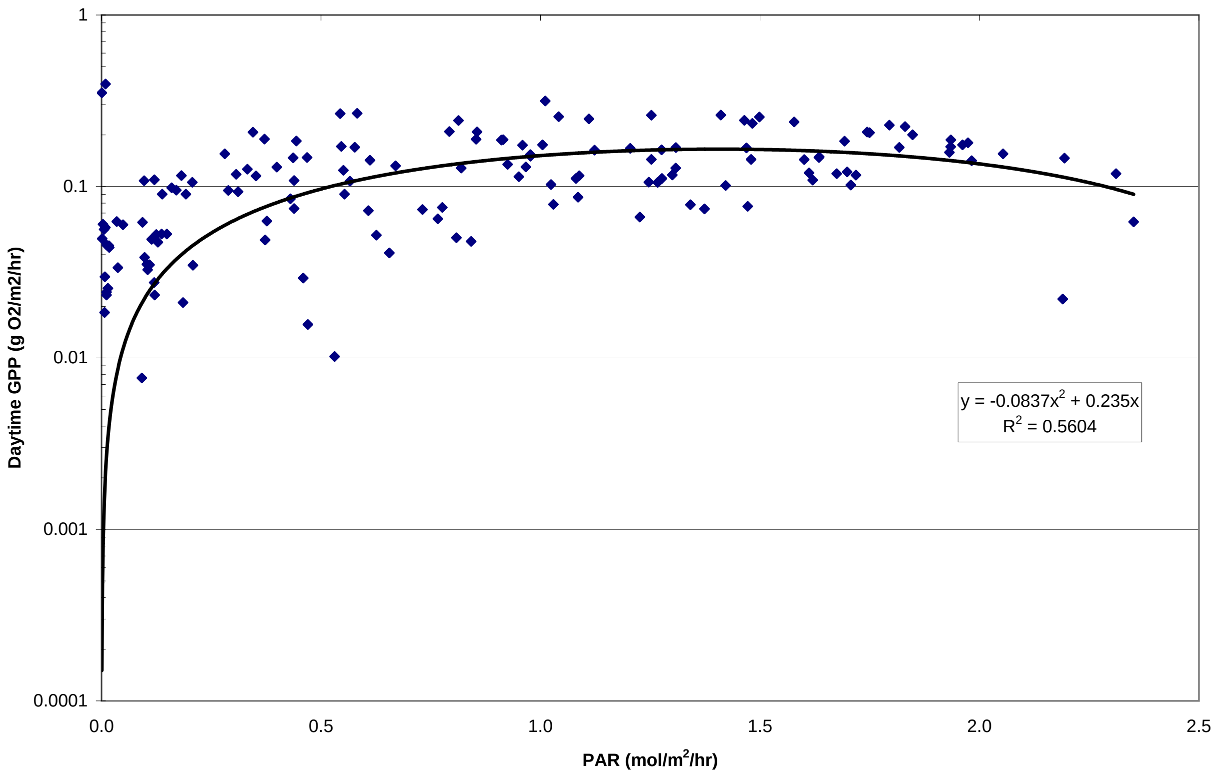


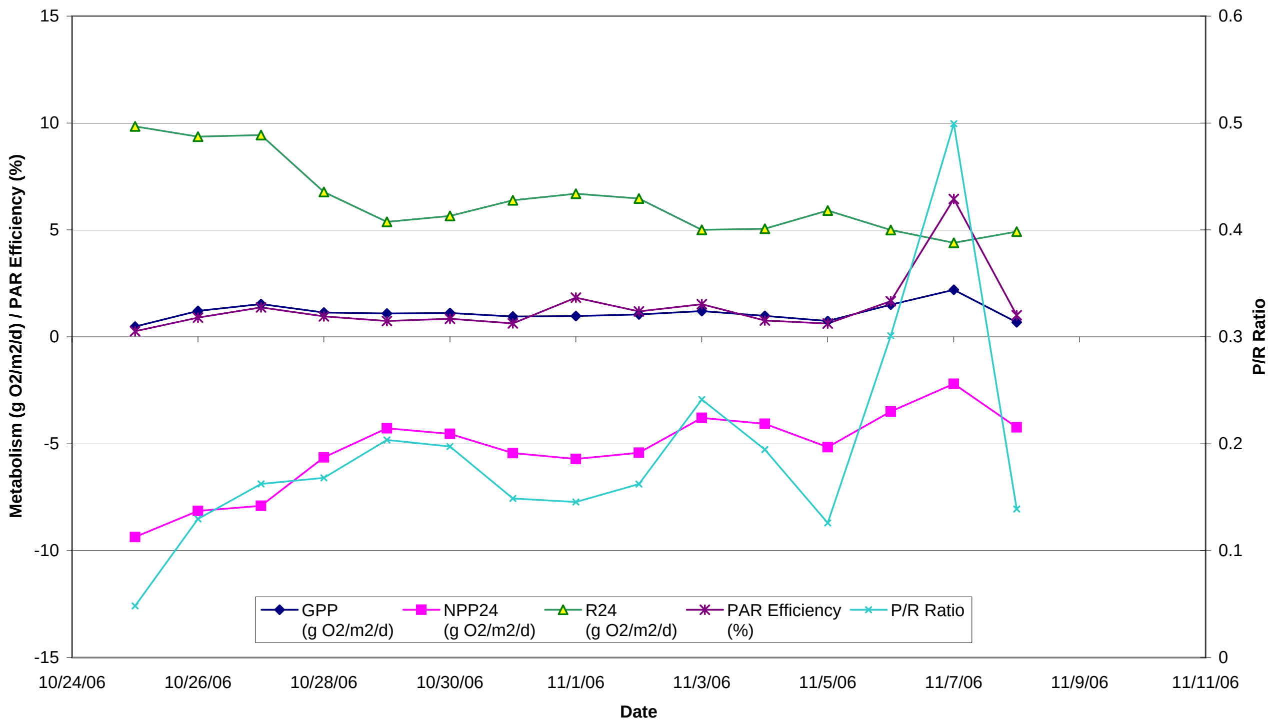






Parameter	Units	Avg	Min	Max	N
DO - up	mg/L	6.40	5.46	8.38	271
down		5.84	4.87	7.66	271
Wtr Temp - up	C	26.0	24.4	28.7	674
down		26.5	24.5	29.6	674
pH - up	SU	7.40	7.03	7.90	674
down		7.66	7.34	8.08	674
SpCond - up	uS/cm	229	201	241	674
down		233	185	262	674
Flow - up	m^3/d	125,317	120,407	139,917	15
Depth	m	0.19	0.16	0.28	15
PAR - air	$umol/m^2/s$	397	0.0	1,924	273
plant		285	0.0	1339	273
DO rate chng	$g/m^2/hr$				
corr		-0.331	-0.488	-0.042	271
uncorr		-0.062	-0.227	0.107	271





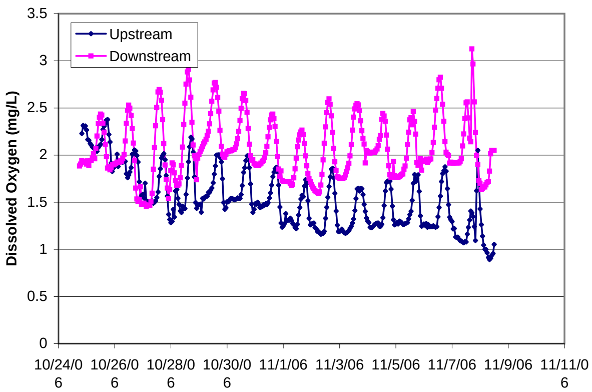
Stats	GPP	NPP24	R24	P/R ratio	PAR Eff. (%)
		(g O_2/m^2/d)			
Avg	1.12	-5.29	6.42	0.19	1.38
Max	2.20	-2.20	9.84	0.50	6.45
Min	0.48	-9.36	4.40	0.05	0.27

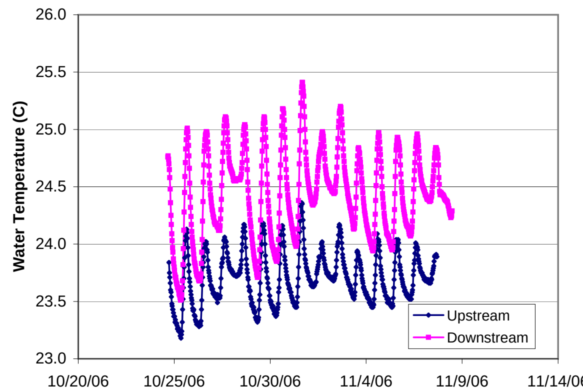
APPENDIX E

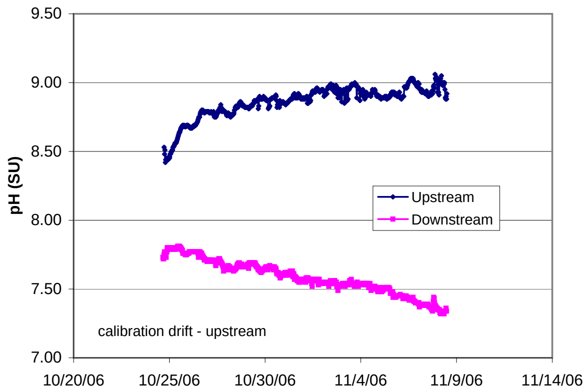
WEKIVA RIVER - SEGMENT 1 METABOLISM ESTIMATES

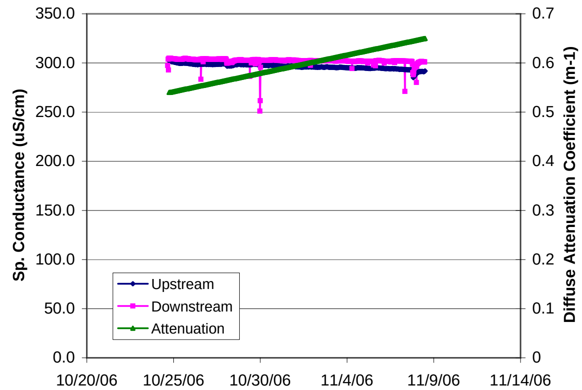
APPENDIX E

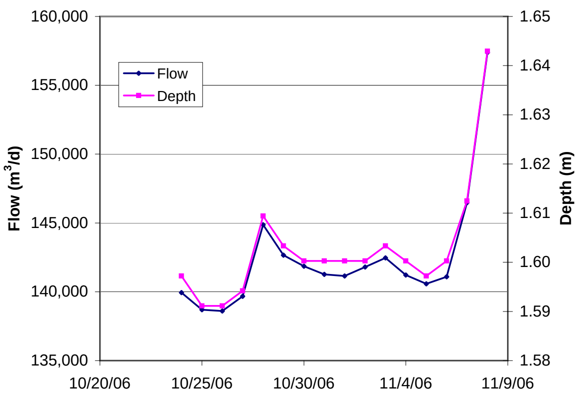
WEKIVA RIVER - SEGMENT 1 METABOLISM SUMMARY

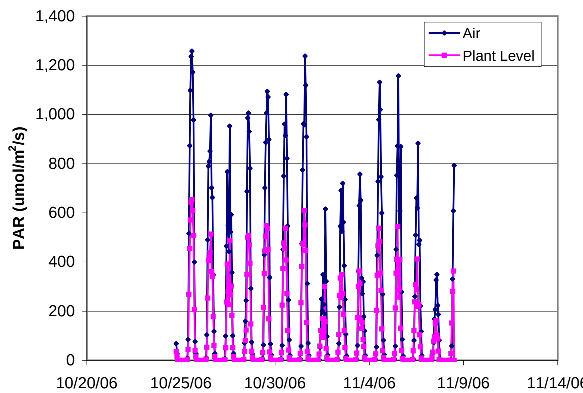


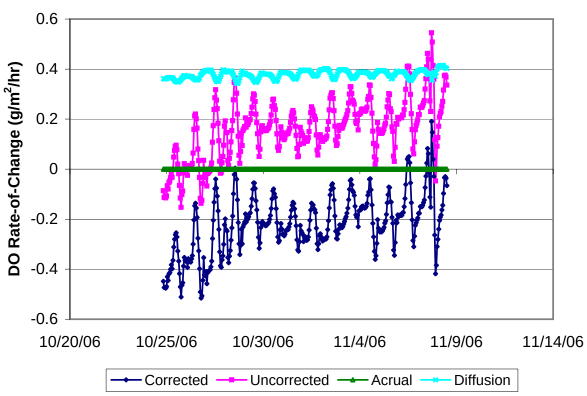




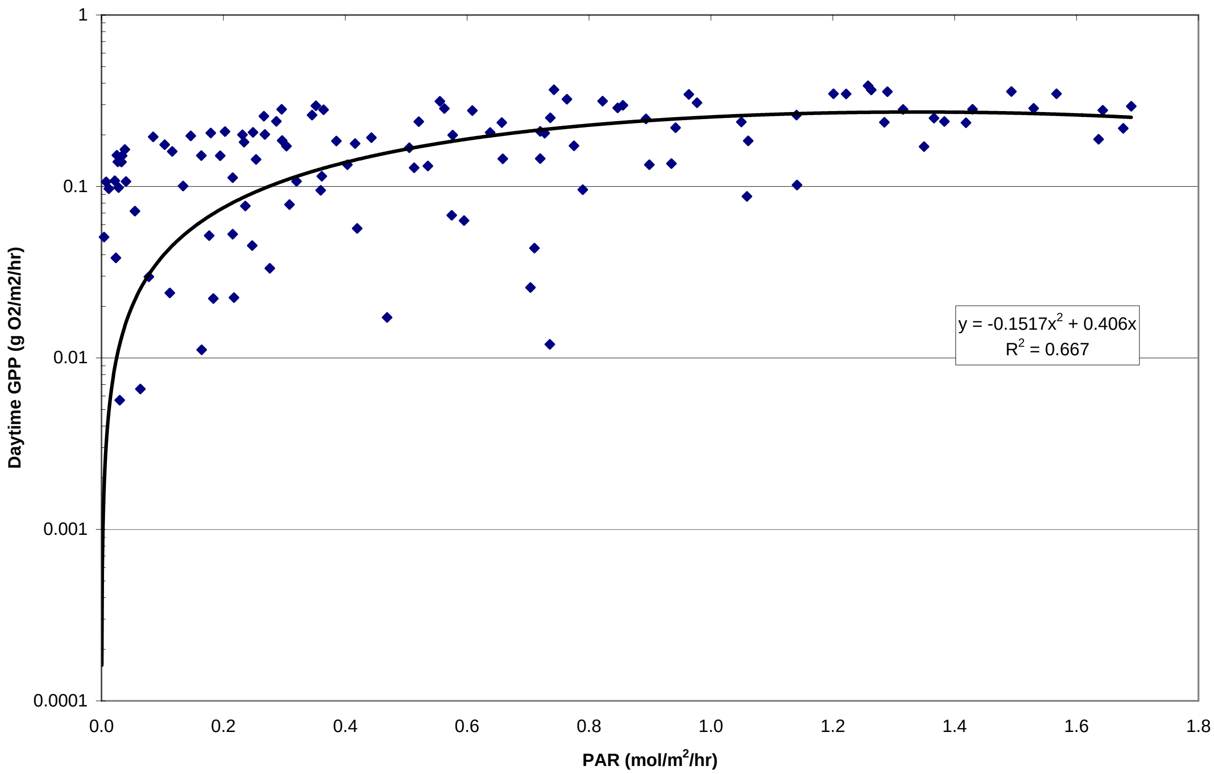


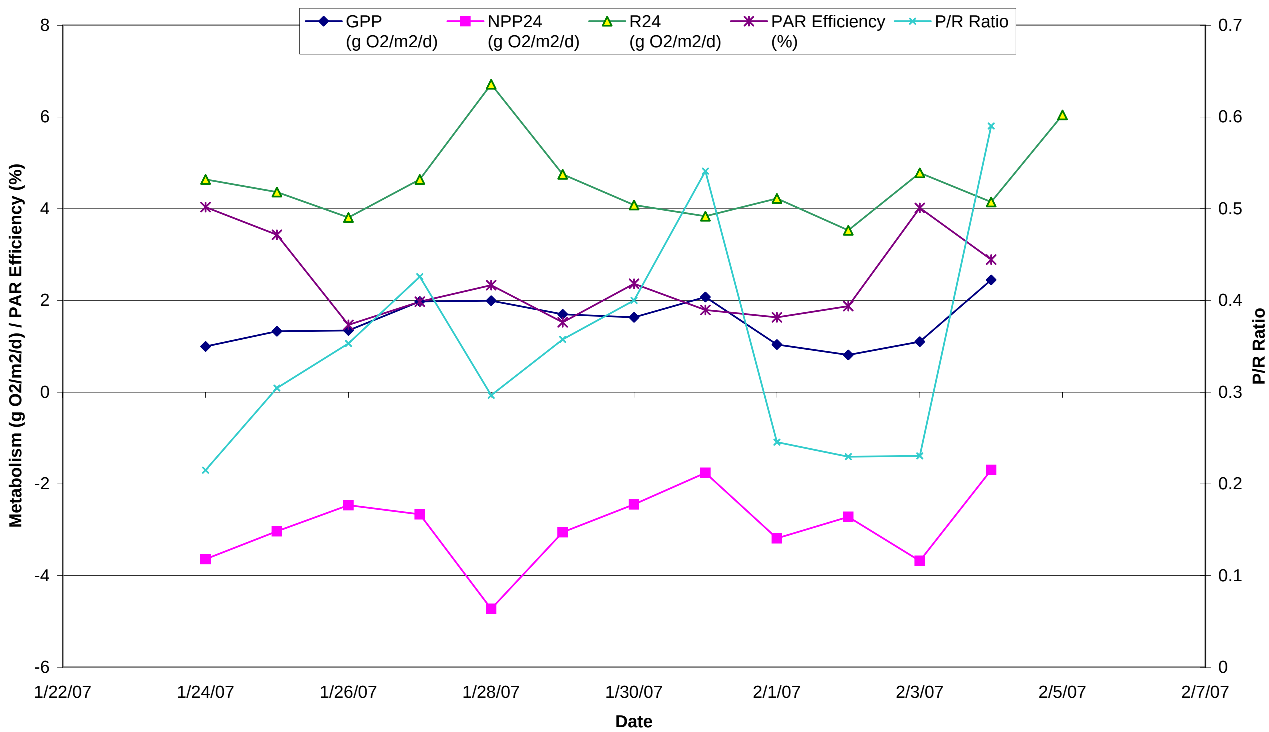






Parameter	Units	Avg	Min	Max	N
DO - up	mg/L	1.54	0.89	2.38	353
down		2.06	1.46	3.13	353
Wtr Temp - up	C	23.7	23.2	24.4	710
down		24.4	23.5	25.4	712
pH - up	SU	8.86	8.42	9.06	710
down		7.58	7.32	7.81	712
SpCond - up	uS/cm	296	285	302	710
down		302	251	305	712
Flow - up	m^3/d	142,482	138,599	157,388	16
Depth	m	1.60	1.59	1.64	16
PAR - air	$umol/m^2/s$	206	0.0	1,258	355
plant		101	0.0	653	355
DO rate chng	$g/m^2/hr$				
corr		-0.220	-0.516	0.191	353
uncorr		0.159	-0.153	0.545	353



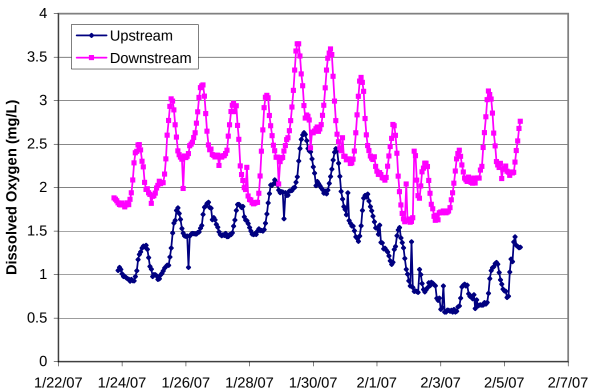


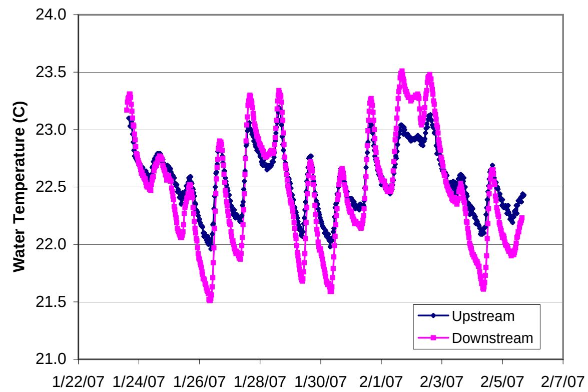
Stats	GPP	NPP24	R24	P/R	PAR Eff.
	(g O_2/m^2/d)			ratio	(%)
Avg	1.54	-2.92	4.58	0.35	2.45
Max	2.45	-1.70	6.72	0.59	4.04
Min	0.81	-4.72	3.53	0.22	1.47

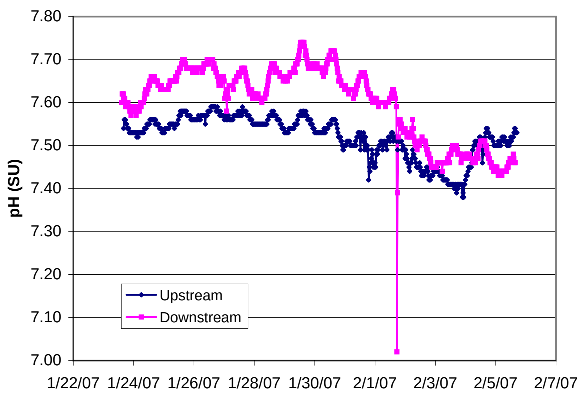
APPENDIX E
WEKIVA RIVER - SEGMENT 1 METABOLISM ESTIMATES

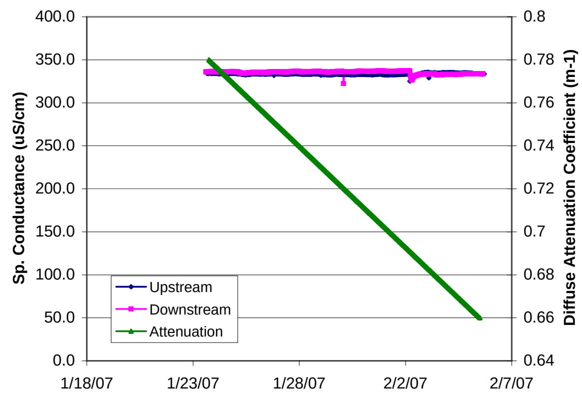
APPENDIX E

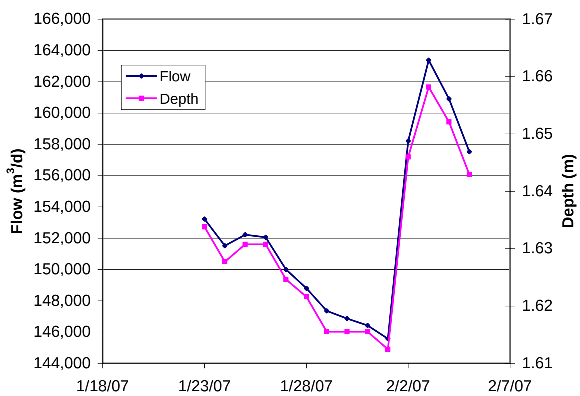
WEKIVA RIVER - SEGMENT 1 METABOLISM SUMMARY

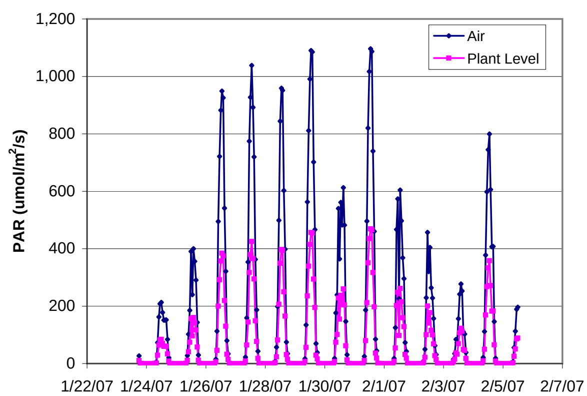


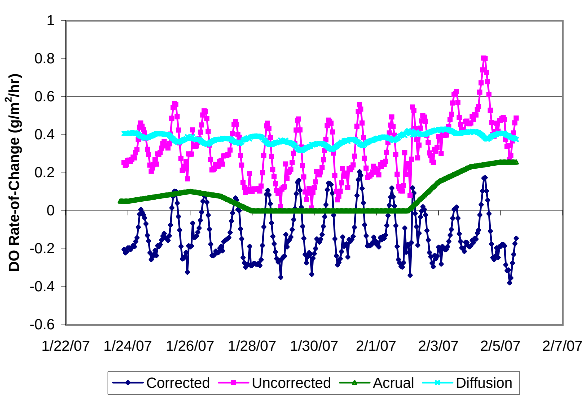




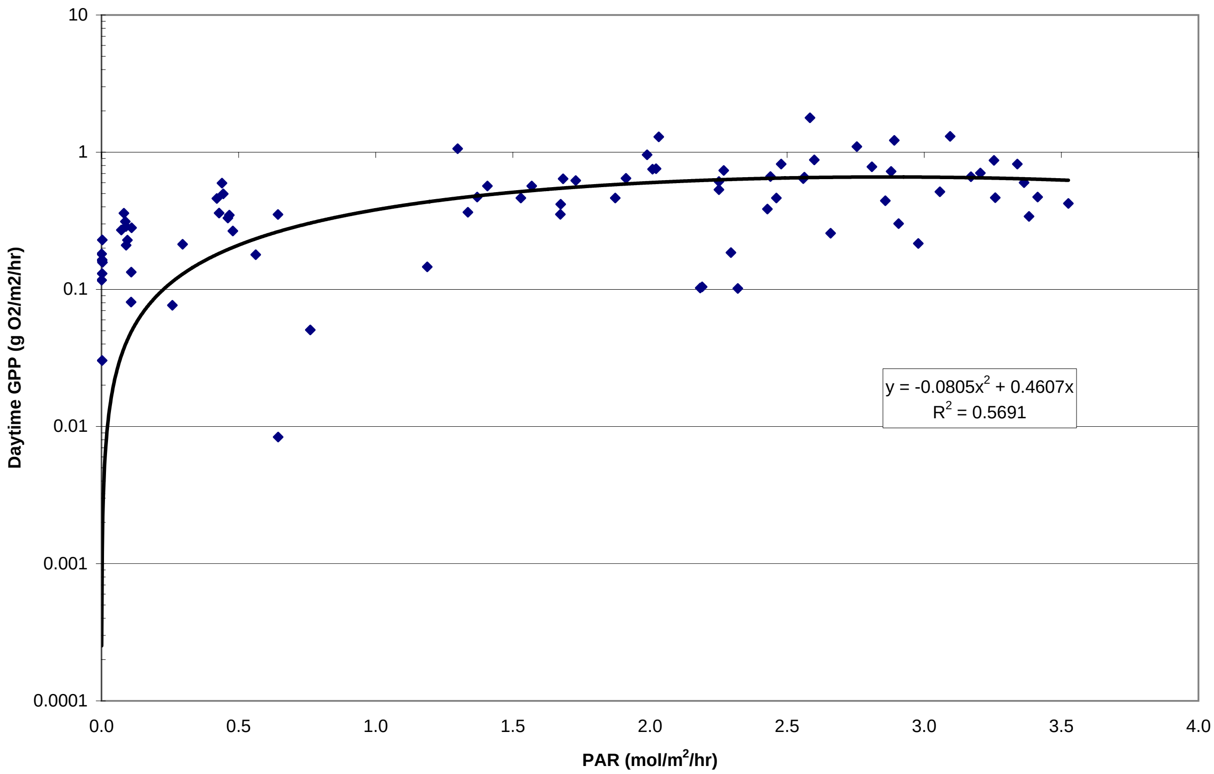


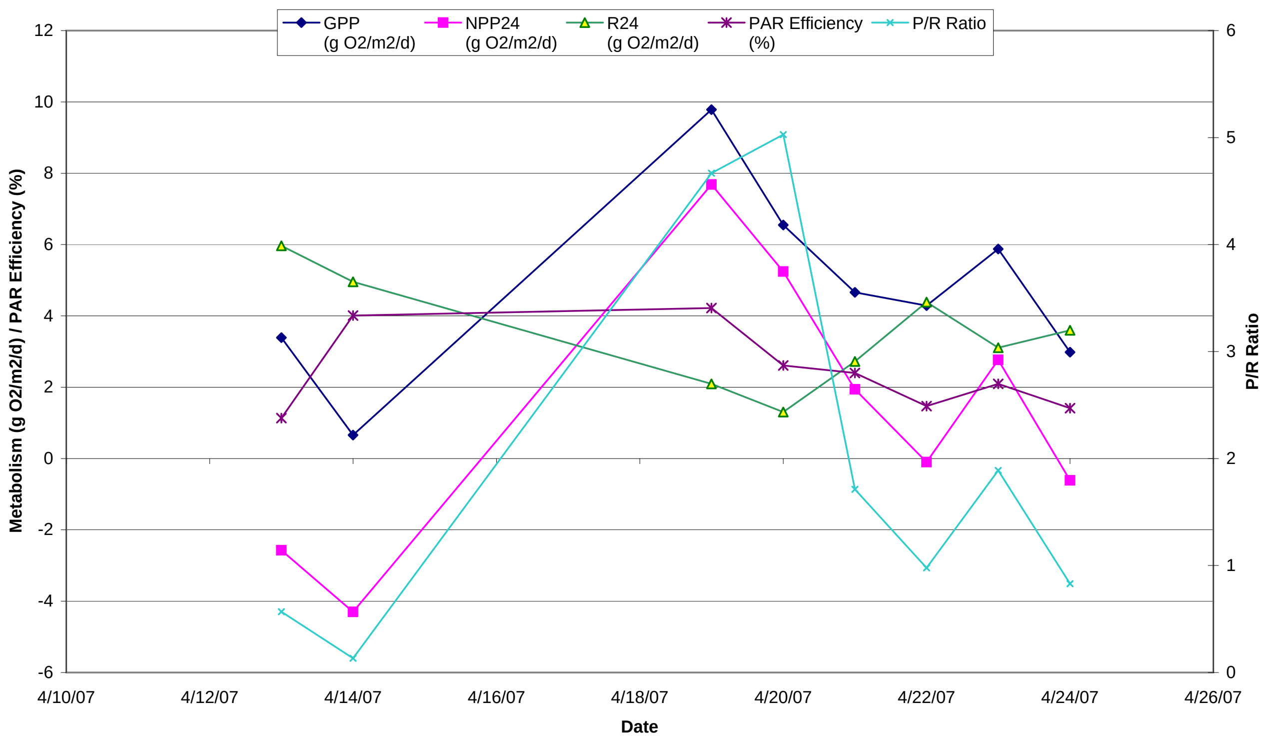






Parameter	Units	Avg	Min	Max	N
DO - up	mg/L	1.39	0.57	2.63	304
down		2.39	1.60	3.65	304
Wtr Temp - up	C	22.6	22.0	23.2	627
down		22.5	21.5	23.5	627
pH - up	SU	7.52	7.38	7.59	627
down		7.60	7.02	7.74	627
SpCond - up	uS/cm	334	325	335	627
down		335	322	337	627
Flow - up	m^3/d	152,436	145,571	163,382	14
Depth	m	1.63	1.61	1.66	14
PAR - air	$umol/m^2/s$	150	0.0	1,096	307
plant		63	0.0	469	307
DO rate chng	$g/m^2/hr$				
corr		-0.129	-0.379	0.205	304
uncorr		0.326	0.014	0.803	304



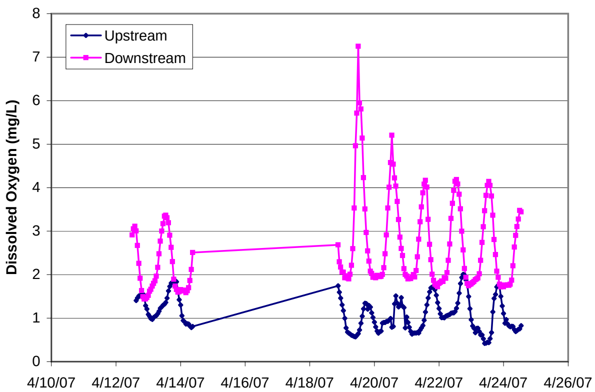


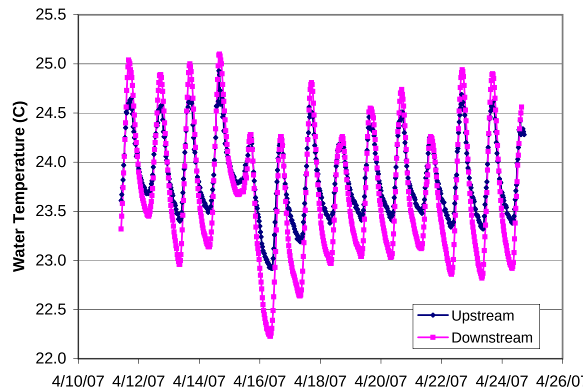
Stats	GPP	NPP24	R24	P/R	PAR Eff.
	($g\ O_2/m^2/d$)			ratio	(%)
Avg	4.77	1.26	3.52	1.98	2.42
Max	9.78	7.69	5.97	5.03	4.22
Min	0.66	-4.30	1.30	0.13	1.14

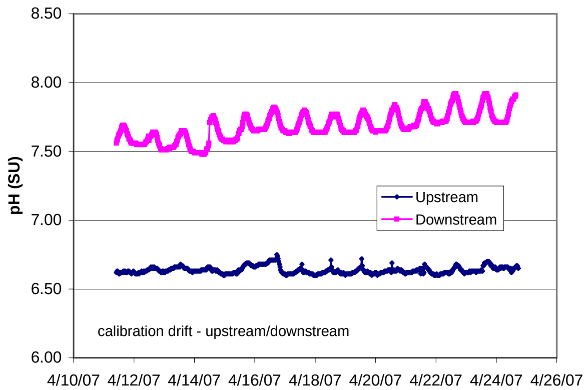
APPENDIX E
WEKIVA RIVER - SEGMENT 1 METABOLISM ESTIMATES

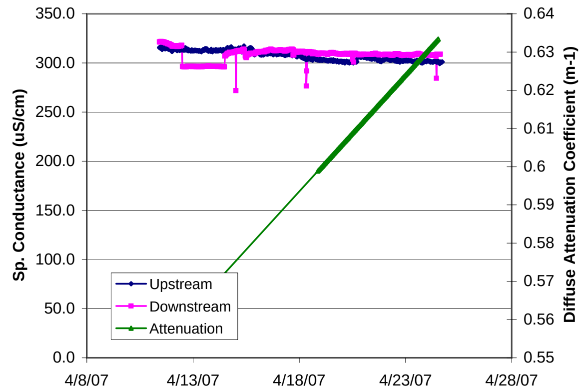
APPENDIX E

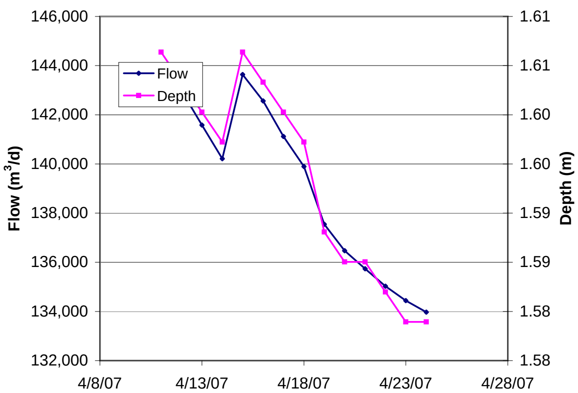
WEKIVA RIVER - SEGMENT 1 METABOLISM SUMMARY

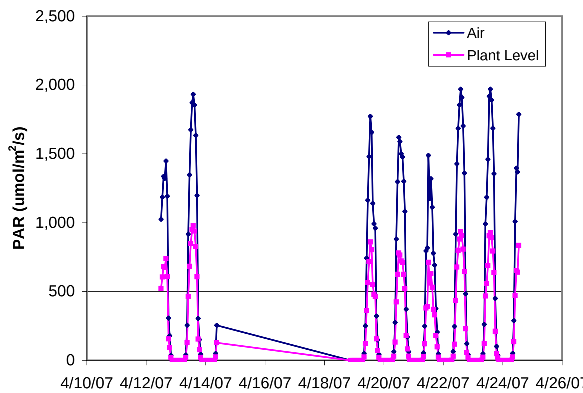


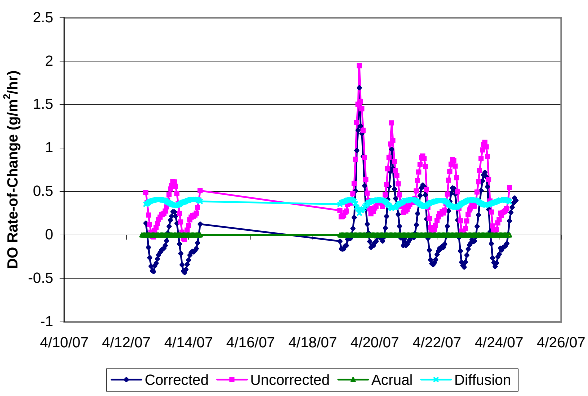




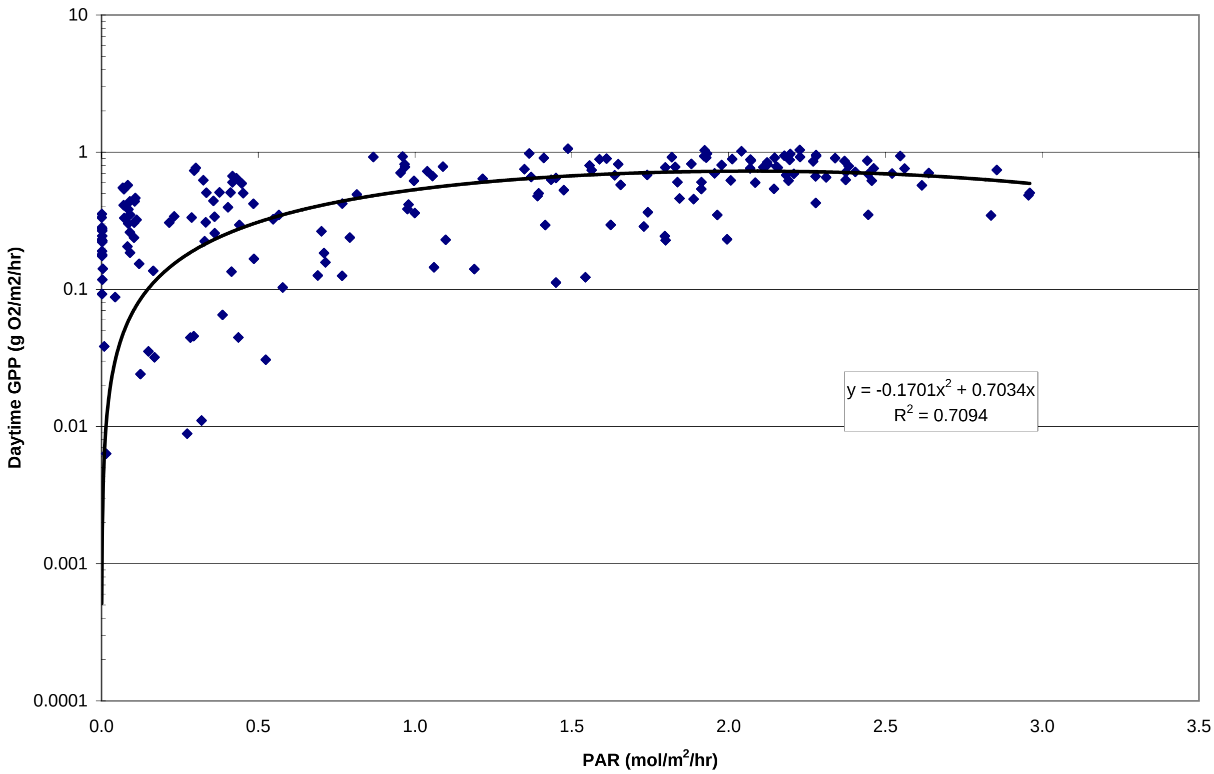


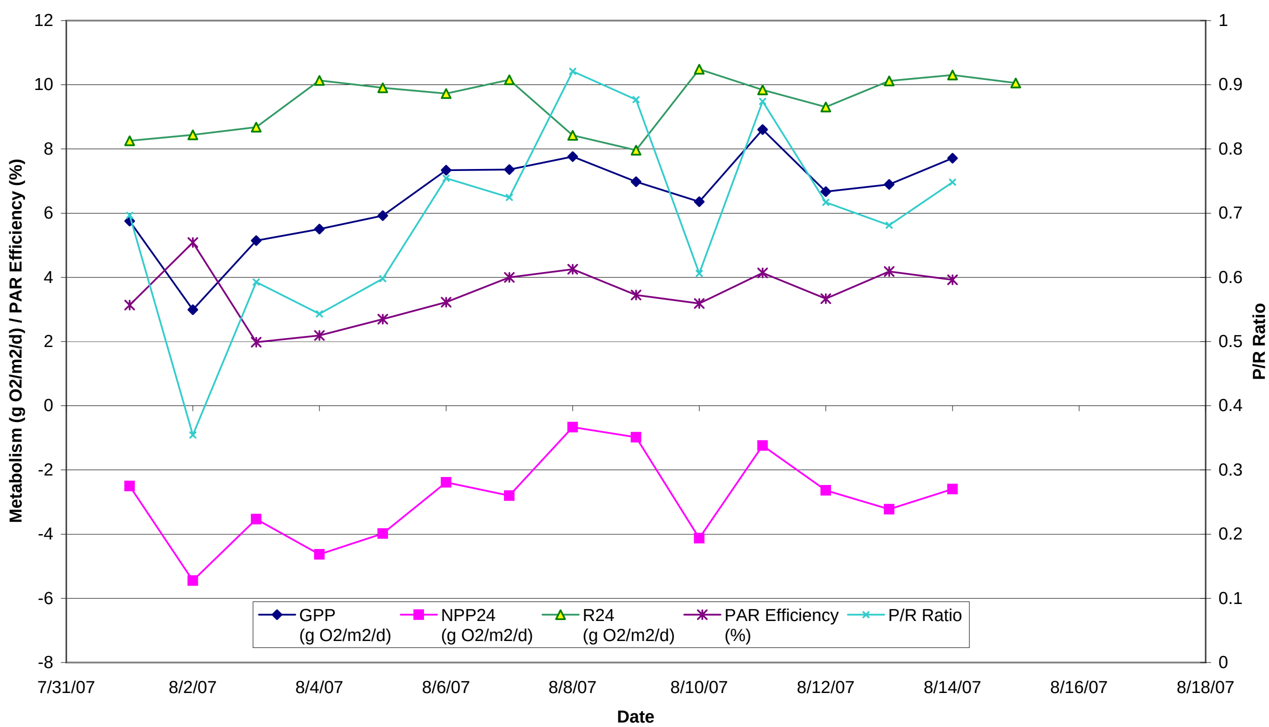






Parameter	Units	Avg	Min	Max	N
DO - up	mg/L	1.10	0.42	2.01	180
down		2.61	1.44	7.25	183
Wtr Temp - up	C	23.8	22.9	24.9	640
down		23.7	22.2	25.1	636
pH - up	SU	6.64	6.60	6.75	640
down		7.68	7.48	7.92	636
SpCond - up	uS/cm	307	299	319	640
down		308	272	322	636
Flow - up	m^3/d	139,208	133,975	143,736	14
Depth	m	1.59	1.58	1.61	14
PAR - air	$umol/m^2/s$	471	0.0	1,970	183
plant		228	0.0	979	183
DO rate chng	$g/m^2/hr$				
corr		0.065	-0.434	1.694	180
uncorr		0.430	-0.053	1.945	175



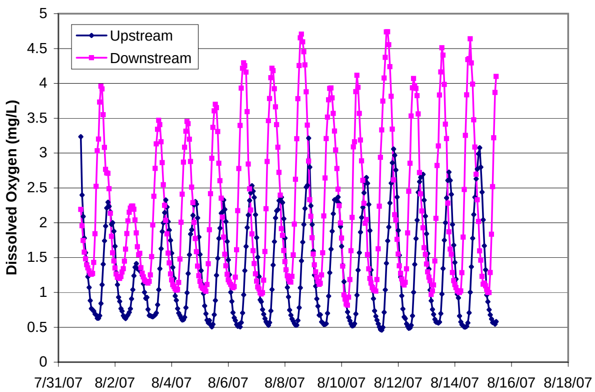


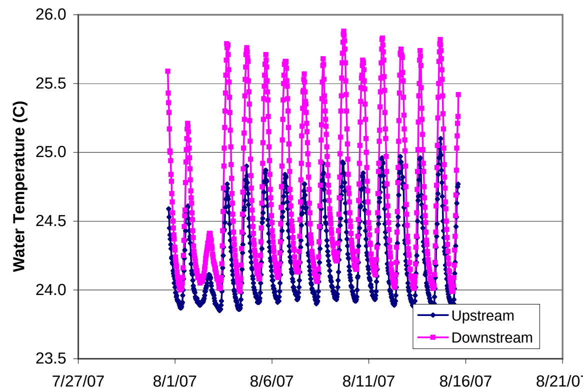
Stats	GPP	NPP24	R24	P/R ratio	PAR Eff. (%)
	($g\ O_2/m^2/d$)				
Avg	6.50	-2.91	9.45	0.69	3.48
Max	8.60	-0.67	10.48	0.92	5.09
Min	2.99	-5.45	7.96	0.35	1.98

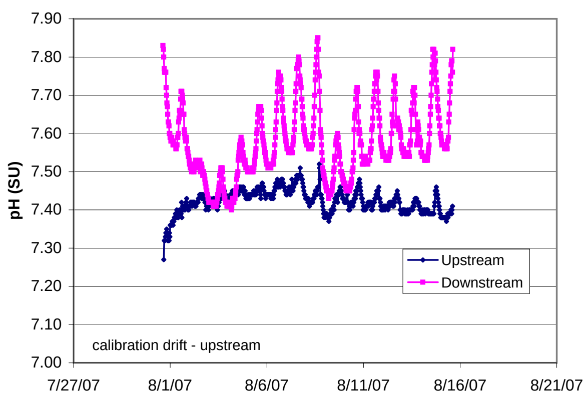
APPENDIX E
WEKIVA RIVER - SEGMENT 1 METABOLISM ESTIMATES

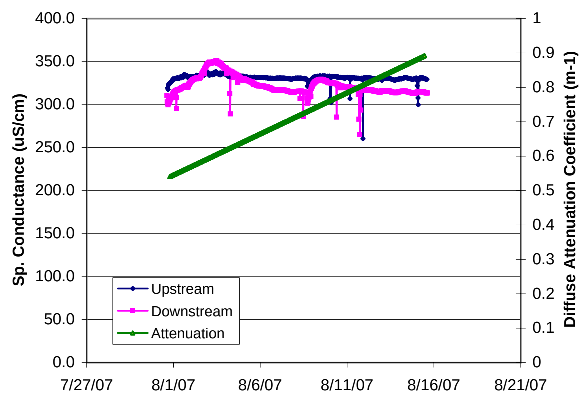
APPENDIX E

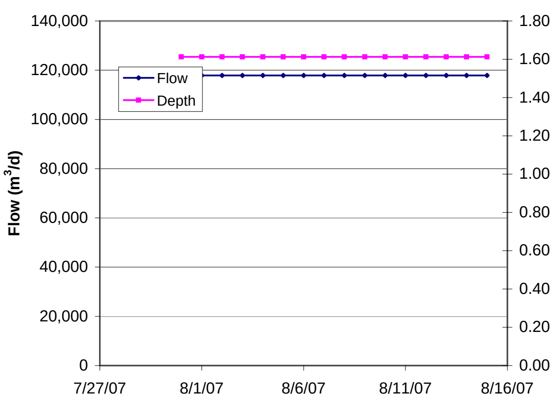
WEKIVA RIVER - SEGMENT 1 METABOLISM SUMMARY

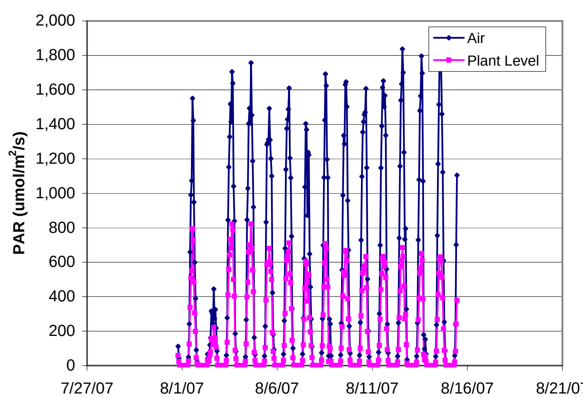


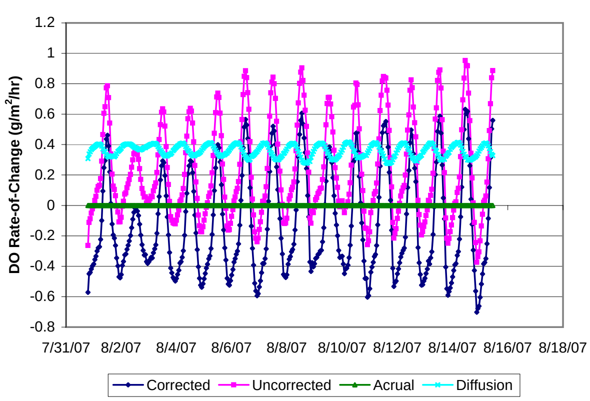




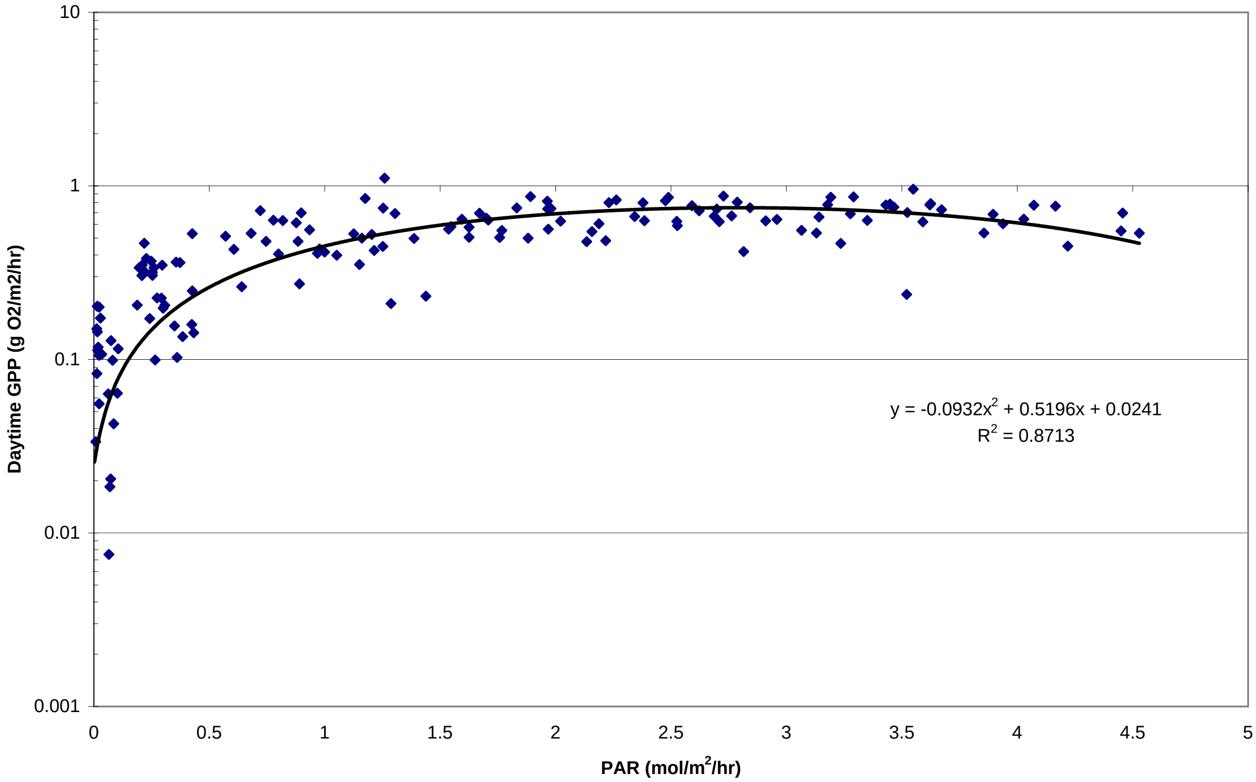


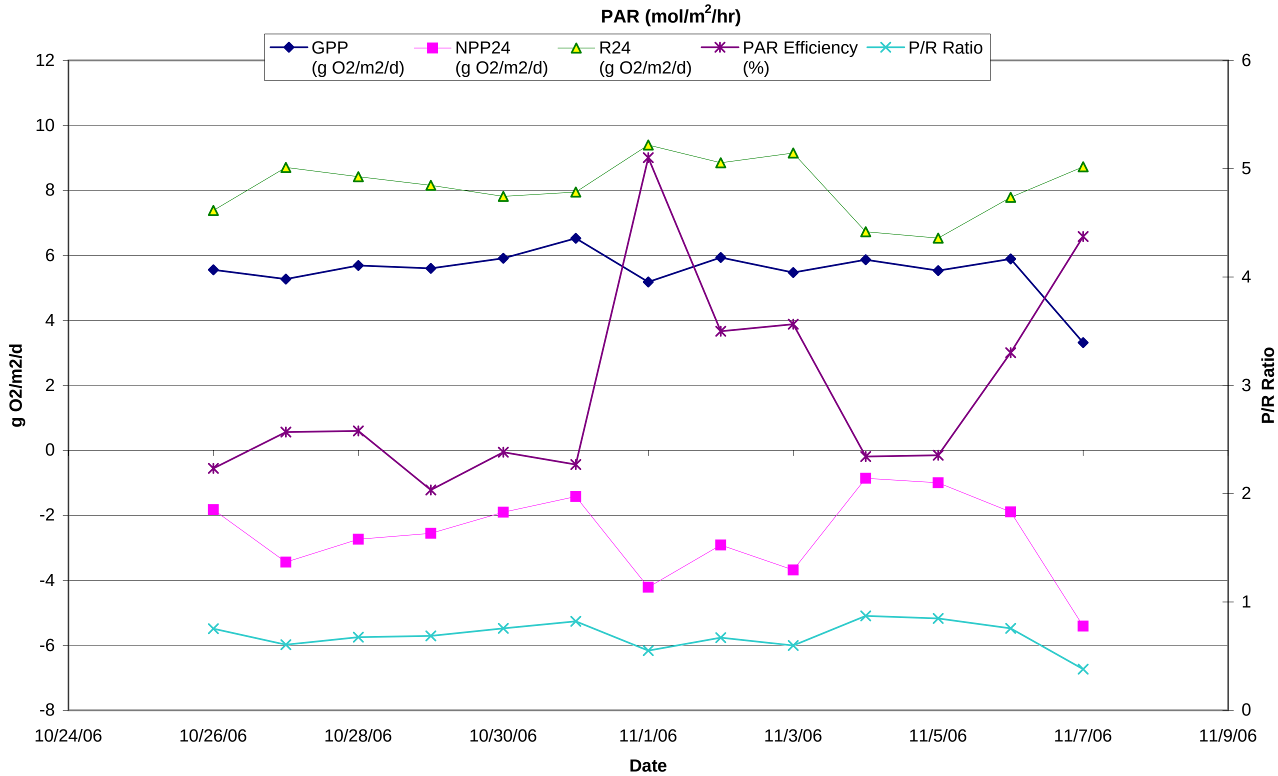






Parameter	Units	Avg	Min	Max	N
DO - up	mg/L	1.35	0.46	3.23	353
down		2.26	0.82	4.74	353
Wtr Temp - up	C	24.2	23.9	25.1	718
down		24.7	24.0	25.9	721
pH - up	SU	7.42	7.27	7.52	718
down		7.57	7.40	7.85	721
SpCond - up	uS/cm	331	260	339	718
down		322	265	351	721
Flow - up	m^3/d	117,865	117,865	117,865	16
Depth	m	1.61	1.61	1.61	16
PAR - air	umol/m^2/s	420	0.0	1,837	353
plant		176	0.0	822	353
DO rate chng	g/m^2/hr				
corr		-0.128	-0.702	0.632	353
uncorr		0.231	-0.373	0.953	353



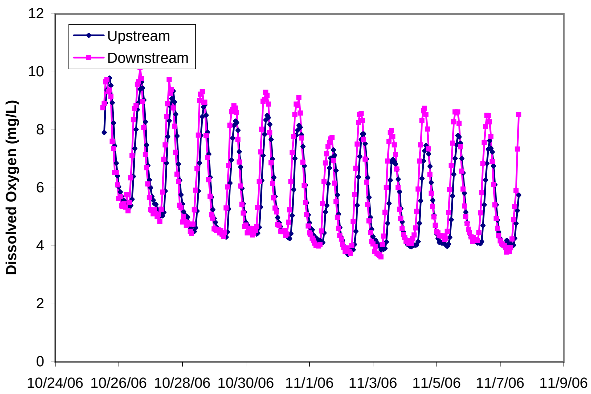


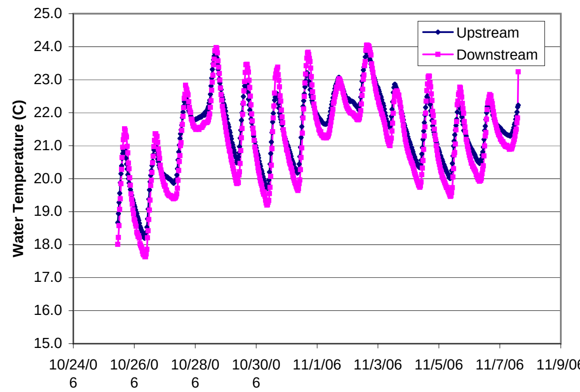
Stats	GPP	NPP24	R24	PAR	PAR Eff.
		(g O_2/m^2/d)		(mol/m^2/d)	(%)
Avg	5.52	-2.60	8.12	16.45	2.97
Max	6.52	-0.86	9.39	23.21	5.10
Min	3.32	-5.41	6.53	6.12	2.03

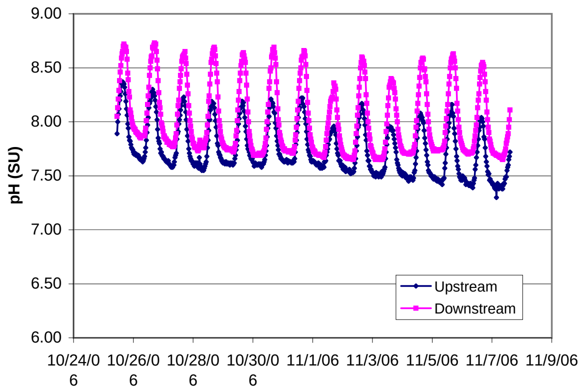
APPENDIX E
WEKIVA RIVER - SEGMENT 2 METABOLISM ESTIMATES

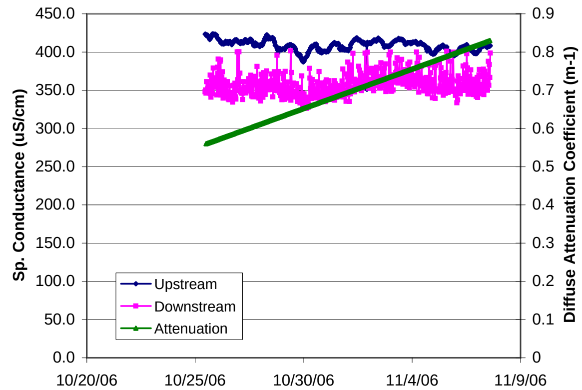
APPENDIX E

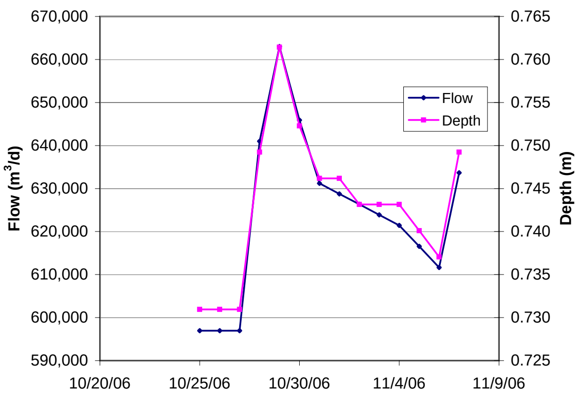
WEKIVA RIVER - SEGMENT 2 METABOLISM SUMMARY

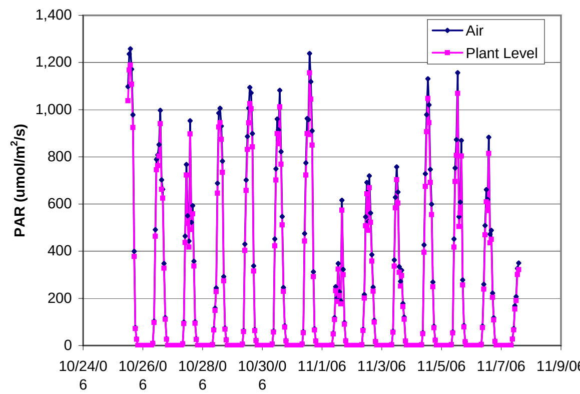


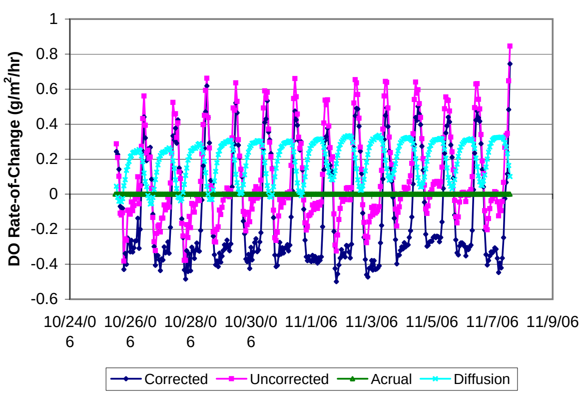




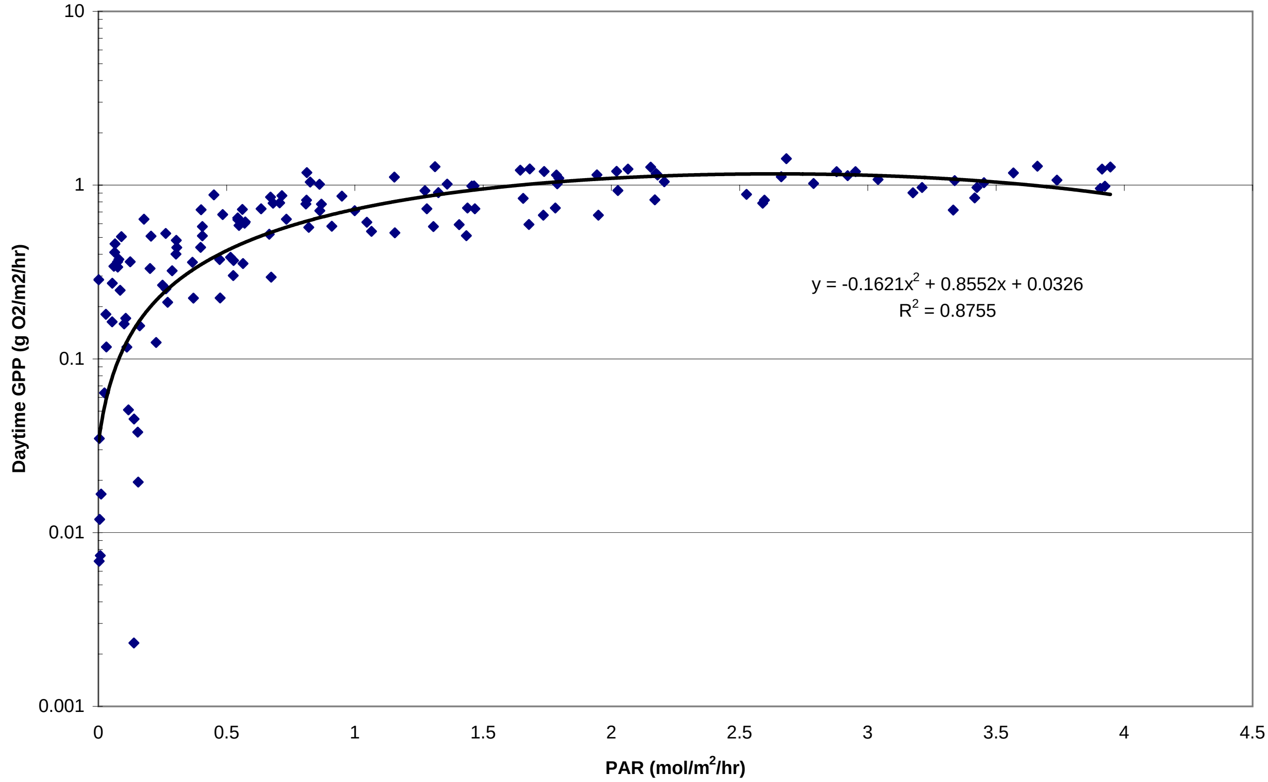


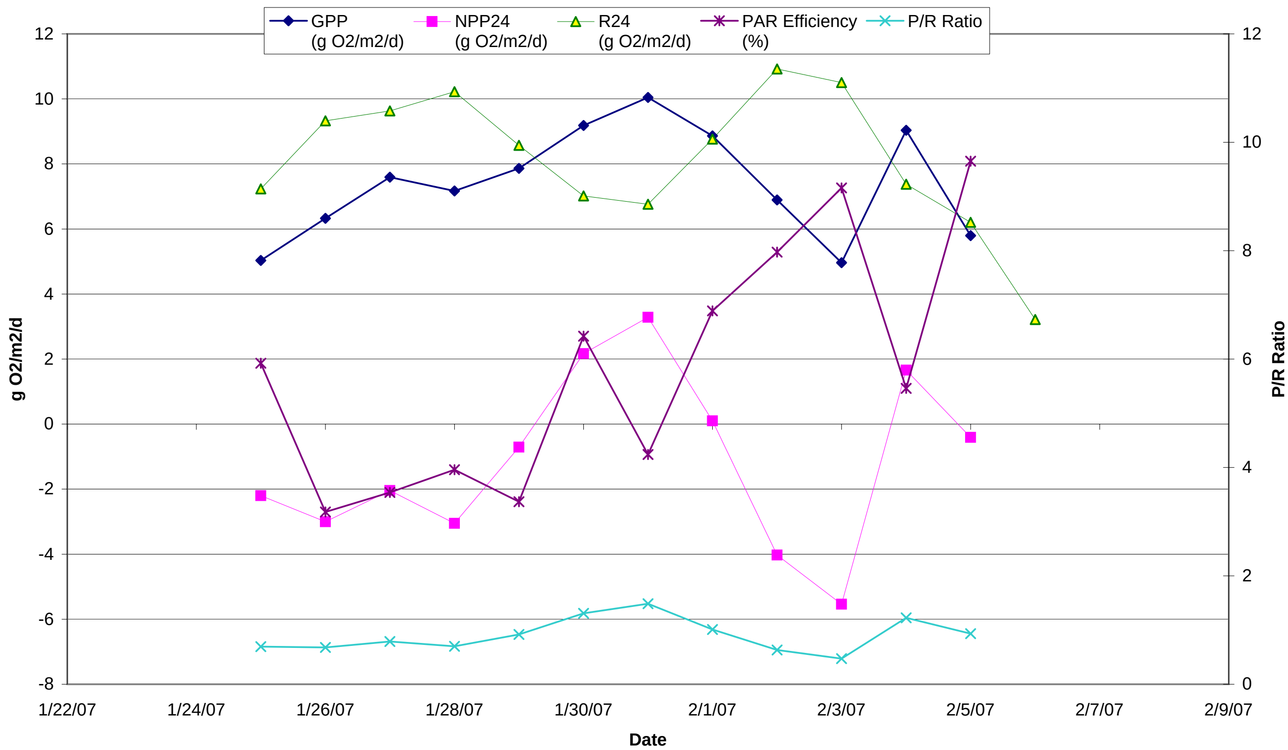






Parameter	Units	Avg	Min	Max	N
DO - up	mg/L	5.75	3.70	9.79	314
down		6.06	3.62	10.14	315
Wtr Temp - up	C	21.4	18.2	23.9	632
down		21.2	17.6	24.1	632
pH - up	SU	7.74	7.30	8.37	632
down		8.01	7.65	8.73	632
SpCond - up	uS/cm	409	351	424	632
down		357	326	402	632
Flow - up	m^3/d	623,877	596,965	663,022	14
Depth	m	0.74	0.73	0.76	14
PAR - air	umol/m^2/s	220	0.0	1,258	315
plant		205	0.0	1189	315
DO rate chng	g/m^2/hr				
corr		-0.103	-0.500	0.744	314
uncorr		0.091	-0.382	0.846	314



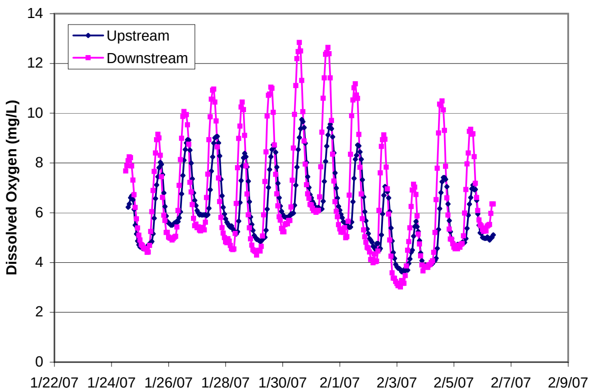


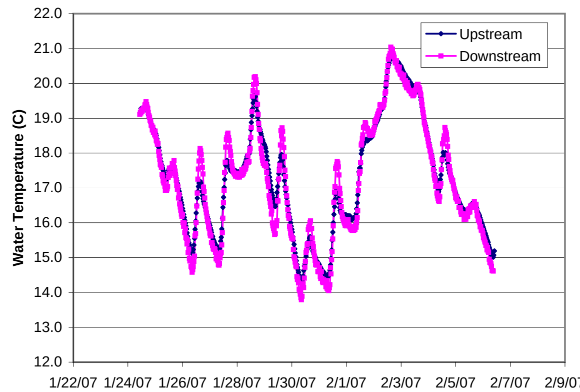
Stats	GPP	NPP24	R24	PAR	PAR Eff.
	(g O_2/m^2/d)			(mol/m^2/d)	(%)
Avg	7.40	-1.15	8.14	12.03	5.81
Max	10.05	3.28	10.92	19.13	9.65
Min	4.97	-5.54	3.22	4.38	3.18

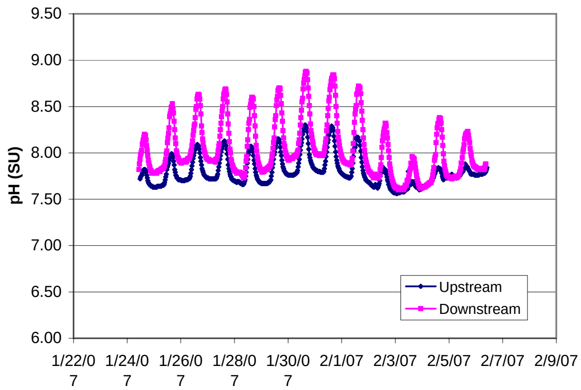
APPENDIX E
WEKIVA RIVER - SEGMENT 2 METABOLISM ESTIMATES

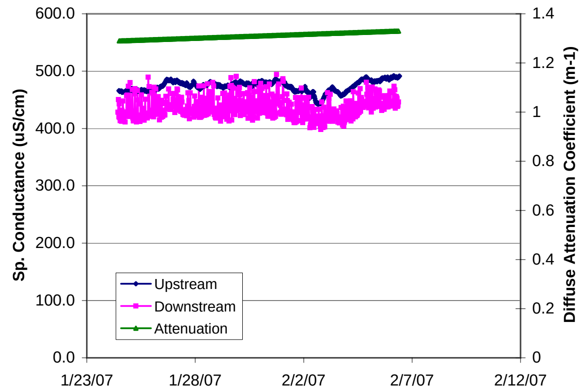
APPENDIX E

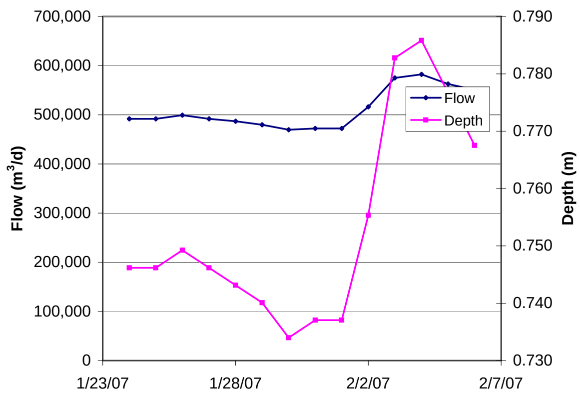
WEKIVA RIVER - SEGMENT 2 METABOLISM SUMMARY

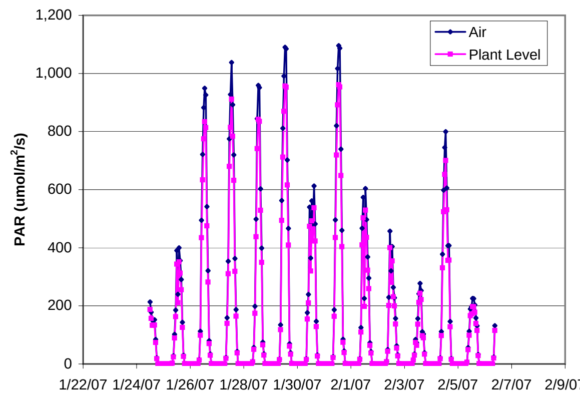


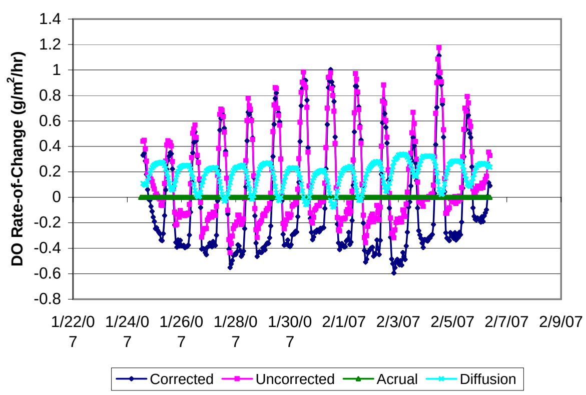




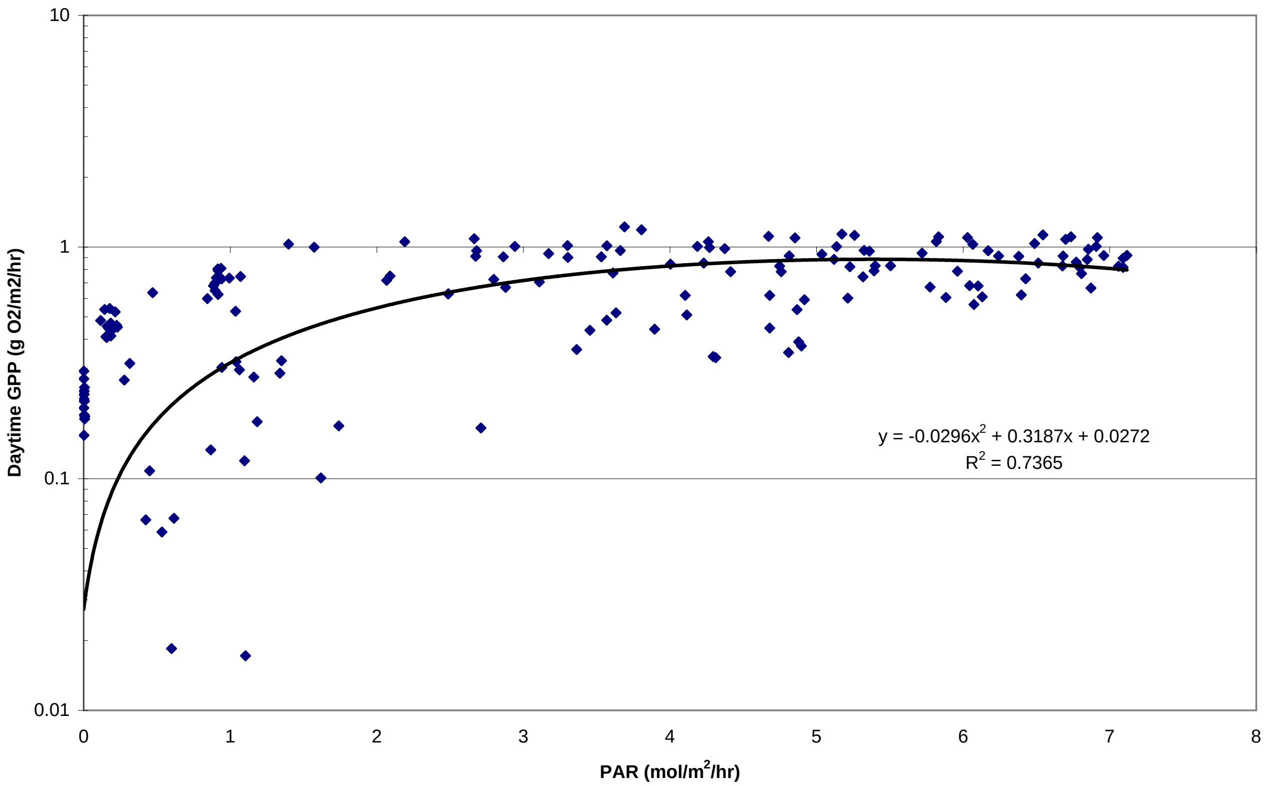


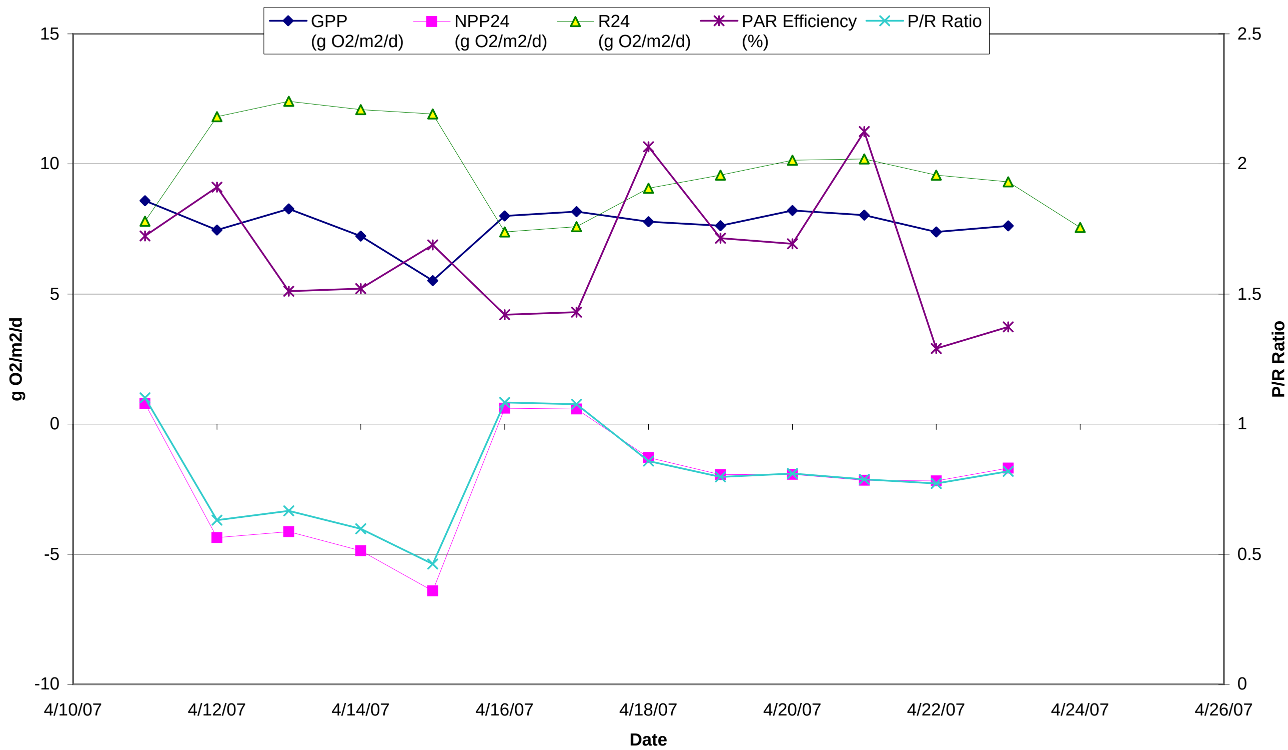






Parameter	Units	Avg	Min	Max	N
DO - up	mg/L	6.087	3.623	9.743	308
down		6.649	3.020	12.843	310
Wtr Temp - up	C	17.3	14.3	20.8	622
down		17.2	13.8	21.0	622
pH - up	SU	7.80	7.56	8.30	622
down		8.03	7.60	8.88	622
SpCond - up	uS/cm	474	442	492	622
down		436	398	494	622
Flow - up	m^3/d	510,111	469,743	582,285	14
Depth	m	0.75	0.73	0.79	14
PAR - air	$umol/m^2/s$	151	0.0	1,096	310
plant		133	0.0	961	310
DO rate chng	$g/m^2/hr$				
corr		-0.041	-0.594	1.112	308
uncorr		0.137	-0.435	1.175	308



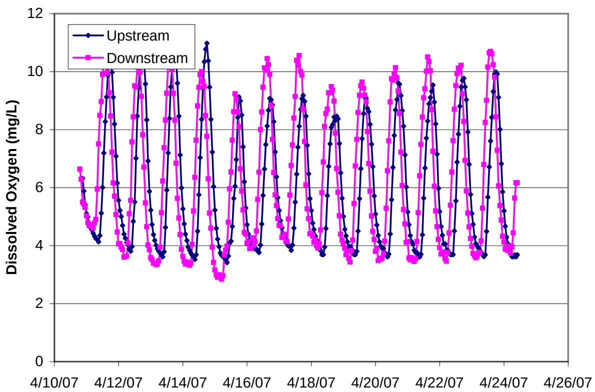


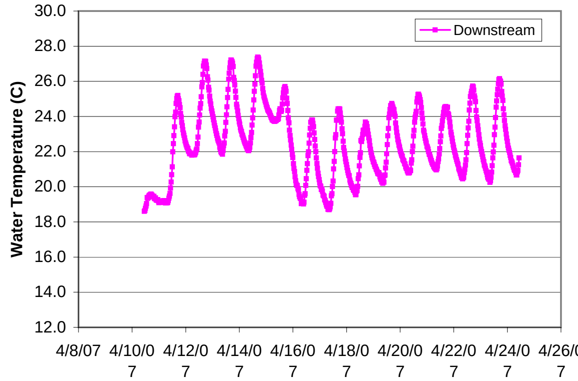
Stats	GPP	NPP24	R24	PAR	PAR Eff.
		$(g\ O_2/m^2/d)$		$(mol/m^2/d)$	(%)
Avg	7.68	-2.23	9.75	38.40	1.65
Max	8.58	0.79	12.41	46.21	2.12
Min	5.52	-6.41	7.39	26.36	1.29

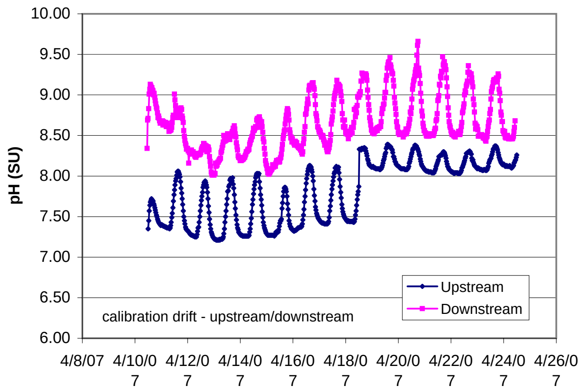
APPENDIX E
WEKIVA RIVER - SEGMENT 2 METABOLISM ESTIMATES

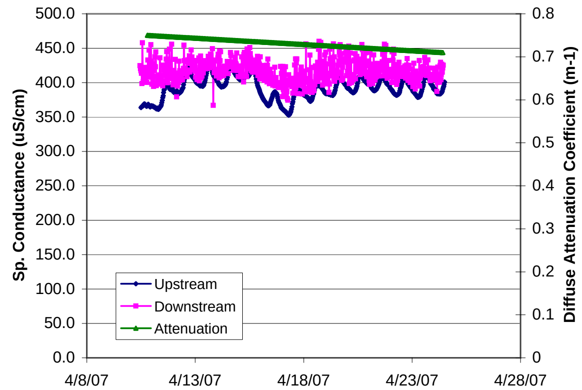
APPENDIX E

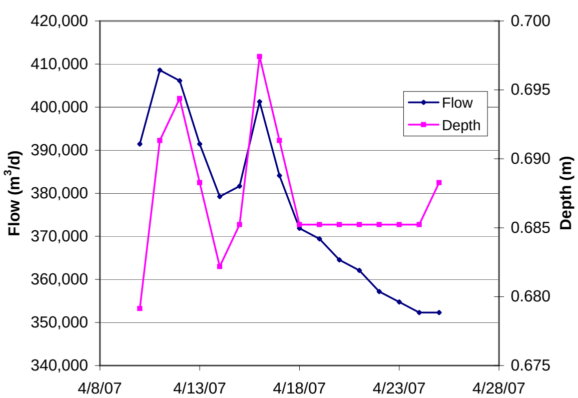
WEKIVA RIVER - SEGMENT 2 METABOLISM SUMMARY

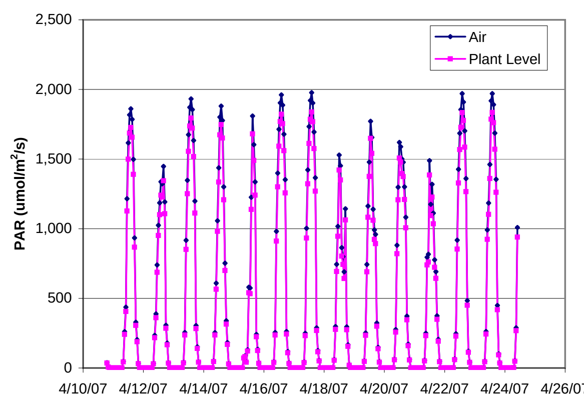


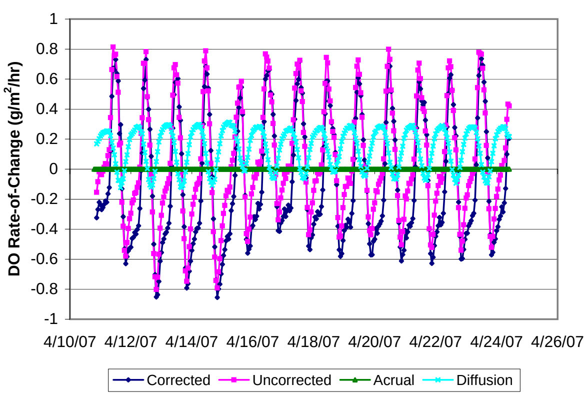




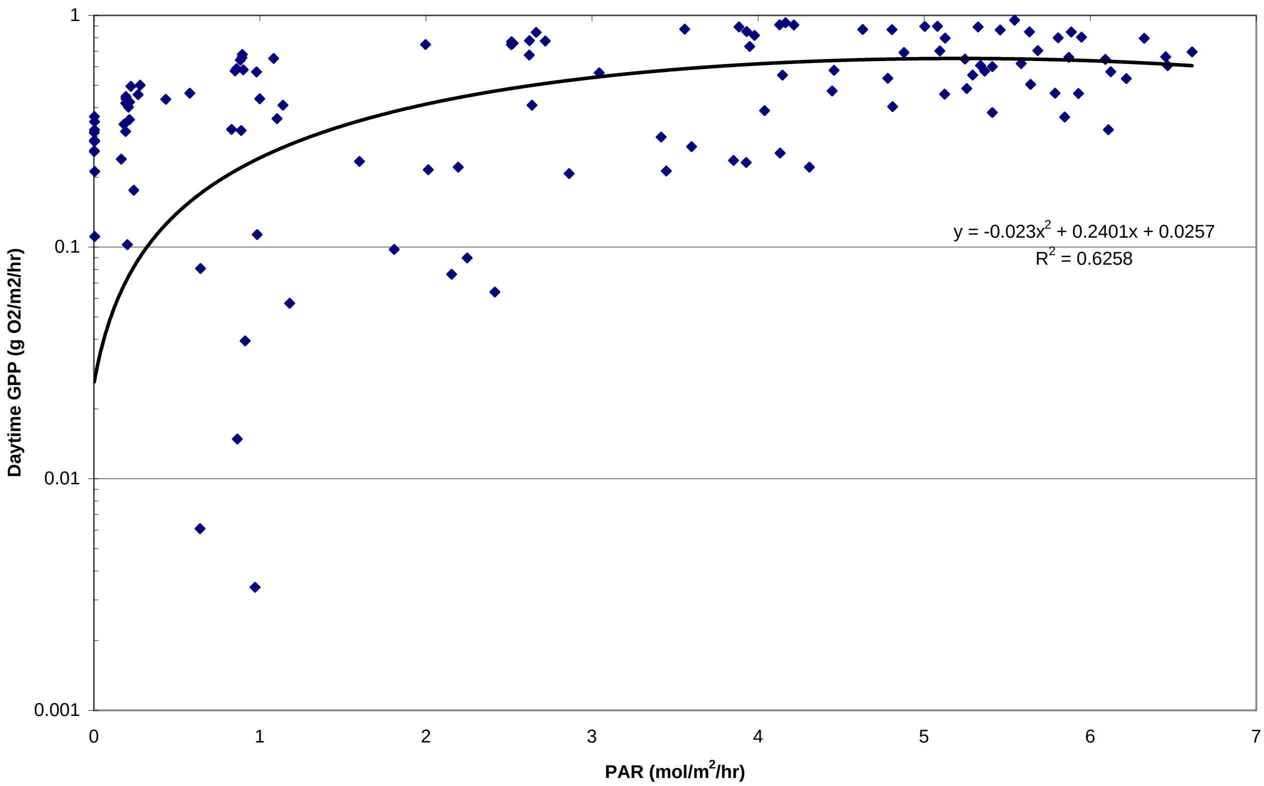


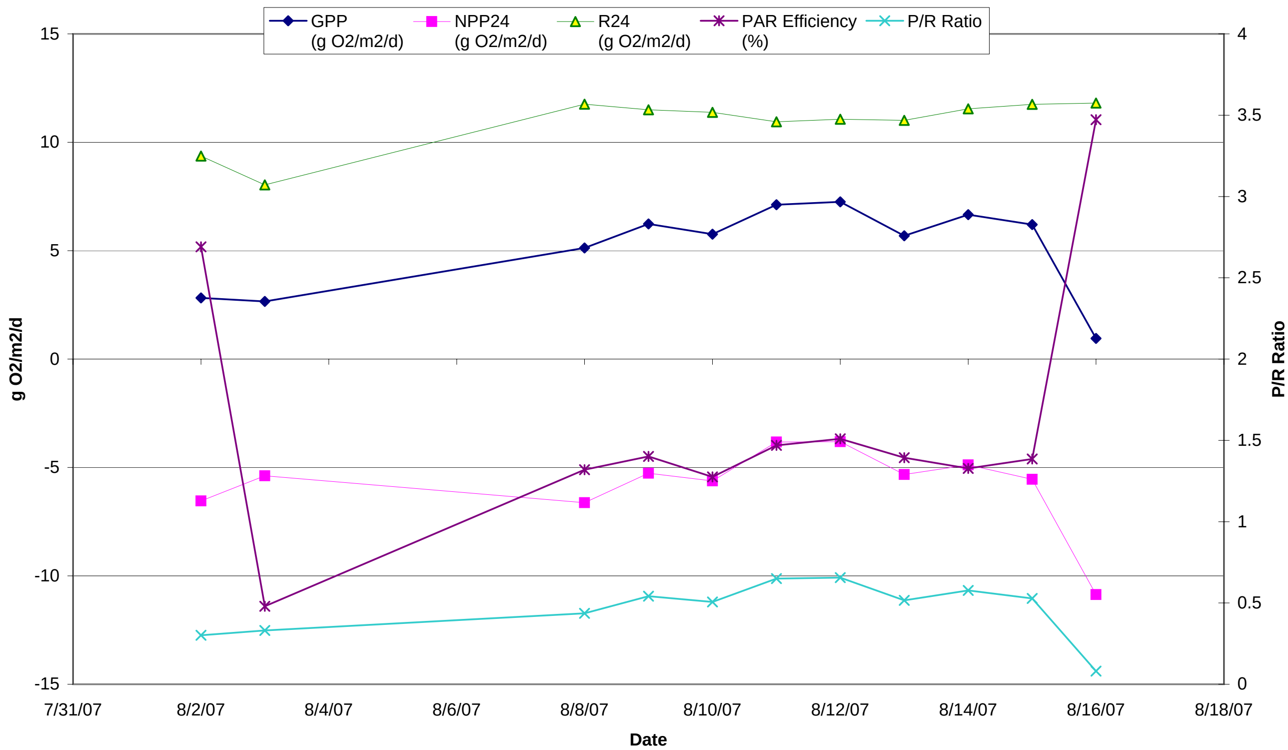






Parameter	Units	Avg	Min	Max	N
DO - up	mg/L	6.01	3.41	10.98	326
down		6.26	2.84	10.88	328
Wtr Temp - up	C	---	---	---	---
down		22.5	18.6	27.4	672
pH - up	SU	7.81	7.21	8.39	673
down		8.65	8.01	9.66	672
SpCond - up	uS/cm	392	353	429	673
down		417	367	460	672
Flow - up	m^3/d	376,773	352,307	408,578	16
Depth	m	0.69	0.68	0.70	16
PAR - air	$umol/m^2/s$	459	0.0	1,977	328
plant		427	0.0	1838	328
DO rate chng	$g/m^2/hr$				
corr		-0.096	-0.855	0.736	326
uncorr		0.045	-0.802	0.814	326

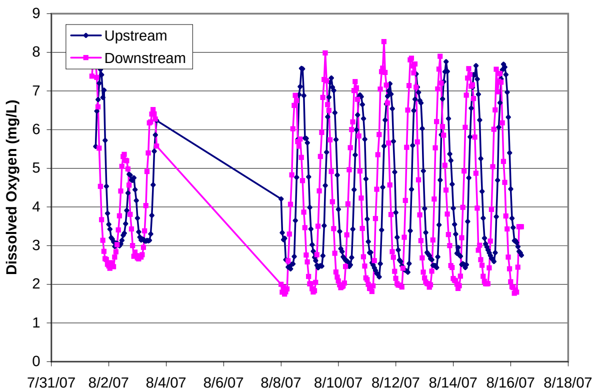


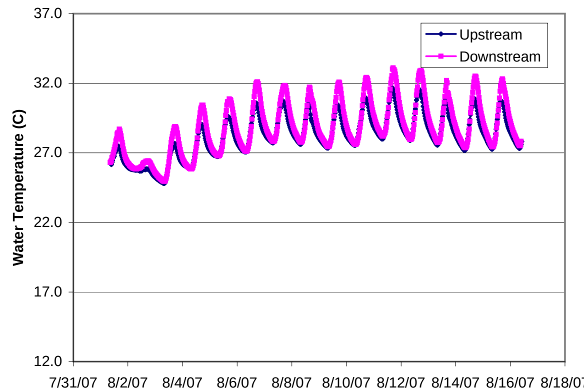


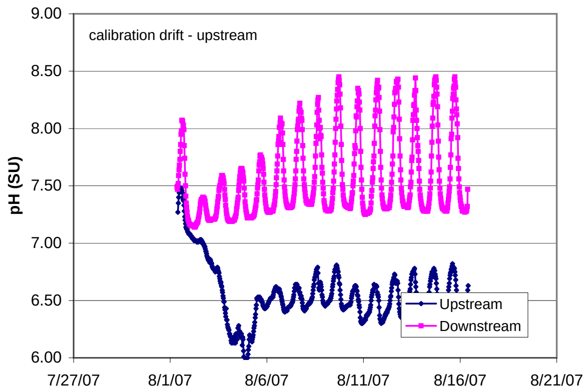
Stats	GPP	NPP24	R24	PAR	PAR Eff.
	($g\ O_2/m^2/d$)			($mol/m^2/d$)	(%)
Avg	5.13	-5.79	10.92	31.51	1.61
Max	7.25	-3.81	11.81	44.68	3.47
Min	0.95	-10.86	8.04	2.21	0.48

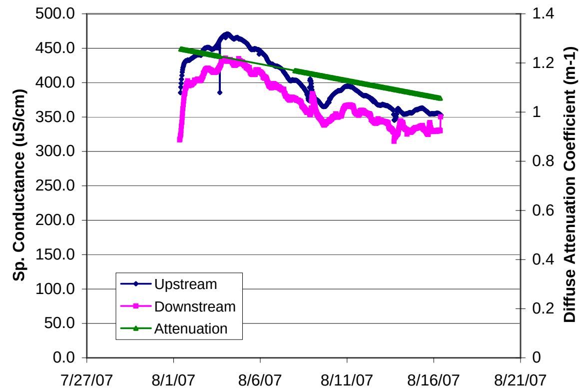
APPENDIX E
WEKIVA RIVER - SEGMENT 2 METABOLISM ESTIMATES

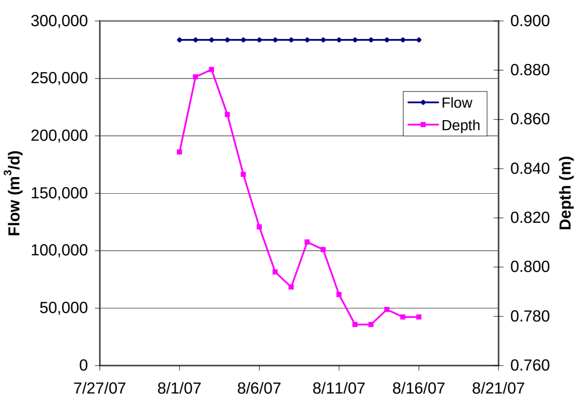
APPENDIX E
WEKIVA RIVER - SEGMENT 2 METABOLISM SUMMARY

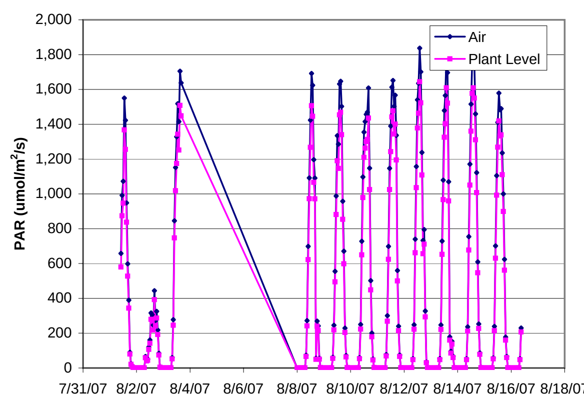


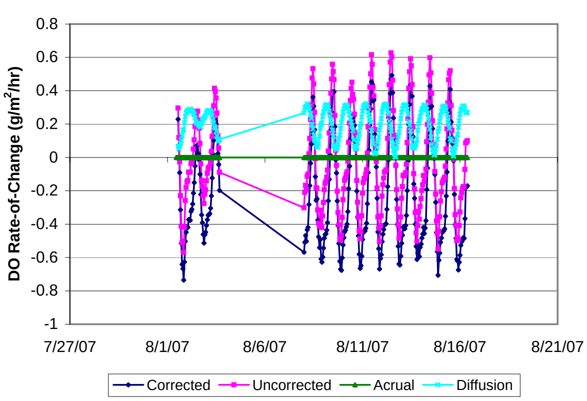












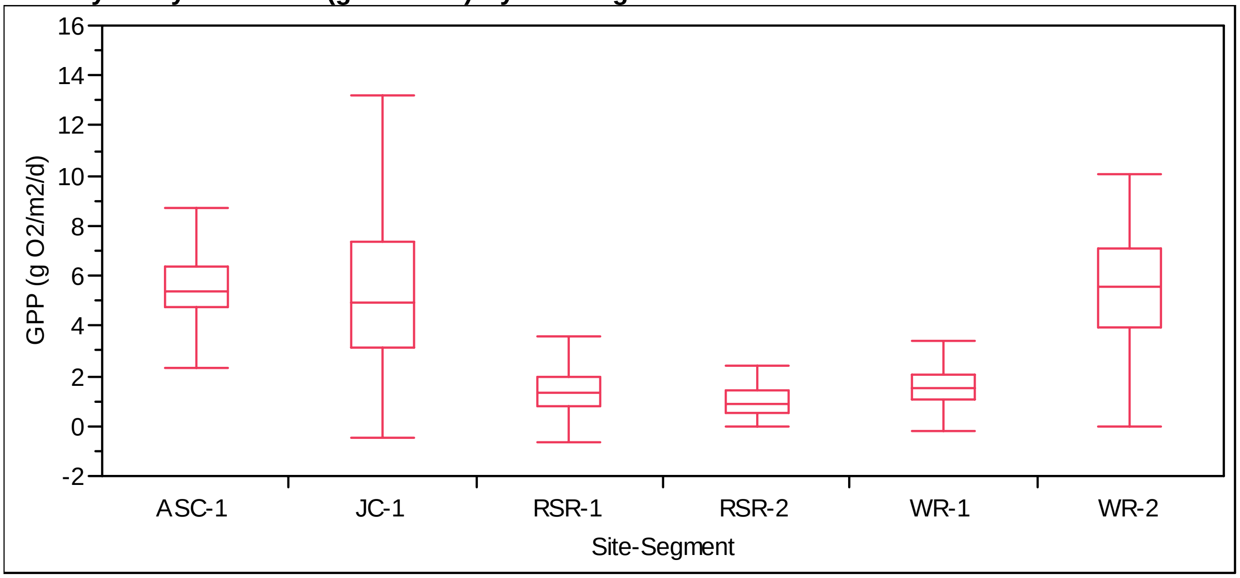
Parameter	Units	Avg	Min	Max	N
DO - up	mg/L	4.36	2.19	7.76	254
down		4.20	1.75	8.28	256
Wtr Temp - up	C	28.2	24.8	31.7	722
down		28.8	25.0	33.1	723
pH - up	SU	6.56	5.90	7.48	722
down		7.55	7.14	8.45	723
SpCond - up	uS/cm	403	345	471	722
down		373	315	436	723
Flow - up	m^3/d	283,558	283,558	283,558	16
Depth	m	0.81	0.78	0.88	16
PAR - air	$umol/m^2/s$	432	0.0	1,837	257
plant		386	0.0	1644	257
DO rate chng	$g/m^2/hr$				
corr		-0.224	-0.736	0.492	254
uncorr		-0.027	-0.569	0.627	254

Appendix F

Detailed Statistical Comparison of Ecosystem Metabolism for the Wekiva River System and Reference Stream Segments:

Comparison Between All Stream Segments

Oneway Analysis of GPP (g O2/m2/d) By Site-Segment



Oneway Anova Summary of Fit

R Square	0.481745
Adjusted R Square	0.478075
Root Mean Square Error	2.156559
Mean of Response	3.509867
Observations	712

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Site-Segment	5	3052.1152	610.423	131.2527	<.0001
Error	706	3283.4260	4.651		
C. Total	711	6335.5412			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
ASC-1	130	5.71029	0.18914	5.3389	6.0816
JC-1	114	5.68144	0.20198	5.2849	6.0780
RSR-1	116	1.41845	0.20023	1.0253	1.8116
RSR-2	123	1.00123	0.19445	0.6195	1.3830
WR-1	126	2.12025	0.19212	1.7431	2.4974
WR-2	103	5.38020	0.21249	4.9630	5.7974

Std Error uses a pooled estimate of error variance

Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

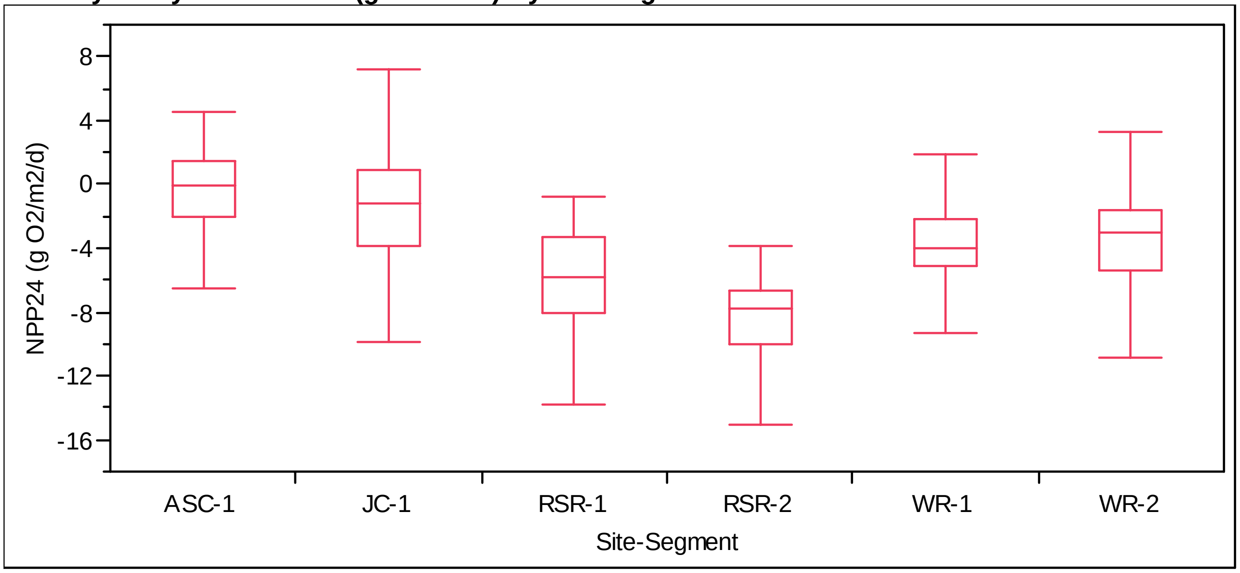
q*	Alpha
2.85757	0.05

Positive values show pairs of means that are significantly different.

Level				Mean
ASC-1	A			5.7102889
JC-1	A			5.6814413
WR-2	A			5.3802047
WR-1		B		2.1202487
RSR-1		B	C	1.4184460
RSR-2			C	1.0012324

Levels not connected by same letter are significantly different.

Oneway Analysis of NPP24 (g O2/m2/d) By Site-Segment



Oneway Anova Summary of Fit

R Square	0.418536
Adjusted R Square	0.414418
Root Mean Square Error	3.451118
Mean of Response	-3.75856
Observations	712

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Site-Segment	5	6052.501	1210.50	101.6355	<.0001
Error	706	8408.612	11.91		
C. Total	711	14461.113			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
ASC-1	130	-0.3893	0.30268	-0.984	0.205
JC-1	114	-0.5243	0.32323	-1.159	0.110
RSR-1	116	-5.8527	0.32043	-6.482	-5.224
RSR-2	123	-8.5865	0.31118	-9.197	-7.976
WR-1	126	-3.4994	0.30745	-4.103	-2.896
WR-2	103	-3.7840	0.34005	-4.452	-3.116

Std Error uses a pooled estimate of error variance

Means Comparisons
Comparisons for all pairs using Tukey-Kramer HSD

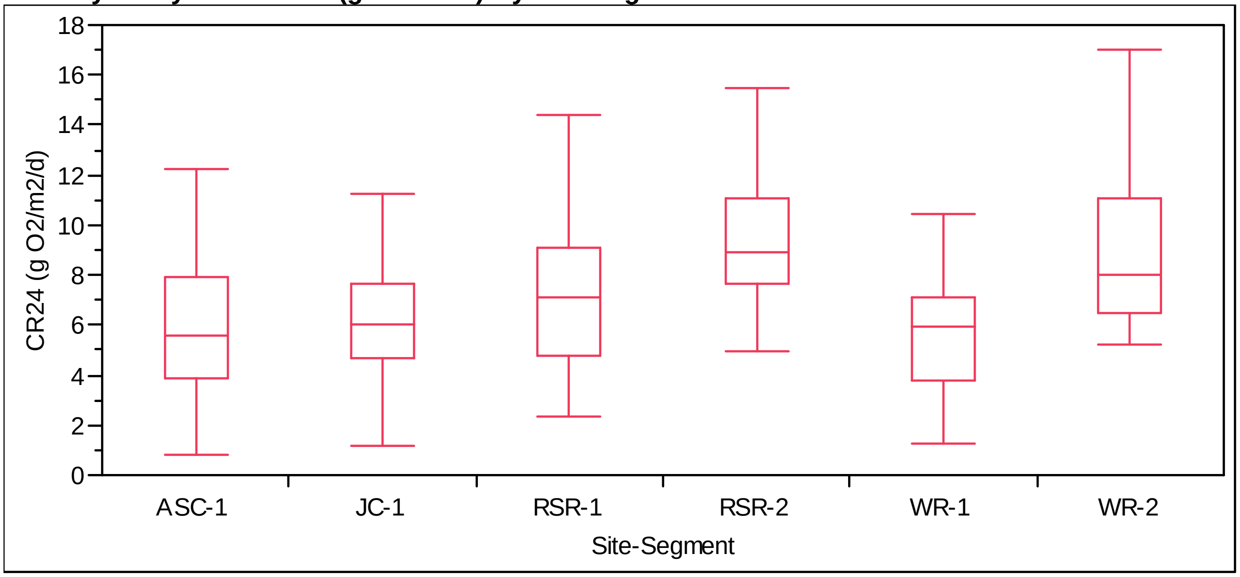
q*	Alpha
2.85757	0.05

Positive values show pairs of means that are significantly different.

Level					Mean
ASC-1	A				-0.389268
JC-1	A				-0.524297
WR-1		B			-3.499395
WR-2		B			-3.783951
RSR-1			C		-5.852688
RSR-2				D	-8.586493

Levels not connected by same letter are significantly different.

Oneway Analysis of CR24 (g O2/m2/d) By Site-Segment



Oneway Anova Summary of Fit

R Square	0.226771
Adjusted R Square	0.221295
Root Mean Square Error	2.849056
Mean of Response	7.268429
Observations	712

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Site-Segment	5	1680.6799	336.136	41.4108	<.0001
Error	706	5730.6850	8.117		
C. Total	711	7411.3649			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
ASC-1	130	6.09956	0.24988	5.6090	6.590
JC-1	114	6.20574	0.26684	5.6818	6.730
RSR-1	116	7.27113	0.26453	6.7518	7.790
RSR-2	123	9.58773	0.25689	9.0834	10.092
WR-1	126	5.61964	0.25381	5.1213	6.118
WR-2	103	9.16416	0.28073	8.6130	9.715

Std Error uses a pooled estimate of error variance

Means Comparisons
Comparisons for all pairs using Tukey-Kramer HSD

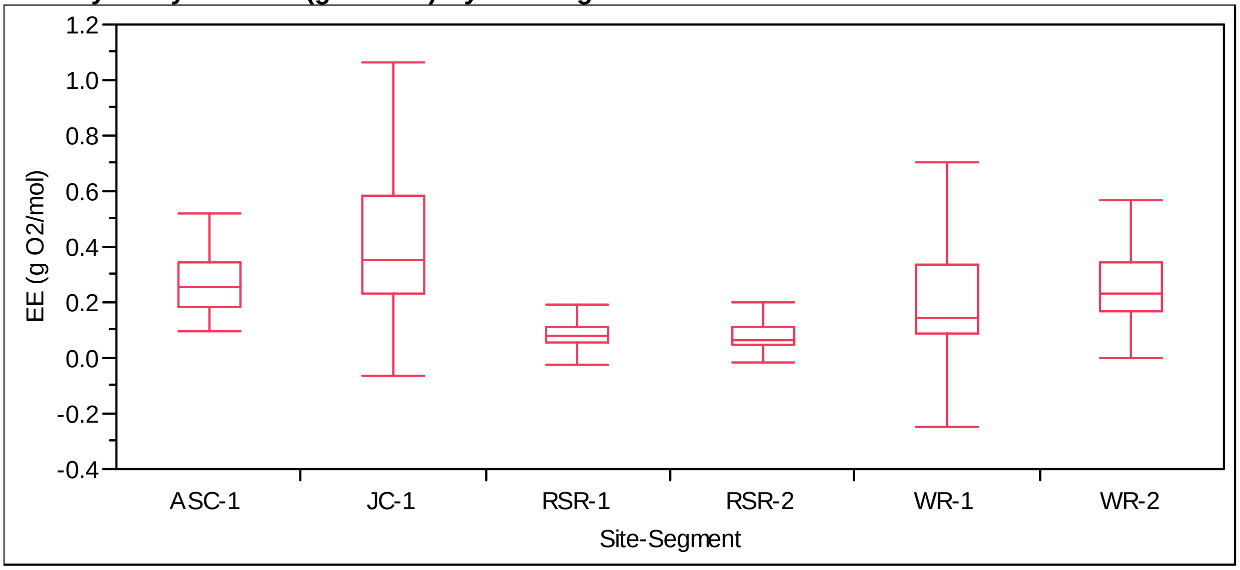
q*	Alpha
2.85757	0.05

Positive values show pairs of means that are significantly different.

Level				Mean
RSR-2	A			9.5877256
WR-2	A			9.1641560
RSR-1		B		7.2711340
JC-1		B	C	6.2057386
ASC-1			C	6.0995564
WR-1			C	5.6196435

Levels not connected by same letter are significantly different.

Oneway Analysis of EE (g O2/mol) By Site-Segment



Oneway Anova Summary of Fit

R Square	0.222418
Adjusted R Square	0.216911
Root Mean Square Error	0.236592
Mean of Response	0.240451
Observations	712

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Site-Segment	5	11.303934	2.26079	40.3886	<.0001
Error	706	39.518992	0.05598		
C. Total	711	50.822927			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
ASC-1	130	0.313554	0.02075	0.27281	0.35429
JC-1	114	0.448080	0.02216	0.40458	0.49159
RSR-1	116	0.088347	0.02197	0.04522	0.13148
RSR-2	123	0.093769	0.02133	0.05189	0.13565
WR-1	126	0.216741	0.02108	0.17536	0.25812
WR-2	103	0.293851	0.02331	0.24808	0.33962

Std Error uses a pooled estimate of error variance

Means Comparisons
Comparisons for all pairs using Tukey-Kramer HSD

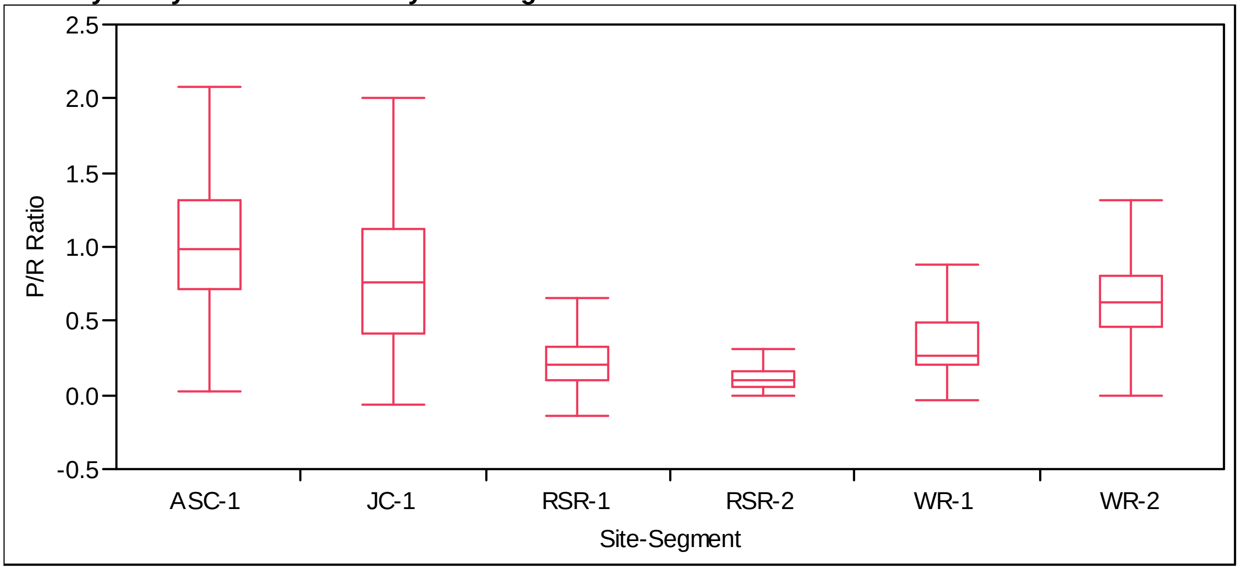
q*	Alpha
2.85757	0.05

Positive values show pairs of means that are significantly different.

Level					Mean
JC-1	A				0.44808024
ASC-1		B			0.31355431
WR-2		B	C		0.29385090
WR-1			C		0.21674111
RSR-2				D	0.09376909
RSR-1				D	0.08834749

Levels not connected by same letter are significantly different.

Oneway Analysis of P/R Ratio By Site-Segment



Oneway Anova Summary of Fit

R Square	0.01895
Adjusted R Square	0.012002
Root Mean Square Error	2.75462
Mean of Response	0.591889
Observations	712

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Site-Segment	5	103.4778	20.6956	2.7274	0.0188
Error	706	5357.0794	7.5879		
C. Total	711	5460.5572			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
ASC-1	130	1.15649	0.24160	0.6822	1.6308
JC-1	114	0.96226	0.25799	0.4557	1.4688
RSR-1	116	0.22951	0.25576	-0.2726	0.7317
RSR-2	123	0.11466	0.24838	-0.3730	0.6023
WR-1	126	0.43858	0.24540	-0.0432	0.9204
WR-2	103	0.63491	0.27142	0.1020	1.1678

Std Error uses a pooled estimate of error variance

Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

q*	Alpha
2.85757	0.05

Positive values show pairs of means that are significantly different.

Level			Mean
ASC-1	A		1.1564941
JC-1	A	B	0.9622634
WR-2	A	B	0.6349088
WR-1	A	B	0.4385821
RSR-1	A	B	0.2295090
RSR-2		B	0.1146568

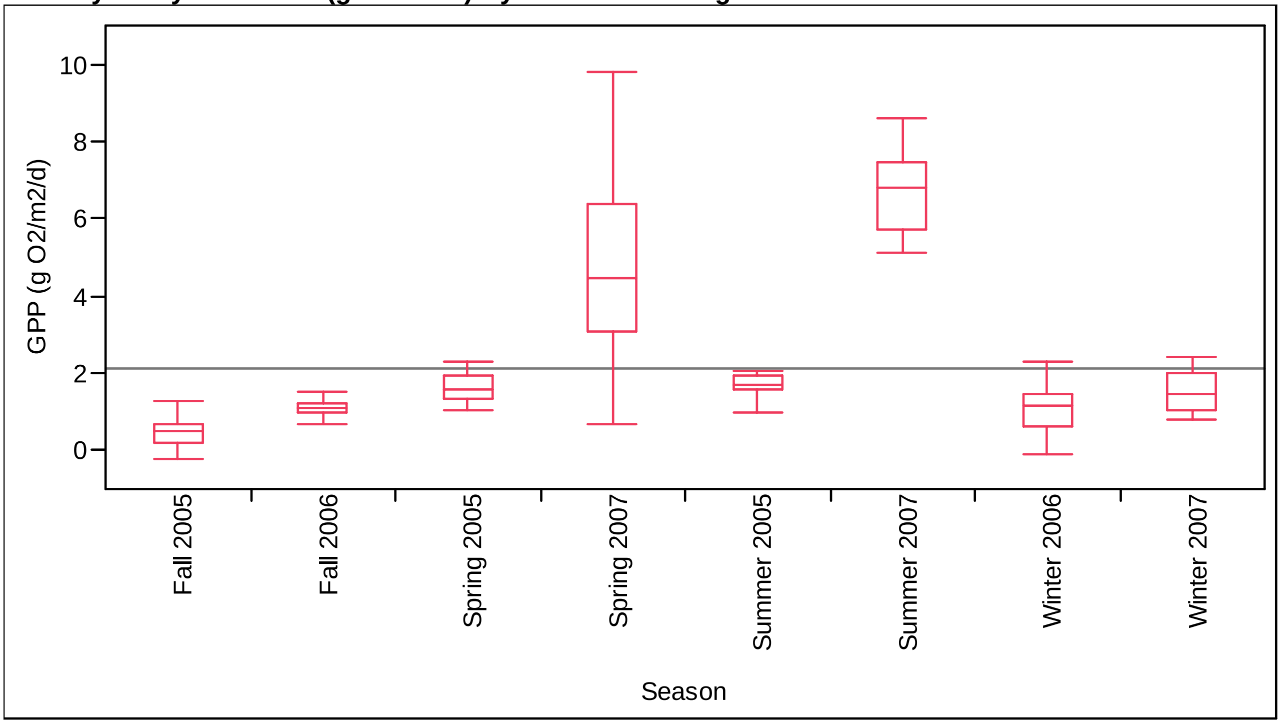
Levels not connected by same letter are significantly different.

Appendix F

Detailed Statistical Comparison of Ecosystem Metabolism for the Wekiva River System and Reference Stream Segments:

Comparison Within Individual Stream Segments

Oneway Analysis of GPP (g O2/m2/d) By Season Site-Segment=WR-1



Means Comparisons
Comparisons for all pairs using Tukey-Kramer HSD

q*	Alpha
3.08605	0.05

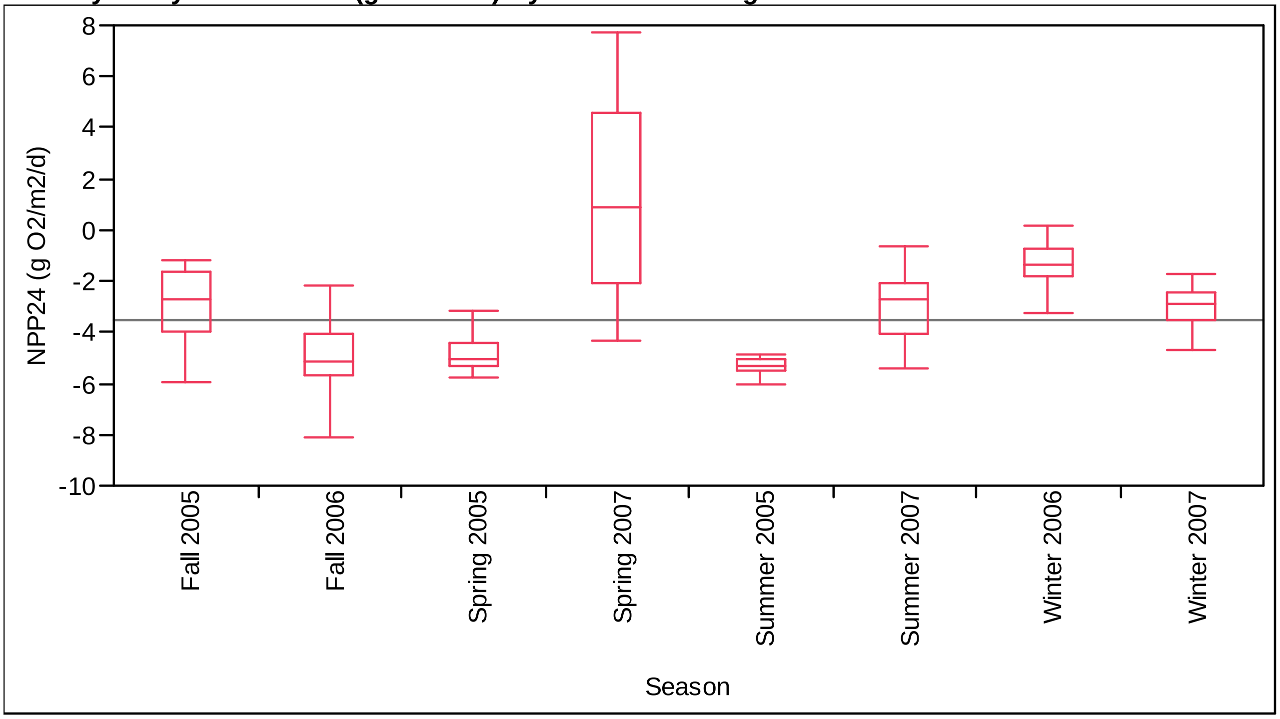
Abs(Dif)-LSD	Summer 2007	Spring 2007	Summer 2005	Spring 2005	Winter 2007	Fall 2006	Winter 2006	Fall 2005
Summer 2007	-1.0515	0.4942	3.8265	3.9542	3.8685	4.3420	4.4148	4.9512
Spring 2007	0.4942	-1.3910	1.9049	2.0233	1.9659	2.4307	2.4988	3.0454
Summer 2005	3.8265	1.9049	-0.8797	-0.7463	-0.8489	-0.3703	-0.2949	0.2356
Spring 2005	3.9542	2.0233	-0.7463	-0.7572	-0.8727	-0.3905	-0.3129	0.2131
Winter 2007	3.8685	1.9659	-0.8489	-0.8727	-1.1357	-0.6645	-0.5930	-0.0539
Fall 2006	4.3420	2.4307	-0.3703	-0.3905	-0.6645	-1.0158	-0.9425	-0.4073
Winter 2006	4.4148	2.4988	-0.2949	-0.3129	-0.5930	-0.9425	-0.9542	-0.4211
Fall 2005	4.9512	3.0454	0.2356	0.2131	-0.0539	-0.4073	-0.4211	-1.0912

Positive values show pairs of means that are significantly different.

Level					Mean
Summer 2007	A				6.4999880
Spring 2007		B			4.7727704
Summer 2005			C		1.7040336
Spring 2005			C		1.6295591
Winter 2007			C	D	1.5370427
Fall 2006			C	D	1.1241259
Winter 2006			C	D	1.0811568
Fall 2005				D	0.4772693

Levels not connected by same letter are significantly different.

Oneway Analysis of NPP24 (g O2/m2/d) By Season Site-Segment=WR-1



Means Comparisons
Comparisons for all pairs using Tukey-Kramer HSD

q*	Alpha
3.08605	0.05

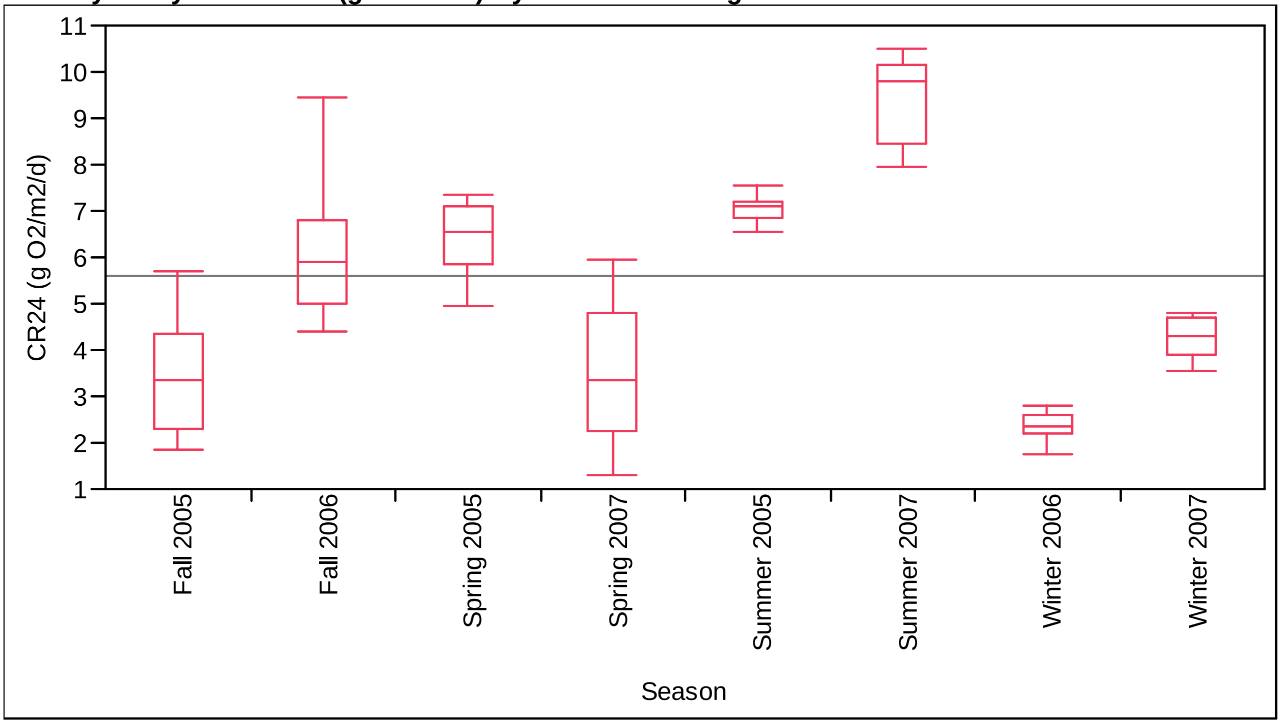
Abs(Dif)-LSD	Spring 2007	Winter 2006	Summer 2007	Fall 2005	Winter 2007	Spring 2005	Fall 2006	Summer 2005
Spring 2007	-2.2600	0.6013	2.1645	2.1409	2.1164	4.2097	4.5707	4.7233
Winter 2006	0.6013	-1.5503	-0.0027	-0.0325	-0.0639	2.0905	2.4092	2.5839
Summer 2007	2.1645	-0.0027	-1.7084	-1.7366	-1.7664	0.3728	0.7022	0.8714
Fall 2005	2.1409	-0.0325	-1.7366	-1.7729	-1.8019	0.3313	0.6648	0.8319
Winter 2007	2.1164	-0.0639	-1.7664	-1.8019	-1.8452	0.2815	0.6195	0.7843
Spring 2005	4.2097	2.0905	0.3728	0.3313	0.2815	-1.2302	-0.9352	-0.7484
Fall 2006	4.5707	2.4092	0.7022	0.6648	0.6195	-0.9352	-1.6504	-1.4792
Summer 2005	4.7233	2.5839	0.8714	0.8319	0.7843	-0.7484	-1.4792	-1.4293

Positive values show pairs of means that are significantly different.

Level				**Mean**
Spring 2007	A			1.256278
Winter 2006		B		-1.282901
Summer 2007		B		-2.911417
Fall 2005		B		-2.915705
Winter 2007		B		-2.923177
Spring 2005			C	-4.772844
Fall 2006			C	-5.293220
Summer 2005			C	-5.357872

Levels not connected by same letter are significantly different.

Oneway Analysis of CR24 (g O2/m2/d) By Season Site-Segment=WR-1



Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

q*	Alpha
3.08605	0.05

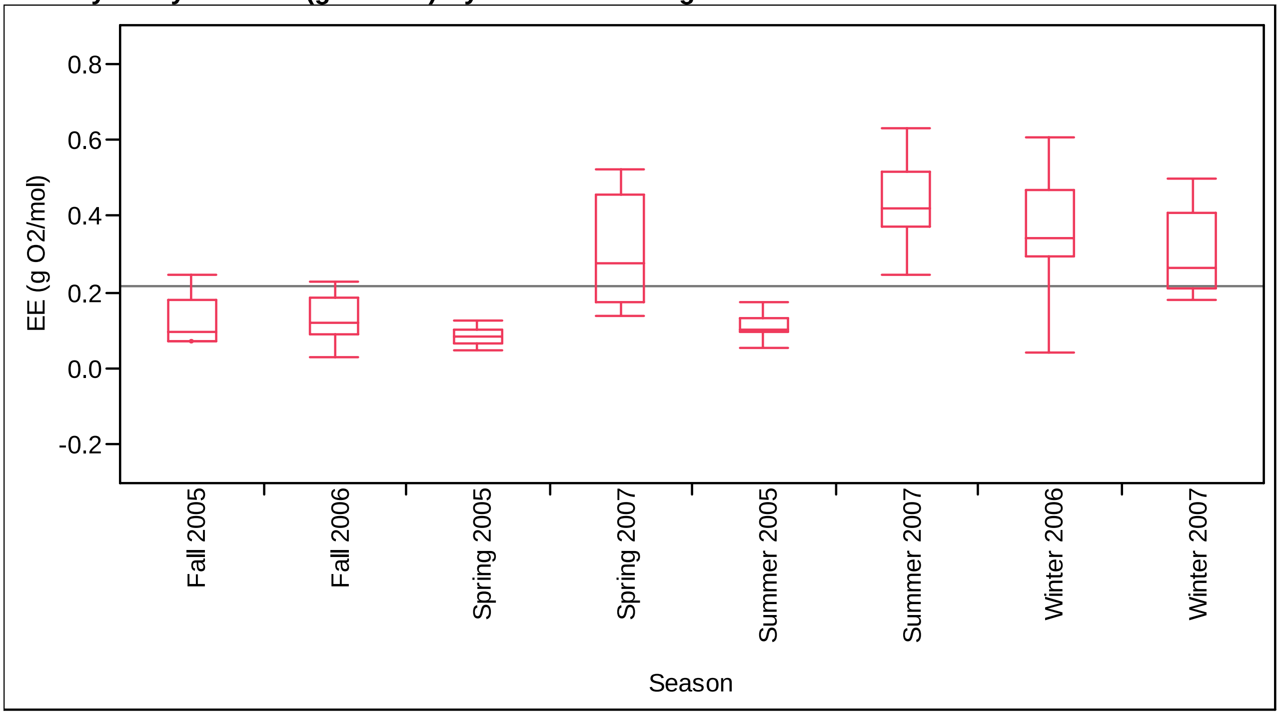
Abs(Dif)-LSD	Summer 2007	Summer 2005	Fall 2006	Spring 2005	Winter 2007	Spring 2007	Fall 2005	Winter 2006
Summer 2007	-1.1348	1.3033	1.8784	2.0202	3.7701	4.5643	4.8620	5.9638
Summer 2005	1.3033	-0.9494	-0.3809	-0.2262	1.5054	2.2895	2.5993	3.7074
Fall 2006	1.8784	-0.3809	-1.0963	-0.9519	0.7943	1.5865	1.8867	2.9897
Spring 2005	2.0202	-0.2262	-0.9519	-0.8171	0.9006	1.6774	1.9959	3.1088
Winter 2007	3.7701	1.5054	0.7943	0.9006	-1.2257	-0.4266	-0.1346	0.9642
Spring 2007	4.5643	2.2895	1.5865	1.6774	-0.4266	-1.5012	-1.2256	-0.1348
Fall 2005	4.8620	2.5993	1.8867	1.9959	-0.1346	-1.2256	-1.1776	-0.0772
Winter 2006	5.9638	3.7074	2.9897	3.1088	0.9642	-0.1348	-0.0772	-1.0298

Positive values show pairs of means that are significantly different.

Level					Mean
Summer 2007	A				9.4114046
Summer 2005		B			7.0619057
Fall 2006		B			6.4173463
Spring 2005		B			6.4024026
Winter 2007			C		4.4602198
Spring 2007			C	D	3.5164925
Fall 2005			C	D	3.3929748
Winter 2006				D	2.3640578

Levels not connected by same letter are significantly different.

Oneway Analysis of EE (g O2/mol) By Season Site-Segment=WR-1



Means Comparisons
Comparisons for all pairs using Tukey-Kramer HSD

q*	Alpha
3.08605	0.05

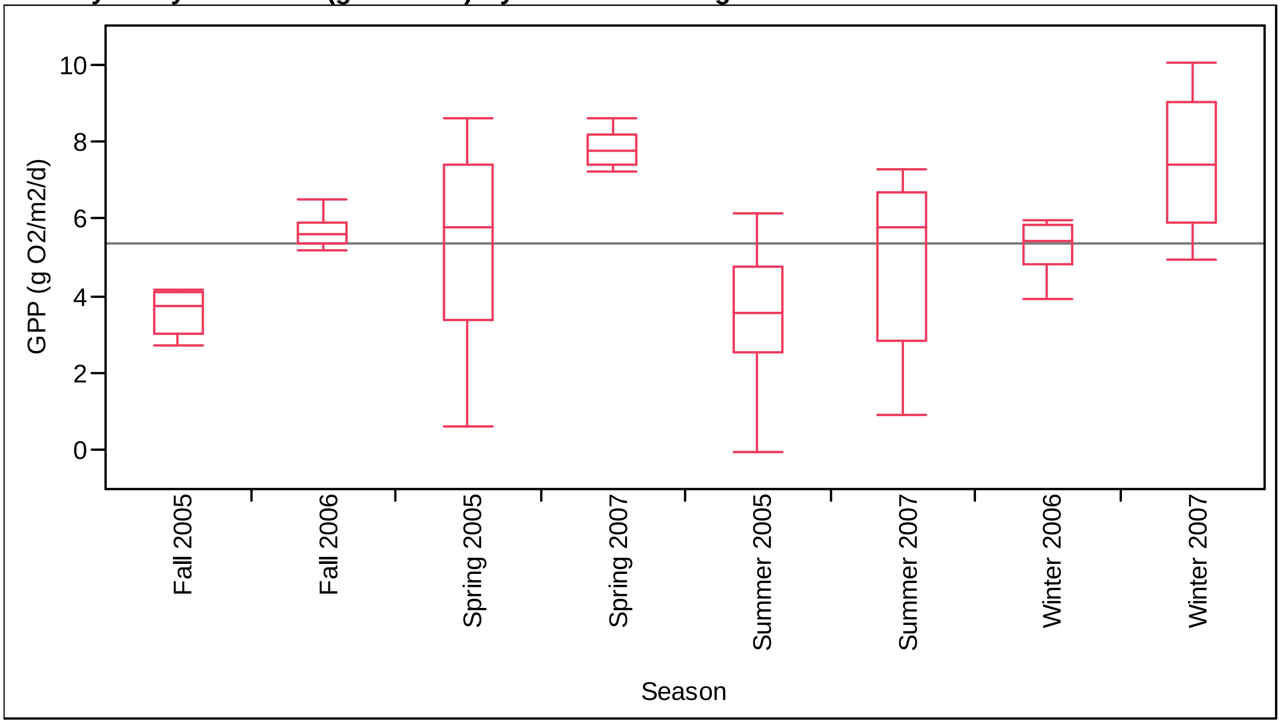
Abs(Dif)-LSD	Summer 2007	Winter 2006	Winter 2007	Spring 2007	Fall 2006	Spring 2005	Summer 2005	Fall 2005
Summer 2007	-0.15464	-0.05964	-0.03225	-0.04929	0.10802	0.18228	0.17501	0.16252
Winter 2006	-0.05964	-0.14033	-0.11356	-0.13139	0.02711	0.10233	0.09460	0.08135
Winter 2007	-0.03225	-0.11356	-0.16703	-0.18341	-0.02710	0.04637	0.03948	0.02761
Spring 2007	-0.04929	-0.13139	-0.18341	-0.20456	-0.05109	0.02029	0.01439	0.00422
Fall 2006	0.10802	0.02711	-0.02710	-0.05109	-0.14939	-0.07479	-0.08223	-0.09499
Spring 2005	0.18228	0.10233	0.04637	0.02029	-0.07479	-0.11135	-0.12015	-0.13503
Summer 2005	0.17501	0.09460	0.03948	0.01439	-0.08223	-0.12015	-0.12938	-0.14323
Fall 2005	0.16252	0.08135	0.02761	0.00422	-0.09499	-0.13503	-0.14323	-0.16047

Positive values show pairs of means that are significantly different.

Level				Mean
Summer 2007	A			0.43158335
Winter 2006	A			0.34357000
Winter 2007	A	B		0.30287852
Spring 2007	A	B		0.29954619
Fall 2006		B	C	0.17152463
Spring 2005			C	0.11456454
Summer 2005			C	0.11400926
Fall 2005			C	0.11148567

Levels not connected by same letter are significantly different.

Oneway Analysis of GPP (g O2/m2/d) By Season Site-Segment=WR-2



Means Comparisons
Comparisons for all pairs using Tukey-Kramer HSD

q*	Alpha
3.09955	0.05

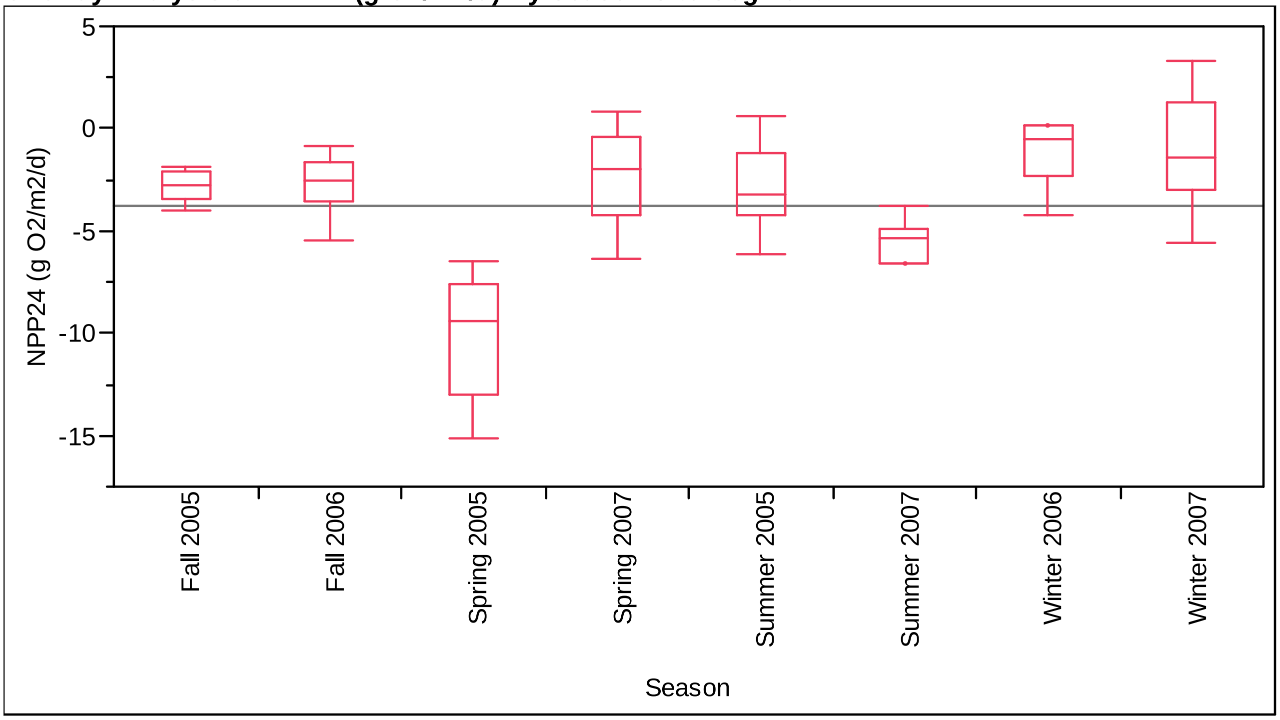
Abs(Dif)-LSD	Spring 2007	Winter 2007	Fall 2006	Spring 2005	Winter 2006	Summer 2007	Summer 2005	Fall 2005
Spring 2007	-1.9139	-1.6683	0.2522	0.4591	0.2621	0.5505	2.3307	1.9030
Winter 2007	-1.6683	-1.9920	-0.0724	0.1332	-0.0588	0.2276	2.0015	1.5834
Fall 2006	0.2522	-0.0724	-1.9139	-1.7069	-1.9040	-1.6155	0.1646	-0.2631
Spring 2005	0.4591	0.1332	-1.7069	-1.7817	-1.9876	-1.6956	0.0956	-0.3488
Winter 2006	0.2621	-0.0588	-1.9040	-1.9876	-2.3002	-2.0216	-0.2711	-0.6533
Summer 2007	0.5505	0.2276	-1.6155	-1.6956	-2.0216	-2.0806	-0.3138	-0.7212
Summer 2005	2.3307	2.0015	0.1646	0.0956	-0.2711	-0.3138	-1.4712	-1.9566
Fall 2005	1.9030	1.5834	-0.2631	-0.3488	-0.6533	-0.7212	-1.9566	-2.4397

Positive values show pairs of means that are significantly different.

Level					**Mean**
Spring 2007	A				7.6835138
Winter 2007	A	B			7.3984352
Fall 2006		B	C		5.5174536
Spring 2005			C		5.3753757
Winter 2006		B	C	D	5.3055622
Summer 2007			C	D	5.1339920
Summer 2005				D	3.6458840
Fall 2005			C	D	3.5879043

Levels not connected by same letter are significantly different.

Oneway Analysis of NPP24 (g O2/m2/d) By Season Site-Segment=WR-2



Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

q*	Alpha
3.09955	0.05

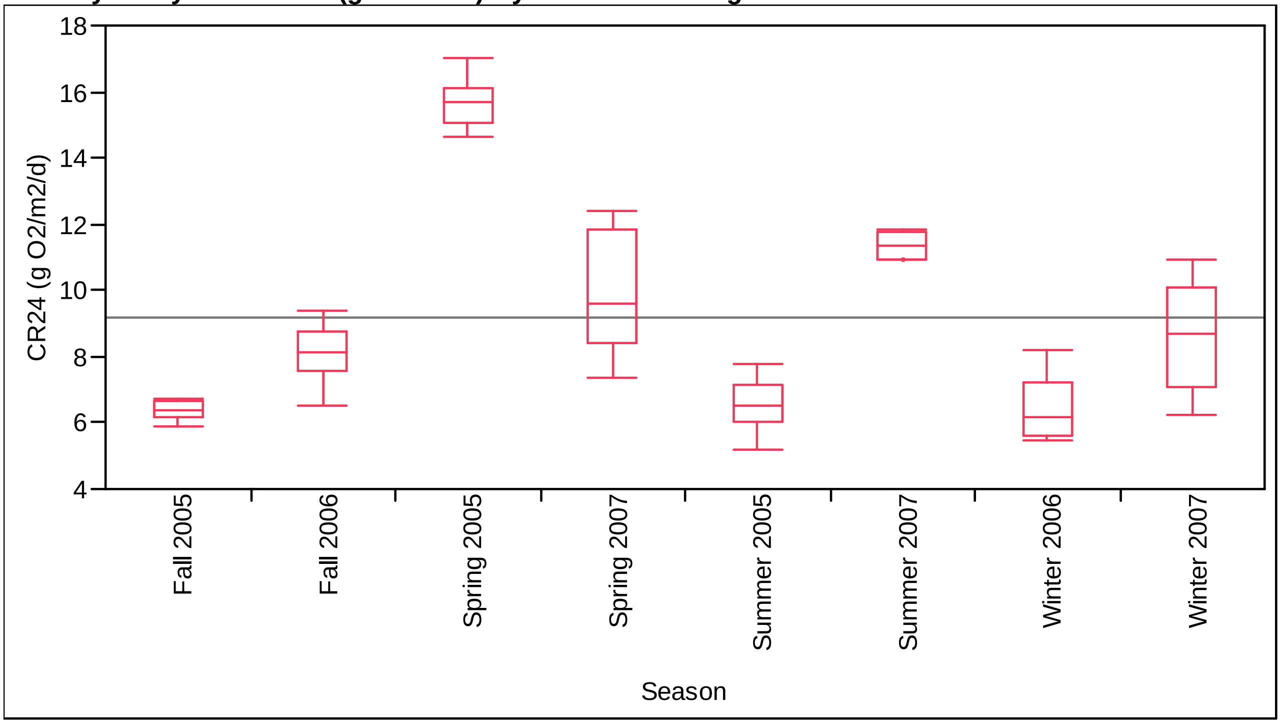
Abs(Dif)-LSD	Winter 2006	Winter 2007	Spring 2007	Fall 2006	Fall 2005	Summer 2005	Summer 2007	Spring 2005
Winter 2006	-3.0665	-2.8321	-1.7011	-1.3269	-1.5028	-0.8065	1.7564	6.4136
Winter 2007	-2.8321	-2.6557	-1.5207	-1.1465	-1.3474	-0.6033	1.9285	6.6007
Spring 2007	-1.7011	-1.5207	-2.5515	-2.1773	-2.3847	-1.6278	0.8956	5.5717
Fall 2006	-1.3269	-1.1465	-2.1773	-2.5515	-2.7589	-2.0020	0.5214	5.1975
Fall 2005	-1.5028	-1.3474	-2.3847	-2.7589	-3.2525	-2.5763	-0.0005	4.6504
Summer 2005	-0.8065	-0.6033	-1.6278	-2.0020	-2.5763	-1.9613	0.5106	5.2107
Summer 2007	1.7564	1.9285	0.8956	0.5214	-0.0005	0.5106	-2.7738	1.8939
Spring 2005	6.4136	6.6007	5.5717	5.1975	4.6504	5.2107	1.8939	-2.3753

Positive values show pairs of means that are significantly different.

Level				Mean
Winter 2006	A			-1.11027
Winter 2007	A			-1.14659
Spring 2007	A			-2.22996
Fall 2006	A			-2.60415
Fall 2005	A	B		-2.76833
Summer 2005	A			-2.87775
Summer 2007		B		-5.79047
Spring 2005			C	-10.26664

Levels not connected by same letter are significantly different.

Oneway Analysis of CR24 (g O2/m2/d) By Season Site-Segment=WR-2



Means Comparisons
Comparisons for all pairs using Tukey-Kramer HSD

q*	Alpha
3.09955	0.05

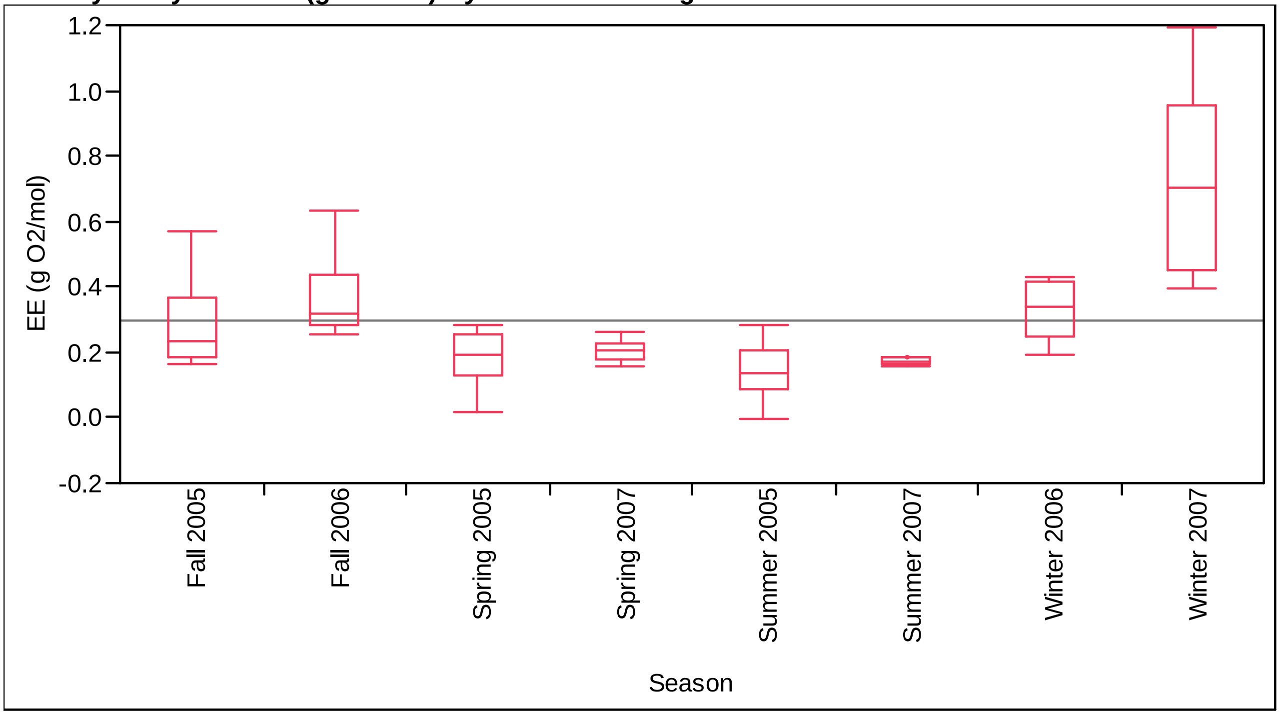
Abs(Dif)-LSD	Spring 2005	Summer 2007	Spring 2007	Winter 2007	Fall 2006	Summer 2005	Winter 2006	Fall 2005
Spring 2005	-1.2496	3.3591	4.4318	5.7716	6.2237	7.9725	7.7833	7.7876
Summer 2007	3.3591	-1.4592	-0.3909	0.9510	1.4009	3.1371	2.9705	2.9781
Spring 2007	4.4318	-0.3909	-1.3422	-0.0015	0.4496	2.1927	2.0137	2.0195
Winter 2007	5.7716	0.9510	-0.0015	-1.3971	-0.9465	0.7933	0.6202	0.6268
Fall 2006	6.2237	1.4009	0.4496	-0.9465	-1.3422	0.4008	0.2219	0.2276
Summer 2005	7.9725	3.1371	2.1927	0.7933	0.4008	-1.0318	-1.2463	-1.2454
Winter 2006	7.7833	2.9705	2.0137	0.6202	0.2219	-1.2463	-1.6132	-1.6032
Fall 2005	7.7876	2.9781	2.0195	0.6268	0.2276	-1.2454	-1.6032	-1.7110

Positive values show pairs of means that are significantly different.

Level						Mean
Spring 2005	A					15.642019
Summer 2007		B				10.924464
Spring 2007		B	C			9.913476
Winter 2007			C	D		8.545023
Fall 2006				D		8.121606
Summer 2005					E	6.523633
Winter 2006					E	6.415836
Fall 2005					E	6.356237

Levels not connected by same letter are significantly different.

Oneway Analysis of EE (g O2/mol) By Season Site-Segment=WR-2



Means Comparisons
Comparisons for all pairs using Tukey-Kramer HSD

q*	Alpha
3.09955	0.05

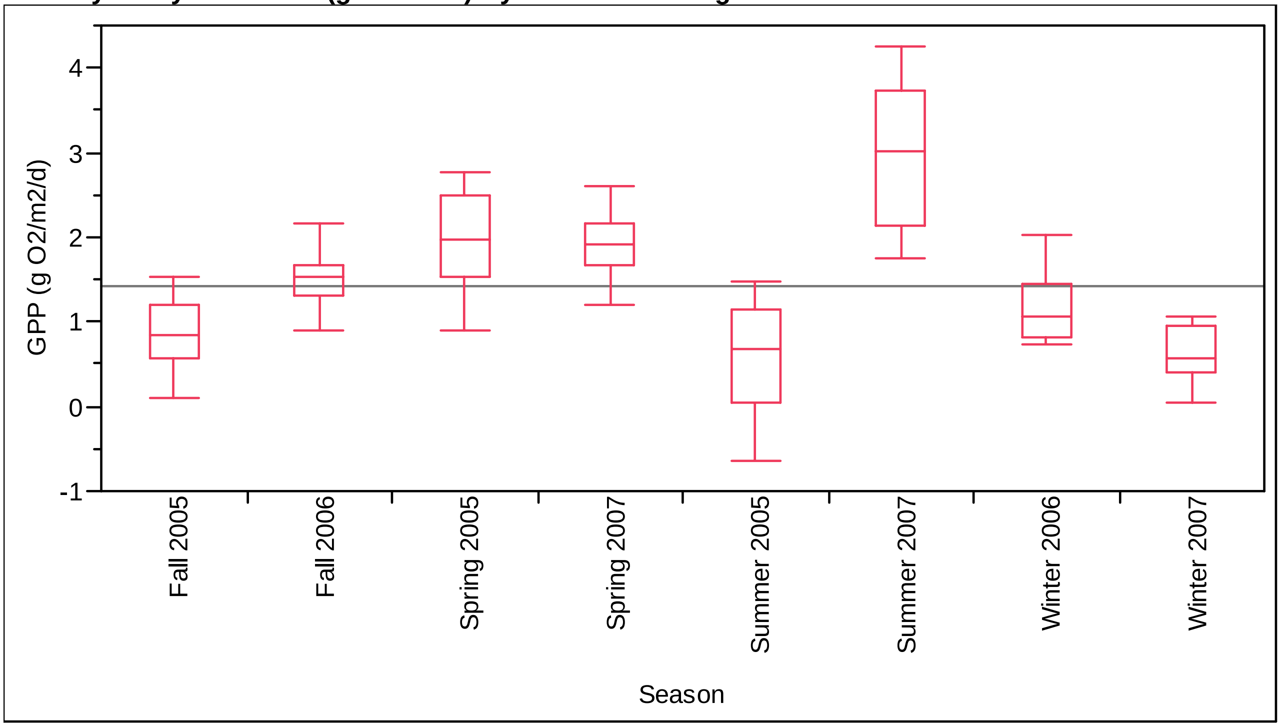
Abs(Dif)-LSD	Winter 2007	Fall 2006	Winter 2006	Fall 2005	Spring 2005	Spring 2007	Summer 2007	Summer 2005
Winter 2007	-0.18215	0.17360	0.17050	0.23096	0.32558	0.33689	0.33424	0.41423
Fall 2006	0.17360	-0.17501	-0.17845	-0.11810	-0.02291	-0.01173	-0.01452	0.06604
Winter 2006	0.17050	-0.17845	-0.21033	-0.14944	-0.05700	-0.04523	-0.04731	0.03055
Fall 2005	0.23096	-0.11810	-0.14944	-0.22309	-0.13157	-0.11961	-0.12145	-0.04448
Spring 2005	0.32558	-0.02291	-0.05700	-0.13157	-0.16292	-0.15195	-0.15501	-0.07344
Spring 2007	0.33689	-0.01173	-0.04523	-0.11961	-0.15195	-0.17501	-0.17780	-0.09724
Summer 2007	0.33424	-0.01452	-0.04731	-0.12145	-0.15501	-0.17780	-0.19025	-0.11090
Summer 2005	0.41423	0.06604	0.03055	-0.04448	-0.07344	-0.09724	-0.11090	-0.13453

Positive values show pairs of means that are significantly different.

Level				Mean
Winter 2007	A			0.72005817
Fall 2006		B		0.36783756
Winter 2006		B		0.35280526
Fall 2005		B	C	0.28544105
Spring 2005		B	C	0.22167633
Spring 2007		B	C	0.20455588
Summer 2007		B	C	0.19957069
Summer 2005			C	0.14571054

Levels not connected by same letter are significantly different.

Oneway Analysis of GPP (g O2/m2/d) By Season Site-Segment=RSR-1



Means Comparisons
Comparisons for all pairs using Tukey-Kramer HSD

q*	Alpha
3.09121	0.05

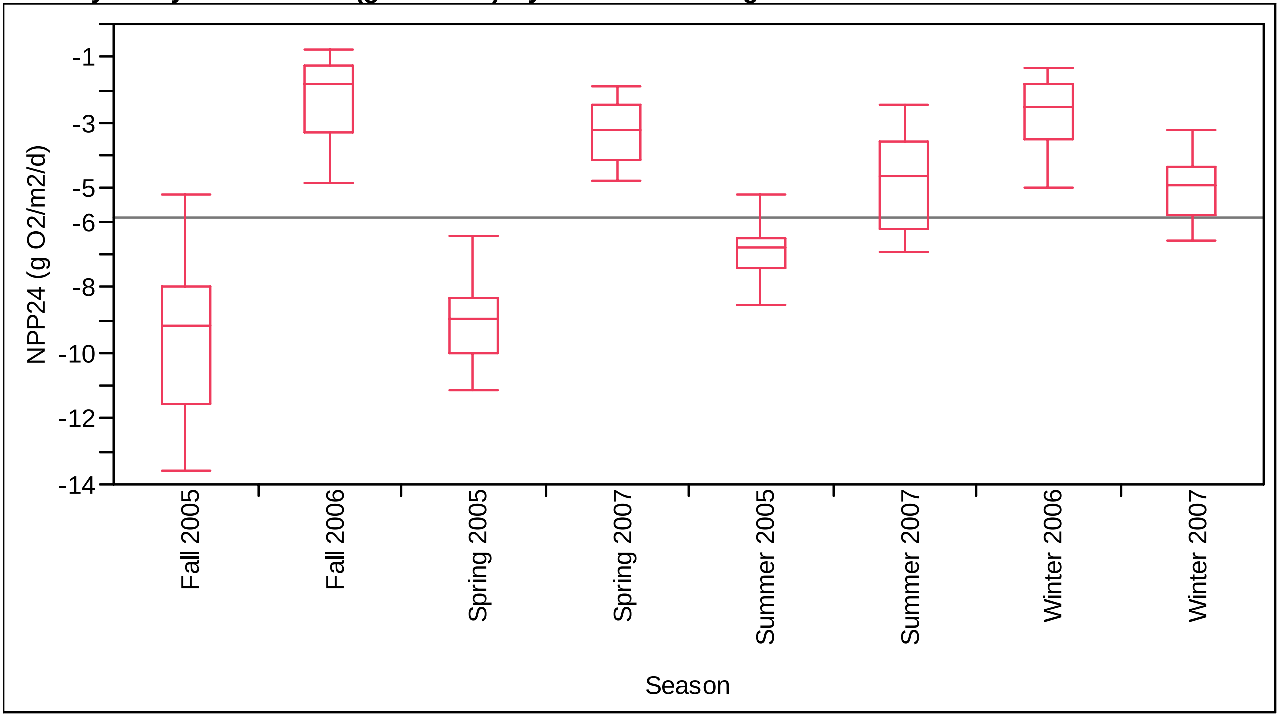
Abs(Dif)-LSD	Summer 2007	Spring 2005	Spring 2007	Fall 2006	Winter 2006	Fall 2005	Summer 2005	Winter 2007
Summer 2007	-0.6931	0.4016	0.3659	0.7577	1.1009	1.4450	1.7025	1.6760
Spring 2005	0.4016	-0.5890	-0.6290	-0.2371	0.1050	0.4529	0.7119	0.6812
Spring 2007	0.3659	-0.6290	-0.6931	-0.3012	0.0420	0.3861	0.6436	0.6171
Fall 2006	0.7577	-0.2371	-0.3012	-0.6931	-0.3498	-0.0058	0.2517	0.2252
Winter 2006	1.1009	0.1050	0.0420	-0.3498	-0.7214	-0.3783	-0.1212	-0.1466
Fall 2005	1.4450	0.4529	0.3861	-0.0058	-0.3783	-0.6247	-0.3663	-0.3955
Summer 2005	1.7025	0.7119	0.6436	0.2517	-0.1212	-0.3663	-0.5890	-0.6197
Winter 2007	1.6760	0.6812	0.6171	0.2252	-0.1466	-0.3955	-0.6197	-0.6931

Positive values show pairs of means that are significantly different.

Level					Mean
Summer 2007	A				2.9686710
Spring 2005		B			1.9239087
Spring 2007		B			1.9097409
Fall 2006		B	C		1.5179136
Winter 2006			C	D	1.1603992
Fall 2005			C	D	0.8638995
Summer 2005				D	0.6230533
Winter 2007				D	0.5996162

Levels not connected by same letter are significantly different.

Oneway Analysis of NPP24 (g O2/m2/d) By Season Site-Segment=RSR-1



Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

q*	Alpha
3.09121	0.05

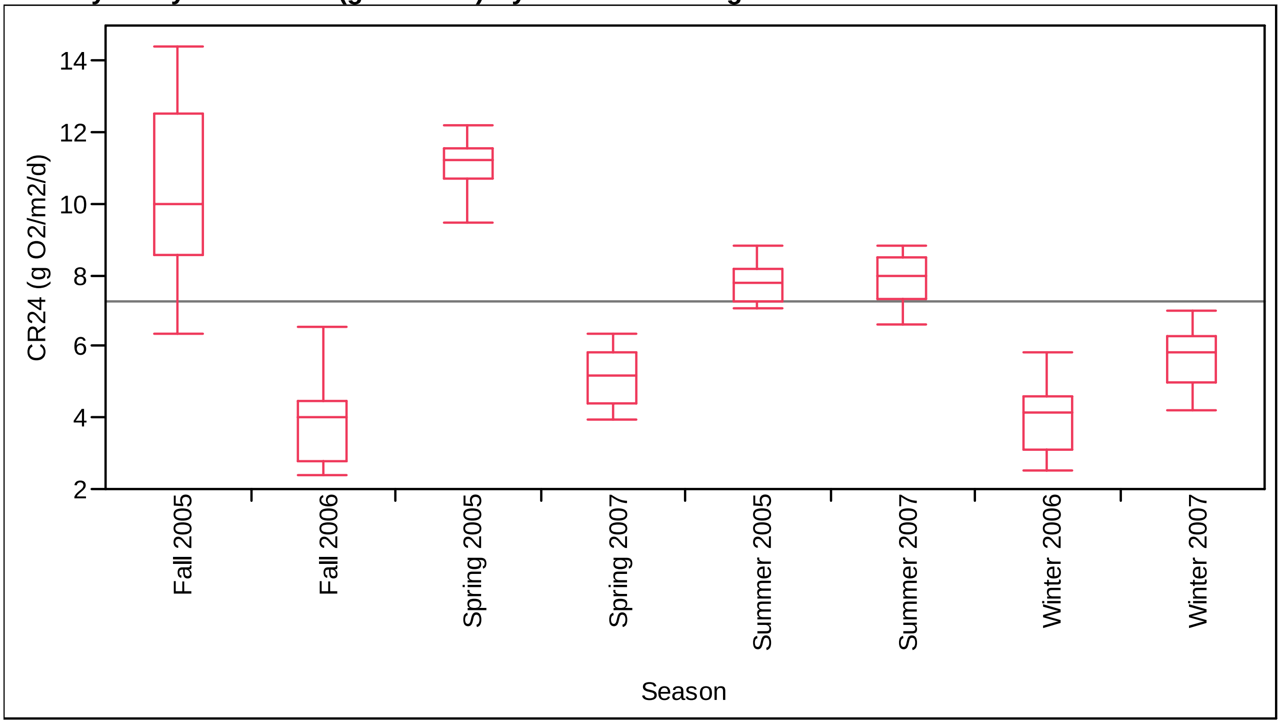
Abs(Dif)-LSD	Fall 2006	Winter 2006	Spring 2007	Summer 2007	Winter 2007	Summer 2005	Spring 2005	Fall 2005
Fall 2006	-1.6936	-1.2888	-0.7169	0.8960	1.0246	3.0365	5.4298	5.6928
Winter 2006	-1.2888	-1.7628	-1.1916	0.4213	0.5499	2.5591	4.9525	5.2164
Spring 2007	-0.7169	-1.1916	-1.6936	-0.0807	0.0479	2.0598	4.4531	4.7161
Summer 2007	0.8960	0.4213	-0.0807	-1.6936	-1.5651	0.4468	2.8401	3.1032
Winter 2007	1.0246	0.5499	0.0479	-1.5651	-1.6936	0.3183	2.7116	2.9746
Summer 2005	3.0365	2.5591	2.0598	0.4468	0.3183	-1.4393	0.9540	1.2134
Spring 2005	5.4298	4.9525	4.4531	2.8401	2.7116	0.9540	-1.4393	-1.1799
Fall 2005	5.6928	5.2164	4.7161	3.1032	2.9746	1.2134	-1.1799	-1.5266

Positive values show pairs of means that are significantly different.

Level						Mean
Fall 2006	A					-2.293800
Winter 2006	A					-2.733566
Spring 2007	A	B				-3.270508
Summer 2007		B	C			-4.883475
Winter 2007			C			-5.012023
Summer 2005				D		-6.901918
Spring 2005					E	-9.295225
Fall 2005					E	-9.598935

Levels not connected by same letter are significantly different.

Oneway Analysis of CR24 (g O2/m2/d) By Season Site-Segment=RSR-1



Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

q*	Alpha
3.09121	0.05

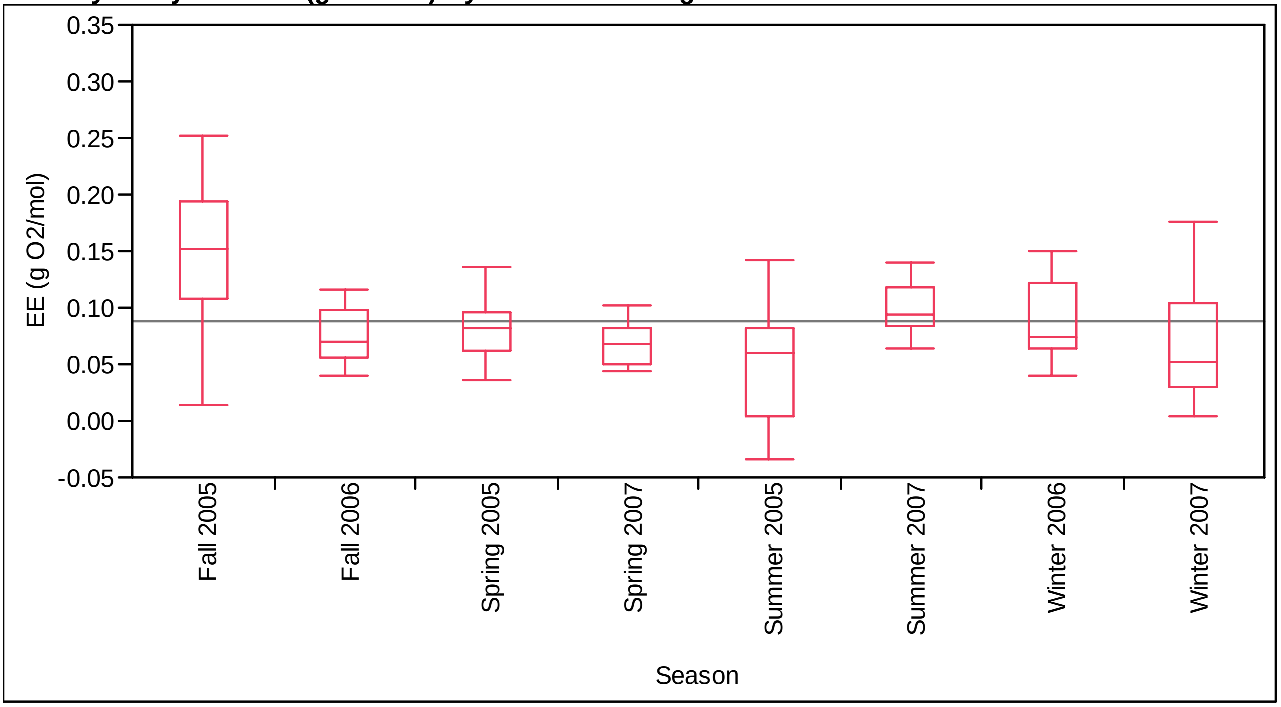
Abs(Dif)-LSD	Spring 2005	Fall 2005	Summer 2007	Summer 2005	Winter 2007	Spring 2007	Winter 2006	Fall 2006
Spring 2005	-1.2829	-0.5661	1.9661	2.4113	4.2067	4.6380	5.8908	6.0066
Fall 2005	-0.5661	-1.3607	1.1736	1.6155	3.4141	3.8455	5.0991	5.2140
Summer 2007	1.9661	1.1736	-1.5096	-1.0737	0.7309	1.1623	2.4175	2.5308
Summer 2005	2.4113	1.6155	-1.0737	-1.2829	0.5125	0.9439	2.1967	2.3124
Winter 2007	4.2067	3.4141	0.7309	0.5125	-1.5096	-1.0782	0.1770	0.2903
Spring 2007	4.6380	3.8455	1.1623	0.9439	-1.0782	-1.5096	-0.2544	-0.1411
Winter 2006	5.8908	5.0991	2.4175	2.1967	0.1770	-0.2544	-1.5712	-1.4585
Fall 2006	6.0066	5.2140	2.5308	2.3124	0.2903	-0.1411	-1.4585	-1.5096

Positive values show pairs of means that are significantly different.

Level					Mean
Spring 2005	A				11.219134
Fall 2005	A				10.462835
Summer 2007		B			7.852146
Summer 2005		B			7.524972
Winter 2007			C		5.611639
Spring 2007			C	D	5.180249
Winter 2006				D	3.893965
Fall 2006				D	3.811713

Levels not connected by same letter are significantly different.

Oneway Analysis of EE (g O2/mol) By Season Site-Segment=RSR-1



Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

q*	Alpha
3.09121	0.05

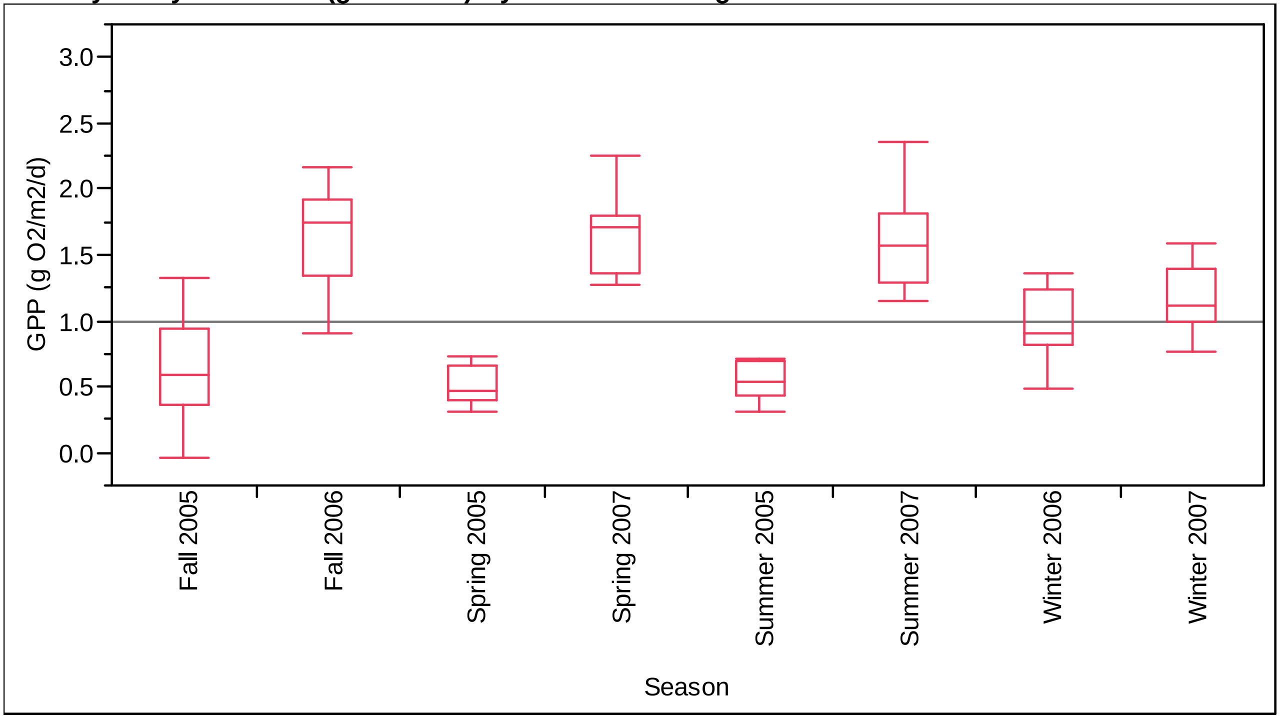
Abs(Dif)-LSD	Fall 2005	Summer 2007	Winter 2006	Spring 2005	Fall 2006	Spring 2007	Winter 2007	Summer 2005
Fall 2005	-0.05287	-0.00271	0.00657	0.02138	0.02249	0.03484	0.03823	0.05787
Summer 2007	-0.00271	-0.05865	-0.04931	-0.03479	-0.03345	-0.02110	-0.01771	0.00170
Winter 2006	0.00657	-0.04931	-0.06104	-0.04664	-0.04521	-0.03286	-0.02947	-0.01015
Spring 2005	0.02138	-0.03479	-0.04664	-0.04984	-0.04885	-0.03650	-0.03311	-0.01334
Fall 2006	0.02249	-0.03345	-0.04521	-0.04885	-0.05865	-0.04630	-0.04291	-0.02350
Spring 2007	0.03484	-0.02110	-0.03286	-0.03650	-0.04630	-0.05865	-0.05526	-0.03585
Winter 2007	0.03823	-0.01771	-0.02947	-0.03311	-0.04291	-0.05526	-0.05865	-0.03924
Summer 2005	0.05787	0.00170	-0.01015	-0.01334	-0.02350	-0.03585	-0.03924	-0.04984

Positive values show pairs of means that are significantly different.

Level				**Mean**
Fall 2005	A			0.15860828
Summer 2007	A	B		0.10548908
Winter 2006		B	C	0.09493914
Spring 2005		B	C	0.08585730
Fall 2006		B	C	0.08028607
Spring 2007		B	C	0.06793761
Winter 2007		B	C	0.06454808
Summer 2005			C	0.04936027

Levels not connected by same letter are significantly different.

Oneway Analysis of GPP (g O2/m2/d) By Season Site-Segment=RSR-2



Means Comparisons
Comparisons for all pairs using Tukey-Kramer HSD

q*	Alpha
3.08750	0.05

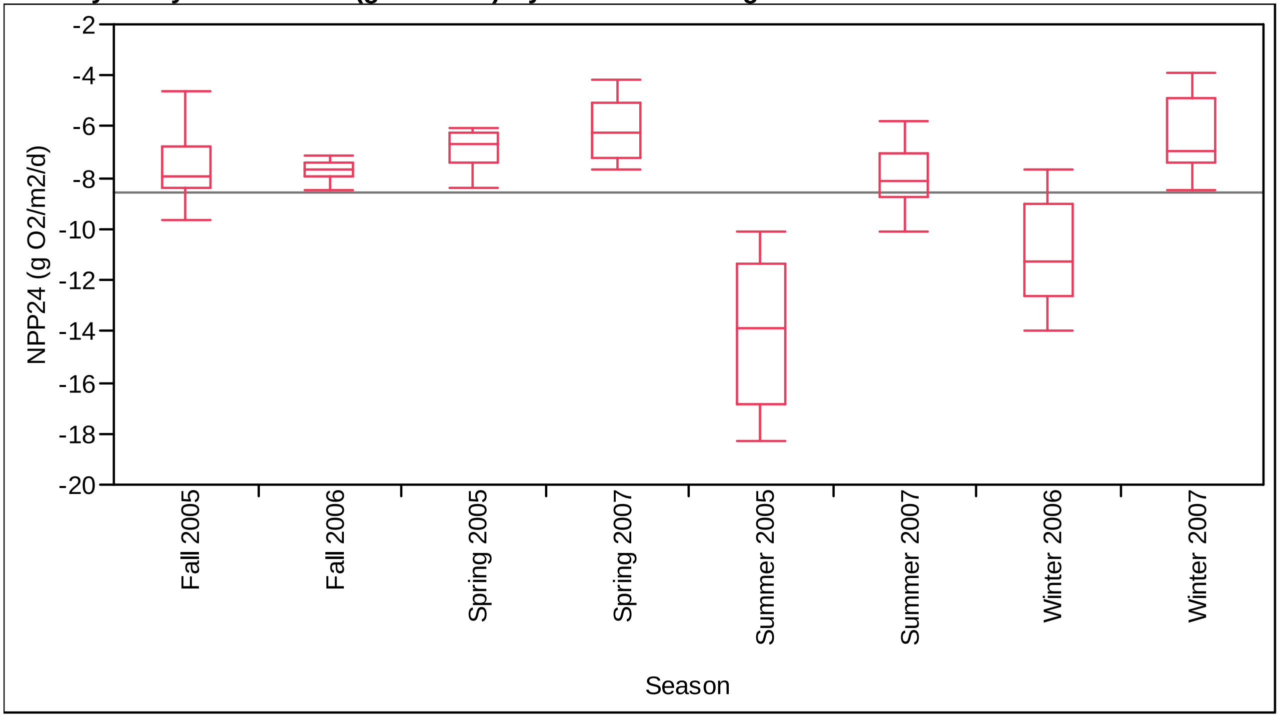
Abs(Dif)-LSD	Fall 2006	Summer 2007	Spring 2007	Winter 2007	Winter 2006	Fall 2005	Summer 2005	Spring 2005
Fall 2006	-0.49163	-0.47155	-0.41216	0.08447	0.29833	0.56755	0.59965	0.72340
Summer 2007	-0.47155	-0.49163	-0.43224	0.06438	0.27825	0.54747	0.57956	0.70332
Spring 2007	-0.41216	-0.43224	-0.43578	0.06084	0.27667	0.54589	0.57691	0.70174
Winter 2007	0.08447	0.06438	0.06084	-0.43578	-0.21996	0.04926	0.08028	0.20511
Winter 2006	0.29833	0.27825	0.27667	-0.21996	-0.37407	-0.10485	-0.07513	0.05099
Fall 2005	0.56755	0.54747	0.54589	0.04926	-0.10485	-0.37407	-0.34436	-0.21823
Summer 2005	0.59965	0.57956	0.57691	0.08028	-0.07513	-0.34436	-0.40764	-0.28223
Spring 2005	0.72340	0.70332	0.70174	0.20511	0.05099	-0.21823	-0.28223	-0.37407

Positive values show pairs of means that are significantly different.

Level					Mean
Fall 2006	A				1.6561593
Summer 2007	A				1.6360735
Spring 2007	A				1.6037706
Winter 2007		B			1.1071433
Winter 2006		B	C		0.9210011
Fall 2005			C	D	0.6517799
Summer 2005			C	D	0.6049181
Spring 2005				D	0.4959315

Levels not connected by same letter are significantly different.

Oneway Analysis of NPP24 (g O2/m2/d) By Season Site-Segment=RSR-2



Means Comparisons
Comparisons for all pairs using Tukey-Kramer HSD

q*	Alpha
3.08750	0.05

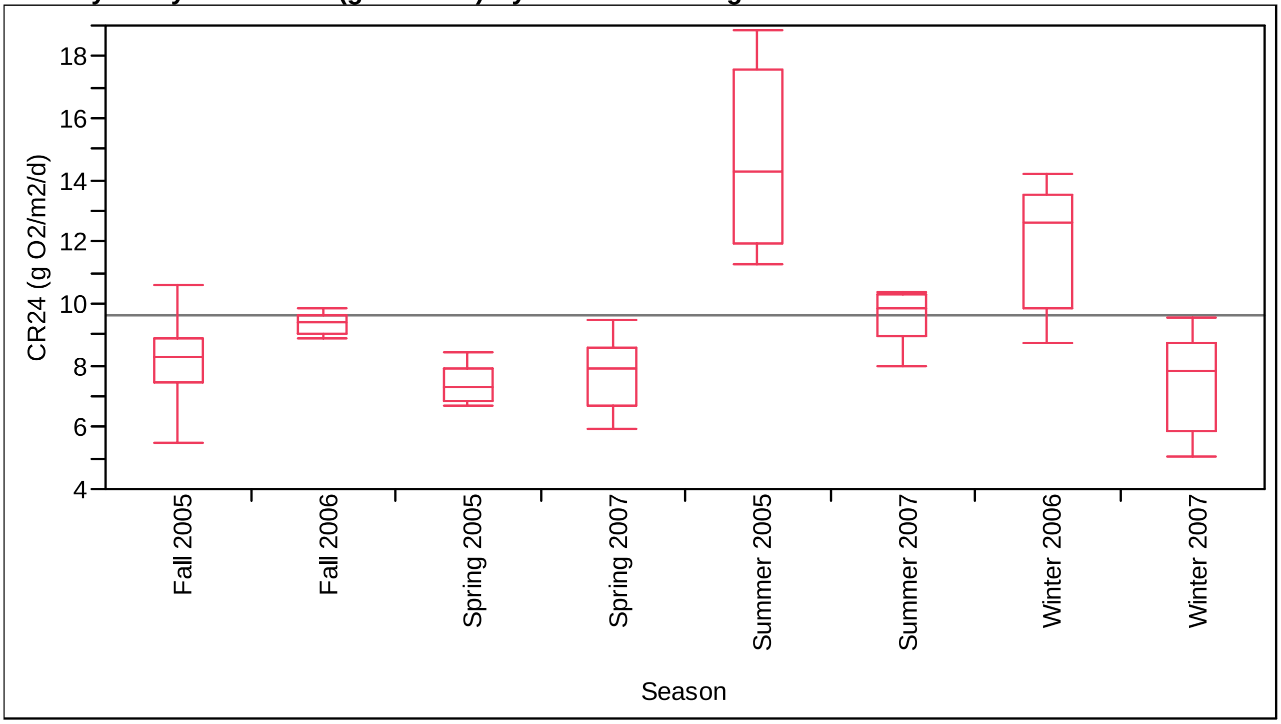
Abs(Dif)-LSD	Spring 2007	Winter 2007	Spring 2005	Fall 2005	Fall 2006	Summer 2007	Winter 2006	Summer 2005
Spring 2007	-1.9341	-1.6463	-1.0243	-0.3836	-0.4345	-0.1703	3.1166	6.1811
Winter 2007	-1.6463	-1.9341	-1.3121	-0.6714	-0.7223	-0.4581	2.8288	5.8933
Spring 2005	-1.0243	-1.3121	-1.6602	-1.0195	-1.0896	-0.8253	2.4806	5.5394
Fall 2005	-0.3836	-0.6714	-1.0195	-1.6602	-1.7303	-1.4660	1.8399	4.8987
Fall 2006	-0.4345	-0.7223	-1.0896	-1.7303	-2.1820	-1.9177	1.3530	4.4223
Summer 2007	-0.1703	-0.4581	-0.8253	-1.4660	-1.9177	-2.1820	1.0887	4.1580
Winter 2006	3.1166	2.8288	2.4806	1.8399	1.3530	1.0887	-1.6602	1.3985
Summer 2005	6.1811	5.8933	5.5394	4.8987	4.4223	4.1580	1.3985	-1.8092

Positive values show pairs of means that are significantly different.

Level				Mean
Spring 2007	A			-6.09220
Winter 2007	A			-6.38001
Spring 2005	A			-6.87031
Fall 2005	A			-7.51100
Fall 2006	A			-7.71944
Summer 2007	A			-7.98370
Winter 2006		B		-11.01116
Summer 2005			C	-14.14601

Levels not connected by same letter are significantly different.

Oneway Analysis of CR24 (g O2/m2/d) By Season Site-Segment=RSR-2



Means Comparisons
Comparisons for all pairs using Tukey-Kramer HSD

q*	Alpha
3.08750	0.05

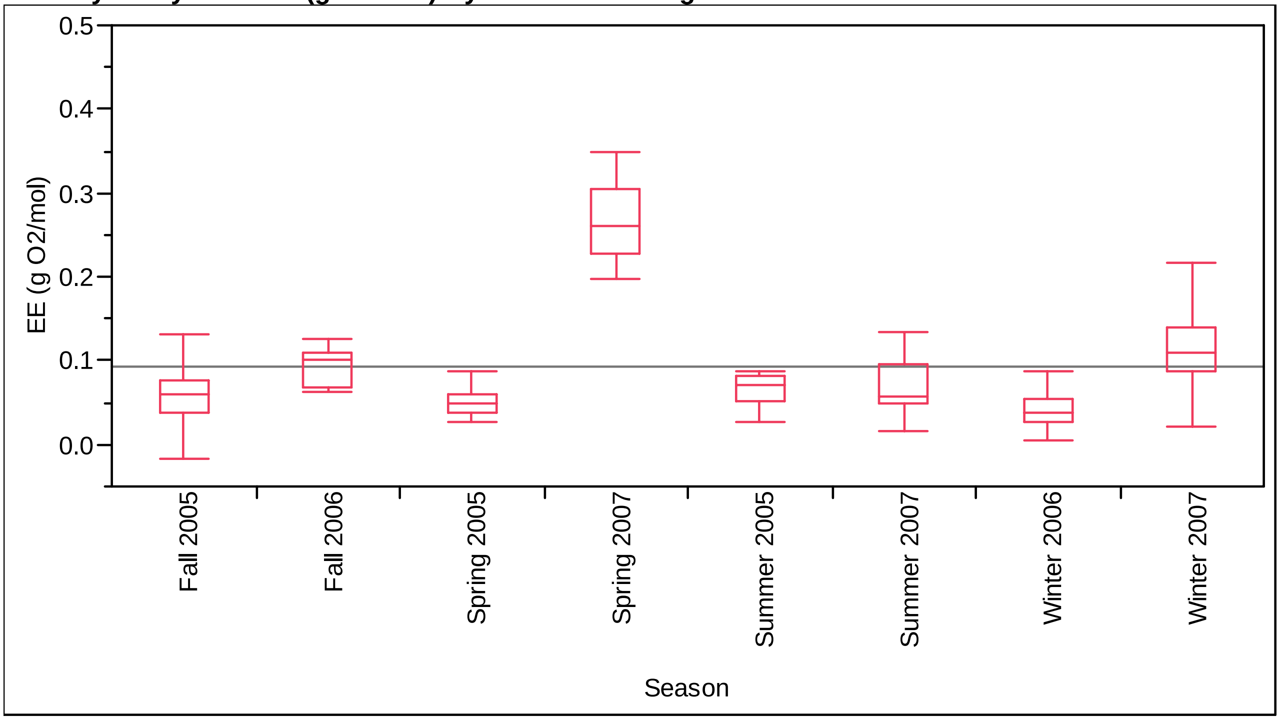
Abs(Dif)-LSD	Summer 2005	Winter 2006	Summer 2007	Fall 2006	Fall 2005	Spring 2007	Winter 2007	Spring 2005
Summer 2005	-1.7220	1.1661	3.2234	3.4676	4.9355	5.2725	5.4813	5.7320
Winter 2006	1.1661	-1.5802	0.4671	0.7112	2.1891	2.5206	2.7295	2.9857
Summer 2007	3.2234	0.4671	-2.0768	-1.8327	-0.3883	-0.0386	0.1702	0.4082
Fall 2006	3.4676	0.7112	-1.8327	-2.0768	-0.6325	-0.2828	-0.0740	0.1640
Fall 2005	4.9355	2.1891	-0.3883	-0.6325	-1.5802	-1.2487	-1.0399	-0.7837
Spring 2007	5.2725	2.5206	-0.0386	-0.2828	-1.2487	-1.8409	-1.6321	-1.3858
Winter 2007	5.4813	2.7295	0.1702	-0.0740	-1.0399	-1.6321	-1.8409	-1.5946
Spring 2005	5.7320	2.9857	0.4082	0.1640	-0.7837	-1.3858	-1.5946	-1.5802

Positive values show pairs of means that are significantly different.

Level						Mean
Summer 2005	A					14.750931
Winter 2006		B				11.932162
Summer 2007			C			9.619778
Fall 2006			C	D		9.375596
Fall 2005			C	D	E	8.162777
Spring 2007			C	D	E	7.695971
Winter 2007				D	E	7.487154
Spring 2005					E	7.366244

Levels not connected by same letter are significantly different.

Oneway Analysis of EE (g O2/mol) By Season Site-Segment=RSR-2



Means Comparisons
Comparisons for all pairs using Tukey-Kramer HSD

q*	Alpha
3.08750	0.05

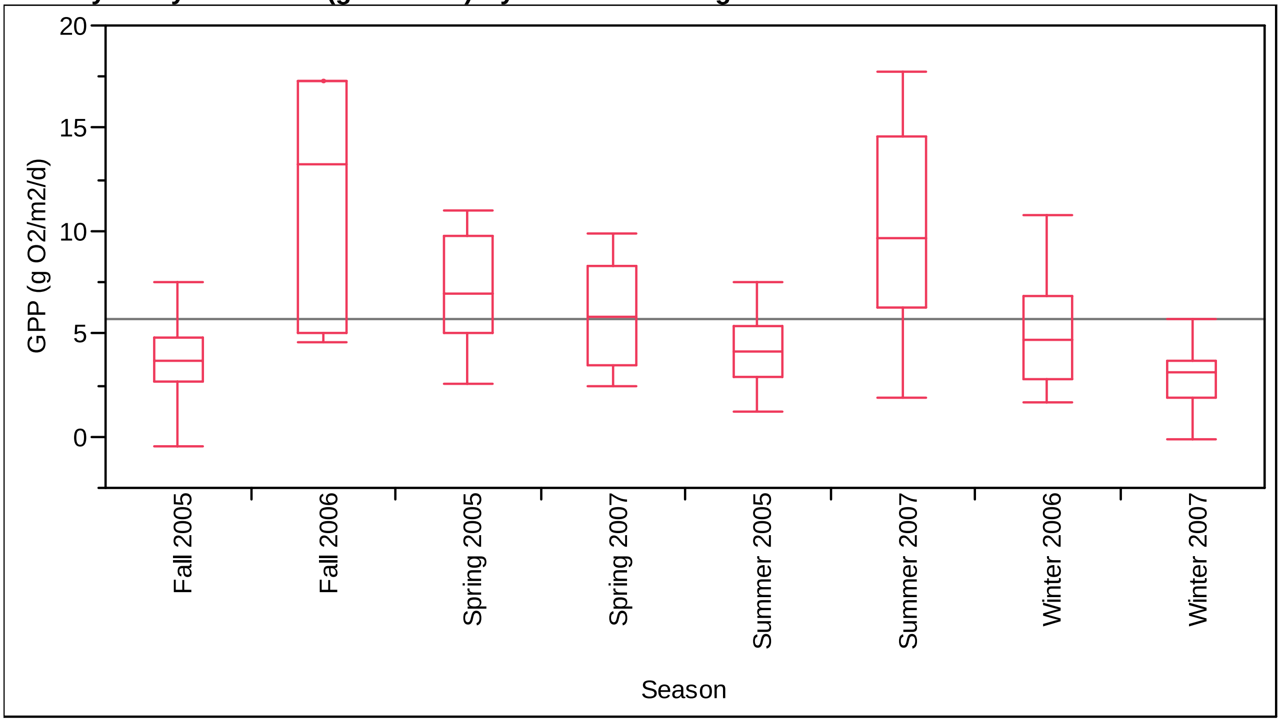
Abs(Dif)-LSD	Spring 2007	Winter 2007	Fall 2006	Summer 2005	Summer 2007	Fall 2005	Spring 2005	Winter 2006
Spring 2007	-0.04861	0.11659	0.12951	0.15897	0.15835	0.16908	0.18040	0.18371
Winter 2007	0.11659	-0.04861	-0.03568	-0.00623	-0.00685	0.00388	0.01520	0.01851
Fall 2006	0.12951	-0.03568	-0.05484	-0.02567	-0.02601	-0.01568	-0.00436	-0.00105
Summer 2005	0.15897	-0.00623	-0.02567	-0.04547	-0.04624	-0.03530	-0.02397	-0.02067
Summer 2007	0.15835	-0.00685	-0.02601	-0.04624	-0.05484	-0.04452	-0.03319	-0.02988
Fall 2005	0.16908	0.00388	-0.01568	-0.03530	-0.04452	-0.04173	-0.03040	-0.02710
Spring 2005	0.18040	0.01520	-0.00436	-0.02397	-0.03319	-0.03040	-0.04173	-0.03842
Winter 2006	0.18371	0.01851	-0.00105	-0.02067	-0.02988	-0.02710	-0.03842	-0.04173

Positive values show pairs of means that are significantly different.

Level				Mean
Spring 2007	A			0.27773845
Winter 2007		B		0.11254096
Fall 2006		B	C	0.09640708
Summer 2005		B	C	0.07170670
Summer 2007		B	C	0.06757439
Fall 2005			C	0.06336300
Spring 2005			C	0.05204005
Winter 2006			C	0.04873292

Levels not connected by same letter are significantly different.

Oneway Analysis of GPP (g O2/m2/d) By Season Site-Segment=JC-1



Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

q*	Alpha
3.09236	0.05

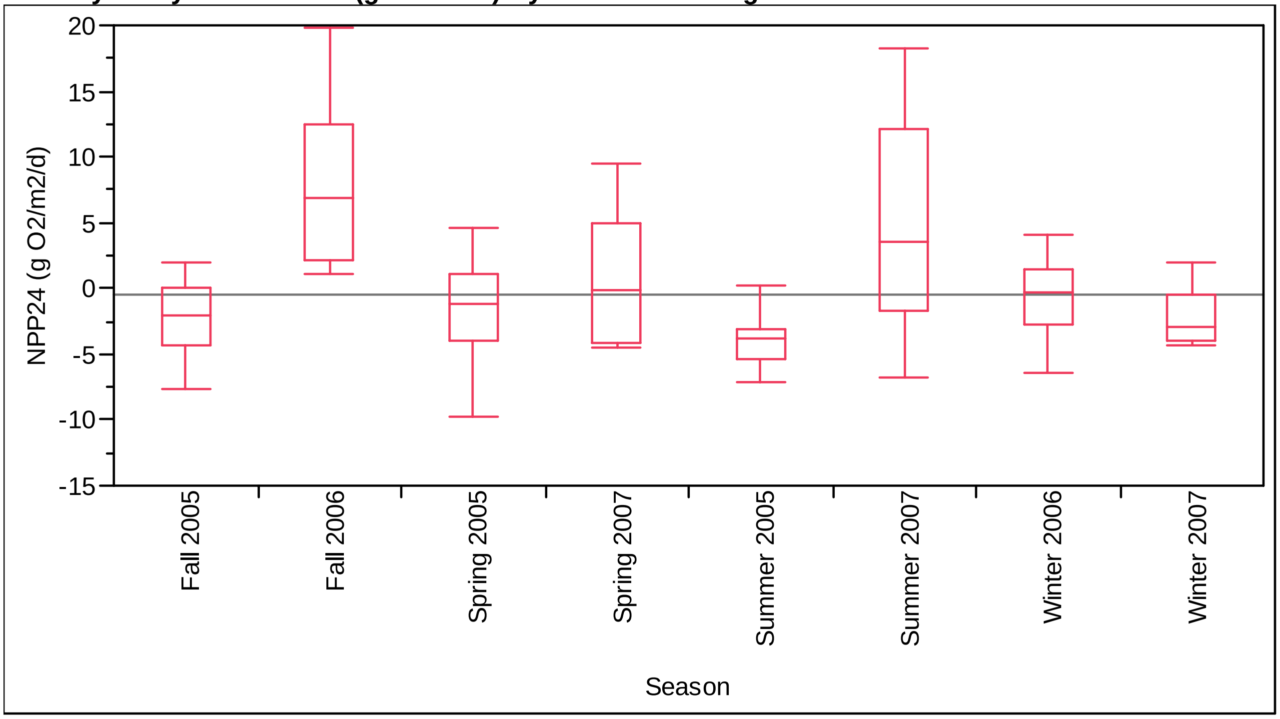
Abs(Dif)-LSD	Fall 2006	Summer 2007	Spring 2005	Spring 2007	Winter 2006	Summer 2005	Fall 2005	Winter 2007
Fall 2006	-4.9551	-2.5635	0.5139	0.3396	2.6851	3.5216	3.8772	4.1935
Summer 2007	-2.5635	-3.6360	-0.5208	-0.8929	1.6711	2.5077	2.8633	3.1089
Spring 2005	0.5139	-0.5208	-3.1796	-3.6255	-0.9790	-0.1424	0.2132	0.4302
Spring 2007	0.3396	-0.8929	-3.6255	-5.8629	-3.6466	-2.8101	-2.4545	-2.0998
Winter 2006	2.6851	1.6711	-0.9790	-3.6466	-2.9315	-2.0949	-1.7393	-1.5387
Summer 2005	3.5216	2.5077	-0.1424	-2.8101	-2.0949	-2.9315	-2.5759	-2.3753
Fall 2005	3.8772	2.8633	0.2132	-2.4545	-1.7393	-2.5759	-2.9315	-2.7309
Winter 2007	4.1935	3.1089	0.4302	-2.0998	-1.5387	-2.3753	-2.7309	-3.7845

Positive values show pairs of means that are significantly different.

Level					Mean
Fall 2006	A				11.652347
Summer 2007	A	B			9.869998
Spring 2005		B	C		6.975370
Spring 2007		B	C	D	5.884681
Winter 2006			C	D	4.896270
Summer 2005			C	D	4.059717
Fall 2005				D	3.704149
Winter 2007				D	3.050041

Levels not connected by same letter are significantly different.

Oneway Analysis of NPP24 (g O2/m2/d) By Season Site-Segment=JC-1



Means Comparisons
Comparisons for all pairs using Tukey-Kramer HSD

q*	Alpha
3.09236	0.05

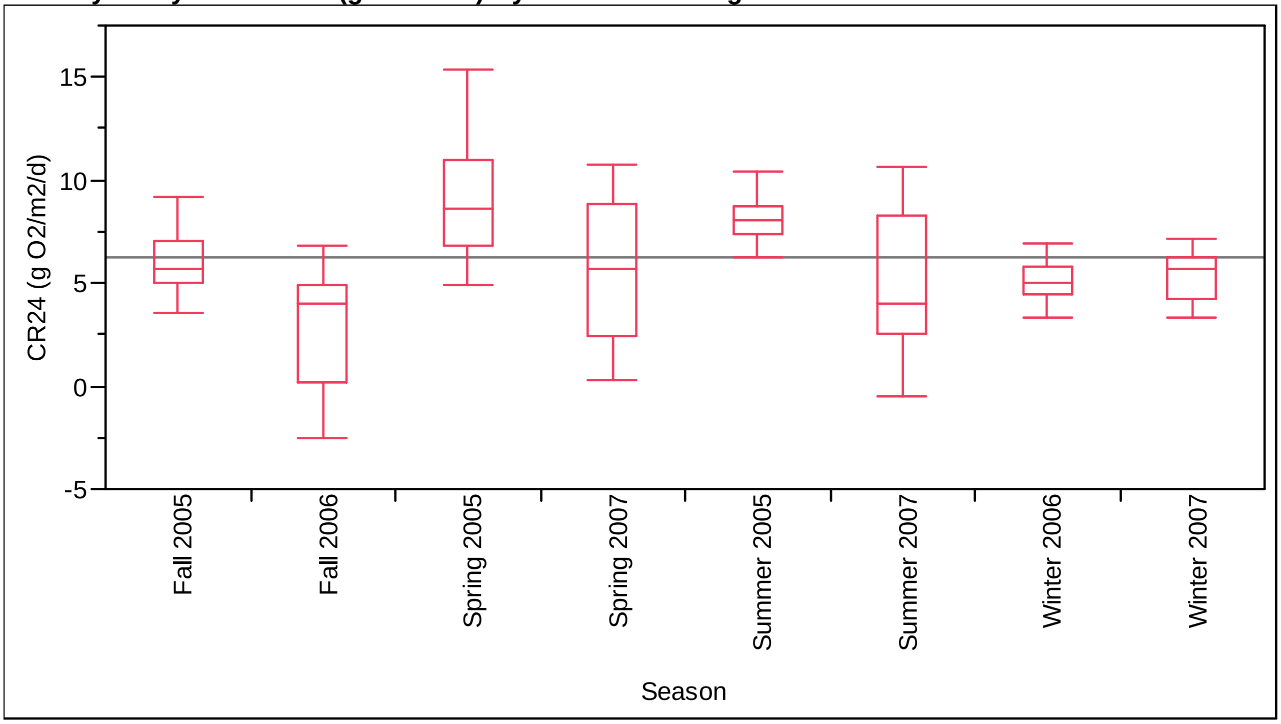
Abs(Dif)-LSD	Fall 2006	Summer 2007	Spring 2007	Winter 2006	Spring 2005	Winter 2007	Fall 2005	Summer 2005
Fall 2006	-7.0569	-2.5645	0.7965	3.2590	4.7777	4.6076	5.2090	6.9696
Summer 2007	-2.5645	-5.1784	-2.0453	0.7286	2.2176	1.9765	2.6785	4.4391
Spring 2007	0.7965	-2.0453	-8.3499	-6.0712	-4.5370	-4.6679	-4.1213	-2.3607
Winter 2006	3.2590	0.7286	-6.0712	-4.1749	-2.7054	-2.9912	-2.2250	-0.4644
Spring 2005	4.7777	2.2176	-4.5370	-2.7054	-4.5283	-4.7979	-4.0551	-2.2944
Winter 2007	4.6076	1.9765	-4.6679	-2.9912	-4.7979	-5.3898	-4.7005	-2.9399
Fall 2005	5.2090	2.6785	-4.1213	-2.2250	-4.0551	-4.7005	-4.1749	-2.4143
Summer 2005	6.9696	4.4391	-2.3607	-0.4644	-2.2944	-2.9399	-2.4143	-4.1749

Positive values show pairs of means that are significantly different.

Level				Mean
Fall 2006	A			8.765449
Summer 2007	A	B		5.140632
Spring 2007		B	C	0.238467
Winter 2006			C	-0.291428
Spring 2005			C	-1.941202
Winter 2007			C	-2.121058
Fall 2005			C	-2.241357
Summer 2005			C	-4.001988

Levels not connected by same letter are significantly different.

Oneway Analysis of CR24 (g O2/m2/d) By Season Site-Segment=JC-1



Means Comparisons
Comparisons for all pairs using Tukey-Kramer HSD

q*	Alpha
3.09236	0.05

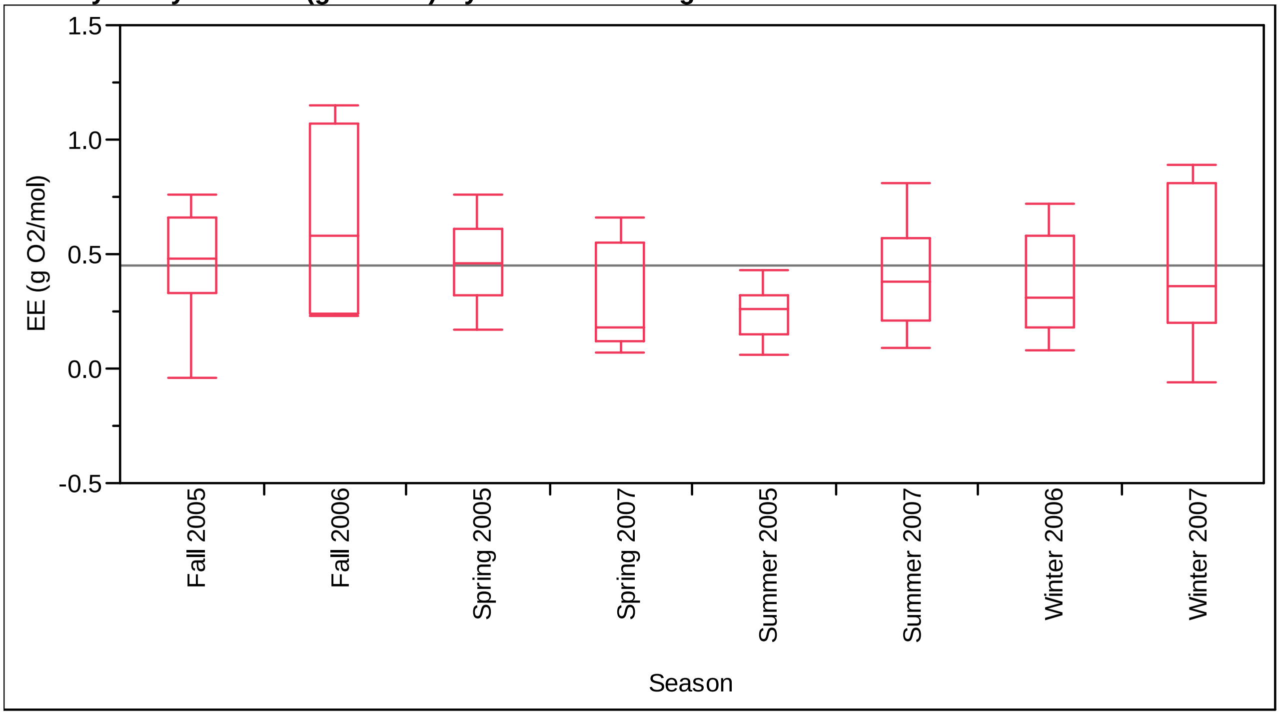
Abs(Dif)-LSD	Spring 2005	Summer 2005	Fall 2005	Spring 2007	Winter 2006	Winter 2007	Summer 2007	Fall 2006
Spring 2005	-2.4266	-1.4789	0.6373	-0.3288	1.3951	1.0781	1.5807	2.8526
Summer 2005	-1.4789	-2.2372	-0.1210	-1.1218	0.6368	0.3073	0.8119	2.0680
Fall 2005	0.6373	-0.1210	-2.2372	-3.2380	-1.4794	-1.8089	-1.3043	-0.0482
Spring 2007	-0.3288	-1.1218	-3.2380	-4.4743	-3.0788	-3.2906	-2.8060	-1.3831
Winter 2006	1.3951	0.6368	-1.4794	-3.0788	-2.2372	-2.5667	-2.0621	-0.8060
Winter 2007	1.0781	0.3073	-1.8089	-3.2906	-2.5667	-2.8882	-2.3904	-1.0804
Summer 2007	1.5807	0.8119	-1.3043	-2.8060	-2.0621	-2.3904	-2.7749	-1.4741
Fall 2006	2.8526	2.0680	-0.0482	-1.3831	-0.8060	-1.0804	-1.4741	-3.7815

Positive values show pairs of means that are significantly different.

Level				Mean
Spring 2005	A			8.9165714
Summer 2005	A	B		8.0617046
Fall 2005		B	C	5.9455063
Spring 2007	A	B	C	5.6462141
Winter 2006			C	5.1876982
Winter 2007			C	5.1710988
Summer 2007			C	4.7293663
Fall 2006			C	2.8868989

Levels not connected by same letter are significantly different.

Oneway Analysis of EE (g O2/mol) By Season Site-Segment=JC-1



Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

q*	Alpha
3.09236	0.05

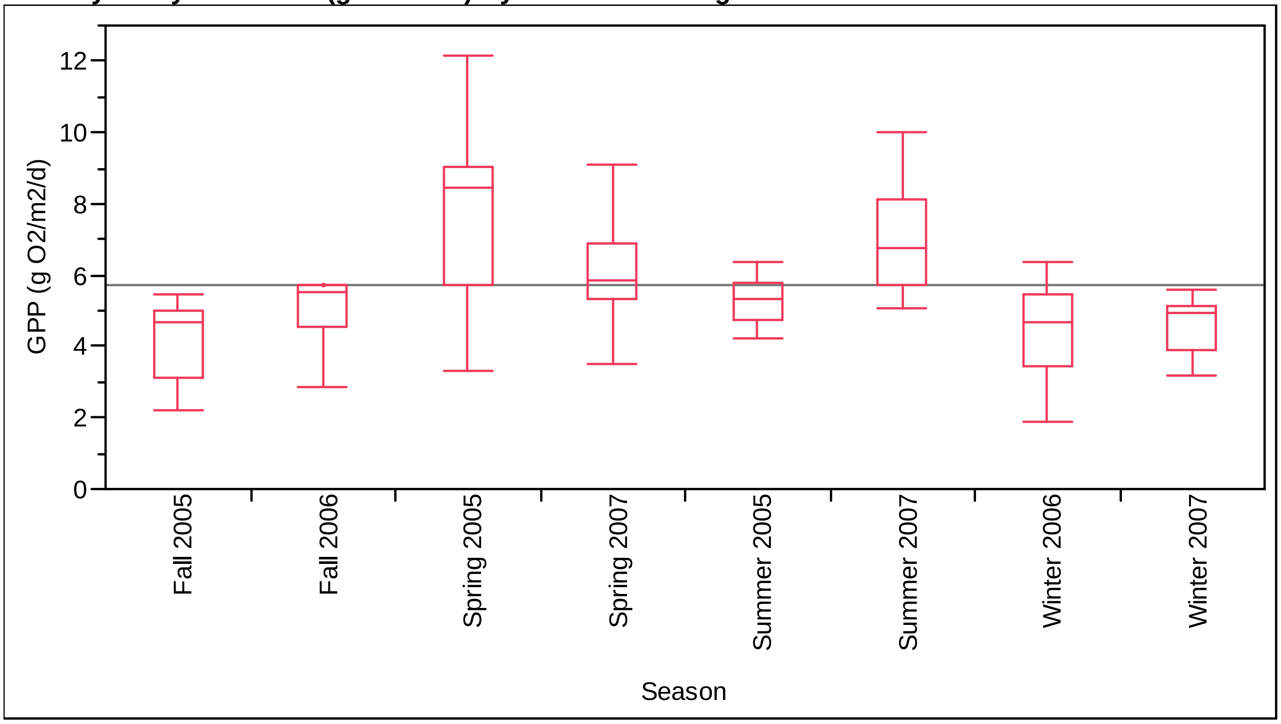
Abs(Dif)-LSD	Fall 2005	Fall 2006	Spring 2005	Winter 2007	Winter 2006	Summer 2007	Spring 2007	Summer 2005
Fall 2005	-0.42335	-0.53743	-0.26077	-0.25449	-0.15232	-0.19552	-0.30237	-0.01627
Fall 2006	-0.53743	-0.71559	-0.47084	-0.45283	-0.36737	-0.39667	-0.46737	-0.23132
Spring 2005	-0.26077	-0.47084	-0.45918	-0.45126	-0.35146	-0.39267	-0.49494	-0.21541
Winter 2007	-0.25449	-0.45283	-0.45126	-0.54654	-0.45216	-0.48885	-0.57995	-0.31611
Winter 2006	-0.15232	-0.36737	-0.35146	-0.45216	-0.42335	-0.46654	-0.57340	-0.28730
Summer 2007	-0.19552	-0.39667	-0.39267	-0.48885	-0.46654	-0.52510	-0.61892	-0.35129
Spring 2007	-0.30237	-0.46737	-0.49494	-0.57995	-0.57340	-0.61892	-0.84669	-0.62929
Summer 2005	-0.01627	-0.23132	-0.21541	-0.31611	-0.28730	-0.35129	-0.62929	-0.42335

Positive values show pairs of means that are significantly different.

Level		Mean
Fall 2005	A	0.66997191
Fall 2006	A	0.61948833
Spring 2005	A	0.48911644
Winter 2007	A	0.43562436
Winter 2006	A	0.39894479
Summer 2007	A	0.38854646
Spring 2007	A	0.30297362
Summer 2005	A	0.26289757

Levels not connected by same letter are significantly different.

Oneway Analysis of GPP (g O2/m2/d) By Season Site-Segment=ASC-1



Means Comparisons
Comparisons for all pairs using Tukey-Kramer HSD

q*	Alpha
3.08422	0.05

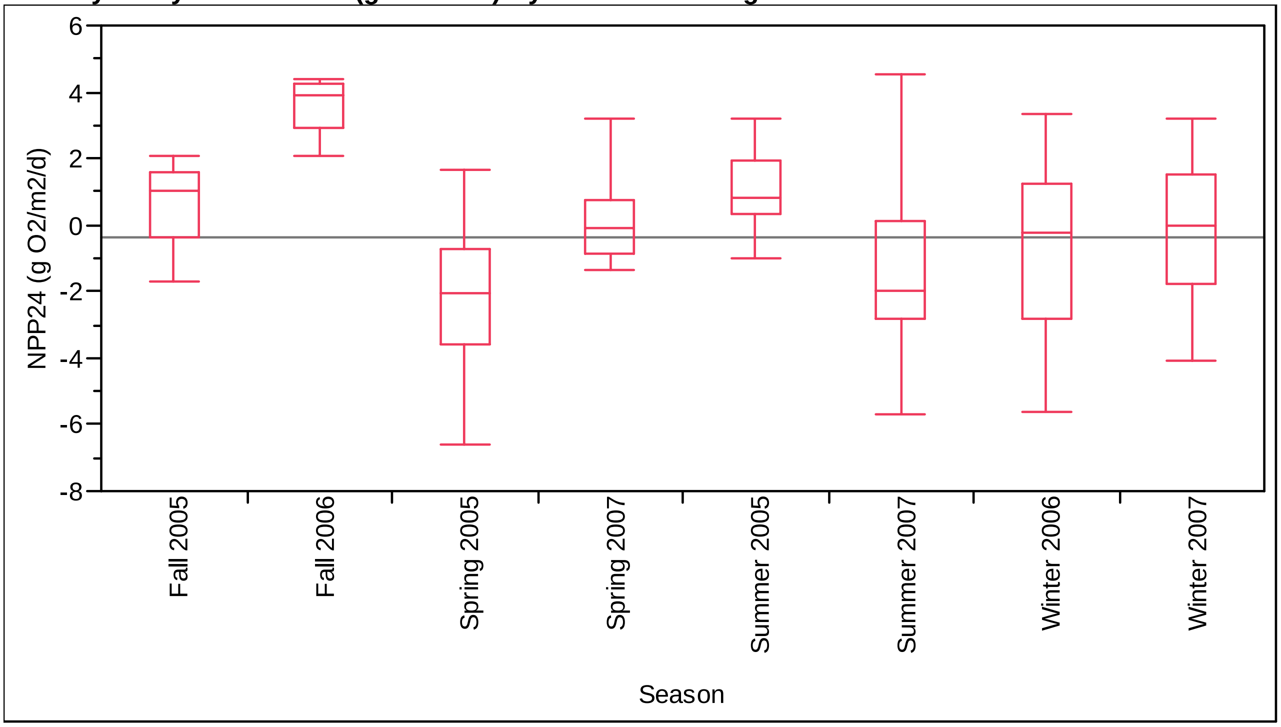
Abs(Dif)-LSD	Spring 2005	Summer 2007	Spring 2007	Summer 2005	Fall 2006	Winter 2007	Winter 2006	Fall 2005
Spring 2005	-1.3661	-0.5120	0.3422	1.1210	0.6135	1.5470	2.1377	2.0061
Summer 2007	-0.5120	-1.7279	-0.8870	-0.1059	-0.5580	0.3418	0.9064	0.7970
Spring 2007	0.3422	-0.8870	-1.4964	-0.7168	-1.2042	-0.2828	0.2983	0.1749
Summer 2005	1.1210	-0.1059	-0.7168	-1.5353	-2.0167	-1.0989	-0.5207	-0.6417
Fall 2006	0.6135	-0.5580	-1.2042	-2.0167	-2.7321	-1.9194	-1.4123	-1.4733
Winter 2007	1.5470	0.3418	-0.2828	-1.0989	-1.9194	-1.9319	-1.3808	-1.4787
Winter 2006	2.1377	0.9064	0.2983	-0.5207	-1.4123	-1.3808	-1.4604	-1.5860
Fall 2005	2.0061	0.7970	0.1749	-0.6417	-1.4733	-1.4787	-1.5860	-1.8561

Positive values show pairs of means that are significantly different.

Level					Mean
Spring 2005	A				7.8427645
Summer 2007	A	B			6.7972225
Spring 2007		B	C		6.0678583
Summer 2005		B	C	D	5.2686621
Fall 2006		B	C	D	5.0693279
Winter 2007			C	D	4.6226788
Winter 2006				D	4.2910229
Fall 2005				D	4.2070412

Levels not connected by same letter are significantly different.

Oneway Analysis of NPP24 (g O2/m2/d) By Season Site-Segment=ASC-1



Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

q*	Alpha
3.08422	0.05

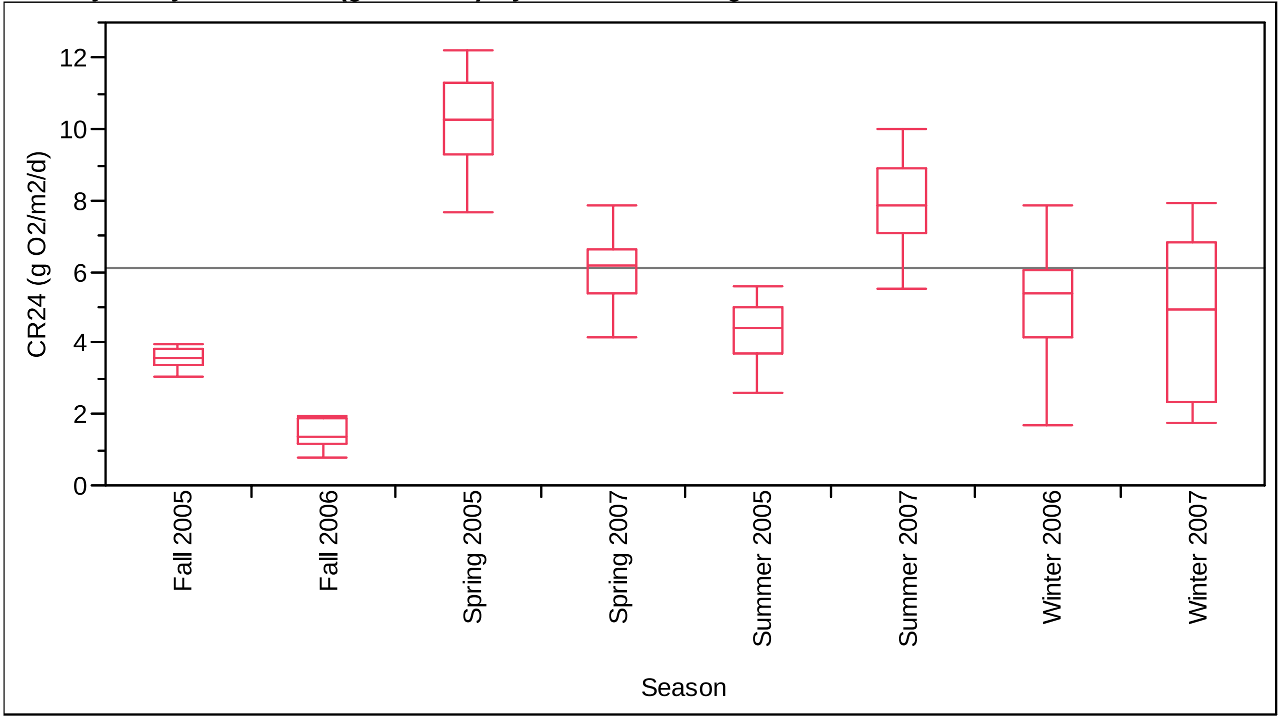
Abs(Dif)-LSD	Fall 2006	Summer 2005	Fall 2005	Winter 2007	Spring 2007	Winter 2006	Summer 2007	Spring 2005
Fall 2006	-3.9321	-0.5183	-0.3963	0.3595	0.6628	1.2492	1.5064	2.9226
Summer 2005	-0.5183	-2.2097	-2.1574	-1.4175	-1.0200	-0.4255	-0.2272	1.2687
Fall 2005	-0.3963	-2.1574	-2.6714	-1.9266	-1.5585	-0.9666	-0.7496	0.7208
Winter 2007	0.3595	-1.4175	-1.9266	-2.7804	-2.4188	-1.8275	-1.6063	-0.1416
Spring 2007	0.6628	-1.0200	-1.5585	-2.4188	-2.1537	-1.5589	-1.3630	0.1362
Winter 2006	1.2492	-0.4255	-0.9666	-1.8275	-1.5589	-2.1018	-1.9081	-0.4058
Summer 2007	1.5064	-0.2272	-0.7496	-1.6063	-1.3630	-1.9081	-2.4869	-1.0067
Spring 2005	2.9226	1.2687	0.7208	-0.1416	0.1362	-0.4058	-1.0067	-1.9661

Positive values show pairs of means that are significantly different.

Level				Mean
Fall 2006	A			3.612767
Summer 2005	A	B		0.941710
Fall 2005	A	B		0.647737
Winter 2007		B	C	-0.152058
Spring 2007		B		-0.220165
Winter 2006		B	C	-0.789184
Summer 2007		B	C	-1.183465
Spring 2005			C	-2.418401

Levels not connected by same letter are significantly different.

Oneway Analysis of CR24 (g O2/m2/d) By Season Site-Segment=ASC-1



Means Comparisons
Comparisons for all pairs using Tukey-Kramer HSD

q*	Alpha
3.08422	0.05

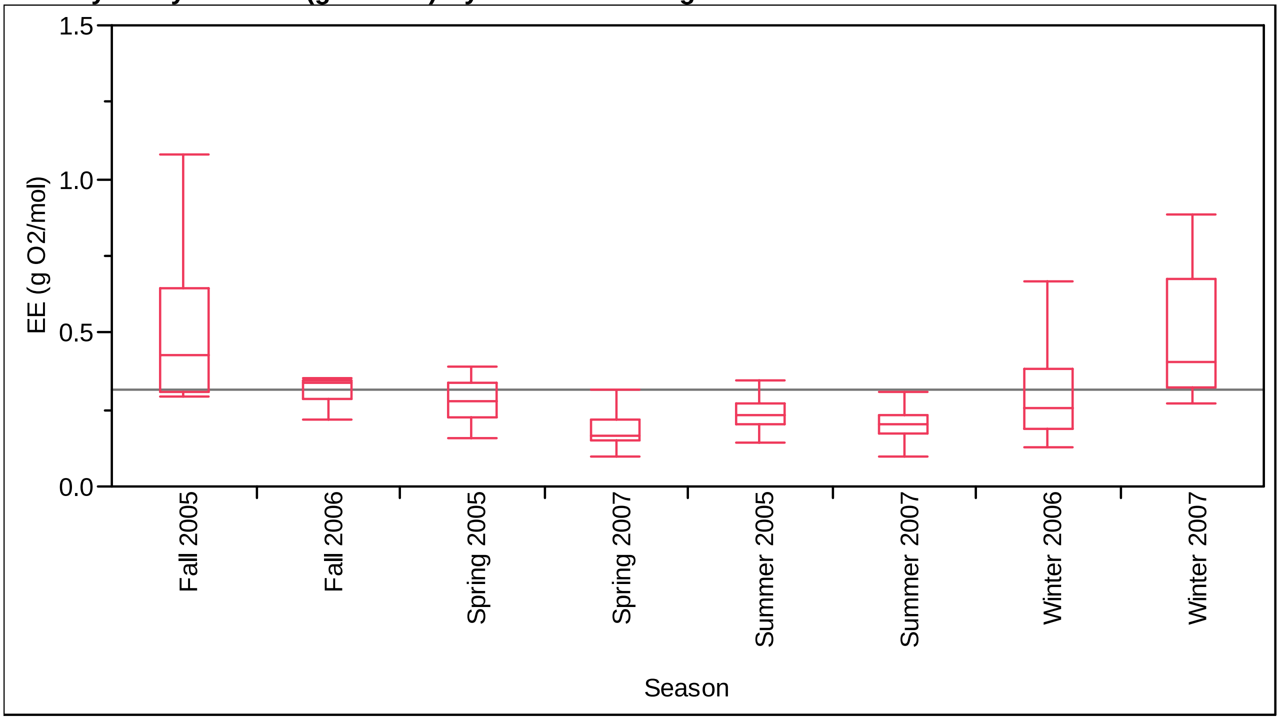
Abs(Dif)-LSD	Spring 2005	Summer 2007	Spring 2007	Winter 2006	Winter 2007	Summer 2005	Fall 2005	Fall 2006
Spring 2005	-1.2086	0.9025	2.7056	3.9300	4.0062	4.6486	5.2601	6.8937
Summer 2007	0.9025	-1.5287	0.2627	1.4852	1.5845	2.2077	2.8349	4.5018
Spring 2007	2.7056	0.2627	-1.3239	-0.1002	-0.0154	0.6198	1.2372	2.8827
Winter 2006	3.9300	1.4852	-0.1002	-1.2920	-1.2095	-0.5723	0.0434	1.6856
Winter 2007	4.0062	1.5845	-0.0154	-1.2095	-1.7092	-1.0960	-0.4605	1.2249
Summer 2005	4.6486	2.2077	0.6198	-0.5723	-1.0960	-1.3583	-0.7393	0.9098
Fall 2005	5.2601	2.8349	1.2372	0.0434	-0.4605	-0.7393	-1.6421	0.0365
Fall 2006	6.8937	4.5018	2.8827	1.6856	1.2249	0.9098	0.0365	-2.4171

Positive values show pairs of means that are significantly different.

Level							Mean
Spring 2005	A						10.261165
Summer 2007		B					7.980688
Spring 2007			C				6.288023
Winter 2006			C	D			5.080206
Winter 2007			C	D	E		4.774737
Summer 2005				D	E		4.326952
Fall 2005					E		3.559304
Fall 2006						F	1.456561

Levels not connected by same letter are significantly different.

Oneway Analysis of EE (g O2/mol) By Season Site-Segment=ASC-1



Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

q*	Alpha
3.08422	0.05

Abs(Dif)-LSD	Fall 2005	Winter 2007	Spring 2005	Fall 2006	Winter 2006	Summer 2005	Summer 2007	Spring 2007
Fall 2005	-0.26986	-0.25428	-0.10807	-0.15300	-0.02708	0.02308	0.01404	0.07711
Winter 2007	-0.25428	-0.28088	-0.13554	-0.17859	-0.05440	-0.00412	-0.01287	0.04985
Spring 2005	-0.10807	-0.13554	-0.19861	-0.25633	-0.11872	-0.06941	-0.08056	-0.01494
Fall 2006	-0.15300	-0.17859	-0.25633	-0.39722	-0.28933	-0.23803	-0.24416	-0.18459
Winter 2006	-0.02708	-0.05440	-0.11872	-0.28933	-0.21232	-0.16284	-0.17357	-0.10846
Summer 2005	0.02308	-0.00412	-0.06941	-0.23803	-0.16284	-0.22322	-0.23361	-0.16890
Summer 2007	0.01404	-0.01287	-0.08056	-0.24416	-0.17357	-0.23361	-0.25123	-0.18752
Spring 2007	0.07711	0.04985	-0.01494	-0.18459	-0.10846	-0.16890	-0.18752	-0.21757

Positive values show pairs of means that are significantly different.

Level				Mean
Fall 2005	A			0.50359480
Winter 2007	A	B		0.48244753
Spring 2005	A	B	C	0.37473712
Fall 2006	A	B	C	0.31703199
Winter 2006	A	B	C	0.28787290
Summer 2005		B	C	0.23287592
Summer 2007		B	C	0.22884981
Spring 2007			C	0.18136773

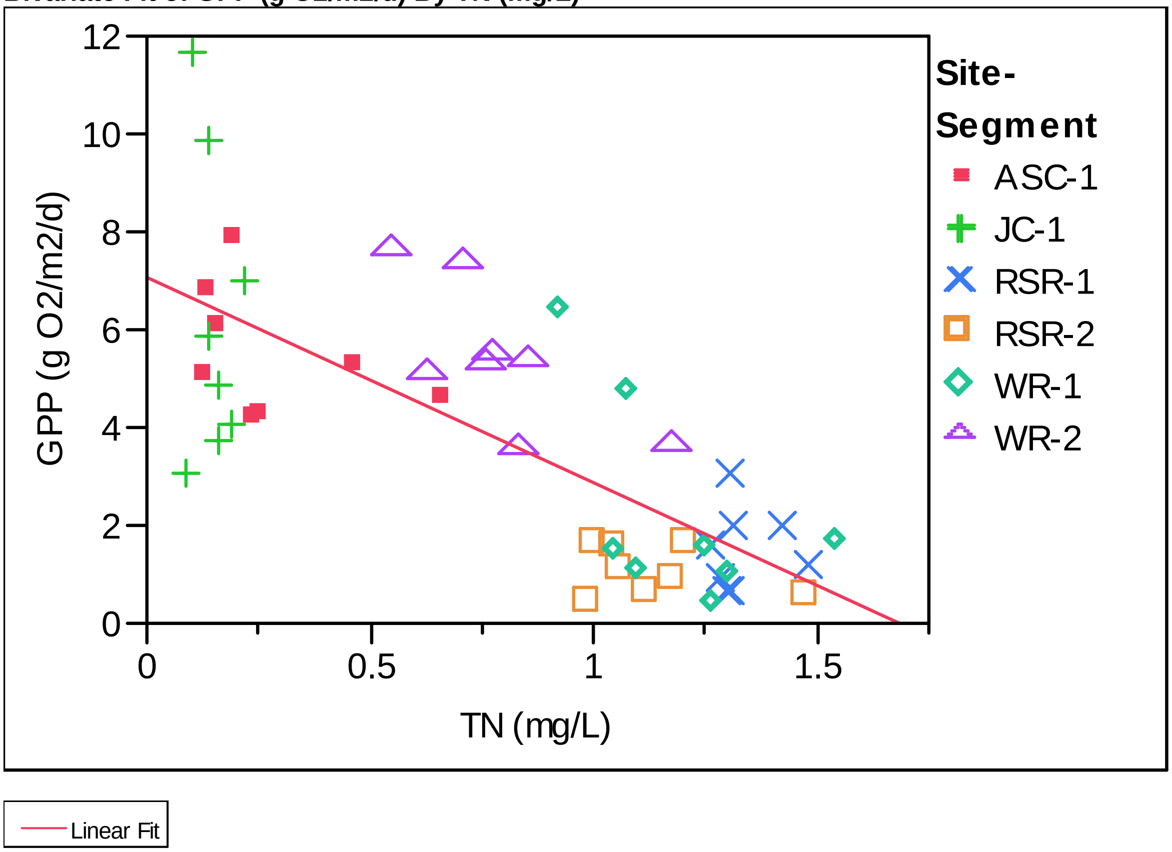
Levels not connected by same letter are significantly different.

Appendix F

Detailed Statistical Comparison of Ecosystem Metabolism for the Wekiva River System and Reference Stream Segments:

Correlations of Metabolism Parameters with Nutrients

Bivariate Fit of GPP (g O2/m2/d) By TN (mg/L)



Linear Fit

GPP (g O2/m2/d) = 7.0801063 - 4.2120492*TN (mg/L)

Summary of Fit

R Square	0.560785
R Square Adjusted	0.551237
Root Mean Square Error	1.814204
Mean of Response	3.687025
Observations	48

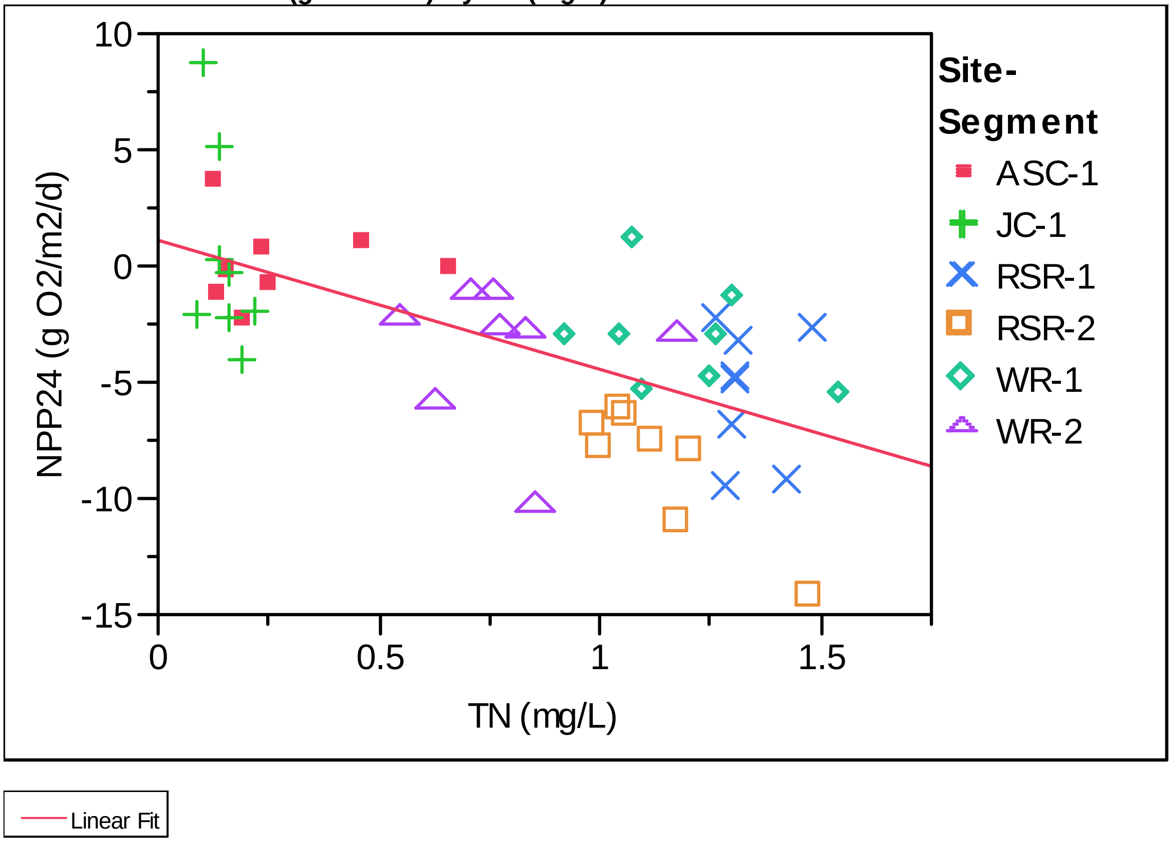
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	193.30740	193.307	58.7322
Error	46	151.40138	3.291	**Prob > F**
C. Total	47	344.70878		<.0001

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	7.0801063	0.514388	13.76	<.0001
TN (mg/L)	-4.212049	0.549611	-7.66	<.0001

Bivariate Fit of NPP24 (g O2/m2/d) By TN (mg/L)



Linear Fit

NPP24 (g O2/m2/d) = 1.1192663 - 5.5457071*TN (mg/L)

Summary of Fit

R Square	0.409134
R Square Adjusted	0.396289
Root Mean Square Error	3.243548
Mean of Response	-3.34816
Observations	48

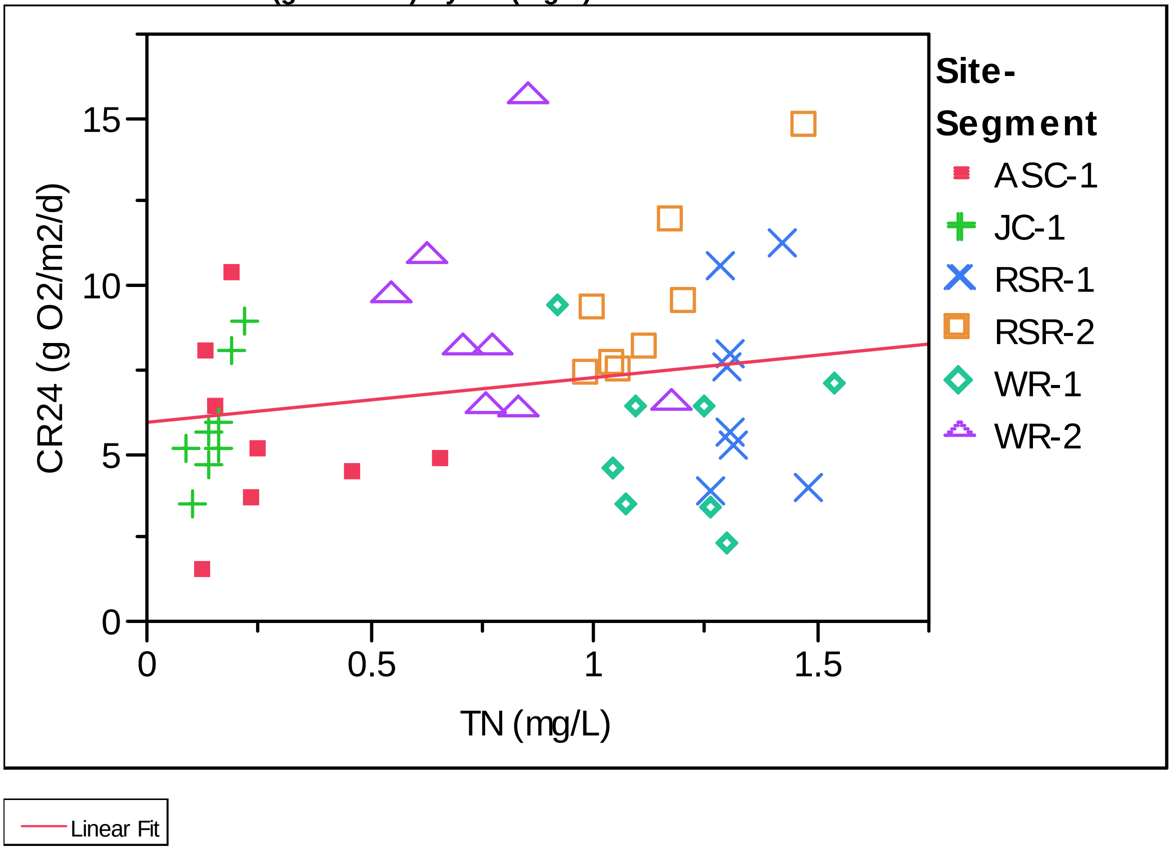
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	335.10079	335.101	31.8519
Error	46	483.94787	10.521	**Prob > F**
C. Total	47	819.04866		<.0001

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	1.1192663	0.919655	1.22	0.2298
TN (mg/L)	-5.545707	0.982629	-5.64	<.0001

Bivariate Fit of CR24 (g O2/m2/d) By TN (mg/L)



Linear Fit

CR24 (g O2/m2/d) = 5.9787945 + 1.3072823*TN (mg/L)

Summary of Fit

R Square	0.044592
R Square Adjusted	0.023822
Root Mean Square Error	2.945013
Mean of Response	7.031896
Observations	48

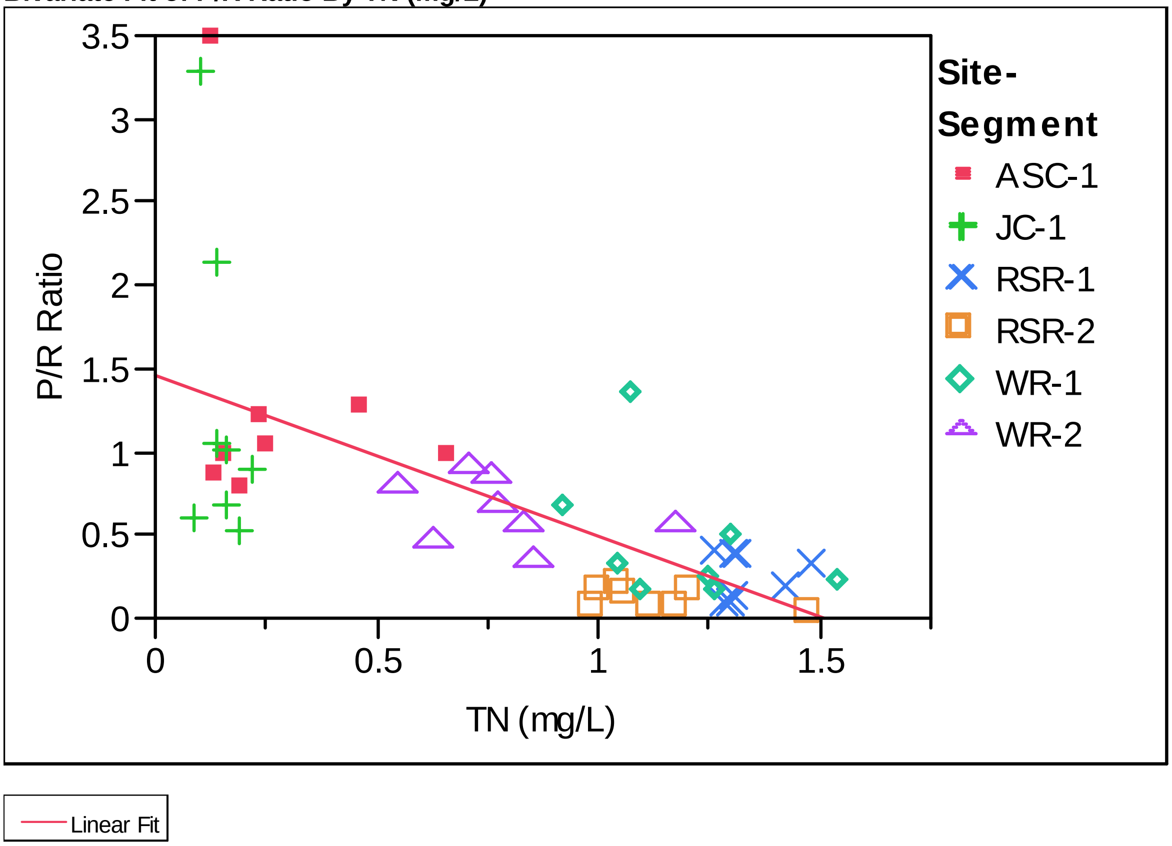
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	18.62089	18.6209	2.1470
Error	46	398.96261	8.6731	**Prob > F**
C. Total	47	417.58350		0.1497

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	5.9787945	0.83501	7.16	<.0001
TN (mg/L)	1.3072823	0.892188	1.47	0.1497

Bivariate Fit of P/R Ratio By TN (mg/L)



Linear Fit

P/R Ratio = 1.4555048 - 0.9659418*TN (mg/L)

Summary of Fit

R Square	0.423709
R Square Adjusted	0.411181
Root Mean Square Error	0.548264
Mean of Response	0.677375
Observations	48

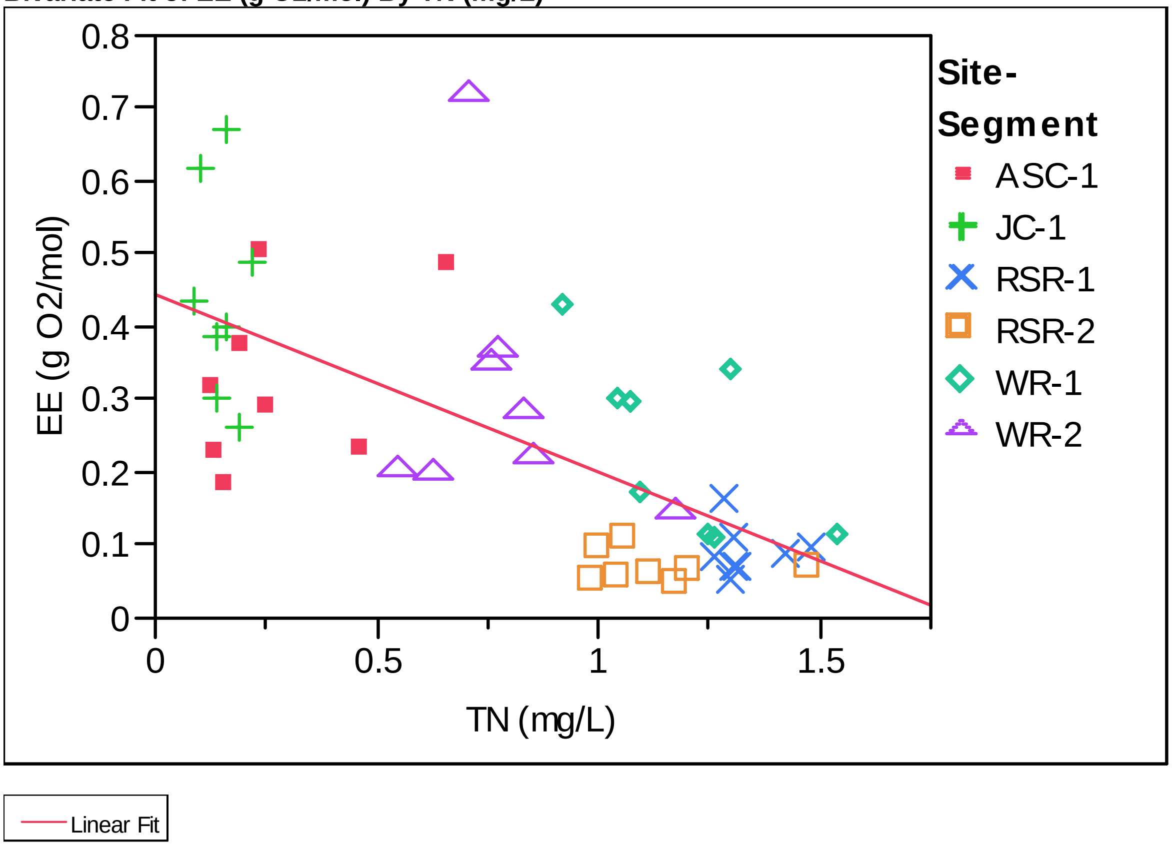
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	10.166314	10.1663	33.8208
Error	46	13.827321	0.3006	**Prob > F**
C. Total	47	23.993635		<.0001

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	1.4555048	0.155451	9.36	<.0001
TN (mg/L)	-0.965942	0.166096	-5.82	<.0001

Bivariate Fit of EE (g O2/mol) By TN (mg/L)



Linear Fit

EE (g O2/mol) = 0.443469 - 0.2443302*TN (mg/L)

Summary of Fit

R Square	0.451041
R Square Adjusted	0.439107
Root Mean Square Error	0.131187
Mean of Response	0.246645
Observations	48

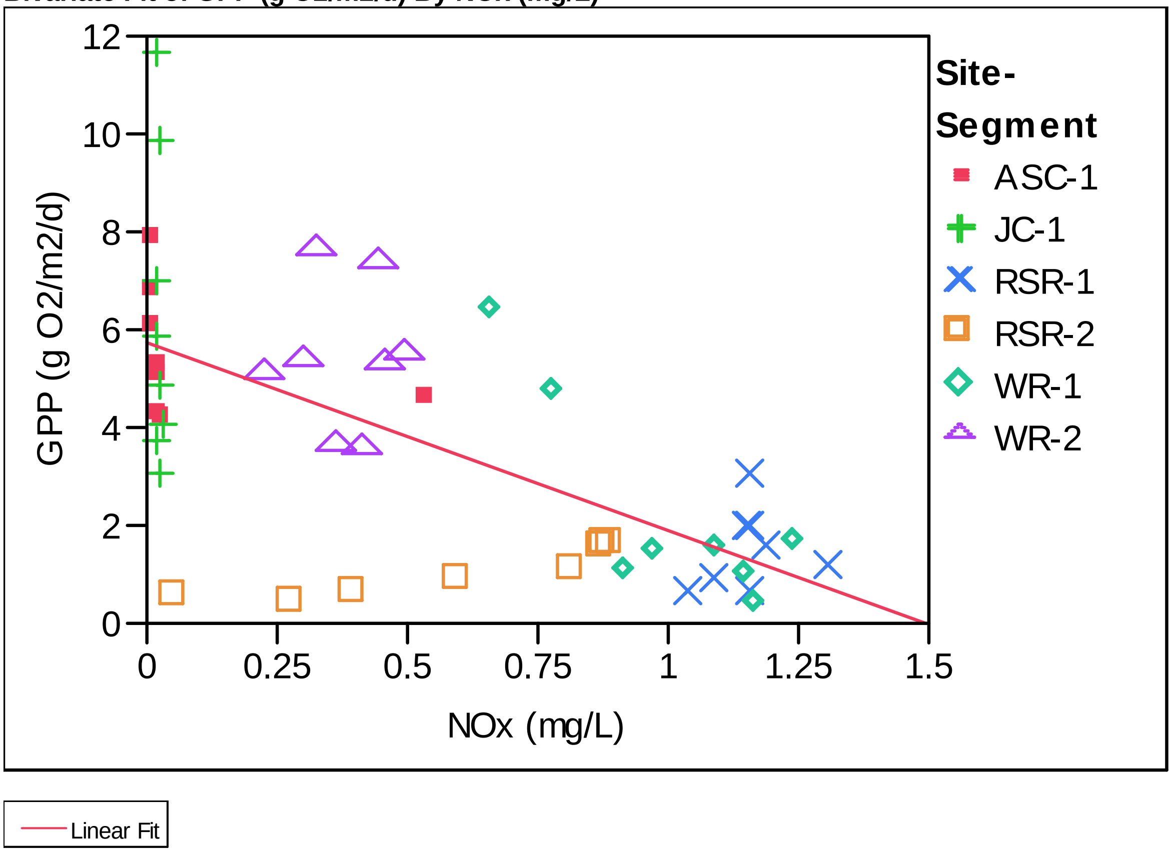
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.6504531	0.650453	37.7949
Error	46	0.7916630	0.017210	**Prob > F**
C. Total	47	1.4421161		<.0001

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	0.443469	0.037196	11.92	<.0001
TN (mg/L)	-0.24433	0.039743	-6.15	<.0001

Bivariate Fit of GPP (g O2/m2/d) By NOx (mg/L)



Linear Fit

GPP (g O2/m2/d) = 5.7310584 - 3.8293691*NOx (mg/L)

Summary of Fit

R Square	0.428608
R Square Adjusted	0.416186
Root Mean Square Error	2.069257
Mean of Response	3.687025
Observations	48

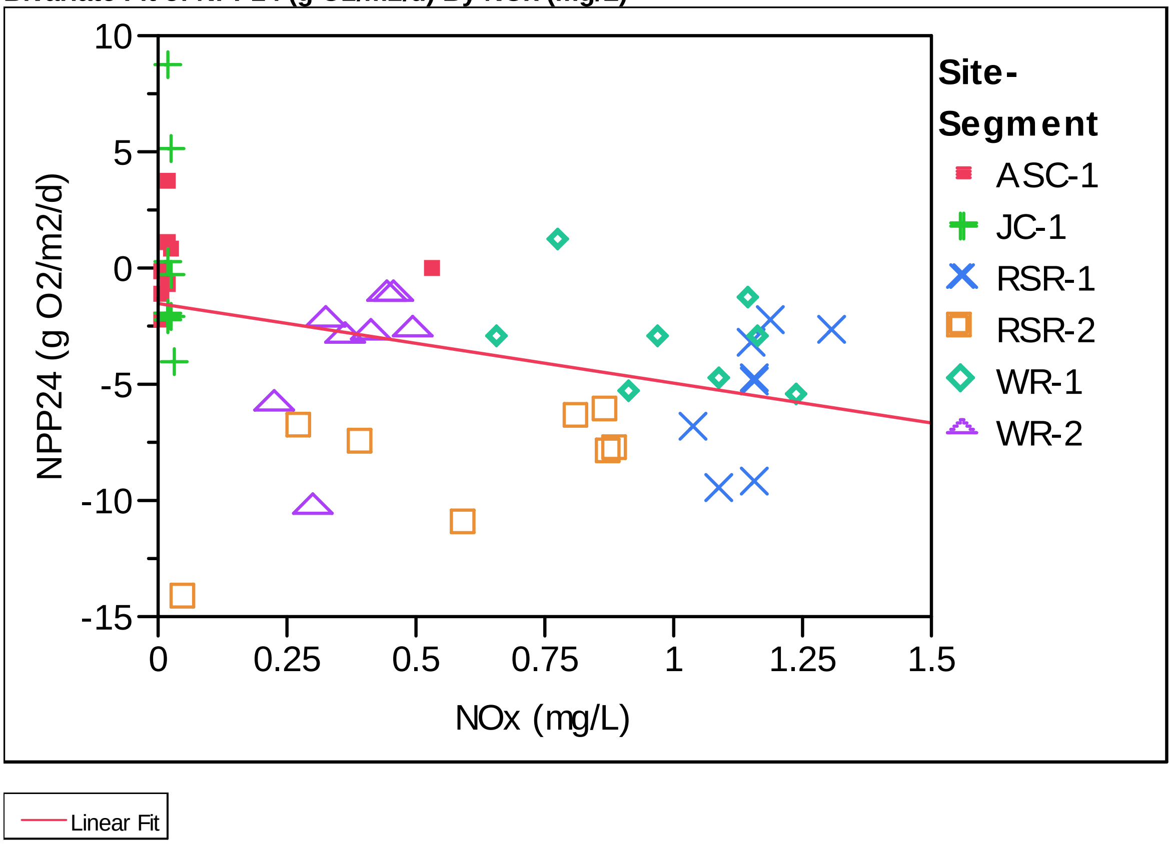
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	147.74481	147.745	34.5051
Error	46	196.96397	4.282	**Prob > F**
C. Total	47	344.70878		<.0001

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	5.7310584	0.458574	12.50	<.0001
NOx (mg/L)	-3.829369	0.651907	-5.87	<.0001

Bivariate Fit of NPP24 (g O2/m2/d) By NOx (mg/L)



Linear Fit

NPP24 (g O2/m2/d) = -1.507455 - 3.4484521*NOx (mg/L)

Summary of Fit

R Square	0.146284
R Square Adjusted	0.127725
Root Mean Square Error	3.898815
Mean of Response	-3.34816
Observations	48

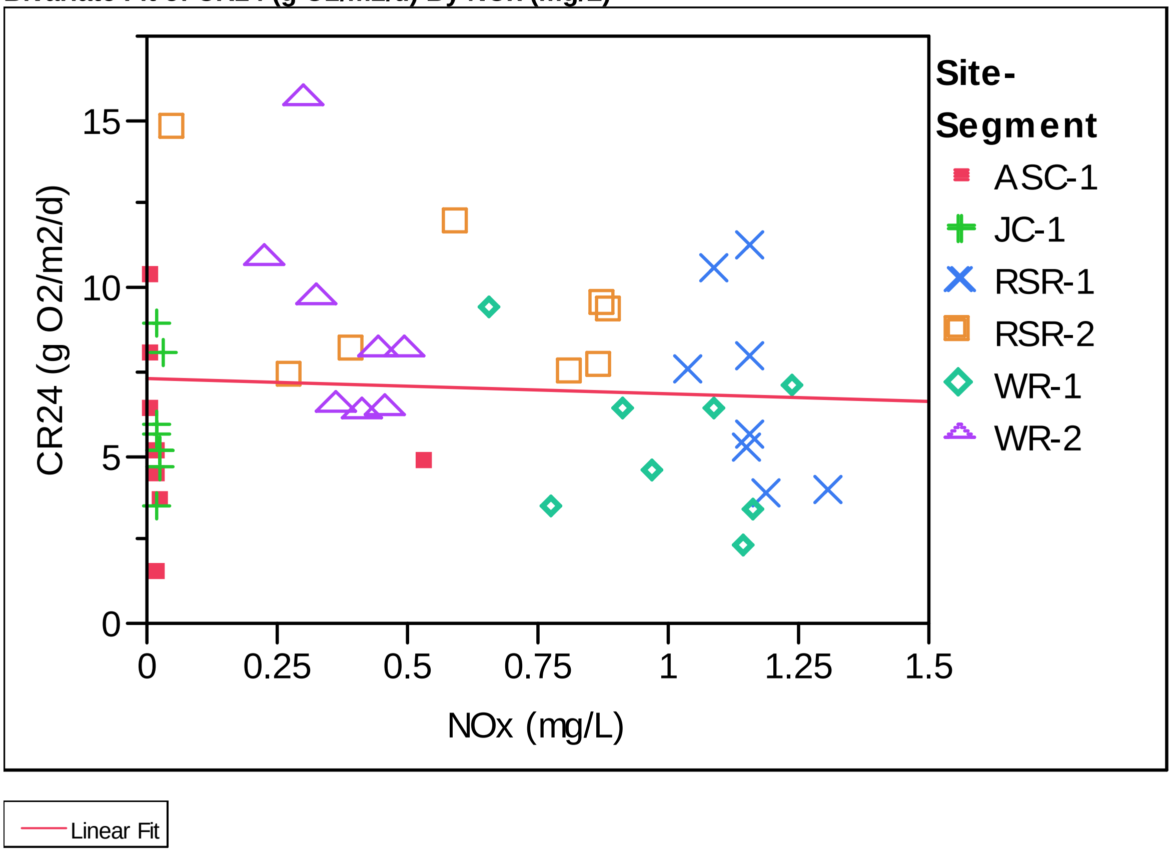
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	119.81362	119.814	7.8821
Error	46	699.23504	15.201	**Prob > F**
C. Total	47	819.04866		0.0073

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	-1.507455	0.864028	-1.74	0.0877
NOx (mg/L)	-3.448452	1.228298	-2.81	0.0073

Bivariate Fit of CR24 (g O2/m2/d) By NOx (mg/L)



Linear Fit

CR24 (g O2/m2/d) = 7.2450601 - 0.3993496*NOx (mg/L)

Summary of Fit

R Square	0.003848
R Square Adjusted	-0.01781
Root Mean Square Error	3.007153
Mean of Response	7.031896
Observations	48

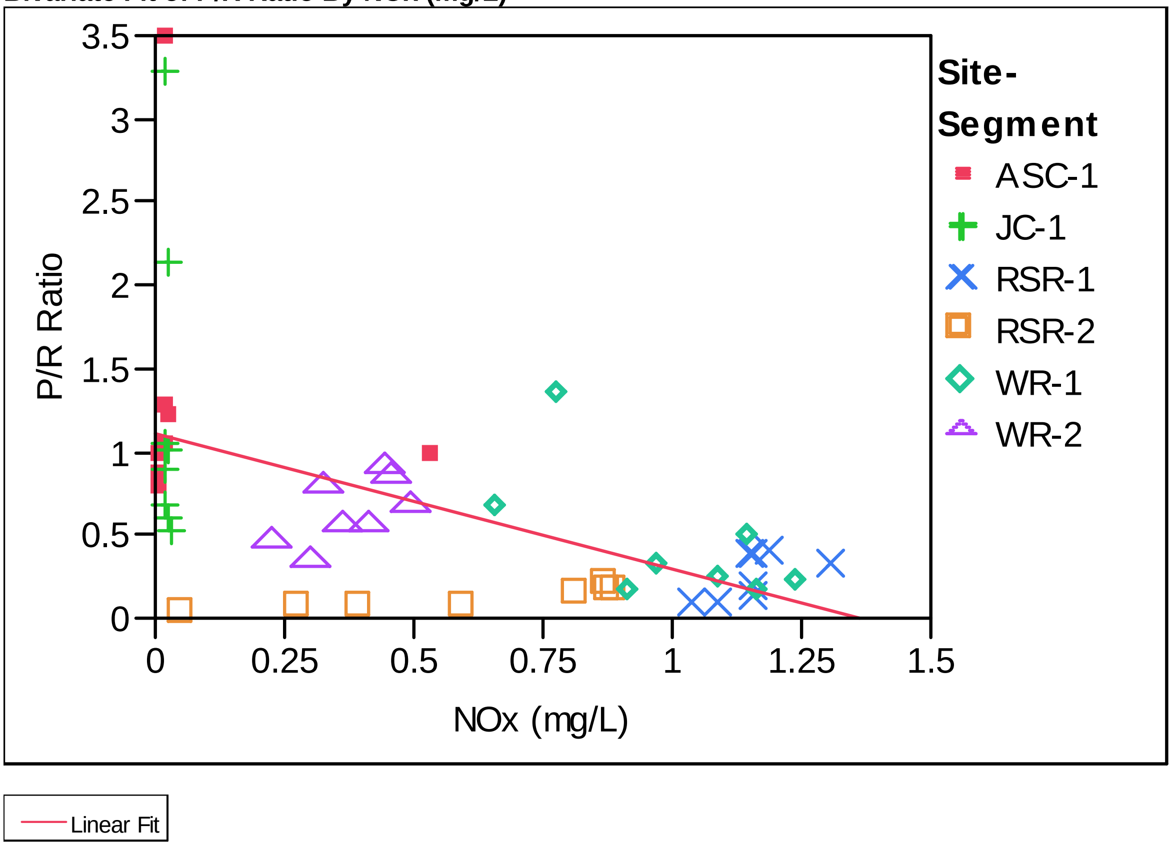
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	1.60681	1.60681	0.1777
Error	46	415.97669	9.04297	**Prob > F**
C. Total	47	417.58350		0.6753

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	7.2450601	0.666424	10.87	<.0001
NOx (mg/L)	-0.39935	0.947385	-0.42	0.6753

Bivariate Fit of P/R Ratio By NOx (mg/L)



Linear Fit

P/R Ratio = 1.1130511 - 0.8162112*NOx (mg/L)

Summary of Fit

R Square	0.279748
R Square Adjusted	0.26409
Root Mean Square Error	0.612931
Mean of Response	0.677375
Observations	48

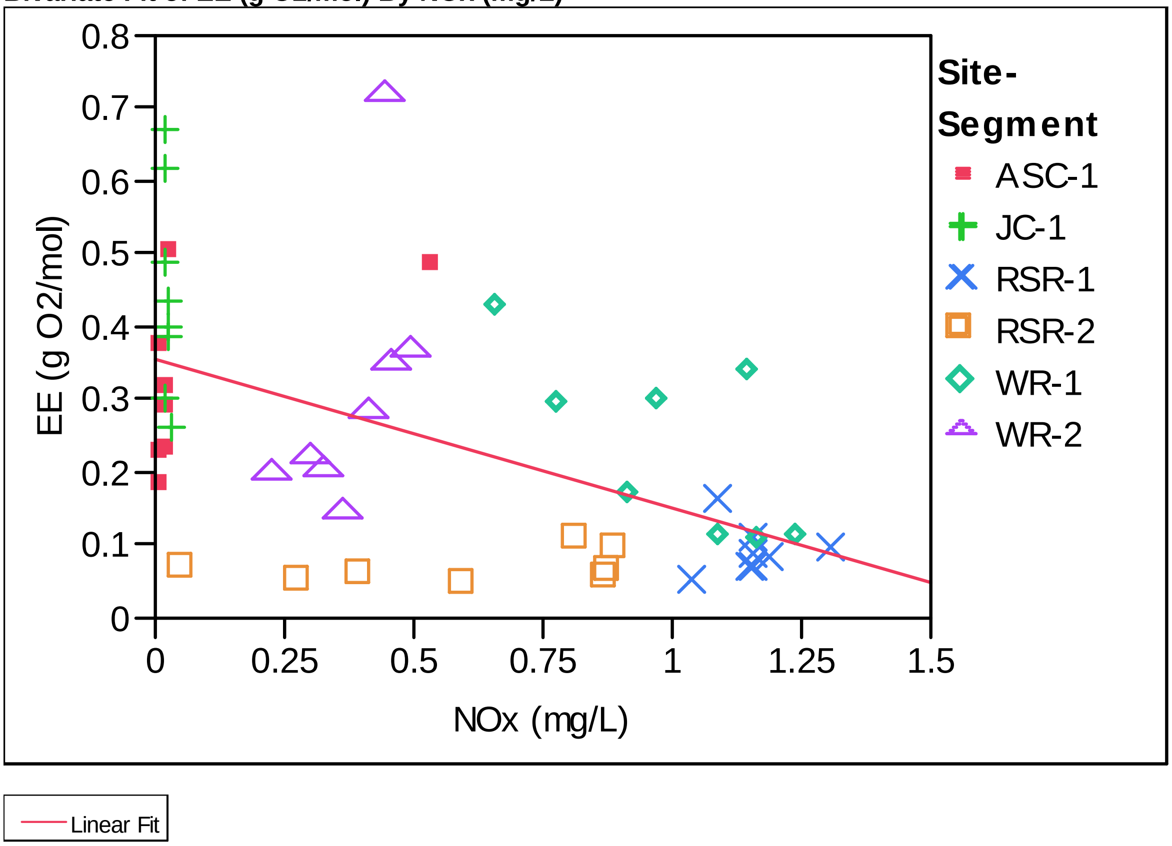
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	6.712169	6.71217	17.8665
Error	46	17.281466	0.37568	**Prob > F**
C. Total	47	23.993635		0.0001

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	1.1130511	0.135833	8.19	<.0001
NOx (mg/L)	-0.816211	0.1931	-4.23	0.0001

Bivariate Fit of EE (g O2/mol) By NOx (mg/L)



Linear Fit

EE (g O2/mol) = 0.35505 - 0.20309*NOx (mg/L)

Summary of Fit

R Square	0.288161
R Square Adjusted	0.272686
Root Mean Square Error	0.149387
Mean of Response	0.246645
Observations	48

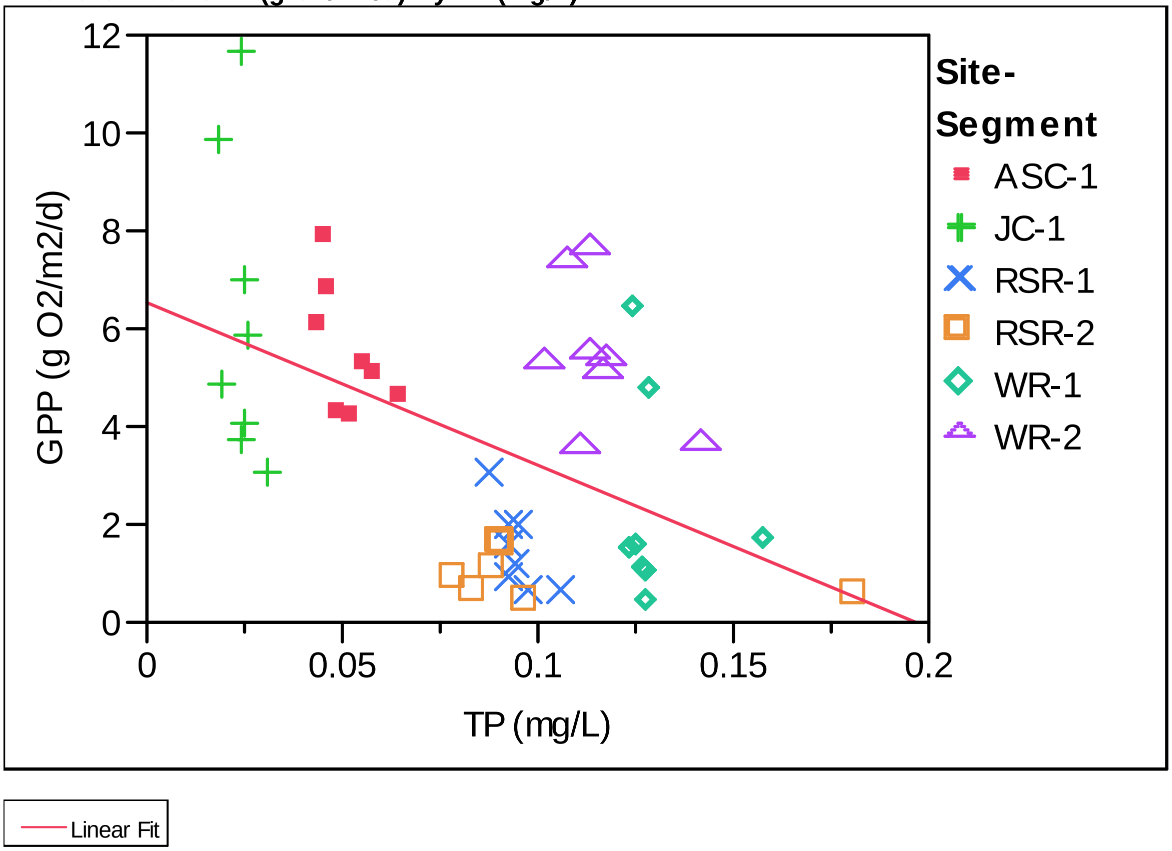
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.4155610	0.415561	18.6213
Error	46	1.0265551	0.022316	**Prob > F**
C. Total	47	1.4421161		<.0001

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	0.35505	0.033106	10.72	<.0001
NOx (mg/L)	-0.20309	0.047063	-4.32	<.0001

Bivariate Fit of GPP (g O2/m2/d) By TP (mg/L)



Linear Fit

GPP (g O2/m2/d) = 6.5141684 - 33.074064*TP (mg/L)

Summary of Fit

R Square	0.239423
R Square Adjusted	0.222889
Root Mean Square Error	2.387365
Mean of Response	3.687025
Observations	48

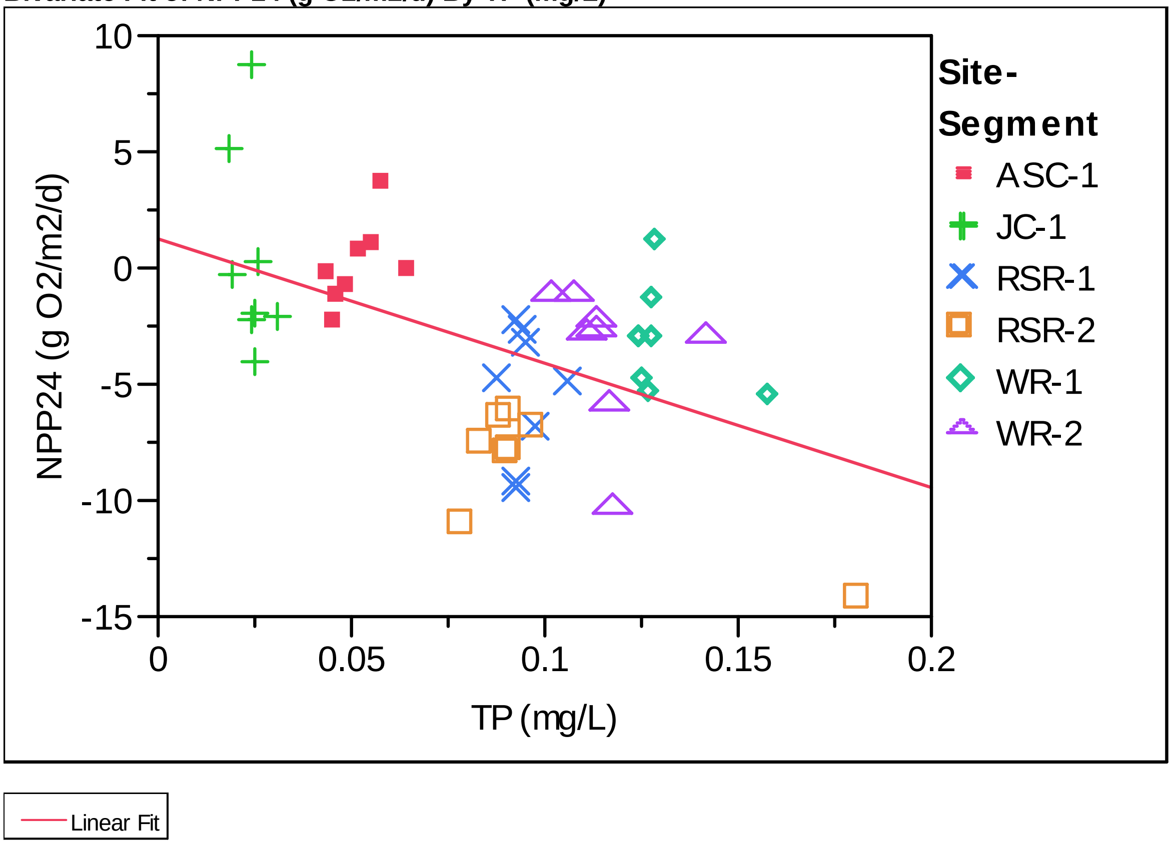
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	82.53125	82.5312	14.4804
Error	46	262.17753	5.6995	**Prob > F**
C. Total	47	344.70878		0.0004

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	6.5141684	0.818968	7.95	<.0001
TP (mg/L)	-33.07406	8.691549	-3.81	0.0004

Bivariate Fit of NPP24 (g O2/m2/d) By TP (mg/L)



Linear Fit

NPP24 (g O2/m2/d) = 1.2452446 - 53.737168*TP (mg/L)

Summary of Fit

R Square	0.266001
R Square Adjusted	0.250044
Root Mean Square Error	3.615128
Mean of Response	-3.34816
Observations	48

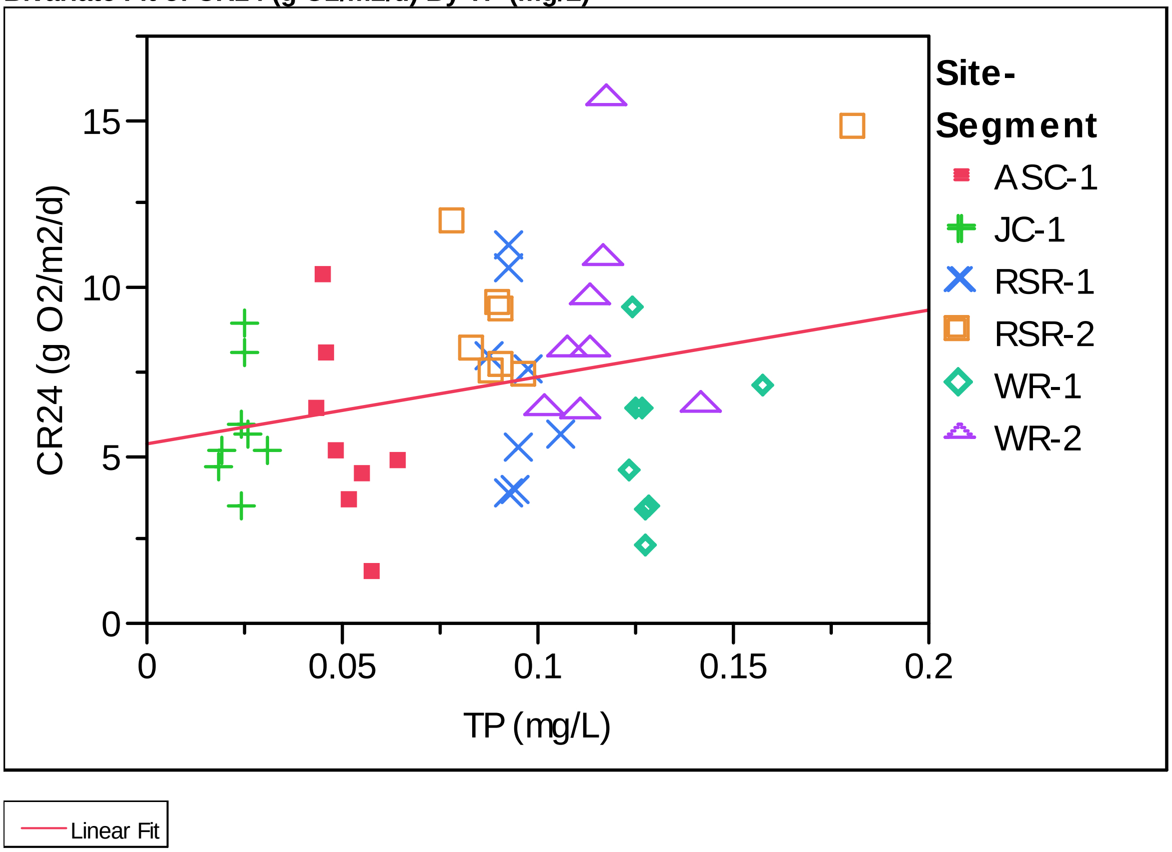
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	217.86770	217.868	16.6704
Error	46	601.18096	13.069	**Prob > F**
C. Total	47	819.04866		0.0002

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	1.2452446	1.240144	1.00	0.3206
TP (mg/L)	-53.73717	13.1614	-4.08	0.0002

Bivariate Fit of CR24 (g O2/m2/d) By TP (mg/L)



Linear Fit
CR24 (g O2/m2/d) = 5.3080934 + 20.166348*TP (mg/L)

Summary of Fit

R Square	0.073478
R Square Adjusted	0.053336
Root Mean Square Error	2.900152
Mean of Response	7.031896
Observations	48

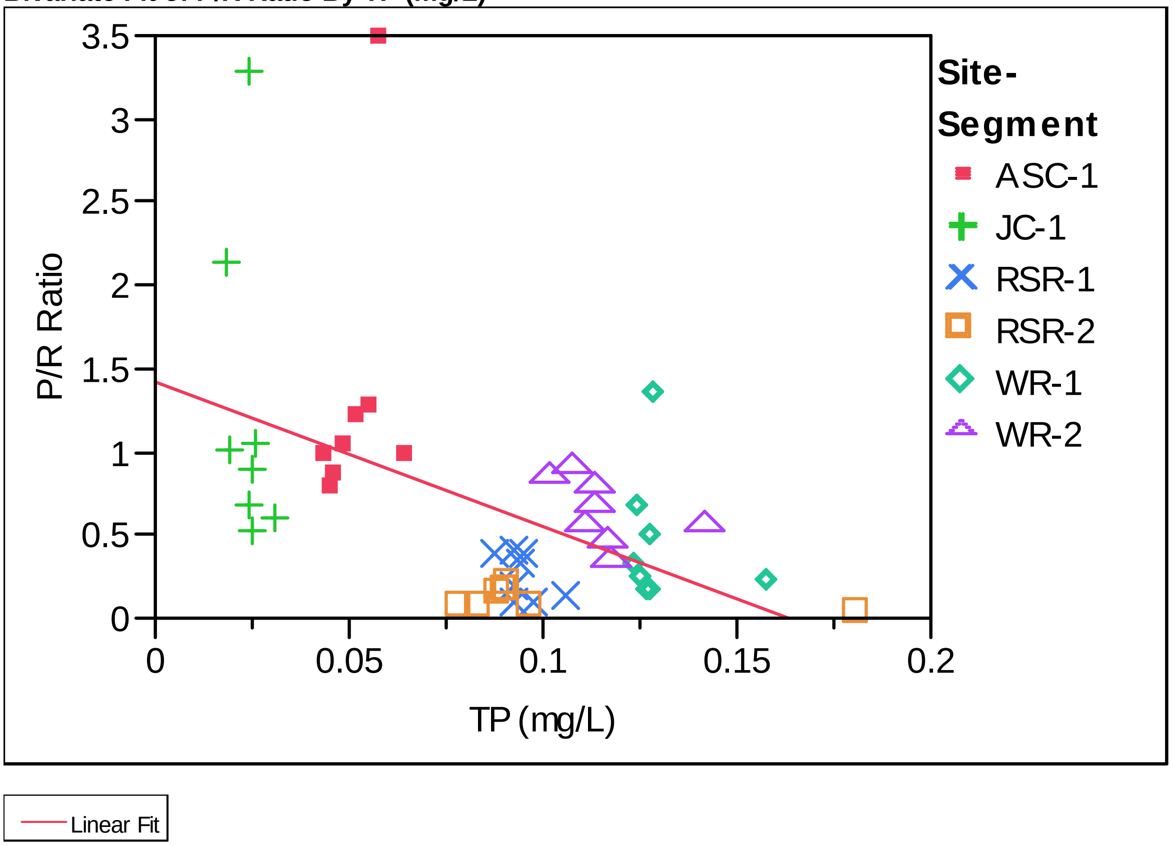
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	30.68300	30.6830	3.6480
Error	46	386.90050	8.4109	**Prob > F**
C. Total	47	417.58350		0.0624

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	5.3080934	0.994876	5.34	<.0001
TP (mg/L)	20.166348	10.55842	1.91	0.0624

Bivariate Fit of P/R Ratio By TP (mg/L)



Linear Fit

P/R Ratio = 1.4205087 - 8.693735*TP (mg/L)

Summary of Fit

R Square	0.237662
R Square Adjusted	0.22109
Root Mean Square Error	0.630584
Mean of Response	0.677375
Observations	48

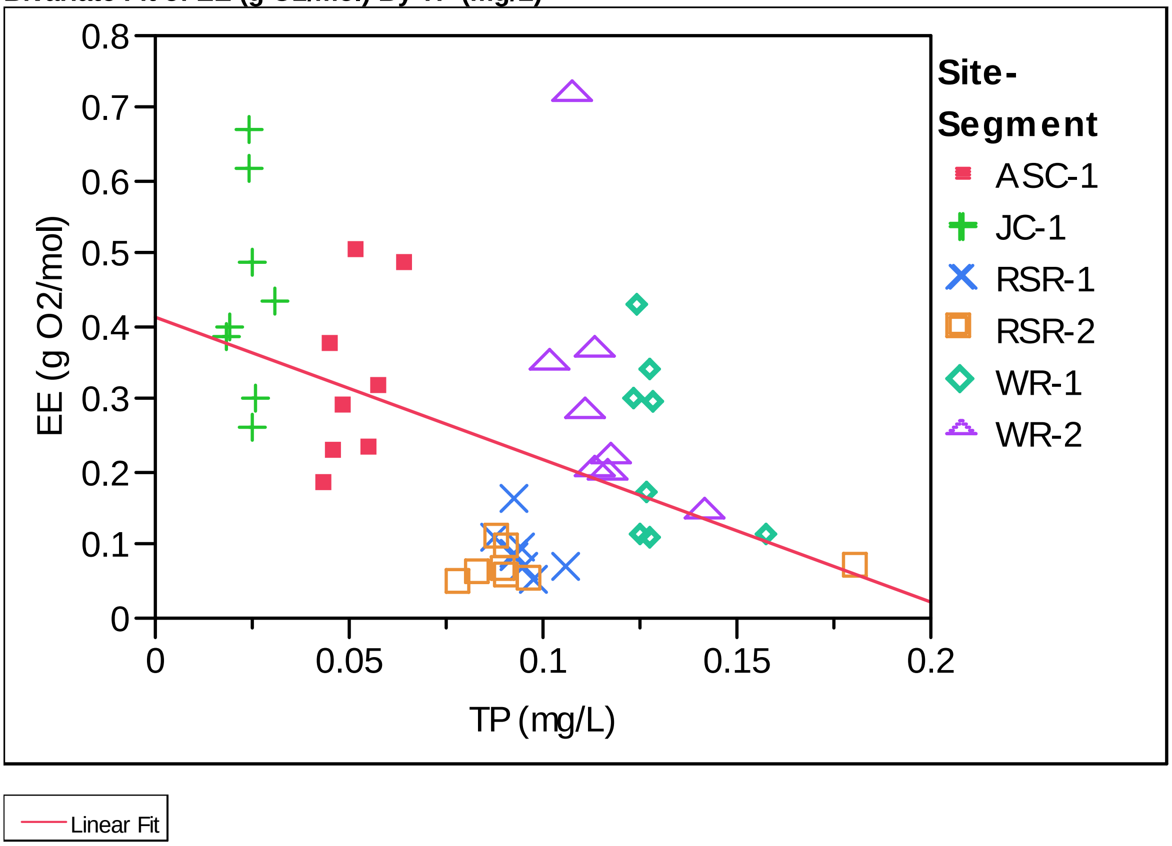
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	5.702379	5.70238	14.3407
Error	46	18.291255	0.39764	**Prob > F**
C. Total	47	23.993635		0.0004

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	1.4205087	0.216317	6.57	<.0001
TP (mg/L)	-8.693735	2.295732	-3.79	0.0004

Bivariate Fit of EE (g O2/mol) By TP (mg/L)



Linear Fit

EE (g O2/mol) = 0.4147543 - 1.9666696*TP (mg/L)

Summary of Fit

R Square	0.202351
R Square Adjusted	0.185011
Root Mean Square Error	0.158135
Mean of Response	0.246645
Observations	48

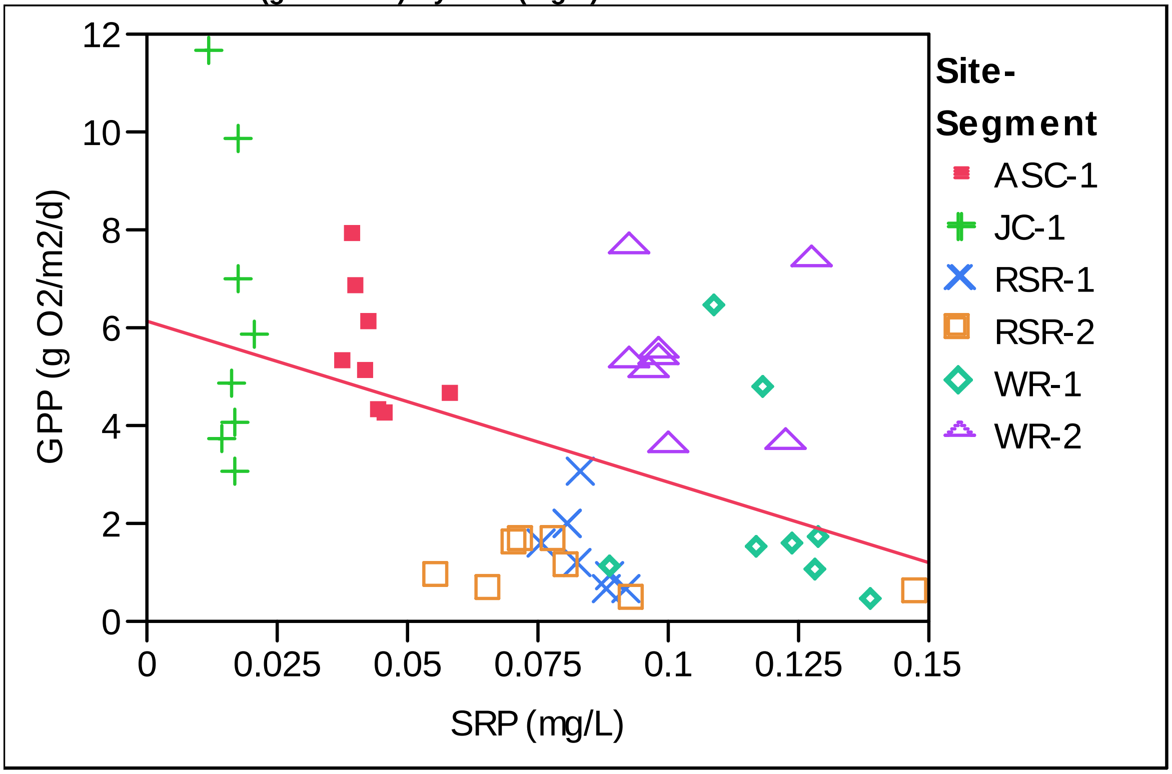
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.2918140	0.291814	11.6695
Error	46	1.1503021	0.025007	**Prob > F**
C. Total	47	1.4421161		0.0013

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	0.4147543	0.054247	7.65	<.0001
TP (mg/L)	-1.96667	0.575712	-3.42	0.0013

Bivariate Fit of GPP (g O2/m2/d) By SRP (mg/L)



Linear Fit

GPP (g O2/m2/d) = 6.1289067 - 32.740771*SRP (mg/L)

Summary of Fit

R Square	0.211358
R Square Adjusted	0.194213
Root Mean Square Error	2.431013
Mean of Response	3.687025
Observations	48

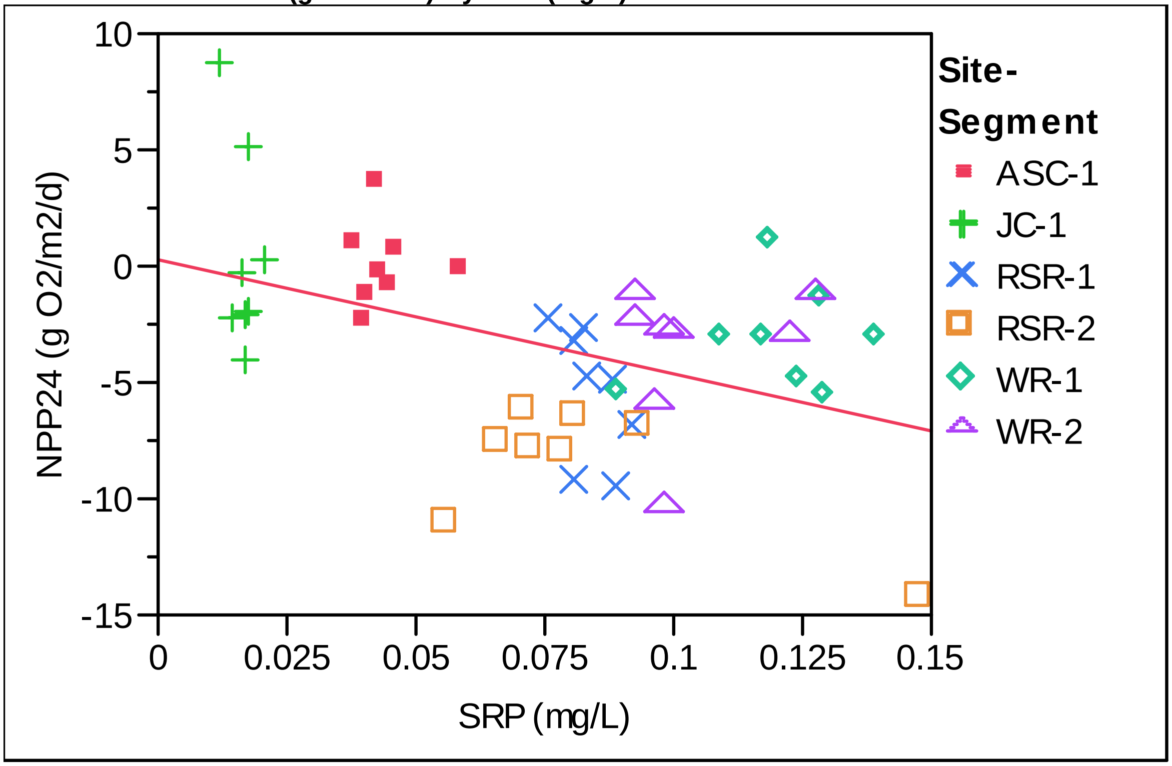
Analysis of Variance

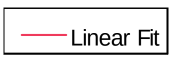
Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	72.85679	72.8568	12.3281
Error	46	271.85199	5.9098	**Prob > F**
C. Total	47	344.70878		0.0010

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	6.1289067	0.778972	7.87	<.0001
SRP (mg/L)	-32.74077	9.324837	-3.51	0.0010

Bivariate Fit of NPP24 (g O2/m2/d) By SRP (mg/L)





Linear Fit

NPP24 (g O2/m2/d) = 0.3185155 - 49.162867*SRP (mg/L)

Summary of Fit

R Square	0.200566
R Square Adjusted	0.183187
Root Mean Square Error	3.77283
Mean of Response	-3.34816
Observations	48

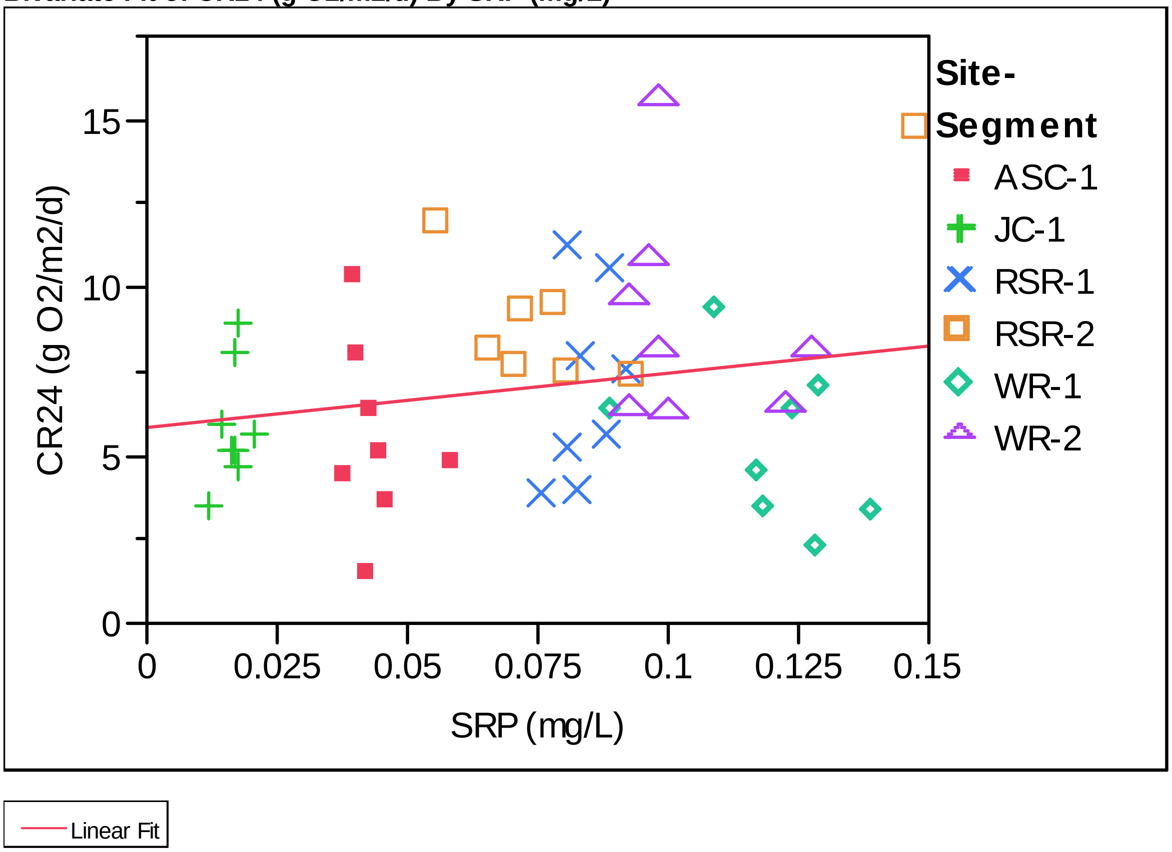
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	164.27316	164.273	11.5407
Error	46	654.77550	14.234	**Prob > F**
C. Total	47	819.04866		0.0014

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	0.3185155	1.208931	0.26	0.7934
SRP (mg/L)	-49.16287	14.47175	-3.40	0.0014

Bivariate Fit of CR24 (g O2/m2/d) By SRP (mg/L)



Linear Fit

CR24 (g O2/m2/d) = 5.8608793 + 15.701002*SRP (mg/L)

Summary of Fit

R Square	0.040124
R Square Adjusted	0.019257
Root Mean Square Error	2.951891
Mean of Response	7.031896
Observations	48

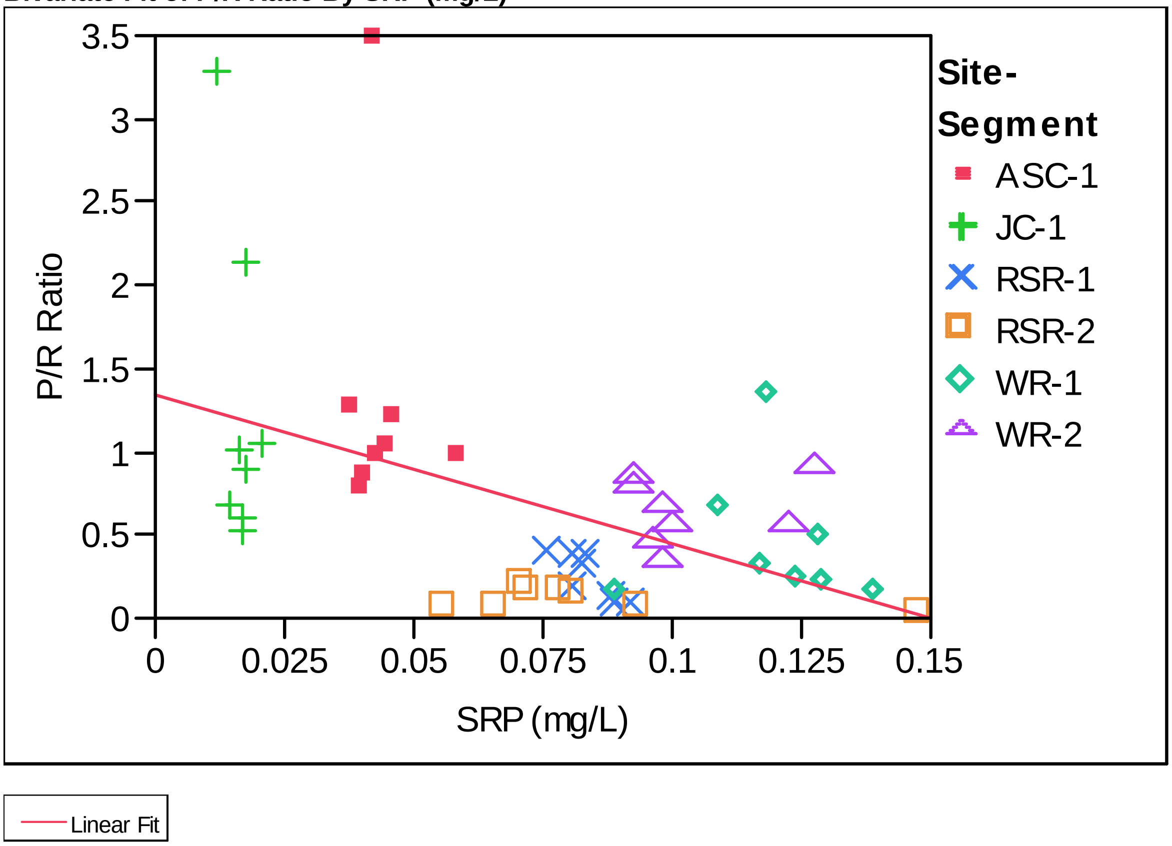
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	16.75510	16.7551	1.9229
Error	46	400.82840	8.7137	**Prob > F**
C. Total	47	417.58350		0.1722

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	5.8608793	0.945877	6.20	<.0001
SRP (mg/L)	15.701002	11.32281	1.39	0.1722

Bivariate Fit of P/R Ratio By SRP (mg/L)



Linear Fit

P/R Ratio = 1.3429376 - 8.923863*SRP (mg/L)

Summary of Fit

R Square	0.225581
R Square Adjusted	0.208746
Root Mean Square Error	0.635561
Mean of Response	0.677375
Observations	48

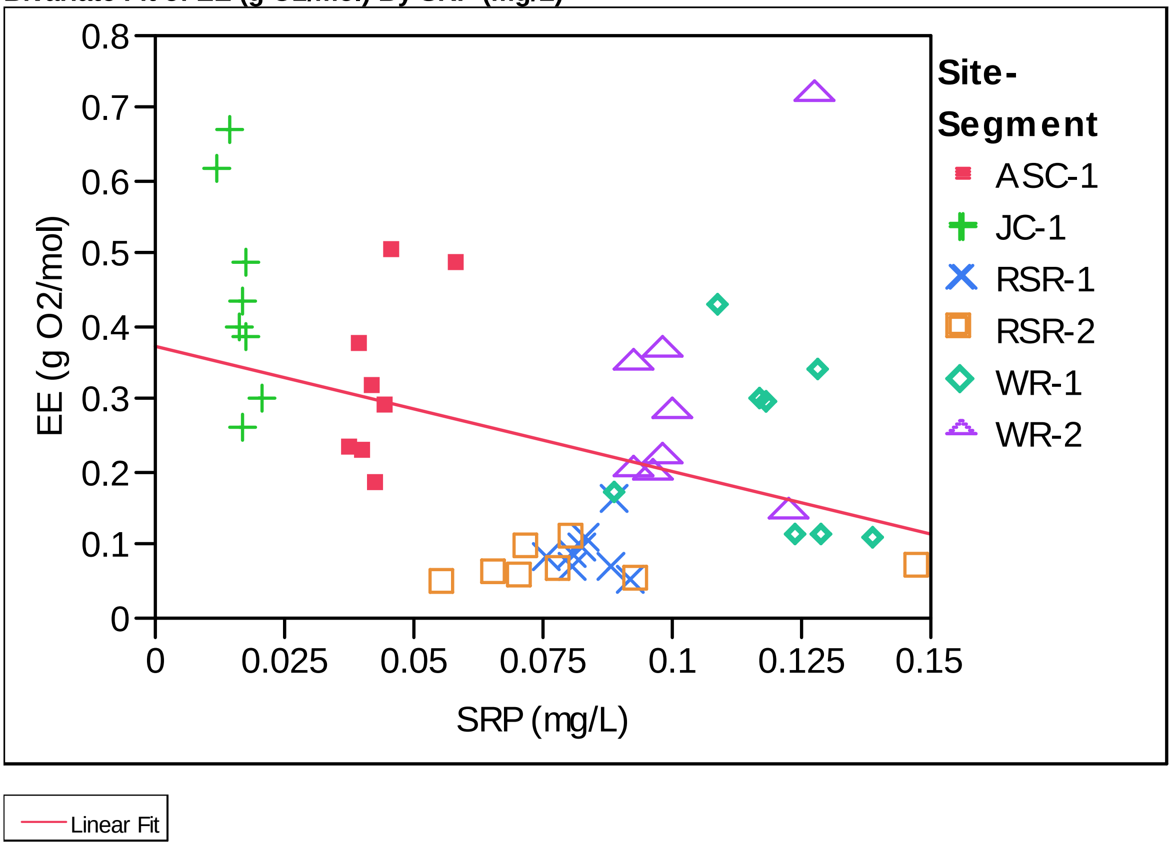
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	5.412501	5.41250	13.3993
Error	46	18.581134	0.40394	**Prob > F**
C. Total	47	23.993635		0.0006

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	1.3429376	0.203653	6.59	<.0001
SRP (mg/L)	-8.923863	2.437873	-3.66	0.0006

Bivariate Fit of EE (g O2/mol) By SRP (mg/L)



Linear Fit

EE (g O2/mol) = 0.3752018 - 1.7236903*SRP (mg/L)

Summary of Fit

R Square	0.140027
R Square Adjusted	0.121331
Root Mean Square Error	0.164196
Mean of Response	0.246645
Observations	48

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.2019346	0.201935	7.4900
Error	46	1.2401815	0.026960	**Prob > F**
C. Total	47	1.4421161		0.0088

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	0.3752018	0.052614	7.13	<.0001
SRP (mg/L)	-1.72369	0.629822	-2.74	0.0088

Appendix G

Plankton Tow Fine Particulate Export Data for the Wekiva River System Streams and Reference Streams

APPENDIX G

WEKIVA PLRG - PARTICULATE EXPORT EVENT SUMMARY - FALL 2006

Segment	Date	Station	Dry Matter (g/d)	Organic Matter (g/d)	Dry Matter ($g/m^2/d$)	Organic Matter ($g/m^2/d$)
WR-SEG1	10/24/06	UP	13,469	8,302	0.85	0.53
		DOWN	13,163	9,321	0.37	0.26
		Segment	-305	1,019	-0.02	0.05
	11/8/06	UP	13,412	8,705	0.85	0.55
		DOWN	11,786	8,840	0.33	0.25
		Segment	-1,626	134	-0.08	0.01
WR-SEG2	10/25/06	UP	27,676	15,446	0.04	0.02
		DOWN	39,371	7,539	0.05	0.01
		Segment	11,695	-7,907	0.13	-0.09
	11/7/06	UP	53,243	33,993	0.08	0.05
		DOWN	32,255	19,645	0.04	0.03
		Segment	-20,988	-14,348	-0.24	-0.17
RSR-SEG1	10/5/06	UP	8,715	6,077	0.14	0.10
		DOWN	3,842	2,513	0.04	0.03
		Segment	-4,872	-3,565	-0.19	-0.14
	10/19/06	UP	19,198	14,171	0.31	0.23
		DOWN	7,145	4,207	0.08	0.05
		Segment	-12,053	-9,964	-0.47	-0.39
RSR-SEG2	10/4/06	UP	30,251	21,775	0.08	0.06
		DOWN	26,117	18,263	0.06	0.04
		Segment	-4,134	-3,512	-0.09	-0.07
	10/18/06	UP	99,141	71,894	0.27	0.20
		DOWN	94,078	65,027	0.23	0.16
		Segment	-5,064	-6,866	-0.11	-0.14
ASC-SEG1	10/24/06	UP	18,857	12,074	0.24	0.16
		DOWN	11,251	5,702	0.09	0.05
		Segment	-7,606	-6,372	-0.16	-0.13
	11/7/06	UP	25,259	15,379	0.33	0.20
		DOWN	12,406	6,671	0.10	0.05
		Segment	-12,853	-8,708	-0.27	-0.18
JC-SEG1	10/4/06	UP	53,045	27,084	0.25	0.13
		DOWN	79,380	46,917	0.36	0.21
		Segment	26,335	19,833	4.36	3.28
	10/18/06	UP	40,729	26,497	0.19	0.12
		DOWN	42,738	26,495	0.19	0.12
		Segment	2,009	-2	0.33	0.00

Segment	Area (m^2)
WR-SEG1	19,469
WR-SEG2	86,640
RSR-SEG1	25,381
RSR-SEG2	48,018
ASC-SEG1	47,655
JC-SEG1	6,043

APPENDIX G
WEKIVA PLRG - PARTICULATE EXPORT EVENT DETAIL - FALL 2006

Segment	Date	Start Time	Sample #	Upsteam Area (m^2)	Time of Tow (s)	Flow Rate (m^3/s)	Net Area (m^2)	Water Velocity (m/s)	Volume Filtered (m^3)	Total Sample Volume (mL)	Laboratory Analysis Vol. Dried (mL)	Dry Wt. (g)	Ash Wt. (g)	% Ash	Ash-Free Dry Wt. (g)	Total Sample Dry Wt. (g)	Total Sample Ash-Free Dry Wt. (g)	Dry Matter (g/m^3)	Organic Matter (g/m^3)	Dry Matter (g/d)	Organic Matter (g/d)	Dry Matter ($g/m^2/d$)	Organic Matter ($g/m^2/d$)
WR SEG-1 UP	10/24/06	17:31	1	15,783	183	1.60	0.1886	0.207	7.14	92	62	0.50	0.22	44.00	0.2800	0.742	0.4155	0.10394	0.05820	14,337	8,029	0.908	0.509
		17:40	2	15,783	183	1.60	0.1886	0.192	6.62	88	63	0.48	0.17	35.42	0.3100	0.670	0.4330	0.10131	0.06543	13,974	9,025	0.885	0.572
		17:46	3	15,783	182	1.60	0.1886	0.195	6.70	66	64	0.57	0.20	35.09	0.3700	0.588	0.3816	0.08768	0.05692	12,095	7,851	0.766	0.497
WR SEG-1 DOWN	10/24/06	15:57	1	35,252	183	1.60	0.1886	0.152	5.27	99	60	0.30	0.09	30.00	0.2100	0.495	0.3465	0.09393	0.06575	12,956	9,069	0.368	0.257
		16:07	2	35,252	184	1.60	0.1886	0.137	4.75	99	63	0.29	0.08	27.59	0.2100	0.456	0.3300	0.09598	0.06950	13,239	9,587	0.376	0.272
		16:16	3	35,252	182	1.60	0.1886	0.125	4.30	87	63	0.30	0.09	30.00	0.2100	0.414	0.2900	0.09638	0.06747	13,295	9,306	0.377	0.264
WR SEG-1 UP	11/8/06	11:10	1	15,783	206	1.91	0.1886	0.098	3.79	73	67	0.25	0.06	24.00	0.1900	0.272	0.2070	0.07195	0.05468	11,896	9,041	0.754	0.573
		11:19	2	15,783	133	1.91	0.1886	0.067	1.68	64	64	0.18	0.07	38.89	0.1100	0.180	0.1100	0.10716	0.06549	17,717	10,827	1.123	0.686
		11:27	3	15,783	184	1.91	0.1886	0.091	3.17	73	61	0.17	0.07	41.18	0.1000	0.203	0.1197	0.06424	0.03779	10,622	6,248	0.673	0.396
WR SEG-1 DOWN	11/8/06	9:18	1	35,252	158	1.91	0.1886	0.155	4.63	75	63	0.29	0.07	24.14	0.2200	0.345	0.2619	0.07453	0.05654	12,284	9,319	0.348	0.264
		9:26	2	35,252	168	1.91	0.1886	0.149	4.73	73	61	0.31	0.08	25.81	0.2300	0.371	0.2752	0.07839	0.05816	12,920	9,586	0.367	0.272
		9:34	3	35,252	152	1.91	0.1886	0.158	4.55	61	61	0.28	0.07	25.00	0.2100	0.280	0.2100	0.06160	0.04620	10,153	7,615	0.288	0.216
WR SEG-2 UP	10/25/06	11:09	1	632,393	184	6.37	0.1886	0.137	4.76	67	67	0.35	0.16	45.71	0.1900	0.350	0.1900	0.07353	0.03992	40,488	21,979	0.064	0.035
		11:16	2	632,393	182	6.37	0.1886	0.168	5.76	72	59	0.20	0.09	45.00	0.1100	0.244	0.1342	0.04239	0.02331	23,339	12,836	0.037	0.020
		11:24	3	632,393	184	6.37	0.1886	0.201	6.99	78	64	0.20	0.08	40.00	0.1200	0.244	0.1463	0.03487	0.02092	19,202	11,521	0.030	0.018
WR SEG-2 DOWN	10/25/06	9:57	1	719,033	302	4.77	0.1886	0.067	3.82	50	50	0.15	0.07	46.67	0.0800	0.150	0.0800	0.03927	0.02094	16,182	8,630	0.023	0.012
		10:07	2	719,033	335	4.77	0.1886	0.046	2.89	53	53	0.61	0.57	93.44	0.0400	0.610	0.0400	0.21120	0.01385	87,031	5,707	0.121	0.008
		10:16	3	719,033	309	4.77	0.1886	0.043	2.49	47	47	0.09	0.04	44.44	0.0500	0.090	0.0500	0.03616	0.02009	14,901	8,278	0.021	0.012
WR SEG-2 UP	11/7/06	14:11	1	632,393	217	7.33	0.1886	0.152	6.24	76	63	0.38	0.12	31.58	0.2600	0.458	0.3137	0.07341	0.05022	46,514	31,826	0.074	0.050
		14:20	2	632,393	199	7.33	0.1886	0.131	4.92	100	63	0.30	0.12	40.00	0.1800	0.476	0.2857	0.09678	0.05807	61,323	36,794	0.097	0.058
		14:28	3	632,393	170	7.33	0.1886	0.149	4.78	88	63	0.28	0.10	35.71	0.1800	0.391	0.2514	0.08189	0.05264	51,891	33,358	0.082	0.053
WR SEG-2 DOWN	11/7/06	13:17	1	719,033	193	7.33	0.1886	0.073	2.67	53	53	0.14	0.07	50.00	0.0700	0.140	0.0700	0.05251	0.02625	33,273	16,636	0.046	0.023
		13:26	2	719,033	222	7.33	0.1886	0.061	2.56	61	61	0.15	0.04	26.67	0.1100	0.150	0.1100	0.05866	0.04302	37,170	27,258	0.052	0.038
		13:34	3	719,033	217	7.33	0.1886	0.082	3.37	56	56	0.14	0.06	42.86	0.0800	0.140	0.0800	0.04154	0.02374	26,321	15,041	0.037	0.021
RSR SEG-1 UP	10/5/06	10:06	1	62,764	232	1.39	0.1886	0.158	6.93	135	67	0.24	0.08	33.33	0.1600	0.484	0.3224	0.06975	0.04650	8,395	5,597	0.134	0.089
		10:21	2	62,764	222	1.39	0.1886	0.152	6.37	166	69	0.17	0.06	35.29	0.1100	0.409	0.2646	0.06423	0.04156	7,731	5,002	0.123	0.080
		10:31	3	62,764	236	1.39	0.1886	0.143	6.38	167	66	0.21	0.05	23.81	0.1600	0.531	0.4048	0.08322	0.06341	10,018	7,632	0.160	0.122
RSR SEG-1 DOWN	10/5/06	8:45	1	88,145	248	1.35	0.1886	0.101	4.71	95	63	0.11	0.04	36.36	0.0700	0.166	0.1056	0.03521	0.02241	4,101	2,610	0.047	0.030
		8:55	2	88,145	292	1.35	0.1886	0.082	4.53	86	64	0.11	0.04	36.36	0.0700	0.148	0.0941	0.03264	0.02077	3,801	2,419	0.043	0.027
		9:04	3	88,145	293	1.35	0.1886	0.098	5.39	89	69	0.13	0.04	30.77	0.0900	0.168	0.1161	0.03113	0.02155	3,625	2,510	0.041	0.028
RSR SEG-1 UP	10/19/06	9:52	1	62,764	182	1.63	0.1886	0.122	4.19	142	61	0.27	0.06	22.22	0.2100	0.629	0.4889	0.14998	0.11665	21,157	16,456	0.337	0.262
		10:00	2	62,764	182	1.63	0.1886	0.113	3.87	106	62	0.38	0.12	31.58	0.2600	0.650	0.4445	0.16802	0.11496	23,702	16,217	0.378	0.258
		10:09	3	62,764	187	1.63	0.1886	0.125	4.40	121	67	0.22	0.05	22.73	0.1700	0.397	0.3070	0.09027	0.06975	12,734	9,840	0.203	0.157
RSR SEG-1 DOWN	10/19/06	8:54	1	88,145	191	1.63	0.1886	0.119	4.29	61	61	0.27	0.16	59.26	0.1100	0.270	0.1100	0.06297	0.02565	8,883	3,619	0.101	0.041
		9:04	2	88,145	225	1.63	0.1886	0.134	5.70	71	64	0.18	0.06	33.33	0.1200	0.200	0.1331	0.03503	0.02335	4,942	3,294	0.056	0.037
		9:12	3	88,145	190	1.63	0.1886	0.076	2.73	76	62	0.12	0.03	25.00	0.0900	0.147	0.1103	0.05395	0.04046	7,611	5,708	0.086	0.065
RSR SEG-2 UP	10/4/06	16:16	1	364,096	124	1.26	0.1886	0.317	7.40	358	69	0.37	0.11	29.73	0.2600	1.920	1.3490	0.25941	0.18229	28,306	19,891	0.078	0.055
		16:24	2	364,096	129	1.26	0.1886	0.287	6.99	242	65	0.54	0.14	25.93	0.4000	2.010	1.4892	0.28774	0.21314	31,398	23,258	0.086	0.064
		16:30	3	364,096	124	1.26	0.1886	0.302	7.07	217	68	0.63	0.18	28.57	0.4500	2.010	1.4360	0.28454	0.20324	31,048	22,177	0.085	0.061
RSR SEG-2 DOWN	10/4/06	15:14	1	412,114	131	1.69	0.1886	0.247	6.12	232	69	0.37	0.10	27.03	0.2700	1.244	0.9078	0.20339	0.14842	29,657	21,642	0.072	0.053
		15:20	2	412,114	136	1.69	0.1886	0.265	6.78	225	64	0.29	0.08	27.59	0.2100	1.020	0.7383	0.15042	0.10893	21,934	15,883	0.053	0.039
		15:27	3	412,114	134	1.69	0.1886	0.253	6.38	234	62	0.31	0.11	35.48	0.2000	1.170	0.7548	0.18352	0.11840	26,760	17,264	0.065	0.042
RSR SEG-2 UP	10/18/06	16:17	1	364,096	123	7.25	0.1886	0.335	7.75	212	69	0.30	0.07	23.33	0.2300	0.922	0.7067	0.11895	0.09120	74,502	57,118	0.205	0.157
		16:25	2	364,096	129	7.25	0.1886	0.381	9.27	257	60	0.34	0.09	26.47	0.2500	1.456	1.0708	0.15717	0.11556	98,438	72,381	0.270	0.199
		16:32	3	364,096	123	7.25	0.1886	0.366	8.50	182	56	0.52	0.16	30.77	0.3600	1.690	1.1700	0.19875	0.13760	124,484	86,181	0.342	0.237
RSR SEG-2 DOWN	10/18/06	15:23	1	412,114	130	7.25	0.1886	0.308	7.56	192	57	0.29	0.08	27.59	0.2100	0.977	0.7074	0.12913	0.09351	80,877	58,566	0.196	0.142
		15:31	2	412,114	122	7.25	0.1886	0.290	6.65	214	59	0.29	0.09	31.03	0.2000	1.052	0.7254	0.15818	0.10909	99,074	68,327	0.240	0.166
		15:45	3	412,114	122	7.25	0.1886	0.277	6.38	202	64	0.33	0.11	33.33	0.2200	1.042	0.6944	0.16331	0.10887	102,282	68,188	0.248	0.165
ASC SEG-1 UP	10/24/06	11:43	1	77,305	196	2.85	0.1886	0.250	9.25	93	65	0.45	0.15	33.33	0.3000	0.644	0.4292	0.06962	0.04641	17,138	11,426	0.222	0.148
		11:52	2	77,305	188	2.85	0.1886	0.247	8.74	88	62	0.56	0.23	41.07	0.3300	0.795	0.4684	0.09095	0.05359	22,389	13,193	0.290	0.171
		12:00	3	77,305	185	2.85	0.1886	0.250	8.71	77	60	0.47	0.15	31.91	0.3200	0.603	0.4107	0.06924	0.04714	17,044	11,604	0.220	0.150
ASC SEG-1 DOWN	10/24/06	10:45	1	124,960	183	2.44	0.1886	0.094	3.26	76	62	0.16	0.08	50.00	0.0800	0.196	0.0981	0.06013	0.03006	12,660	6,330	0.101	0.051
		10:52	2	124,960	263	2.44	0.1886	0.085	4.23	71	60	0.20	0.09	45.00	0.1100	0.237	0.1302	0.05589	0.03074	11,767	6,472	0.094	0.052
		11:02	3	124,960	216	2.44	0.1886	0.091	3.72	71	56	0.13	0.07	53.85	0.0600	0.165	0.0761	0.04429	0.02044	9,326	4,304	0.075	0.034
ASC SEG-1 UP	11/7/06	10:37	1	77,305	182	2.73	0.1886	0.152	5.23	85	60	0.42	0.18	42.86	0.2400	0.595	0.3400	0.11372	0.06498	26,798	15,313	0.347	0.198
		10:46	2*	77,305	180	2.73	0.1886	0.183	6.20	82	61												
		10:55	3	77,305	154	2.73	0.1886	0.186	5.39	77	61	0.43	0.15	34.88	0.2800	0.543	0.3534	0.10065	0.06554	23,719	15,445	0.307	0.200
ASC SEG-1 DOWN	11/7/06	9:53	1	124,960	211	2.73	0.1886	0.107	4.24	47	47	0.17	0.08	47.06	0.0900	0.170	0.0900	0.04012	0.02124	9,454	5,005	0.076	0.040
		10:04	2	124,960	212	2.73	0.1886	0.094	3.77	60	60	0.21	0.10	47.62	0.1100	0.210	0.1100	0.05571	0.02918	13,128	6,877	0.105	0.055
		10:13	3	124,960	210	2.73	0.1886	0.073	2.90	63	63	0.18	0.08	44.44	0.1000	0.180	0.1000	0.06211	0.03451	14,636	8,131	0.117	0.065
JC SEG-1 UP	10/4/06	11:03	1	216,157	132	3.11	0.1886	0.494	12.29	176	66	1.25	0.78	62.40	0.4700	3.333	1.2533	0.27112	0.10194	72,965	27,435	0.338	0.127
		11:15	2	216,157	145	3.11	0.1886	0.430	11.73	214	60	0.44	0.17	38.64	0.2700	1.569	0.9630	0.13378	0.08209	36,002	22,092	0.167	0.102
		11:25	3	216,157	131	3.11	0.1886	0.457	11.32	208	67	0.68	0.25	36.76	0.4300	2.111	1.3349	0.18641	0.11788	50,168	31,724	0.232	0.147
JC SEG-1 DOWN	10/4/06	9:51	1	222,200	155	3.07	0.1886	0.338	9.88	180	68	1.34	0.66	49.25	0.6800	3.547	1.8000	0.35899	0.18217	95,198	48,310	0.428	0.217
		10:08	2	222,200	124	3.07	0.1886	0.326	7.62	312	67	0.54	0.19	35.19	0.3500	2.515	1.6299	0.33014	0.21398	87,548	56,744	0.394	0.255
		10:15	3	222,200	133	3.07	0.1886	0.360	9.04	256	61	0.45	0.16	35.56	0.2900	1.889	1.2170	0.20889	0.13462	55,394	35,698	0.249	0.161
JC SEG-1 UP	10/18/06	11:20	1	216,157	136	2.72	0.1886	0.396	10.20	148	61	0.69	0.25	36.23	0.4400	1.674	1.0675	0.16419	0.10470	38,514	24,560	0.178	0.114
		11:25	2	216,157	140	2.72	0.1886	0.457	12.07	150	62	1.13	0.39	34.51	0.7400	2.734	1.7903	0.22655	0.14836	53,142	34,801	0.246	0.161
		11:35	3	216,157	153	2.72	0.1886	0.472	13.67	129	66	0.91	0.31	34.07	0.6000	1.779	1.1727	0.13015	0.08581	30,529	20,129	0.141	0.093
JC SEG-1 DOWN	10/18/06	10:10	1	222,200	195	2.72	0.1886	0.411	15.13	158	64	0.87	0.28	32.18	0.5900	2.148	1.4566	0.14195	0.09626	33,298	22,581	0.150	0.102
		10:23	2	222,200	132	2.72	0.1886	0.418	10.39	145	55	1.16	0.48	41.38	0.6800	3.058	1.7927	0.29422	0.17247	69,017	40,458	0.311	0.182
		10:33	3	222,200	189	2.72	0.1886	0.393	14.01	167	68	0.63	0.23	36.51	0.4000	1.547	0.9824	0.11041	0.07010	25,899	16,444	0.117	0.074

* lost sample

APPENDIX G

WEKIVA PLRG - PARTICULATE EXPORT EVENT SUMMARY - WINTER 2006

Segment	Date	Station	Dry Matter (g/d)	Organic Matter (g/d)	Dry Matter ($g/m^2/d$)	Organic Matter ($g/m^2/d$)
WR-SEG1	1/23/07	UP	4,917	3,097	0.31	0.20
		DOWN	12,742	8,699	0.36	0.25
		Segment	7,825	5,602	0.40	0.29
	2/5/07	UP	2,886	1,762	0.18	0.11
		DOWN	8,921	6,462	0.25	0.18
		Segment	6,035	4,700	0.31	0.24
WR-SEG2	1/23/07	UP	30,359	18,850	0.05	0.03
		DOWN	22,255	12,926	0.03	0.02
		Segment	-8,105	-5,924	-0.09	-0.07
	2/6/07	UP	29,615	16,667	0.05	0.03
		DOWN	13,210	7,541	0.02	0.01
		Segment	-16,405	-9,126	-0.19	-0.11
RSR-SEG1	1/4/07	UP	9,294	6,774	0.15	0.11
		DOWN	5,056	3,532	0.06	0.04
		Segment	-4,238	-3,242	-0.17	-0.13
	1/18/07	UP	14,888	10,722	0.24	0.17
		DOWN	5,096	3,318	0.06	0.04
		Segment	-9,792	-7,404	-0.39	-0.29
RSR-SEG2	1/3/07	UP	17,064	11,347	0.05	0.03
		DOWN	21,924	14,876	0.05	0.04
		Segment	4,860	3,529	0.10	0.07
	1/17/07	UP	17,540	11,763	0.05	0.03
		DOWN	14,638	9,911	0.04	0.02
		Segment	-2,902	-1,851	-0.06	-0.04
ASC-SEG1	1/23/07	UP	33,683	22,492	0.44	0.29
		DOWN	11,808	4,978	0.09	0.04
		Segment	-21,875	-17,514	-0.46	-0.37
	2/5/07	UP	26,085	18,180	0.34	0.24
		DOWN	10,193	5,550	0.08	0.04
		Segment	-15,892	-12,631	-0.33	-0.27
JC-SEG1	1/3/07	UP	86,512	56,688	0.40	0.26
		DOWN	95,909	62,295	0.43	0.28
		Segment	9,397	5,607	1.56	0.93
	1/17/07	UP	164,876	103,780	0.76	0.48
		DOWN	60,040	37,387	0.27	0.17
		Segment	-104,836	-66,393	-17.35	-10.99

Segment	Area (m^2)
WR-SEG1	19,469
WR-SEG2	86,640
RSR-SEG1	25,381
RSR-SEG2	48,018
ASC-SEG1	47,655
JC-SEG1	6,043

APPENDIX G
WEKIVA PLRG - PARTICULATE EXPORT EVENT DETAIL - WINTER 2006

											Laboratory Analysis					Total Sample							
Segment	Date	Start Time	Sample #	Upstream Area (m^2)	Time of Tow (s)	Flow Rate (m^3/s)	Net Area (m^2)	Water Velocity (m/s)	Volume Filtered (m^3)	Total Sample Volume (mL)	Vol. Dried (mL)	Dry Wt. (g)	Ash Wt. (g)	% Ash	Ash-Free Dry Wt. (g)	Dry Wt. (g)	Ash-Free Dry Wt. (g)	Dry Matter (g/m^3)	Organic Matter (g/m^3)	Dry Matter (g/d)	Organic Matter (g/d)	Dry Matter ($g/m^2/d$)	Organic Matter ($g/m^2/d$)
WR SEG-1 UP	1/23/07	16:15	1	15,783	139	1.72	0.1886	0.171	4.49	46	46	0.11	0.04	36.36	0.0700	0.110	0.0700	0.02452	0.01560	3,634	2,313	0.230	0.147
		16:21	2	15,783	182	1.72	0.1886	0.104	3.56	62	62	0.14	0.05	35.71	0.0900	0.140	0.0900	0.03929	0.02526	5,823	3,743	0.369	0.237
		16:29	3	15,783	187	1.72	0.1886	0.143	5.04	60	60	0.18	0.07	38.89	0.1100	0.180	0.1100	0.03572	0.02183	5,294	3,235	0.335	0.205
WR SEG-1 DOWN	1/23/07	14:59	1	35,252	185	1.77	0.1886	0.195	6.81	88	66	0.46	0.15	32.61	0.3100	0.613	0.4133	0.09005	0.06068	13,756	9,270	0.390	0.263
		15:05	2	35,252	168	1.77	0.1886	0.198	6.28	96	67	0.35	0.11	31.43	0.2400	0.501	0.3439	0.07990	0.05479	12,206	8,370	0.346	0.237
		15:12	3	35,252	153	1.77	0.1886	0.165	4.76	83	63	0.29	0.09	31.03	0.2000	0.382	0.2635	0.08028	0.05536	12,263	8,458	0.348	0.240
WR SEG-1 UP	2/5/07	17:34	1	15,783	188	1.50	0.1886	0.137	4.86	54	54	0.13	0.05	38.46	0.0800	0.130	0.0800	0.02673	0.01645	3,473	2,137	0.220	0.135
		17:42	2	15,783	246	1.50	0.1886	0.155	7.21	41	41	0.13	0.05	38.46	0.0800	0.130	0.0800	0.01802	0.01109	2,341	1,441	0.148	0.091
		17:51	3	15,783	254	1.50	0.1886	0.143	6.85	37	37	0.15	0.06	40.00	0.0900	0.150	0.0900	0.02190	0.01314	2,845	1,707	0.180	0.108
WR SEG-1 DOWN	2/5/07	16:12	1	35,252	184	1.37	0.1886	0.116	4.03	94	64	0.24	0.07	29.17	0.1700	0.353	0.2497	0.08749	0.06197	10,377	7,350	0.294	0.209
		16:20	2	35,252	187	1.37	0.1886	0.165	5.82	69	69	0.35	0.10	28.57	0.2500	0.350	0.2500	0.06018	0.04299	7,138	5,099	0.202	0.145
		16:29	3	35,252	220	1.37	0.1886	0.104	4.30	73	61	0.28	0.07	25.00	0.2100	0.335	0.2513	0.07798	0.05849	9,249	6,937	0.262	0.197
WR SEG-2 UP	1/24/07	11:20	1	632,393	127	5.59	0.1886	0.256	6.15	93	65	0.30	0.11	36.67	0.1900	0.429	0.2718	0.06980	0.04421	33,698	21,342	0.053	0.034
		11:27	2	632,393	125	5.59	0.1886	0.253	5.97	91	65	0.26	0.11	42.31	0.1500	0.364	0.2100	0.06095	0.03516	29,427	16,977	0.047	0.027
		11:35	3	632,393	123	5.59	0.1886	0.247	5.71	92	64	0.23	0.08	34.78	0.1500	0.331	0.2156	0.05790	0.03776	27,954	18,231	0.044	0.029
WR SEG-2 DOWN	1/24/07	10:21	1	719,033	213	5.36	0.1886	0.134	5.38	76	64	0.23	0.09	39.13	0.1400	0.273	0.1663	0.05072	0.03088	23,505	14,307	0.033	0.020
		10:29	2	719,033	209	5.36	0.1886	0.116	4.56	88	63	0.16	0.06	37.50	0.1000	0.223	0.1397	0.04906	0.03066	22,735	14,209	0.032	0.020
		10:38	3	719,033	224	5.36	0.1886	0.119	5.02	79	64	0.18	0.09	50.00	0.0900	0.222	0.1111	0.04429	0.02215	20,525	10,262	0.029	0.014
WR SEG-2 UP	2/6/07	10:23	1	632,393	196	6.48	0.1886	0.137	5.06	62	62	0.17	0.08	47.06	0.0900	0.170	0.0900	0.03357	0.01777	18,795	9,950	0.030	0.016
		10:33	2	632,393	248	6.48	0.1886	0.049	2.28	74	66	0.18	0.08	44.44	0.1000	0.202	0.1121	0.08863	0.04924	49,623	27,569	0.078	0.044
		10:43	3	632,393	187	6.48	0.1886	0.140	4.93	35	35	0.18	0.07	38.89	0.1100	0.180	0.1100	0.03648	0.02229	20,426	12,483	0.032	0.020
WR SEG-2 DOWN	2/6/07	9:24	1	719,033	252	6.48	0.1886	0.073	3.48	63	63	0.09	0.04	44.44	0.0500	0.090	0.0500	0.02589	0.01438	14,496	8,053	0.020	0.011
		9:33	2	719,033	273	6.48	0.1886	0.085	4.39	67	67	0.09	0.04	44.44	0.0500	0.090	0.0500	0.02050	0.01139	11,480	6,378	0.016	0.009
		9:42	3	719,033	297	6.48	0.1886	0.049	2.73	88	66	0.05	0.02	40.00	0.0300	0.067	0.0400	0.02438	0.01463	13,652	8,191	0.019	0.011
RSR SEG-1 UP	1/4/07	11:09	1	62,764	235	0.93	0.1886	0.192	8.51	158	63	0.45	0.12	26.67	0.3300	1.129	0.8276	0.13258	0.09723	10,614	7,783	0.169	0.124
		11:17	2	62,764	152	0.93	0.1886	0.207	5.93	102	66	0.46	0.13	28.26	0.3300	0.711	0.5100	0.11998	0.08607	9,605	6,890	0.153	0.110
		11:25	3	62,764	151	0.93	0.1886	0.223	6.33	110	69	0.38	0.10	26.32	0.2800	0.606	0.4464	0.09574	0.07054	7,664	5,647	0.122	0.090
RSR SEG-1 DOWN	1/4/07	9:28	1	88,145	184	1.55	0.1886	0.119	4.11	72	58	0.13	0.02	15.38	0.1100	0.161	0.1366	0.03923	0.03319	5,258	4,449	0.060	0.050
		9:36	2	88,145	188	1.55	0.1886	0.113	4.00	64	64	0.14	0.05	35.71	0.0900	0.140	0.0900	0.03502	0.02251	4,694	3,017	0.053	0.034
		9:44	3	88,145	181	1.55	0.1886	0.113	3.86	61	61	0.15	0.06	40.00	0.0900	0.150	0.0900	0.03891	0.02335	5,216	3,129	0.059	0.036
RSR SEG-1 UP	1/18/07	10:37	1	62,764	217	1.48	0.1886	0.207	8.48	120	55	0.52	0.14	26.92	0.3800	1.135	0.8291	0.13373	0.09773	17,109	12,502	0.273	0.199
		10:47	2	62,764	215	1.48	0.1886	0.189	7.67	97	61	0.39	0.10	25.64	0.2900	0.620	0.4611	0.08090	0.06015	10,349	7,696	0.165	0.123
		10:57	3	62,764	213	1.48	0.1886	0.152	6.12	118	66	0.46	0.14	30.43	0.3200	0.822	0.5721	0.13449	0.09356	17,206	11,969	0.274	0.191
RSR SEG-1 DOWN	1/18/07	9:05	1	88,145	238	1.53	0.1886	0.134	6.02	95	60	0.13	0.04	30.77	0.0900	0.206	0.1425	0.03420	0.02367	4,525	3,133	0.051	0.036
		9:16	2	88,145	247	1.53	0.1886	0.128	5.96	99	64	0.13	0.05	38.46	0.0800	0.201	0.1238	0.03375	0.02077	4,466	2,748	0.051	0.031
		9:26	3	88,145	244	1.53	0.1886	0.125	5.74	106	66	0.17	0.06	35.29	0.1100	0.273	0.1767	0.04757	0.03078	6,295	4,073	0.071	0.046
RSR SEG-2 UP	1/3/07	15:46	1	364,096	130	1.53	0.1886	0.216	5.31	113	66	0.45	0.14	31.11	0.3100	0.770	0.5308	0.14523	0.10005	19,190	13,220	0.053	0.036
		15:54	2	364,096	123	1.53	0.1886	0.229	5.30	104	62	0.36	0.12	33.33	0.2400	0.604	0.4026	0.11392	0.07594	15,053	10,035	0.041	0.028
		16:01	3	364,096	124	1.53	0.1886	0.210	4.91	93	65	0.44	0.16	36.36	0.2800	0.630	0.4006	0.12827	0.08163	16,950	10,786	0.047	0.030
RSR SEG-2 DOWN	1/3/07	14:41	1	412,114	122	1.50	0.1886	0.326	7.51	150	62	0.55	0.18	32.73	0.3700	1.331	0.8952	0.17707	0.11912	22,926	15,423	0.056	0.037
		14:51	2	412,114	135	1.50	0.1886	0.308	7.86	157	63	0.56	0.18	32.14	0.3800	1.396	0.9470	0.17745	0.12042	22,975	15,590	0.056	0.038
		15:02	3	412,114	122	1.50	0.1886	0.311	7.14	132	65	0.54	0.17	31.48	0.3700	1.097	0.7514	0.15348	0.10516	19,872	13,616	0.048	0.033
RSR SEG-2 UP	1/17/07	16:09	1	364,096	157	1.53	0.1886	0.116	3.43	88	62	0.36	0.13	36.11	0.2300	0.511	0.3265	0.14883	0.09509	19,666	12,565	0.054	0.035
		16:18	2	364,096	145	1.53	0.1886	0.091	2.50	98	61	0.30	0.09	30.00	0.2100	0.482	0.3374	0.19290	0.13503	25,490	17,843	0.070	0.049
		16:28	3	364,096	154	1.53	0.1886	0.216	6.27	94	69	0.26	0.09	34.62	0.1700	0.354	0.2316	0.05650	0.03694	7,465	4,881	0.021	0.013
RSR SEG-2 DOWN	1/17/07	15:15	1	412,114	125	1.50	0.1886	0.314	7.42	144	70	0.46	0.17	36.96	0.2900	0.946	0.5966	0.12746	0.08036	16,503	10,404	0.040	0.025
		15:24	2	412,114	126	1.50	0.1886	0.299	7.08	125	63	0.36	0.10	27.78	0.2600	0.714	0.5159	0.10082	0.07281	13,053	9,427	0.032	0.023
		15:34	3	412,114	126	1.50	0.1886	0.280	6.67	153	60	0.29	0.09	31.03	0.2000	0.740	0.5100	0.11090	0.07648	14,359	9,903	0.035	0.024
ASC SEG-1 UP	1/23/07	10:46	1	77,305	177	3.85	0.1886	0.259	8.64	104	64	0.57	0.22	38.60	0.3500	0.926	0.5688	0.10724	0.06585	35,648	21,889	0.461	0.283
		10:53	2	77,305	122	3.85	0.1886	0.226	5.18	84	61	0.42	0.12	28.57	0.3000	0.578	0.4131	0.11163	0.07974	37,108	26,506	0.480	0.343
		11:00	3	77,305	123	3.85	0.1886	0.274	6.37	82	65	0.43	0.14	32.56	0.2900	0.542	0.3658	0.08511	0.05740	28,292	19,081	0.366	0.247
ASC SEG-1 DOWN	1/23/07	9:58	1	124,960	182	2.78	0.1886	0.113	3.87	57	57	0.18	0.11	61.11	0.0700	0.180	0.0700	0.04655	0.01810	11,195	4,354	0.090	0.035
		10:06	2	124,960	185	2.78	0.1886	0.122	4.26	70	65	0.20	0.12	60.00	0.0800	0.215	0.0862	0.05054	0.02022	12,154	4,862	0.097	0.039
		10:12	3	124,960	185	2.78	0.1886	0.131	4.58	75	62	0.19	0.10	52.63	0.0900	0.230	0.1089	0.05021	0.02378	12,074	5,719	0.097	0.046
ASC SEG-1 UP	2/5/07	11:46	1	77,305	190	3.42	0.1886	0.244	8.71	79	69	0.69	0.22	31.88	0.4700	0.790	0.5381	0.09066	0.06176	26,815	18,265	0.347	0.236
		11:55	2	77,305	189	3.42	0.1886	0.238	8.46	68	67	0.65	0.17	26.15	0.4800	0.660	0.4872	0.07797	0.05758	23,061	17,030	0.298	0.220
		12:04	3	77,305	192	3.42	0.1886	0.250	9.07	70	70	0.87	0.28	32.18	0.5900	0.870	0.5900	0.09595	0.06507	28,379	19,246	0.367	0.249
ASC SEG-1 DOWN	2/5/07	10:49	1	124,960	178	3.17	0.1886	0.128	4.30	85	63	0.11	0.05	45.45	0.0600	0.148	0.0810	0.03450	0.01882	9,449	5,154	0.076	0.041
		10:59	2	124,960	205	3.17	0.1886	0.085	3.30	68	68	0.12	0.06	50.00	0.0600	0.120	0.0600	0.03640	0.01820	9,969	4,984	0.080	0.040
		11:09	3	124,960	235	3.17	0.1886	0.098	4.32	94	64	0.12	0.05	41.67	0.0700	0.176	0.1028	0.04076	0.02377	11,162	6,511	0.089	0.052
JC SEG-1 UP	1/3/07	10:22	1	216,157	163	2.54	0.1886	0.256	7.89	250	62	0.66	0.23	34.85	0.4300	2.661	1.7339	0.33740	0.21982	73,979	48,198	0.342	0.223
		10:30	2	216,157	122	2.54	0.1886	0.326	7.51	176	62	0.96	0.33	34.38	0.6300	2.725	1.7884	0.36264	0.23798	79,513	52,181	0.368	0.241
		10:38	3	216,157	123	2.54	0.1886	0.229	5.32	228	62	0.70	0.24	34.29	0.4600	2.574	1.6916	0.48364	0.31782	106,044	69,686	0.491	0.322
JC SEG-1 DOWN	1/3/07	9:20	1	222,200	125	2.69	0.1886	0.320	7.52	148	58	1.25	0.45	36.00	0.8000	3.190	2.0414	0.42397	0.27134	98,395	62,973	0.443	0.283
		9:30	2	222,200	122	2.69	0.1886	0.427	9.83	225	69	1.06	0.35	33.02	0.7100	3.457	2.3152	0.35146	0.23541	81,567	54,634	0.367	0.246
		9:40	3	222,200	122	2.69	0.1886	0.411	9.46	194	68	1.54	0.55	35.71	0.9900	4.394	2.8244	0.46434	0.29850	107,765	69,278	0.485	0.312
JC SEG-1 UP	1/17/07	10:53	1	216,157	178	2.76	0.1886	0.064	2.15	156	70	0.89	0.34	38.20	0.5500	1.983	1.2257	0.92120	0.56928	219,564	135,686	1.016	0.628
		11:04	2	216,157	218	2.76	0.1886	0.076	3.13	167	70	0.98	0.35	35.71	0.6300	2.338	1.5030	0.74678	0.48007	177,991	114,422	0.823	0.529
		11:17	3	216,157	177	2.76	0.1886	0.107	3.56	154	69	0.65	0.24	36.92	0.4100	1.451	0.9151	0.40729	0.25690	97,075	61,232	0.449	0.283
JC SEG-1 DOWN	1/17/07	9:40	1	222,200	151	2.44	0.1886	0.369	10.48	349	55	0.39	0.16	41.03	0.2300	2.475	1.4595	0.23623	0.13931	49,727	29,326	0.224	0.132
		9:48	2	222,200	165	2.44	0.1886	0.338	10.54	290	63	0.61	0.22	36.07	0.3900	2.808	1.7952	0.26643	0.17034	56,084	35,857	0.252	0.161
		9:56	3	222,200	127	2.44	0.1886	0.375	8.95	236	65	0.87	0.32	36.78	0.5500	3.159	1.9969	0.35301	0.22317	74,309	46,977	0.334	0.211

APPENDIX G
Wekiva PLRG - AVERAGE PARTICULATE EXPORT - Spring 2007

Segment	Date	Station	Dry Matter (g/d)	Organic Matter (g/d)	Dry Matter ($g/m^2/d$)	Organic Matter ($g/m^2/d$)
WR-SEG1	4/11/07	UP	4,760	2,964	0.30	0.19
		DOWN	12,535	6,610	0.36	0.19
		Segment	7,775	3,646	0.40	0.19
	4/24/07	UP	3,394	1,826	0.22	0.12
		DOWN	24,924	9,437	0.71	0.27
		Segment	21,530	7,610	1.11	0.39
WR-SEG2	4/10/07	UP	43,732	25,657	0.07	0.04
		DOWN	26,839	14,934	0.04	0.02
		Segment	-16,894	-10,723	-0.19	-0.12
	4/24/07	UP	57,225	31,643	0.09	0.05
		DOWN	22,790	12,164	0.03	0.02
		Segment	-34,435	-19,479	-0.40	-0.22
RSR-SEG1	5/8/07	UP	8,524	6,031	0.14	0.10
		DOWN	8,297	6,083	0.09	0.07
		Segment	-227	52	-0.01	0.00
	5/24/07	UP	50,285	24,165	0.80	0.39
		DOWN	5,992	4,189	0.07	0.05
		Segment	-44,293	-19,976	-1.75	-0.79
RSR-SEG2	5/9/07	UP	22,486	12,666	0.06	0.03
		DOWN	14,772	9,308	0.04	0.02
		Segment	-7,713	-3,358	-0.16	-0.07
	5/24/07	UP	32,610	19,946	0.09	0.05
		DOWN	43,249	29,175	0.10	0.07
		Segment	10,639	9,229	0.22	0.19
ASC-SEG1	5/30/07	UP	43,181	19,045	0.56	0.25
		DOWN	6,928	3,149	0.06	0.03
		Segment	-36,253	-15,896	-0.76	-0.33
	6/19/07	UP	38,393	22,575	0.50	0.29
		DOWN	8,502	4,539	0.07	0.04
		Segment	-29,891	-18,037	-0.63	-0.38
JC-SEG1	5/30/07	UP	37,035	19,512	0.17	0.09
		DOWN	30,063	17,453	0.14	0.08
		Segment	-6,971	-2,060	-1.15	-0.34
	6/19/07	UP	51,079	31,203	0.24	0.14
		DOWN	49,510	29,700	0.22	0.13
		Segment	-1,569	-1,503	-0.26	-0.25

Segment	Area (m^2)
WR-SEG1	19,469
WR-SEG2	86,640
RSR-SEG1	25,381
RSR-SEG2	48,018
ASC-SEG1	47,655
JC-SEG1	6,043

APPENDIX G
Wekiva PLRG - AVERAGE PARTICULATE EXPORT - Spring 2007

											Laboratory Analysis					Total Sample							
Segment	Date	Start Time	Sample #	Upstream Area (m^2)	Time of Tow (s)	Flow Rate (m^3/s)	Net Area (m^2)	Water Velocity (m/s)	Volume Filtered (m^3)	Total Sample Volume (mL)	Vol. Dried (mL)	Dry Wt. (g)	Ash Wt. (g)	% Ash	Ash-Free Dry Wt. (g)	Dry Wt. (g)	Ash-Free Dry Wt. (g)	Dry Matter (g/m^3)	Organic Matter (g/m^3)	Dry Matter (g/d)	Organic Matter (g/d)	Dry Matter (g/m^2/d)	Organic Matter (g/m^2/d)
WR SEG-1 UP	4/11/07	10:01	1	15,783	283	1.75	0.1886	0.07	3.75	47	47	0.14	0.06	42.86	0.0800	0.140	0.0800	0.03737	0.02136	5,644	3,225	0.358	0.204
		10:12	2	15,783	417	1.75	0.1886	0.06	4.55	63	63	0.12	0.04	33.33	0.0800	0.120	0.0800	0.02637	0.01758	3,982	2,654	0.252	0.168
		10:24	3	15,783	480	1.75	0.1886	0.06	5.51	61	61	0.17	0.06	35.29	0.1100	0.170	0.1100	0.03083	0.01995	4,655	3,012	0.295	0.191
WR SEG-1 DOWN	4/11/07	8:37	1	35,252	212	1.76	0.1886	0.15	6.09	95	63	0.39	0.18	46.15	0.2100	0.588	0.3167	0.09655	0.05199	14,658	7,893	0.416	0.224
		8:44	2	35,252	180	1.76	0.1886	0.20	6.62	81	63	0.38	0.18	47.37	0.2000	0.489	0.2571	0.07385	0.03887	11,211	5,900	0.318	0.167
		8:54	3	35,252	180	1.76	0.1886	0.16	5.48	75	62	0.35	0.17	48.57	0.1800	0.423	0.2177	0.07731	0.03976	11,736	6,036	0.333	0.171
WR SEG-1 UP	4/24/07	17:13	1	15,783	168	1.78	0.1886	0.18	5.60	54	54	0.20	0.09	45.00	0.1100	0.200	0.1100	0.03570	0.01963	5,497	3,023	0.348	0.192
		17:21	2	15,783	176	1.78	0.1886	0.16	5.37	30	30	0.06	0.03	50.00	0.0300	0.060	0.0300	0.01118	0.00559	1,721	861	0.109	0.055
		17:28	3	15,783	210	1.78	0.1886	0.17	6.76	57	57	0.13	0.06	46.15	0.0700	0.130	0.0700	0.01924	0.01036	2,963	1,595	0.188	0.101
WR SEG-1 DOWN	4/24/07	15:54	1	35,252	181	1.49	0.1886	0.10	3.54	113	61	0.45	0.28	62.22	0.1700	0.834	0.3149	0.23531	0.08889	30,356	11,468	0.861	0.325
		16:08	2	35,252	122	1.49	0.1886	0.16	3.80	95	64	0.41	0.25	60.98	0.1600	0.609	0.2375	0.16035	0.06258	20,687	8,073	0.587	0.229
		16:14	3	35,252	175	1.49	0.1886	0.12	3.83	104	68	0.46	0.29	63.04	0.1700	0.704	0.2600	0.18393	0.06797	23,728	8,769	0.673	0.249
WR SEG-2 UP	4/10/07	11:56	1	632,393	181	4.52	0.1886	0.16	5.61	143	65	0.28	0.11	39.29	0.1700	0.616	0.3740	0.10977	0.06664	42,823	26,000	0.068	0.041
		12:05	2	632,393	173	4.52	0.1886	0.19	6.27	130	66	0.40	0.17	42.50	0.2300	0.788	0.4530	0.12562	0.07223	49,007	28,179	0.077	0.045
		12:13	3	632,393	178	4.52	0.1886	0.20	6.53	118	68	0.38	0.16	42.11	0.2200	0.659	0.3818	0.10091	0.05842	39,366	22,791	0.062	0.036
WR SEG-2 DOWN	4/10/07	11:03	1	719,033	226	4.18	0.1886	0.06	2.60	81	62	0.17	0.07	41.18	0.1000	0.222	0.1306	0.08556	0.05033	30,874	18,161	0.043	0.025
		11:09	2	719,033	250	4.18	0.1886	0.05	2.30	82	64	0.12	0.06	50.00	0.0600	0.154	0.0769	0.06698	0.03349	24,171	12,085	0.034	0.017
		11:18	3	719,033	240	4.18	0.1886	0.09	4.00	86	64	0.21	0.09	42.86	0.1200	0.282	0.1613	0.07059	0.04034	25,471	14,555	0.035	0.020
WR SEG-2 UP	4/24/07	11:34	1	632,393	177	4.30	0.1886	0.22	7.21	107	66	0.54	0.24	44.44	0.3000	0.875	0.4864	0.12143	0.06746	45,111	25,062	0.071	0.040
		11:43	2	632,393	118	4.30	0.1886	0.19	4.28	95	63	0.52	0.23	44.23	0.2900	0.784	0.4373	0.18322	0.10218	68,063	37,958	0.108	0.060
		11:51	3	632,393	157	4.30	0.1886	0.17	5.14	157	64	0.33	0.15	45.45	0.1800	0.810	0.4416	0.15747	0.08590	58,500	31,909	0.093	0.050
WR SEG-2 DOWN	4/24/07	10:48	1	719,033	302	4.99	0.1886	0.08	4.34	82	65	0.17	0.08	47.06	0.0900	0.214	0.1135	0.04946	0.02619	21,318	11,286	0.030	0.016
		10:58	2	719,033	334	4.99	0.1886	0.07	4.61	69	69	0.20	0.09	45.00	0.1100	0.200	0.1100	0.04338	0.02386	18,696	10,283	0.026	0.014
		11:08	3	719,033	302	4.99	0.1886	0.06	3.64	82	65	0.19	0.09	47.37	0.1000	0.240	0.1262	0.06579	0.03463	28,355	14,924	0.039	0.021
RSR SEG-1 UP	5/8/07	13:55	1	62,764	286	1.29	0.1886	0.16	8.38	81	66	0.53	0.15	28.30	0.3800	0.650	0.4664	0.07762	0.05565	8,642	6,196	0.138	0.099
		14:06	2	62,764	299	1.29	0.1886	0.16	9.10	93	64	0.49	0.14	28.57	0.3500	0.712	0.5086	0.07825	0.05589	8,712	6,223	0.139	0.099
		14:16	3	62,764	249	1.29	0.1886	0.17	7.88	90	65	0.42	0.13	30.95	0.2900	0.582	0.4015	0.07380	0.05096	8,218	5,674	0.131	0.090
RSR SEG-1 DOWN	5/8/07	12:23	1	88,145	301	1.66	0.1886	0.07	3.80	58	58	0.29	0.08	27.59	0.2100	0.290	0.2100	0.07625	0.05521	10,965	7,940	0.124	0.090
		12:34	2	88,145	418	1.66	0.1886	0.08	6.48	74	60	0.25	0.07	28.00	0.1800	0.308	0.2220	0.04756	0.03424	6,839	4,924	0.078	0.056
		12:47	3	88,145	301	1.66	0.1886	0.10	5.89	72	62	0.25	0.06	24.00	0.1900	0.290	0.2206	0.04928	0.03745	7,087	5,386	0.080	0.061
RSR SEG-1 UP	5/24/07	10:19	1	62,764	118	1.46	0.1886	0.15	3.39	82	60	0.70	0.30	42.86	0.4000	0.957	0.5467	0.28211	0.16120	35,476	20,272	0.565	0.323
		10:25	2[a]	62,764	86	1.46	0.1886	0.14	2.33	77	69	4.05	3.55	87.65	0.5000	4.520	0.5580	1.93704	0.23914	243,591	30,073	3.881	0.479
		10:32	3	62,764	108	1.46	0.1886	0.12	2.48	73	66	1.16	0.66	56.90	0.5000	1.283	0.5530	0.51763	0.22312	65,094	28,058	1.037	0.447
RSR SEG-1 DOWN	5/24/07	9:01	1	88,145	245	1.46	0.1886	0.12	5.48	44	44	0.18	0.06	33.33	0.1200	0.180	0.1200	0.03283	0.02189	4,129	2,753	0.047	0.031
		9:10	2	88,145	244	1.46	0.1886	0.11	5.20	62	62	0.25	0.07	28.00	0.1800	0.250	0.1800	0.04809	0.03463	6,048	4,355	0.069	0.049
		9:19	3	88,145	272	1.46	0.1886	0.09	4.84	60	60	0.30	0.09	30.00	0.2100	0.300	0.2100	0.06201	0.04341	7,799	5,459	0.088	0.062
RSR SEG-2 UP	5/9/07	10:37	1	364,096	115	1.26	0.1886	0.23	4.88	115	64	0.60	0.26	43.33	0.3400	1.078	0.6109	0.22095	0.12521	23,980	13,589	0.066	0.037
		10:44	2	364,096	89	1.26	0.1886	0.21	3.47	82	64	0.61	0.27	44.26	0.3400	0.782	0.4356	0.22554	0.12571	24,478	13,644	0.067	0.037
		10:51	3	364,096	90	1.26	0.1886	0.26	4.35	85	67	0.60	0.26	43.33	0.3400	0.761	0.4313	0.17506	0.09920	18,999	10,766	0.052	0.030
RSR SEG-2 DOWN	5/9/07	9:36	1	412,114	225	1.15	0.1886	0.24	10.22	139	63	0.57	0.21	36.84	0.3600	1.258	0.7943	0.12302	0.07770	12,229	7,724	0.030	0.019
		9:47	2	412,114	179	1.15	0.1886	0.23	7.72	111	66	0.70	0.25	35.71	0.4500	1.177	0.7568	0.15254	0.09806	15,163	9,748	0.037	0.024
		9:54	3	412,114	177	1.15	0.1886	0.23	7.81	133	68	0.68	0.26	38.24	0.4200	1.330	0.8215	0.17026	0.10516	16,925	10,454	0.041	0.025
RSR SEG-2 UP	5/24/07	14:01	1	364,096	87	1.26	0.1886	0.26	4.30	164	62	0.52	0.19	36.54	0.3300	1.375	0.8729	0.31985	0.20298	34,713	22,029	0.095	0.061
		14:08	2	364,096	84	1.26	0.1886	0.27	4.25	185	68	0.45	0.17	37.78	0.2800	1.224	0.7618	0.28815	0.17929	31,273	19,459	0.086	0.053
		14:15	3	364,096	71	1.26	0.1886	0.27	3.55	113	64	0.59	0.25	42.37	0.3400	1.042	0.6003	0.29341	0.16908	31,844	18,351	0.087	0.050
RSR SEG-2 DOWN	5/24/07	13:00	1	412,114	100	1.15	0.1886	0.21	4.02	170	63	0.56	0.18	32.14	0.3800	1.511	1.0254	0.37558	0.25486	37,334	25,334	0.091	0.061
		13:07	2	412,114	69	1.15	0.1886	0.19	2.50	127	63	0.66	0.23	34.85	0.4300	1.330	0.8668	0.53250	0.34693	52,933	34,487	0.128	0.084
		13:14	3	412,114	85	1.15	0.1886	0.16	2.64	125	68	0.57	0.17	29.82	0.4000	1.048	0.7353	0.39716	0.27871	39,480	27,705	0.096	0.067
ASC SEG-1 UP	5/30/07	15:51	1 A&B	77,305	184	2.43	0.1886	0.26	8.98	112	112	1.48	0.69	46.62	0.7900	1.480	0.7900	0.16475	0.08794	34,653	18,497	0.448	0.239
		16:03	2 A&B	77,305	95	2.43	0.1886	0.25	4.42	104	104	1.05	0.65	61.90	0.4000	1.050	0.4000	0.23755	0.09050	49,965	19,034	0.646	0.246
		16:13	3 A&B	77,305	64	2.43	0.1886	0.21	2.57	88	88	0.55	0.31	56.36	0.2400	0.550	0.2400	0.21359	0.09320	44,926	19,604	0.581	0.254
ASC SEG-1 DOWN	5/30/07	14:28	1	124,960	182	2.16	0.1886	0.13	4.40	44	44	0.14	0.06	42.86	0.0800	0.140	0.0800	0.03180	0.01817	5,947	3,398	0.048	0.027
		14:39	2	124,960	347	2.16	0.1886	0.12	7.77	44	44	0.38	0.26	68.42	0.1200	0.380	0.1200	0.04892	0.01545	9,148	2,889	0.073	0.023
		14:50	3	124,960	359	2.16	0.1886	0.13	8.88	52	52	0.27	0.12	44.44	0.1500	0.270	0.1500	0.03042	0.01690	5,690	3,161	0.046	0.025
ASC SEG-1 UP	6/19/07	13:26	1	77,305	181	2.45	0.1886	0.27	9.15	105	69	1.32	0.68	51.52	0.6400	2.009	0.9739	0.21941	0.10638	46,358	22,477	0.600	0.291
		13:35	2	77,305	151	2.45	0.1886	0.26	7.29	108	70	0.80	0.25	31.25	0.5500	1.234	0.8486	0.16930	0.11640	35,771	24,593	0.463	0.318
		13:44	3	77,305	182	2.45	0.1886	0.27	9.21	140	70	0.72	0.27	37.50	0.4500	1.440	0.9000	0.15643	0.09777	33,051	20,657	0.428	0.267
ASC SEG-1 DOWN	6/19/07	12:35	1	124,960	241	2.45	0.1886	0.09	4.16	67	66	0.17	0.09	52.94	0.0800	0.173	0.0812	0.04153	0.01954	8,774	4,129	0.070	0.033
		12:43	2	124,960	304	2.45	0.1886	0.10	5.94	65	65	0.24	0.10	41.67	0.1400	0.240	0.1400	0.04040	0.02357	8,536	4,979	0.068	0.040
		12:52	3	124,960	302	2.45	0.1886	0.11	6.25	80	66	0.20	0.09	45.00	0.1100	0.242	0.1333	0.03879	0.02134	8,197	4,508	0.066	0.036
JC SEG-1 UP	5/30/07	10:56	1	216,157	167	2.34	0.1886	0.20	6.42	131	65	0.67	0.31	46.27	0.3600	1.350	0.7255	0.21032	0.11301	42,482	22,826	0.197	0.106
		11:12	2	216,157	145	2.34	0.1886	0.23	6.26	106	68	0.64	0.27	42.19	0.3700	0.998	0.5768	0.15940	0.09215	32,197	18,614	0.149	0.086
		11:25	3	216,157	146	2.34	0.1886	0.23	6.23	149	65	0.49	0.26	53.06	0.2300	1.123	0.5272	0.18034	0.08465	36,426	17,098	0.169	0.079
JC SEG-1 DOWN	5/30/07	9:49	1	222,200	184	2.10	0.1886	0.29	10.03	110	60	1.15	0.47	40.87	0.6800	2.108	1.2467	0.21020	0.12429	38,087	22,521	0.171	0.101
		9:59	2	222,200	112	2.10	0.1886	0.38	8.06	104	60	0.55	0.24	43.64	0.3100	0.953	0.5373	0.11821	0.06663	21,419	12,072	0.096	0.054
		10:10	3	222,200	116	2.10	0.1886	0.41	8.88	95	60	0.95	0.40	42.11	0.5500	1.504	0.8708	0.16935	0.09804	30,685	17,765	0.138	0.080
JC SEG-1 UP	6/19/07	10:04	1	216,157	129	2.25	0.1886	0.31	7.56	212	62	0.57	0.23	40.35	0.3400	1.949	1.1626	0.25771	0.15372	50,037	29,847	0.231	0.138
		10:12	2	216,157	127	2.25	0.1886	0.31	7.37	167	67	0.88	0.34	38.64	0.5400	2.193	1.3460	0.29751	0.18256	57,765	35,447	0.267	0.164
		10:19	3	216,157	145	2.25	0.1886	0.34	9.42	214	67	0.69	0.26	37.68	0.4300	2.204	1.3734	0.23402	0.14584	45,436	28,315	0.210	0.131
JC SEG-1 DOWN	6/19/07	9:05	1	222,200	155	2.25	0.1886	0.36	10.60	142	61	1.02	0.38	37.25	0.6400	2.374	1.4898	0.22397	0.14053	43,485	27,285	0.196	0.123
		9:14	2	222,200	187	2.25	0.1886	0.29	10.32	179	64	1.13	0.49	43.36	0.6400	3.160	1.7900	0.30630	0.17348	59,471	33,682	0.268	0.152
		9:24	3	222,200	186	2.25	0.1886	0.31	10.80	194	62	0.81	0.31	38.27	0.5000	2.535	1.5645	0.23473	0.14489	45,575	28,133	0.205	0.127

[a] sample flagged due to high amount of sand in sample

APPENDIX G

Wekiva PLRG - AVERAGE PARTICULATE EXPORT - Summer 2007

Segment	Date	Station	Dry Matter (g/d)	Organic Matter (g/d)	Dry Matter (g/m^2/d)	Organic Matter (g/m^2/d)
WR-SEG1	7/31/07	UP	8,542	5,138	0.54	0.33
		DOWN	31,661	12,280	0.90	0.35
		Segment	23,118	7,142	1.19	0.37
	8/15/07	UP	9,869	5,687	0.63	0.36
		DOWN	71,066	26,805	2.02	0.76
		Segment	61,198	21,117	3.14	1.08
WR-SEG2	8/1/07	UP	35,579	18,857	0.06	0.03
		DOWN	17,934	11,601	0.02	0.02
		Segment	-17,645	-7,256	-0.20	-0.08
	8/16/07	UP	32,115	19,202	0.05	0.03
		DOWN	35,299	22,081	0.05	0.03
		Segment	3,185	2,880	0.04	0.03
RSR-SEG1	8/23/07	UP	14,649	9,206	0.23	0.15
		DOWN	6,191	4,303	0.07	0.05
		Segment	-8,458	-4,904	-0.33	-0.19
	9/6/07	UP	35,471	19,189	0.57	0.31
		DOWN	25,272	17,256	0.29	0.20
		Segment	-10,199	-1,932	-0.40	-0.08
RSR-SEG2	8/22/07	UP	31,169	18,230	0.09	0.05
		DOWN	41,009	26,019	0.10	0.06
		Segment	9,840	7,789	0.20	0.16
	9/5/07	UP	50,069	34,039	0.14	0.09
		DOWN	38,346	25,961	0.09	0.06
		Segment	-11,723	-8,078	-0.24	-0.17
ASC-SEG1	7/31/07	UP	21,226	14,171	0.27	0.18
		DOWN	10,228	6,213	0.08	0.05
		Segment	-10,998	-7,957	-0.23	-0.17
	8/15/07	UP	19,523	13,029	0.25	0.17
		DOWN	7,326	5,081	0.06	0.04
		Segment	-12,197	-7,947	-0.26	-0.17
JC-SEG1	8/22/07	UP	48,868	34,328	0.23	0.16
		DOWN	40,484	25,601	0.18	0.12
		Segment	-8,384	-8,727	-1.39	-1.44
	9/5/07	UP	29,709	17,946	0.14	0.08
		DOWN	38,622	24,008	0.17	0.11
		Segment	8,913	6,061	1.47	1.00

Segment	Area (m^2)
WR-SEG1	19,469
WR-SEG2	86,640
RSR-SEG1	25,381
RSR-SEG2	48,018
ASC-SEG1	47,655
JC-SEG1	6,043

APPENDIX G
Wekiva PLRG - AVERAGE PARTICULATE EXPORT - Summer 2007

Segment	Date	Start Time	Sample #	Upstream Area (m^2)	Time of Tow (s)	Flow Rate (m^3/s)	Net Area (m^2)	Water Velocity (m/s)	Volume Filtered (m^3)	Total Sample Volume (mL)	Laboratory Analysis: Vol. Dried (mL)	Laboratory Analysis: Dry Wt. (g)	Laboratory Analysis: Ash Wt. (g)	Laboratory Analysis: % Ash	Laboratory Analysis: Ash-Free Dry Wt. (g)	Total Sample: Dry Wt. (g)	Total Sample: Ash-Free Dry Wt. (g)	Dry Matter (g/m^3)	Organic Matter (g/m^3)	Dry Matter (g/d)	Organic Matter (g/d)	Dry Matter (g/m^2/d)	Organic Matter (g/m^2/d)
ASC SEG-1 DOWN	7/31/07	10:03	1	124,960	300	2.59	0.1886	0.09	4.82	58	58	0.25	0.10	40.00	0.1500	0.250	0.1500	0.05187	0.03112	11,629	6,977	0.093	0.056
		10:10	2	124,960	299	2.59	0.1886	0.10	5.49	73	66	0.25	0.09	36.00	0.1600	0.277	0.1770	0.05033	0.03221	11,284	7,222	0.090	0.058
		10:27	3	124,960	301	2.59	0.1886	0.11	6.06	60	60	0.21	0.09	42.86	0.1200	0.210	0.1200	0.03466	0.01981	7,771	4,441	0.062	0.036
ASC SEG-1 UP	7/31/07	11:09	1	77,305	236	2.59	0.1886	0.24	10.83	102	58	0.59	0.23	38.98	0.3600	1.038	0.6331	0.09581	0.05846	21,480	13,106	0.278	0.170
		11:18	2	77,305	145	2.59	0.1886	0.23	6.35	60	60	0.57	0.18	31.58	0.3900	0.570	0.3900	0.08976	0.06142	20,125	13,770	0.260	0.178
		11:30	3	77,305	148	2.59	0.1886	0.24	6.83	84	60	0.48	0.14	29.17	0.3400	0.672	0.4760	0.09845	0.06974	22,074	15,636	0.286	0.202
WR SEG-1 DOWN	7/31/07	14:19	1	35,252	123	1.36	0.1886	0.15	3.52	112	66	0.56	0.34	60.71	0.2200	0.950	0.3733	0.26974	0.10597	31,795	12,491	0.902	0.354
		14:29	2	35,252	120	1.36	0.1886	0.19	4.35	134	66	0.53	0.33	62.26	0.2000	1.076	0.4061	0.24719	0.09328	29,137	10,995	0.827	0.312
		14:39	3	35,252	109	1.36	0.1886	0.14	2.82	112	70	0.51	0.31	60.78	0.2000	0.816	0.3200	0.28885	0.11328	34,049	13,353	0.966	0.379
WR SEG-1 UP	7/31/07	16:00	1	15,783	135	1.36	0.1886	0.15	3.88	57	57	0.20	0.10	50.00	0.1000	0.200	0.1000	0.05155	0.02578	6,077	3,038	0.385	0.193
		16:08	2	15,783	160	1.36	0.1886	0.08	2.30	52	52	0.27	0.11	40.74	0.1600	0.270	0.1600	0.11744	0.06959	13,843	8,203	0.877	0.520
		16:19	3	15,783	173	1.36	0.1886	0.16	5.37	69	69	0.26	0.07	26.92	0.1900	0.260	0.1900	0.04842	0.03538	5,708	4,171	0.362	0.264
WR SEG-2 DOWN	8/1/07	8:26	1	719,033	255	3.28	0.1886	*0.10*	4.93	78	66	0.28	0.12	42.86	0.1600	0.331	0.1891	0.06715	0.03837	19,038	10,879	0.026	0.015
		8:35	2	719,033	255	3.28	0.1886	*0.10*	4.93	76	64	0.28	0.13	46.43	0.1500	0.333	0.1781	0.06750	0.03616	19,137	10,252	0.027	0.014
		8:43	3	719,033	246	3.28	0.1886	*0.10*	4.75	72	66	0.24	0.03	12.50	0.2100	0.262	0.2291	0.05512	0.04823	15,626	13,673	0.022	0.019
WR SEG-2 UP	8/1/07	9:28	1	632,393	130	3.28	0.1886	0.27	6.52	97	68	0.63	0.30	47.62	0.3300	0.899	0.4707	0.13778	0.07217	39,061	20,461	0.062	0.032
		9:34	2	632,393	116	3.28	0.1886	0.27	5.80	91	65	0.54	0.25	46.30	0.2900	0.756	0.4060	0.13043	0.07005	36,979	19,859	0.058	0.031
		9:41	3	632,393	123	3.28	0.1886	0.27	6.15	81	62	0.51	0.24	47.06	0.2700	0.666	0.3527	0.10828	0.05732	30,697	16,251	0.049	0.026
ASC SEG-1 DOWN	8/15/07	10:11	1	124,960	243	2.12	0.1886	0.07	3.07	58	58	0.12	0.04	33.33	0.0800	0.120	0.0800	0.03910	0.02607	7,153	4,768	0.057	0.038
		10:24	2	124,960	291	2.12	0.1886	0.08	4.36	55	55	0.12	0.03	25.00	0.0900	0.120	0.0900	0.02755	0.02066	5,040	3,780	0.040	0.030
		10:36	3	124,960	309	2.12	0.1886	0.06	3.55	58	58	0.19	0.06	31.58	0.1300	0.190	0.1300	0.05349	0.03660	9,785	6,695	0.078	0.054
ASC SEG-1 UP	8/15/07	11:18	1	77,305	179	1.85	0.1886	0.19	6.28	74	69	0.66	0.23	34.85	0.4300	0.708	0.4612	0.11275	0.07346	18,016	11,738	0.233	0.152
		11:29	2	77,305	168	1.85	0.1886	0.16	5.11	69	69	0.66	0.21	31.82	0.4500	0.660	0.4500	0.12913	0.08804	20,634	14,069	0.267	0.182
		11:36	3	77,305	153	1.85	0.1886	0.20	5.62	110	66	0.42	0.14	33.33	0.2800	0.700	0.4667	0.12465	0.08310	19,919	13,279	0.258	0.172
WR SEG-1 DOWN	8/15/07	15:30	1	35,252	117	1.34	0.1886	0.12	2.55	114	66	0.99	0.63	63.64	0.3600	1.710	0.6218	0.66967	0.24352	77,808	28,294	2.207	0.803
		15:37	2	35,252	103	1.34	0.1886	0.13	2.48	118	68	0.74	0.46	62.16	0.2800	1.284	0.4859	0.51866	0.19625	60,262	22,802	1.709	0.647
		15:44	3	35,252	92	1.34	0.1886	0.12	2.00	109	69	0.82	0.50	60.98	0.3200	1.295	0.5055	0.64662	0.25234	75,129	29,319	2.131	0.832
WR SEG-1 UP	8/15/07	16:45	1	15,783	180	1.38	0.1886	0.05	1.87	44	44	0.07	0.00	0.00	0.0700	0.070	0.0700	0.03751	0.03751	4,484	4,484	0.284	0.284
		16:52	2	15,783	242	1.38	0.1886	0.05	2.50	44	44	0.09	0.04	44.44	0.0500	0.090	0.0500	0.03595	0.01997	4,297	2,387	0.272	0.151
		16:59	3	15,783	235	1.38	0.1886	0.06	2.70	66	66	0.47	0.24	51.06	0.2300	0.470	0.2300	0.17421	0.08525	20,825	10,191	1.319	0.646
WR SEG-2 DOWN	8/16/07	9:30	1	719,033	275	3.28	0.1886	0.04	2.21	47	47	0.23	0.09	39.13	0.1400	0.230	0.1400	0.10397	0.06329	29,477	17,942	0.041	0.025
		9:40	2	719,033	318	3.28	0.1886	0.04	2.38	63	63	0.31	0.12	38.71	0.1900	0.310	0.1900	0.13047	0.07996	36,988	22,670	0.051	0.032
		9:50	3	719,033	316	3.28	0.1886	0.04	2.18	44	29	0.20	0.07	35.00	0.1300	0.303	0.1972	0.13909	0.09041	39,433	25,631	0.055	0.036
WR SEG-2 UP	8/16/07	10:43	1	632,393	180	2.62	0.1886	0.11	3.72	75	65	0.46	0.17	36.96	0.2900	0.531	0.3346	0.14258	0.08989	32,222	20,314	0.051	0.032
		10:51	2	632,393	151	2.62	0.1886	0.14	4.07	82	66	0.57	0.25	43.86	0.3200	0.708	0.3976	0.17419	0.09779	39,366	22,100	0.062	0.035
		10:58	3	632,393	143	2.62	0.1886	0.15	4.02	66	66	0.44	0.17	38.64	0.2700	0.440	0.2700	0.10954	0.06722	24,756	15,191	0.039	0.024
JC SEG-1 DOWN	8/22/07	9:41	1	222,200	148	2.57	0.1886	0.23	6.37	69	68	1.01	0.40	39.60	0.6100	1.025	0.6190	0.16080	0.09712	35,648	21,530	0.160	0.097
		9:48	2	222,200	137	2.57	0.1886	0.21	5.35	74	66	0.97	0.34	35.05	0.6300	1.088	0.7064	0.20316	0.13195	45,038	29,251	0.203	0.132
		9:56	3	222,200	121	2.57	0.1886	0.23	5.21	55	54	0.94	0.34	36.17	0.6000	0.957	0.6111	0.18388	0.11737	40,766	26,021	0.183	0.117
JC SEG-1 UP	8/22/07	10:35	1	216,157	92	2.68	0.1886	0.36	6.29	88	62	0.99	0.37	37.37	0.6200	1.405	0.8800	0.22330	0.13985	51,639	32,339	0.239	0.150
		10:43	2	216,157	80	2.68	0.1886	0.43	6.49	94	67	0.98	0.41	41.84	0.5700	1.375	0.7997	0.21175	0.12316	48,967	28,481	0.227	0.132
		10:48	3[a]	216,157	65	2.68	0.1886	0.38	4.66	85	66	0.72	0.06	8.33	0.6600	0.927	0.8500	0.19890	0.18233	45,997	42,164	0.213	0.195
RSR SEG-2 DOWN	8/22/07	14:29	1	412,114	121	0.91	0.1886	0.25	5.72	198	68	1.06	0.37	34.91	0.6900	3.086	2.0091	0.53925	0.35102	42,587	27,722	0.103	0.067
		14:36	2	412,114	91	0.91	0.1886	0.23	3.86	189	67	0.74	0.28	37.84	0.4600	2.087	1.2976	0.54063	0.33607	42,696	26,541	0.104	0.064
		14:45	3	412,114	76	0.91	0.1886	0.24	3.44	232	65	0.46	0.17	36.96	0.2900	1.642	1.0351	0.47791	0.30129	37,743	23,794	0.092	0.058
RSR SEG-2 UP	8/22/07	15:31	1	364,096	92	1.18	0.1886	0.38	6.55	174	68	0.68	0.28	41.18	0.4000	1.740	1.0235	0.26554	0.15620	27,084	15,932	0.074	0.044
		15:38	2	364,096	71	1.18	0.1886	0.34	4.54	249	66	0.44	0.19	43.18	0.2500	1.660	0.9432	0.36600	0.20795	37,331	21,211	0.103	0.058
		15:44	3	364,096	73	1.18	0.1886	0.39	5.34	157	65	0.63	0.25	39.68	0.3800	1.522	0.9178	0.28521	0.17203	29,091	17,547	0.080	0.048
RSR SEG-1 DOWN	8/23/07	9:30	1	88,145	188	1.14	0.1886	0.10	3.46	41	41	0.21	0.06	28.57	0.1500	0.210	0.1500	0.06070	0.04336	5,985	4,275	0.068	0.049
		9:38	2	88,145	241	1.14	0.1886	0.09	4.30	52	52	0.28	0.10	35.71	0.1800	0.280	0.1800	0.06513	0.04187	6,422	4,128	0.073	0.047
		9:46	3	88,145	241	1.14	0.1886	0.09	4.16	54	54	0.26	0.07	26.92	0.1900	0.260	0.1900	0.06253	0.04569	6,165	4,505	0.070	0.051
RSR SEG-1 UP	8/23/07	10:56	1	62,764	74	1.08	0.1886	0.38	5.24	101	66	0.54	0.22	40.74	0.3200	0.826	0.4897	0.15762	0.09340	14,770	8,752	0.235	0.139
		11:03	2	62,764	62	1.08	0.1886	0.34	4.02	87	65	0.36	0.11	30.56	0.2500	0.482	0.3346	0.11995	0.08330	11,240	7,805	0.179	0.124
		11:11	3	62,764	65	1.08	0.1886	0.38	4.60	94	64	0.60	0.23	38.33	0.3700	0.881	0.5434	0.19143	0.11805	17,938	11,062	0.286	0.176
JC SEG-1 DOWN	9/5/07	10:04	1	222,200	159	2.64	0.1886	0.25	7.60	91	61	0.82	0.29	35.37	0.5300	1.223	0.7907	0.16106	0.10410	36,731	23,741	0.165	0.107
		10:12	2	222,200	125	2.64	0.1886	0.27	6.23	95	62	0.70	0.27	38.57	0.4300	1.073	0.6589	0.17206	0.10570	39,241	24,105	0.177	0.108
		10:20	3	222,200	121	2.64	0.1886	0.23	5.15	86	63	0.66	0.26	39.39	0.4000	0.901	0.5460	0.17492	0.10601	39,892	24,177	0.180	0.109
JC SEG-1 UP	9/5/07	10:55	1	216,157	120	2.34	0.1886	0.21	4.70	79	68	0.61	0.23	37.70	0.3800	0.709	0.4415	0.15078	0.09393	30,481	18,988	0.141	0.088
		11:02	2	216,157	126	2.34	0.1886	0.22	5.22	95	64	0.49	0.21	42.86	0.2800	0.727	0.4156	0.13944	0.07968	28,188	16,108	0.130	0.075
		11:09	3	216,157	125	2.34	0.1886	0.19	4.45	76	59	0.52	0.20	38.46	0.3200	0.670	0.4122	0.15067	0.09272	30,458	18,743	0.141	0.087
RSR SEG-2 DOWN	9/5/07	15:10	1	412,114	109	1.25	0.1886	0.20	3.99	130	61	0.68	0.22	32.35	0.4600	1.449	0.9803	0.36289	0.24548	39,267	26,563	0.095	0.064
		15:18	2	412,114	100	1.25	0.1886	0.17	3.22	110	60	0.71	0.23	32.39	0.4800	1.302	0.8800	0.40428	0.27332	43,746	29,575	0.106	0.072
		15:25	3	412,114	122	1.25	0.1886	0.20	4.56	100	60	0.81	0.26	32.10	0.5500	1.350	0.9167	0.29594	0.20095	32,023	21,744	0.078	0.053
RSR SEG-2 UP	9/5/07	16:18	1	364,096	118	1.27	0.1886	0.18	3.99	128	66	1.04	0.32	30.77	0.7200	2.017	1.3964	0.50563	0.35005	55,654	38,529	0.153	0.106
		16:24	2	364,096	92	1.27	0.1886	0.23	4.05	151	70	0.86	0.28	32.56	0.5800	1.855	1.2511	0.45811	0.30896	50,423	34,006	0.138	0.093
		16:30	3	364,096	94	1.27	0.1886	0.24	4.20	111	60	0.91	0.30	32.97	0.6100	1.683	1.1285	0.40093	0.26875	44,129	29,581	0.121	0.081
RSR SEG-1 DOWN	9/6/07	9:31	1	88,145	183	1.21	0.1886	0.08	2.73	87	64	0.81	0.25	30.86	0.5600	1.101	0.7613	0.40340	0.27889	42,099	29,105	0.478	0.330
		9:39	2	88,145	173	1.21	0.1886	0.09	2.98	63	63	0.50	0.18	36.00	0.3200	0.500	0.3200	0.16761	0.10727	17,492	11,195	0.198	0.127
		9:47	3	88,145	171	1.21	0.1886	0.12	3.73	51	51	0.58	0.17	29.31	0.4100	0.580	0.4100	0.15547	0.10990	16,224	11,469	0.184	0.130
RSR SEG-1 UP	9/6/07	11:01	1	62,764	88	1.35	0.1886	0.24	4.02	82	63	1.04	0.48	46.15	0.5600	1.354	0.7289	0.33700	0.18146	39,345	21,186	0.627	0.338
		11:08	2	62,764	63	1.35	0.1886	0.38	4.48	79	64	0.96	0.47	48.96	0.4900	1.185	0.6048	0.26454	0.13503	30,885	15,764	0.492	0.251
		11:15	3	62,764	62	1.35	0.1886	0.35	4.08	94	64	0.86	0.37	43.02	0.4900	1.263	0.7197	0.30992	0.17658	36,183	20,616	0.576	0.328

[a] lost sample